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Normal Unit

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Last Month, Cubic Feet Allowable Next Month, BPA

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Normal Unit

Allowable Next Month, BPD

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# El Paso Natural Gas Company

El Paso, Texas

April 1, 1959

Mr. John A. Anderson, Supervisor United States Geological Survey P. O. Box 6721 Roswell, New Mexico

Commissioner of Public Lands State of New Mexico Capitol Annex Building Santa Fe, New Mexico

Oil Conservation Commission State of New Mexico Capitol Annex Building Santa Fe, New Mexico

Re: RINCON UNIT I-SEC No. 916
WATER PRESSURE MAINTENANCE PROGRAM
Rio Arriba County, New Mexico
Tocito Formation & Participating Area

#### Gentlemen:

In accordance with Sections 13 and 16 of the above Unit Agreement, El Paso Natural Gas Company, as Unit Operator, hereby requests permission and approval to join with Caulkins Oil Company in a joint water pressure maintenance program for the South Blanco Tocito Pool.

A major portion of the South Blanco Tocito Pool is outside the boundaries of the Rincon Unit. Caulkins Oil Company as the operator of the majority of the producing acreage in the South Blanco Tocito Pool has already instituted and has been operating for some time a Pressure Maintenance Program on their acreage outside of the Rincon Unit. Exhibits A, B, C, D, E, F, and G are attached hereto and made a part of this application. Exhibit A shows the boundaries of the Rincon Unit with the Tocito participating area colored in red. Exhibit A also shows an isopachous map of the South Blanco Tocito Pool showing all wells drilled to the Tocito formation, wells which have already been converted to Water Injection wells and the proposed additional water injection wells, together with their lines and water storage facilities. Exhibit B shows the oil production history of the entire field while Exhibit C shows the Unit oil production history. Exhibit D shows the reservoir pressure history of the entire field. Exhibit E shows a summary of Rock and Fluid Characteristics. Exhibit F shows the water injection statistics in the field so far, while Exhibit G shows the oil well capacity and cumulative oil production.

Page 2 April 1, 1959

The South Blanco Tocito Pool is a small oil reservoir in which the oil is saturated with gas and which has a free gas cap. In order to conserve the reservoir energy, a water pressure maintenance program was started early in the life of the field. The New Mexico Oil Conservation Commission has by Order No. R-1191 already approved this water injection program insofar as it covers certain producing acreage outside of the Rincon Unit. Another application is being filed with the Oil Conservation Commission to enlarge the water pressure maintenance program to include Unit lands.

We propose to install a water injection line from Caulkins Oil Company Central Plant to connect with Caulkins Oil Company's T-123 well located in the NW/4 NE/4 of Section 7, Township 26 North, Range 6 West, and to also connect with El Paso Natural Gas Products Company's Rincon #11 well located in the SE/4 SW/4 of Section 6, Township 26 North, Range 6 West. These two wells will then be converted to water injection wells, and the allowable for the Rincon #11 well will be transferred to the Rincon #6 and #20 wells. The Rincon #6 and #20 wells would be retained as producing unit wells. Production from these two wells would be allocated to the Tocito Participating Area. No unit production would be given or allocated to any lands outside the Unit Area, nor would any production from wells outside the Unit be allocated to Unit lands.

