

January 18, 1988

Mr. David Catanach New Mexico Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico 87501 Selfor Human

Re: Application for Administrative Approval to Down Hole Commingle Schlosser WN Federal 1R-1850' FNL, 790' FWL, Sec 10-T27N-R11W and Schlosser WN Federal 2R-1835' FSL, 1720' FWL, Sec 3-T27N-R11W San Juan County, New Mexico

Dear Mr. Catanach:

ARCO Oil and Gas Company hereby requests exception to Rule 303-A as provided for in Rule 303-C to permit wellbore commingling of gas production from the Dakota formation (Basin Dakota Gas Pool) with oil production from the Gallup formation (Kutz Gallup Oil Pool) in the above referenced wells. Data pertinent to downhole commingling as required in Rule 303-C is discussed below.

The subject wells are currently completed in the Dakota formation. The #1R is producing from perforations at 6615'-6662' and the #2R is producing from the intervals 6605'-6646' and 6648'-6654'. ARCO proposes to recomplete these wells to the Gallup formation and commingle production from both zones in the wellbore. Proposed Gallup perforations in the #1R consist of selected intervals from 5788'-5980'. The #2R Gallup perforations will be similar intervals Rule 303-C sets limits on the maximum oil from 5802'-6044'. production rate which is eligible for commingling under Based on the depth of the proposed bottom administrative order. perforation in the oil pool (5980' in the #1R, 6044' in the #2R), this limiting rate would equal 30 BOPD for the #1R and 40 BOPD for the Projected rates for the proposed Gallup recompletions are uncertain due to various factors. Offset Gallup producers were completed in the late 1950's to early 1960's. Completion technology was not as fully developed at this time and the current reservoir pressure may be considerably lower than the initial value. If the oil rates achieved after recompletion to the Gallup are in excess of the allowable rates for commingling under Rule 303-C, commingling would not occur until the rates declined to allowable values or until an order granting permission is obtained through a commission hearing.

Although there is a chance that the Gallup may flow naturally, it is more likely that artificial lift will be required. If this is the case, the commingled production would be artificially lifted using either a plunger lift system or by rod pumping. Neither zone to be

Mr. David Catanach January 18, 1988 Page two

commingled is expected to produce more water than the oil limit discussed above. It is anticipated that the fluids from each zone will be compatible and that the combination of these fluids will not result in the formation of precipitates which might damage the reservoirs. The total value of the crude will not be reduced by commingling nor is it expected that the efficiency of present or future secondary recovery operations will be jeopardized.

The bottom-hole pressure of the Dakota in this area is estimated at approximately 1000 psi. The anticipated Gallup reservoir pressure is less certain but may be in the range of 1500-2000 psi. Based on these estimates, the bottom-hole pressure of the lower pressured zone would be greater than 50% of the bottom-hole pressure of the higher pressured zone as required by Rule 303-C. However, to insure that there would be no crossflow of Gallup oil to the Dakota formation, ARCO plans to install an assembly between the Gallup and Dakota formations consisting of a retrievable packer, pup joint, and left-hand release on-off tool with a downhole check valve in place in the profile of the on-off tool. This will allow Dakota gas to enter the wellbore once the Gallup is pumped off but will prevent fluid flow from above the packer into the Dakota formation below.

Attached is a plat of the area showing the acreage dedicated to the wells and the offsetting lease operators, a current 24-hour productivity test on Division Form C-116 and production curves for the Dakota zone in each well, and a gas analysis of produced Dakota gas from each well. This data is not available for the Gallup zone since the subject wells have not yet been recompleted.

As required in Rule 303-C, the ownership of the Gallup and Dakota formations is common. Also, the offset operators listed below as well as the U.S. Geological Survey have been notified in writing concurrent with the mailing of this application.

R&G Drilling Company c/o Walsh Engineering & Production Corp. P. O. Drawer 419 Farmington, New Mexico 87499

Meridian Oil Inc. P. O. Box 4289 Farmington, New Mexico 87499

Copy, or by by 32000

Mr. David Catanach January 18, 1988 Page three

> Marathon Oil Company P. O. Box 552 Midland, Texas 79702

Chevron USA, Inc. P. 0. Box 670 Hobbs, New Mexico 88240 Attn: G. C. Hollingsworth

Tenneco Oil Company P. O. Box 3249 Englewood, Colorado 80155

BHP Petroleum (Americas), Inc. 5613 DTC Parkway Suite 600 Englewood, Colorado 80111

U. S. Geological Survey Geologic Division P. O. Box 25046 Denver, Colorado 80225

ARCO Oil and Gas Company respectfully requests approval of this application to commingle. If questions should arise, please contact Mark McWherter at (915) 688-5231.

Sincerely,

J. M. McCarthy

District Production Superintendent

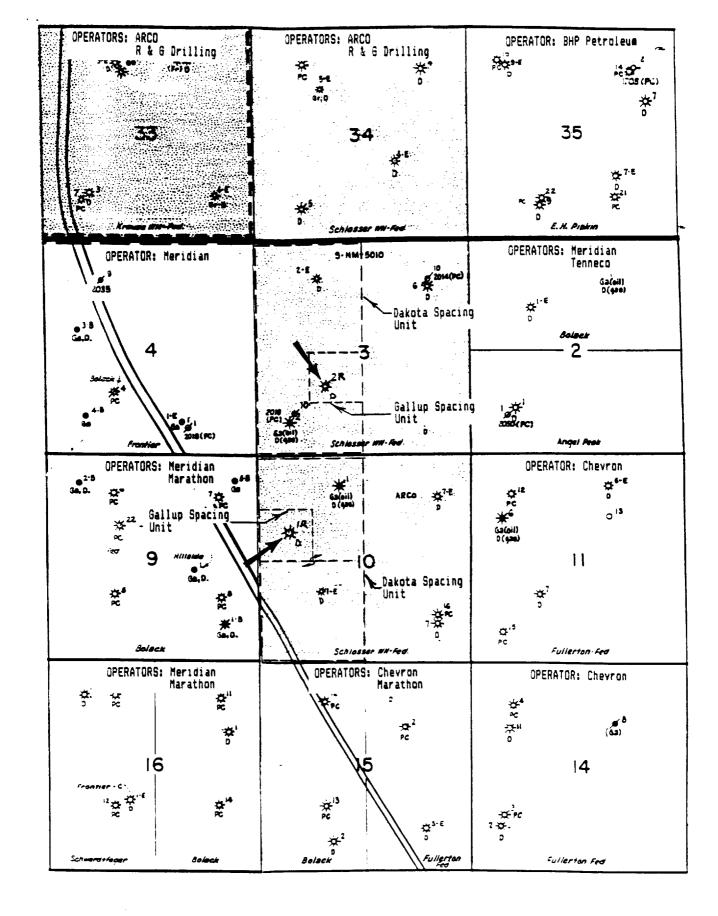
JMM/MDM: lal

cc: Mr. Ernie Busch

New Mexico Oil Conservation Division

1000 Rio Brazos Road

Aztec, New Mexico 87410



ARCD Oil and Gas Company

Proposed Wellbore Commingling Schlosser WN Federal 1R & 2R Sections 3 & 10, T27N-R11W San Juan County, New Mexico

# NEW MEXICO OIL CONSERVATION COMMISSION GAS-OIL RATIO TESTS

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Mail original and one copy of this report to the district office of the New Mexico Oll Conservation Commission in accordance with Rule 365 and appropriate poet rules. Ches volumes much be reported in INCF messured at a pressure here of 15.025 pale and a temperature of 60° F. Specific gravity base will be 4.40. Report exalting pressure in New of tubing pressure for may well graducing through anning.

Engr. Tech.

1/14/88

(Tide)

# NEW MEXICO OIL CONSERVATION COMMISSION GAS-OIL RATIO TESTS

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During gas-all ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the post in which well is ferested by more than 25 percent tolerance in order that well can be assigned tageressed allowables when authorized by the Commission.