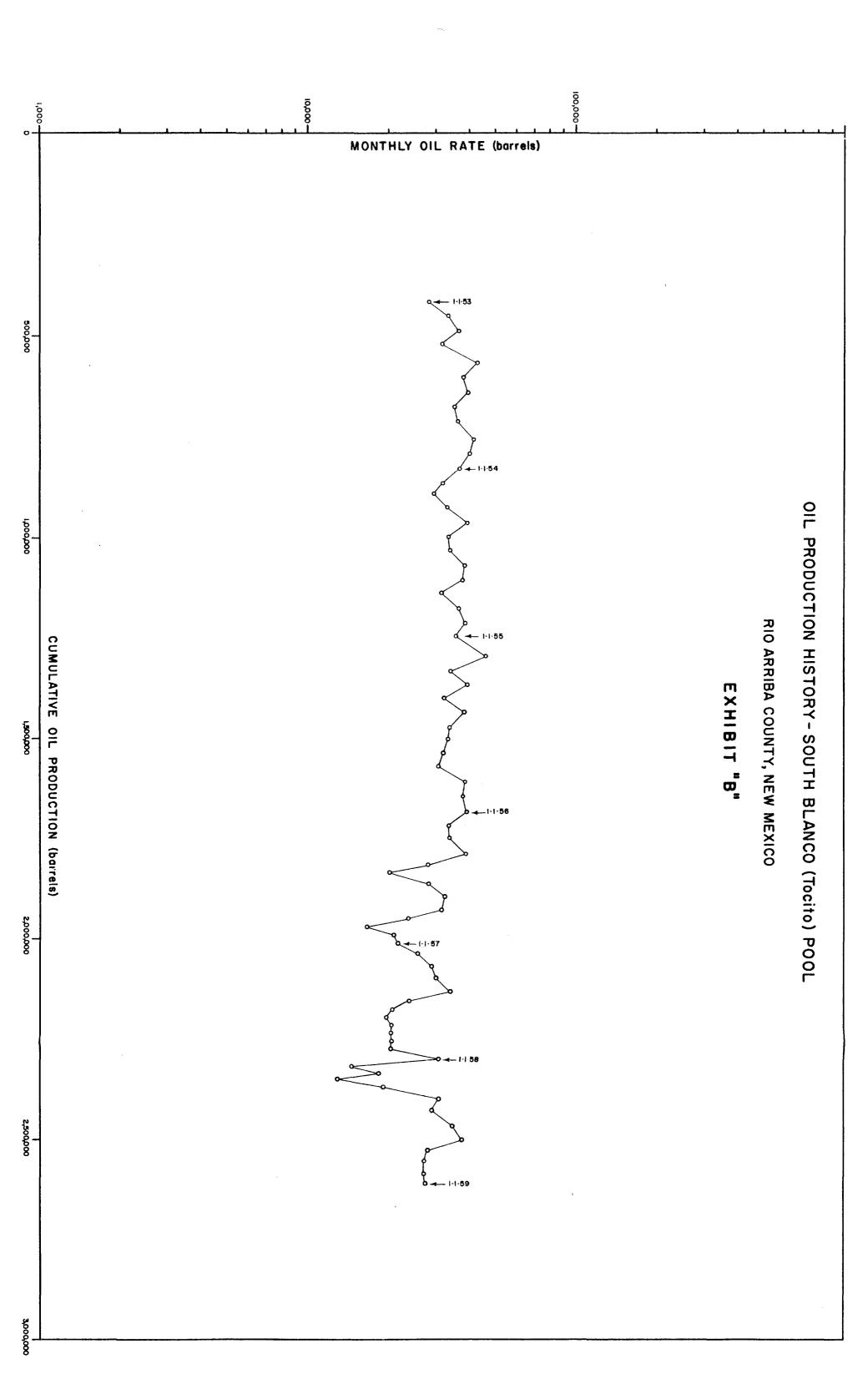
We could, of course, refuse to join with Caulkins Oil Company's presently operating water pressure maintenance program. We might even reap some benefit from their pressure maintenance program without joining. We do not, however, recommend such a procedure and believe that such action would be contrary to good conservation practice. Without additional injection wells it appears to us that Caulkins Oil Company will be unable to retain the present reservoir pressure, at least not in our end of the field. The gas/oil ratio of the Rincon Unit #11 well is increasing, indicating the advance of and close proximity of the gas/oil contact to this well. The increased gas/oil ratio has already resulted in a lower allowable for the Rincon Unit #11 well. On behalf of Unit Operator we recommend that we join with Caulkins Oil Company in a joint water pressure maintenance program and convert our Rincon Unit #11 well into a water injection well. We believe that this program would increase our ultimate oil recovery in the Rincon by approximately fifty per cent (50%). We also believe that our joinder will prevent waste and be in the best interest of all Unit interest owners, both working and royalty.