Report sector presume in lieu of tubing pressure for any well producing through casing. \*\*\* \*\* 0.66.

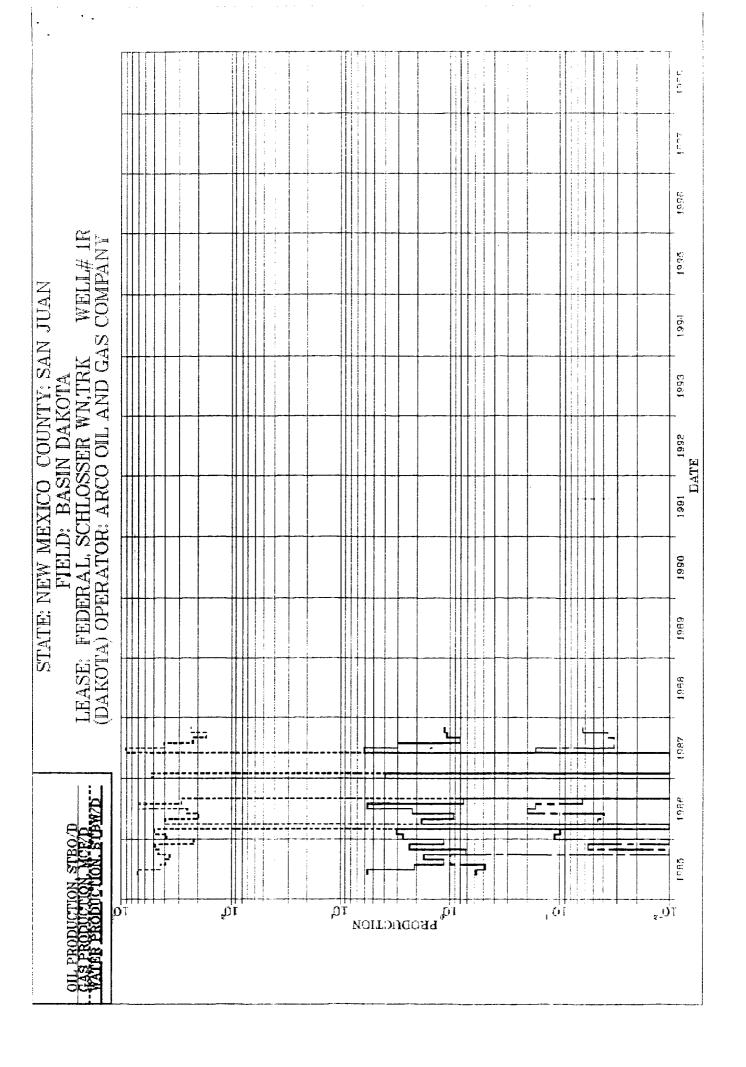
Gos volumes timed he reported in MCF messured at a pressure have of 15,025 pale and a temperature of 60° F. Specific gravity has a

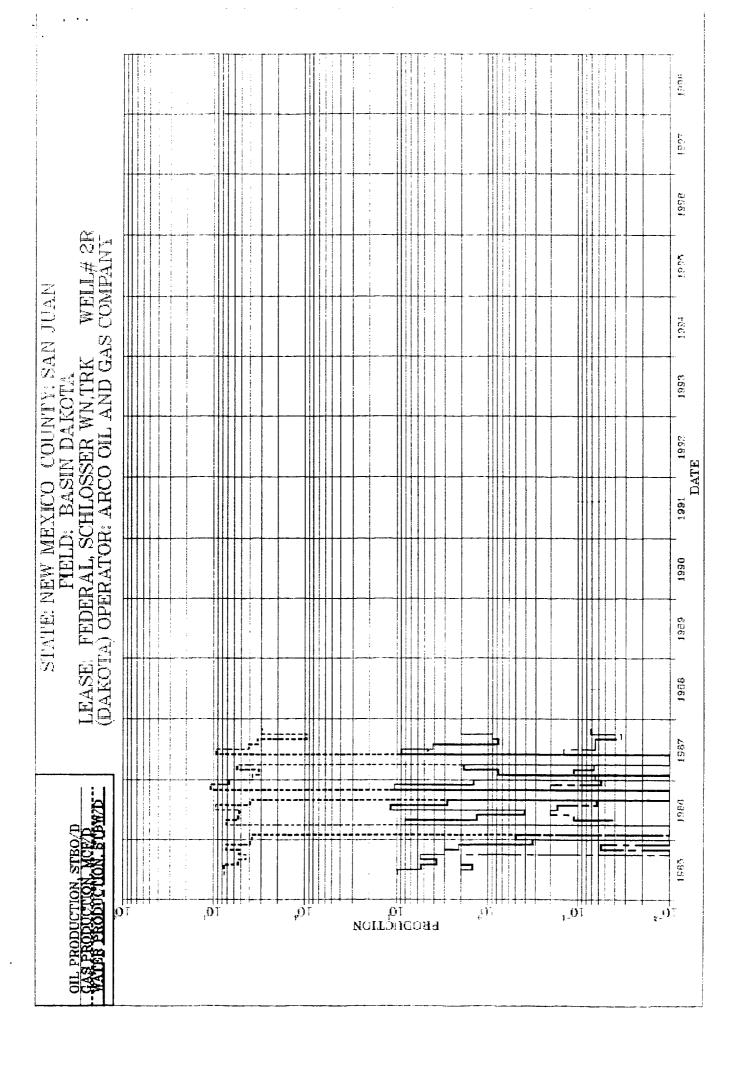
Mail eriginal and one angy of this report to the district office of the New Montes Olf Conservation Commission in accordance with Rule 361 and appripriate pool rules.

B. C. Statelman (Tide) Engr. Tech.

1/14/88

ledge and belief.





## ARCO Oil and Gas Company Downhole Commingling Application Schlosser WN Federal #1R and #2R San Juan County, New Mexico

## Gas Analyses

L-6 <b>-</b> 87	1-7-87
95261	95267

Component	Normal Mol %	Normal Mol %
CO <sub>2</sub>	•98	.96
$N_2$	.88	.85
Methane	83.95	80.10
Ethane	9.73	11.07
Propane	2.85	4.26
Iso-butane	.42	•72
Normal-butane	• 56	1.02
Iso-pentane	.22	.36
Normal-pentane	.15	.26
Hexane plus	.26	.40
	100.00	100.00
Specific Gravity Mixture Heating Value	.672	.712
(BTU/CF @ 14.73 psig, 60°F, Dry)	1158	1121



January 18, 1988

U. S. Geological Survey Geologic Division P. O. Box 25046 Denver, Colorado 80225

Re: Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

### Gentlemen:

The purpose of this letter is to notify you that ARCO Oil and Gas Company has applied to the New Mexico Oil Conservation Division pursuant to Rule 303-C to downhole commingle production from the Gallup and Dakota formations in the above referenced wells. If you have no objection to the proposed commingling, please sign the waiver at the bottom of this page and forward to:

Mr. David Catanach New Mexico Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico 87501

We would appreciate your returning one copy to the undersigned. If questions should arise, please contact Mark McWherter at (915) 688-5231.

Sincerely,

J. M. McCarthy

District Production Superintendent

JMM/MDM: lal

cc: / Mr. David Catanach

NMOCD

P. 0. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

U.	S. Geol	logica	1 Surve	y hereby	waives	objection	to	ARCO's	application
to	comming	jle as	set fo	rth above	·				

by		Date:
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January 18, 1988

BHP Petroleum (Americas), Inc. 5613 DTC Parkway Suite 600 Englewood, Colorado 80111

Re: Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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District Production Superintendent

JMM/MDM: lal

cc: Mr. David Catanach

NMOCD

P. O. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

**NMOCD** 

1000 Rio Brazos Road Aztec, New Mexico 87410

### WAIVER

BHP Petroleum (Americas), Inc. waives objection to ARCO's application to commingle as set forth above.