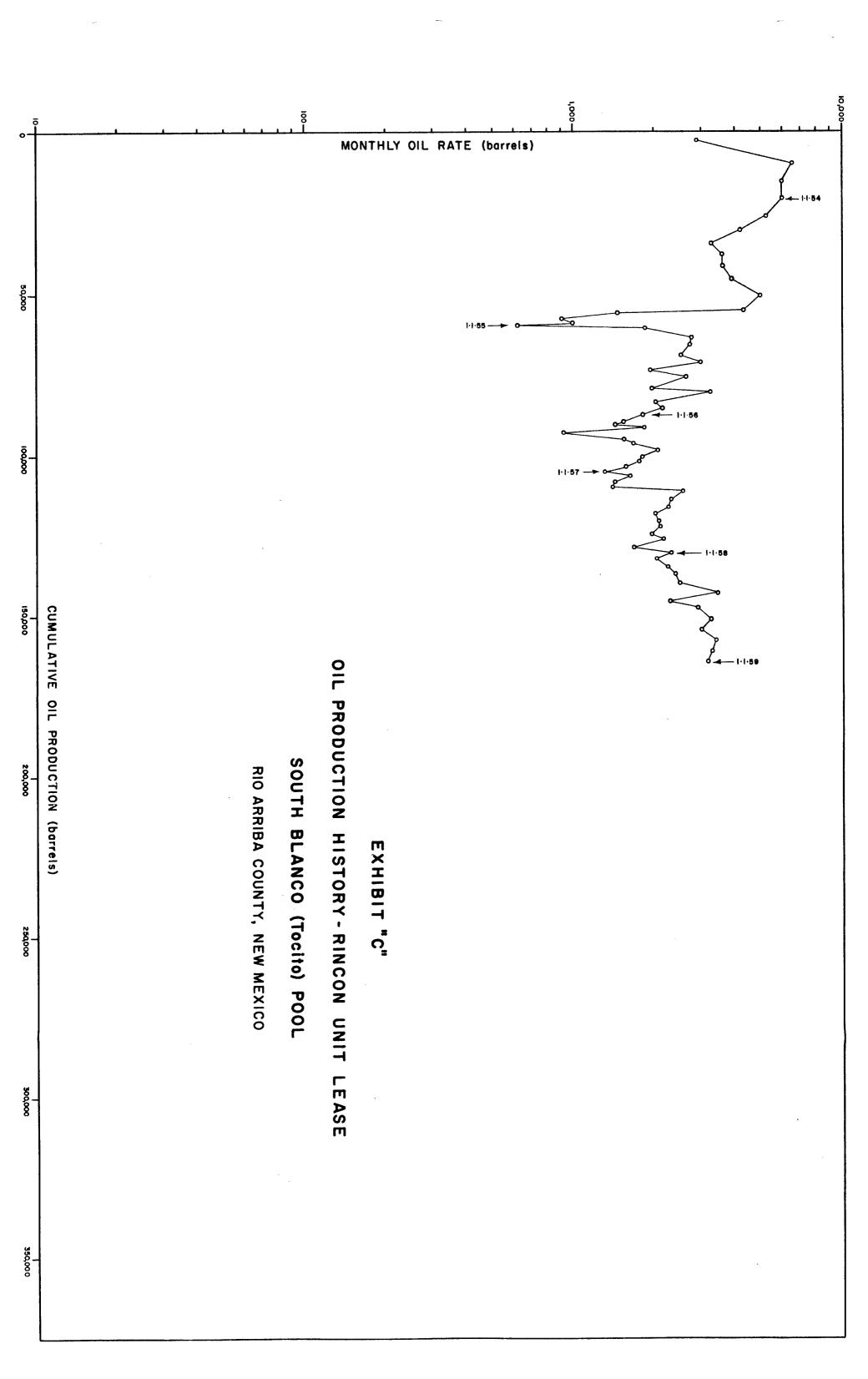
We therefore respectfully request your approval to join in this Water Pressure Maintenance Program in the South Blanco Tocito Pool. Upon approval of this program and before converting the Rincon Unit #11 well to a water injection well, an application to do so will be filed with the District Engineer of the U.S.G.S. in Farmington and with the Oil Conservation Commission office in Aztec.