By:	Nate.
Uy•	Date:



January 18, 1988

Tenneco Oil Company
P. O. Box 3249
Englewood, Colorado 80155

Re: Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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District Production Superintendent

JMM/MDM: lal

cc: / Mr. David Catanach

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P. O. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

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1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

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Ву:	 Date:



January 18, 1988

Chevron USA, Inc. P. 0. Box 670 Hobbs, New Mexico 88240 Attn: G. C. Hollingsworth

Re: Request for Waiver of Objection; Downhole Commingling

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J. M. McCarthy

District Production Superintendent

JMM/MDM: lal

cc: < Mr. David Catanach

NMOCD

P. O. Box 2088

Santa Fe. New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

Chevron USA, Inc. waives objection to ARCO's application to commingle as set forth above.

By:	Date:



January 18, 1988

Marathon Oil Company P. O. Box 552 Midland, Texas 79702

Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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Sincerely.

J. M. McCarthy

District Production Superintendent

JMM/MDM: lal

cc: / Mr. David Catanach

NMOCD

P. 0. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

Marathon Oil Company waives objection to ARCO's application to commingle as set forth above.

Ву:	Date:



January 18, 1988

Meridian Oil Inc. P. O. Box 4289 Farmington, New Mexico 87499

Re: Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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Sincerely,

J. M. McCarthy

District Production Superintendent

JMM/MDM: lal

cc: / Mr. David Catanach

NMOCD

P. O. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

Meridian	0i 1	Inc.	hereby	waives	objection	to	ARCO's	application	to
commingle	as	set f	orth abo	ove.				• •	

Ву:	Date:

January 18, 1988



R&G Drilling Company c/o Walsh Engineering & Production Corp. P. O. Drawer 419 Farmington, New Mexico 87499

Re: Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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Sincerely,

J. M. McCarthy
District Production Superintendent

JMM/MDM: lal

cc: ✓ Mr. David Catanach NMOCD

P. 0. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

R&G Drilling Company hereby waives objection to ARCO's application to commingle as set forth above.

By:	Date:
BV:	Date:
- y ·	

January 18, 1988





R&G Drilling Company c/o Walsh Engineering & Production Corp. P. O. Drawer 419 Farmington, New Mexico 87499

Request for Waiver of Objection; Downhole Commingling Schlosser WN Federal 1R, NW/4 Sec. 10-T27N-R11W, San Juan Co., NM Schlosser WN Federal 2R, SW/4 Sec. 3-T27N-R11W, San Juan Co., NM

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Sincerely,

J. M. McCarthy

District Production Superintendent

JMM/MDM: lal

cc: Mr. David Catanach

NMOCD

P. O. Box 2088

Santa Fe, New Mexico 87501

Mr. Ernie Busch

NMOCD

1000 Rio Brazos Road

Aztec, New Mexico 87410

### WAIVER

R&G Drilling Company hereby waives objection to ARCO's application to commingle as set forth above.

FOR: R & G DRILLING COMPANY

Ewell N. Walsh, President

Walsh Engr. & Prod. Corp.

Date: January 28, 1988



# STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD AZTEC, NEW MEXICO 87410 (505) 334-6178

OIL CONSERVATION DIVISION BOX 2088 SANTA FE, NEW MEXICO 87501  DATE 1-28-88	FEB - [ 1988	
RE: Proposed MC	Market in a province of the control	
Gentlemen:		
I have examined the applicatio	n dated 1-25-88	
for the ARCO O:1+Gas Co. Operator	Schlesser WN FED#2R Schlesser WN FED# IR Lease and Well No.	F-3-27N11W E-10-27N11W Unit, S-T-R
0perator	Lease and Well No.	Unit, S-T-R
and my recommendations are as	follows:	
A DO soul	District will betern	- ·
allocation after	District will determ	
	/	
Yours truly,		

pt well	*	ARCO Cit & bas Co. Schlesser "W.N. Frid, Willick 190 FNA - 1980 FANA Sport: 1012/59 Boutly Compiled Busin Dako. R-1577 Will Paried Cut. 1987 Busin Da St. Sipi. 1985 Gulle Commulative Production	ta bas / Kula Gallip Oil Peil 220in 55 Sept. 1885 Ballipp
1850 FAL Speed: 12/1 Basin Dal Cammulat	WO'FER WOUNDER IR		6.5 0.1
	*		
PC			