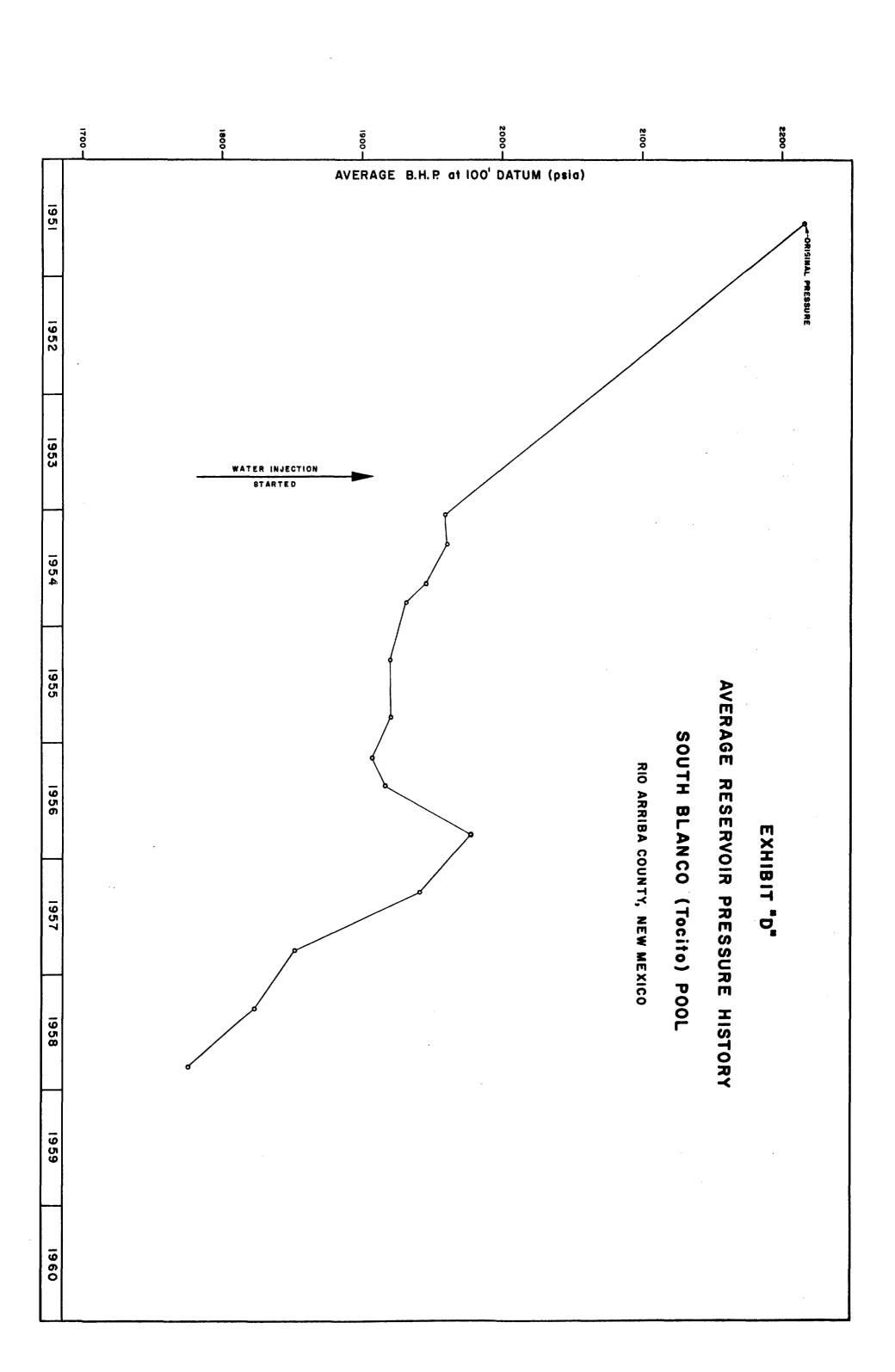
Yours very truly,

EL PASO NATURAL GAS COMPANY

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APPROVED:				
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### EXHIBIT "E"

### SUMMARY OF AVERAGE ROCK AND FLUID CHARACTERISTICS

### SOUTH BLANCO (TOCITO) POOL RIO ARRIBA COUNTY, NEW MEXICO

### AVERAGE RESERVOIR ROCK CHARACTERISTICS - TOCITO SAND

Porosity = 13% Water Saturation = 21% Permeability = 220 md

Net Pay Thickness = Approximately 10 feet

### AVERAGE RESERVOIR FLUID CHARACTERISTICS

Oil Gravity = 43.8° API

Original Pressure = 2200 psig at ~ 100' datum

Oil Shrinkage Factor = 1.545

Solution Gas:Oil Ratio = 860 cubic feet per barrel

### EXHIBIT "F"

### WATER INJECTION STATISTICS

## SOUTH BLANCO (TOCITO) POOL RIO ARRIBA COUNTY, NEW MEXICO

WELL	No. 85	No. 87	No. 109	No. 134	No. 157
Date Wtr. Injection Started	Jan. [†] 55	Jan. '56	Dec. '58	<b>\$</b> ept. '53	Jan. '56
Cumulative Wtr. In- jected to 3-1-59, bbl	784, 827	650, 474	37, 457	2,538,592	339,054
Avg. Daily Injection Rate, BWPD-Mar. '59	en La	ಬ 🛥	477	1,342	832
Avg. Well Head Pressure, PSIG Mar. '59			760	1,671	507
Remarks	Inactive since May 30, 1956.	Inactive since Mar. 28, 1957.			

### EXHIBIT "G"

## CAPACITY AND CUMULATIVE OIL PRODUCTION STATISTICS FOR PRODUCING WELLS

### SOUTH BLANCO (TOCITO) POOL RIO ARRIBA COUNTY, NEW MEXICO

			•		1 mm .		Cum. Oil
			Oct.	Wtr.	1 Tests		'59 Prod. to vable 3-1-59,
Company	Lease	Well	BPD	BPD	GOR	BOPI	
Caulkins	Breech "A"	T-125	152	0	6,052	48	98, 946
It	#	T-127	148	0	4,074	130	283,509
11	n	T-129	142	36	1,718	110	277, 432
11	11	T-132	104	0	788	50	2 <b>9</b> 0, 366
11	11	T-177	165	0	7,084	80	188,590
17	11	T-179	207	40	628	145	366,217
11	11	T-182	31	337	193	14	162, 467
ff	tt	T-207	75	80	4, 440	30	322,689
tt	Breech "B"	T-123	139	0	10,697	28	9, 072
11	Breech "D"	T-185	266	0	2,924	140	182, 371
tt	Breech "E"	T-104	150	0	1,700	145	10,338
El Paso	Rincon Unit	6	160	0	4,947	59	91,990
11	11	11	62	0	19,612	15	35, 936
"	†I	20	35	0	2,023	35	41,438

## NEW MEXICO OIL CONSERVATION COMMISSION SANTA FE, NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 555 ORDER NO. R-349

THE APPLICATION OF LOWRY ET AL OPERATING ACCOUNT FOR THE APPROVAL OF A PILOT PRESSURE MAINTENANCE PROGRAM BY WATER INJECTION IN ONE OR BOTH OF TWO WELLS, SAID INJECTION WELLS LOCATED IN SW/4 SW/4, SECTION 3, AND NE/4 NW/4 SECTION 10, TOWNSHIP 26 N. RANGE 6 WEST, IN THE SOUTH BLANCO-TOCITO POOL, RIO ARRIBA COUNTY, NEW MEXICO.

### ORDER OF THE COMMISSION

### BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 16, 1953, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 27th day of July, 1953, the Commission, a quorum being present, having considered the testimony adduced at said hearing and the exhibits offered therein, and being fully advised in the premises,

#### FINDS:

- 1. That due notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- 2. That the Petitioner's request to institute a pressure maintenance program in the South Blanco-Tocito Pool, Rio Arriba County, New Mexico, by water injection, utilizing either one or both of two proposed injection wells, is in the interests of conservation, will probably result in an increased production of oil that might otherwise be lost, thereby preventing waste, and that correlative rights of others interested in the pool will be protected, and that the application should therefore be granted.
- 3. That a pressure maintenance program by water injection in the South Blanco-Tocito Pool is of an experimental nature, and periodic reports should be submitted to the Commission by the Petitioner, disclosing its acts and doings in the matter.
- 4. That in the event prorationing of oil is instituted in the South Blanco-Tocito Pool, the Commission recognizes that consideration should be given to loss of

production by utilization of the two wells, Federal T-134, and Federal T-109 as injection wells, and that any proration order issued should recognize emergency conditions which might arise in the conduct of a pressure maintenance program by water flooding, and therefore such proration order should be flexible enough to cover such possible emergency conditions.

- 5. That subsequent to submission of this application, the well designation system in use by the Petitioner has been changed with approval of the Commission, and that the proposed injection wells, Federal 1-134 and Federal 7-35-109 are now designated as Federal T-134 and Federal T-109, respectively.
  - 6. That no objection has been made to the granting of this application.

### IT IS THEREFORE ORDERED:

- 1. That the application of Lowry et al Operating Account for permission to institute a pressure maintenance program in the South Blanco-Tocito Pool by injecting water into either or both Federal T-134, NE/4 NW/4, Section 10, and Federal T-109, SW/4 SW/4, Section 3, both in Township 26 North, Range 6 West, NMPM, should be, and the same hereby is approved.
- 2. That the permission is hereby granted to inject water in said injection wells, water to enter the Tocito sands, producing horizon of the South Blanco-Tocito Pool, Rio Arriba County, New Mexico.
- 3. That in the event prorationing of oil production is instituted in the South Blanco-Tocito Pool, Rio Arriba County, New Mexico, the operator shall submit to the Commission a plan for transferring allowables from injection wells to other producing wells in the Pool, together with a plan which will, insofar as possible, take care of emergency conditions which may arise as a result of the proration of production in the pool.
- 4. That the Operator, Petitioner herein, shall submit monthly reports to the Commission showing the monthly oil production and water production, and the amount of water injected into the reservoir through each injection well bore.

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

NEW MEXICO OIL CONSERVATION COMMISSION

Edwin L. Mechem, Chairman

E. S. Walker, Member

R. R. Spurrier, Secretary

SEAL