### CHA CHA-GALLUP POOL San Juan County, New Mexico

Order No. R-1800, October 3, 1960, Establishing Pool, as Amended by Order No. R-1825, November 21, 1960; Order No. R-1858, February 1, 1961; Order No. R-1879, March 1, 1961; Order No. R-1968, April 1, 1961; Order No. R-1943, May 1, 1961; Order No. R-1968, April 1, 1961; Order No. R-2000, July 1, 1961; Order No. R-2048, September 1, 1961; Order No. R-2063, October 1, 1961; Order No. R-2102, November 1, 1961; Order No. R-2140, January 1, 1962; Order No. R-2173, February 1, 1962; Order No. R-2188, March 1, 1962; Order No. R-2222, May 1, 1962; Order No. R-2364, December 1, 1962; Order No. R-2398, January 1, 1963; Order No. R-2570, October 1, 1963; Order No. R-2603, December 1, 1963; Order No. R-5843, December 1, 1978; Order No. R-6327, May 1, 1980, Order No. R-6886, January 1, 1982; Order No. R-7046, August 1, 1982; Order No. R-7420, January 1, 1984.

T 28-N, R 12-W W/2 Sec. 29; N/2 Sec. 30. T 28 N, R-13 W Secs. 7, 8, 9; W/2 SW/4 Sec. 14; S/2, S/2 NW/4 Sec. 15; Secs. 16, 17; NE/4, E/2 SE/4 Sec. 21; W/2 SW/4, N 2 Sec. 22; Sec. 23; SW/4, S/2 SE/4 Sec. 24; E/2 NE/4 Sec. 25; N 2 NW/4 Sec. 26.

N 2 NW/4 Sec. 26.

T 29-N, R-13-W S/2 SW/4, SW/4 SE/4 Sec. 30; S/2, NW/4, W/2 NE/4 Sec. 31; SW/4 Sec. 32.

T/29-N, R-14-W S/2 S/2 Sec. 7; S/2, S/2 NW/4 Sec. 16; S/2, S/2 NW/4 Sec. 17; Sec. 18; N/2, E/2 SE/4 Sec. 20; Sec. 21; S/2, NW/4, W/2 NE/4 Sec. 22; S/2 SW/4, W/2 SE/4 Sec. 23; S/2, NW/4, W/2 NE/4 Sec. 25; Secs. 26, 27; N/2 Sec. 28; E/2 NE/4 Sec. 34; E/2, NW/4 Sec. 35; Sec. 36.

T/29-N, R-15-W S/2 SW/4 Sec. 1; E/2, E/2 NW/4 Sec. 11; S/2, NW/4 Sec. 12; NW/4, E/2 Sec. 13; N/2 Sec. 14.

BASIN-DAKOTA GAS POOL Rio Arriba, San Juan and Sandoval Counties, New Mexico

Order No. R-1670-C, February 1, 1961, Creating the Basin-Dakota Gas Pool, and Abolishing all Dakota Gas Pools Except Barker Creek-Dakota and Ute Dome-Dakota Gas Pools, Rio Arriba and San Juan Counties, New Mexico, as Amended by Order No. R-1879, March 1, 1961.

All San Juan and Rio Arriba Counties excepting Barker Creek-Dakota and Ute Dome-Dakota Gas Pools

T-23-N, R-5-W Sec. 21.

# OTERO-DAKOTA GAS POOL Rio Arriba County, New Mexico

Order No. R-739-A, March 14, 1956, Establishing Pool, as Amended by Order No. R-1018, June 28, 1957; Order No. R-1080, October 29, 1957; Order No. R-1175, May 26, 1958; Order No. R-1211, June 26, 1958; Order No. R-1373, April 21, 1959, Remarkable Policy Research R naming Pool.

New pool designated as Basin-Dakota Gas Pool established absorbing all Dakota pools abolished, including this, by Order No. R-1670-C, February 1, 1961.

### KUTZ-GALLUP POOL San Juan County, New Mexico

Order No. R-1825, November 21, 1960, Establishing Pool, as Amended by Order No. R-1858, February 1, 1961, Order No. R-1879, March 1, 1961; Order No. R-4292, May 1, 1972; Order No. R-5339, February 1, 1977; Order No. R-6886, January 1, 1982; Order No. R-8417, April 1, 1987.

T-27-N, R-10-W NW/4 Sec. 5; N/2 Sec. 6. T-27-N, R-11-W N/2, SW/4 Sec. 1; Sec. 2; SW/4 Sec. 3; S/2 NW/4, NW/4 NE/4 Sec. 4; Sec. 5; NE/4 NE/4 Sec. 6; N/2, SE/4 Sec. 9; N/2 Sec. 10; W/2, NE/4 Sec. 11; NW/4 Sec. 12; NW/4 SW/4 NE/4

Sec. 14. T 28-N, R-10-W SW/4 Sec. 32. T 28-N, R-11-W SE/4 Sec. 31; SW/4 Sec. 32.

### KUTZ:FRUITLAND GAS POOL San Juan County, New Mexico

Order No. R-1141, March 25, 1958, Establishing Pool, as A-mended by Order No. R-4260, March 1, 1972; Order No. R-4690, December 1, 1973; Order No. R-4963, March 1, 1975; Order No. R-5339, February 1, 1977; Order No. R-5470, July 1, 1977; Order No. R 5779, August 1, 1978; Order No. R 6180, November 1, 1979; Order No. R-7185, January 1, 1983; Order No. R-7495, April 1, 1984.

T-28·N, R-10·W NW/4 Sec. 26; N/2 Sec. 27; N/2 Sec. 28; N/2 Sec. 29; Sec. 30; N/2 Sec. 31. T-28·N, R-11·W W 2 Sec. 13; S/2, NE 4 Sec. 14; Sec. 23; NW 4 Sec. 24; N/2 Sec. 25; Secs. 26, 27; SE 4 Sec. 28; NE/4 Sec. 32; N/2 Sec. 33.

### LA PLATA GALLUP POOL San Juan County, New Mexico

Order No. R-1701, June 16, 1960, Establishing Pool, as Amended by Order No. R-3720, April 1, 1969; Order No. R-6180, November 1, 1979; Order No. R-7495, April 1, 1984

T-31-N, R-13-W NW/4, S/2 Sec. 5; SE/4, N/2 Sec. 6; T-32-N, R-13-W S/2 Sec. 31; N/2, SW/4 Sec. 32.

### RATTLESNAKE-PENNSYLVANIAN "B" GAS POOL San Juan County, New Mexico

Order No. R-2580, November 1, 1963, Establishing Pool.

Pool abolished by Order No. R-3057, May 1, 1966. Consolidated into Rattlesnake-Pennsylvanian "BCD". Oil. Pool.

### PUERTO CHIQUITO-MANCOS POOL Rio Arriba County, New Mexico

Order No. R-1653, April 19, 1960, Establishing Pool, as Amended by Order No. R-1682, May 20, 1960; Order No. R-2222, May 1, 1962; Order No. R-2242, June 1, 1962; Order No. R-2293, August 1, 1962, Order No. R-2340, November 1, 1962; Order No. R-2398, January 1, 1963; Order No. R-2486, June 1, 1963; Order No. R-2528, August 1, 1963; Order No. R-2565, September 9, 1963; Order No. R-2580, November 1, 1963.

Pool abolished by Order No. R-2565-B, November 28, 1966.