



# PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79760  
PHILLIPS BUILDING, FOURTH & WASHINGTON

EXPLORATION & PRODUCTION DEPARTMENT

April 5, 1973

Reply to T. Harold McLemore  
(915) 337-8611, Ext. 257

Request for Commingling--Exception to  
Rule No. 303--Ranger Lake (Penn) and  
(Bough) Fields, Lea County, New Mexico

File: W2-Ed-206-73

PC -  
New Mexico Oil Conservation Commission - 3  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Attention: Mr. Daniel S. Nutter  
Chief Engineer

Gentlemen:

In response to your subject letter of March 30, 1973, this is to advise that working interests, royalty interests, and overriding royalty interests are common in the wells to be commingled on the Ranger and West Ranger Lake Leases within the West Ranger Unit.

For your advance information, we propose in the near future to change the name of the West Ranger Lake Lease and the wells thereon to the Ranger Lease with the well designation being in the next higher consecutive number sequence. At such time as this name change is effected, this commingling system will then be between reservoirs on the same lease. The delay in redesignation of the West Ranger Lake Lease is due to internal lease record data involvement with the current dissolution of the Ranger Lake Unit.

We trust this additional information will allow you to process the subject application.

Yours very truly,

PHILLIPS PETROLEUM COMPANY

*F. F. Lovering*  
F. F. Lovering, Manager  
Southwestern District

HM:rm

cc: New Mexico Oil Conservation Commission  
Hobbs, New Mexico

1. The first part of the paper is devoted to the study of the properties of the function  $f(x)$  defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$

for  $x \in \mathbb{R}$ . It is shown that  $f(x)$  is an odd function and that

$$\lim_{x \rightarrow \pm\infty} f(x) = \pm \frac{\pi}{2}$$

$$f'(x) = \frac{1}{1+x^2}$$

$$f(x) = \frac{\pi}{2} - \arctan x$$

$$f(0) = 0$$

2. In the second part of the paper, we consider the function  $g(x)$  defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^4} dt$$

for  $x \in \mathbb{R}$ . It is shown that  $g(x)$  is an even function and that

$$\lim_{x \rightarrow \pm\infty} g(x) = \pm \frac{\pi}{4}$$

$$g'(x) = \frac{1}{1+x^4}$$

$$g(0) = 0$$

$$g(x) = \frac{\pi}{4} - \arctan x$$

$$g(x) = \frac{\pi}{4} - \arctan x$$

$$g(x) = \frac{\pi}{4} - \arctan x$$

$$g(0) = 0$$

$$\lim_{x \rightarrow \pm\infty} g(x) = \pm \frac{\pi}{4}$$



# PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79760  
PHILLIPS BUILDING, FOURTH & WASHINGTON

EXPLORATION & PRODUCTION DEPARTMENT

March 27, 1973

Reply to: T. Harold McLemore  
(915) 337-8611, Ext. 257

Request for Commingling--Exception to  
Rule No. 303--Ranger Lake (Penn) and  
(Bough) Fields, Lea County, New Mexico

File: W2-Ed-183-73

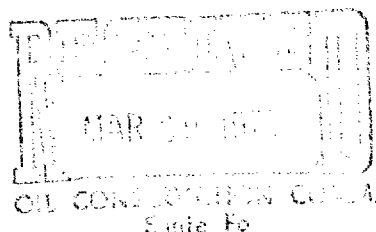
New Mexico Oil Conservation Commission - 3  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr.  
Secretary-Director

Gentlemen:

We respectfully request administrative approval of an exception to Statewide Rule 303 which will allow us to commingle oil production from the Ranger Lake (Penn) and (Bough) Fields on our West Ranger Unit, a development operation approved by Order No. R-797 on May 2, 1956. Ranger Lake (Penn) production within this unit is further identified as being from wells on the Ranger lease. Ranger Lake (Bough) production is further identified as that from wells on the West Ranger Lake lease within this unit. The following support information is submitted for your consideration:

1. Request to use common commingled oil storage and casinghead gas measuring facilities.
2. Plat attached reflecting West Ranger Unit Area leases involved, the producing wells, their flow lines and the proposed common tankage facilities.
3. State leases within the West Ranger Unit Area are:  
NE/4 Section 23 (E-9718), NW/4 Section 23 (E-2793), S/2 Section 23 (E-1027), W/2 NW/4 Section 24 (E-9718), NW/4 Section 25 (E-1233-1-4), Section 26 (E-906), all in T-12-S, R-34-E, Lea County. Beneficiary of each lease is Common School Land.
4. Pool names: Ranger Lake (Bough) and Ranger Lake (Penn).
5. Attached is a schematic diagram of the entire commingled system.
6. All system components are available commercially.
7. We propose to allocate monthly the production to each lease on the basis of periodical well tests of the individual wells thereon. Accurate test meter facilities will be installed in order that separate and individual tests may be taken on each well.



*Letter 3/30/73  
inquiring whether  
ownership is  
common.*



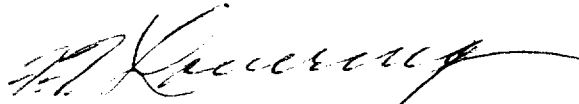
To: New Mexico Oil Conservation Commission - 3  
File: W2-Ed-183-73  
Date: March 27, 1973  
Page: 2

8. Current production status of the wells on each respective lease are:  
Ranger Lake (Penn) production on this unit is from Ranger Lease Wells Nos. 7 and 13 with production capacities of 33 BOPD, 5 BWP, GOR TSTM; 24 BOPD, 156 BWP, GOR TSTM.  
Ranger Lake (Bough) production on this unit is from the West Ranger Lake Unit Well No. 1 with its production capacity at 25 BOPD, 251 BWP, GOR of 828/1.

Approval of this proposal has been requested from the Commissioner of Public Lands (copy attached). Your early action and advice will be appreciated.

Yours very truly,

PHILLIPS PETROLEUM COMPANY



F. F. Lovering, Manager  
Southwestern District

HM:rm  
Attachments

cc: New Mexico Oil Conservation Commission  
Hobbs, New Mexico  
Attachments

1. The first part of the paper is devoted to the study of the properties of the function  $f(x)$  defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$
for  $x \in \mathbb{R}$ . It is shown that  $f(x)$  is an odd function, i.e.,  $f(-x) = -f(x)$ , and that it is strictly increasing on  $\mathbb{R}$ . Moreover, it is proved that  $f(x)$  is bounded on  $\mathbb{R}$ , with  $\lim_{x \rightarrow -\infty} f(x) = -\frac{\pi}{2}$  and  $\lim_{x \rightarrow \infty} f(x) = \frac{\pi}{2}$ .

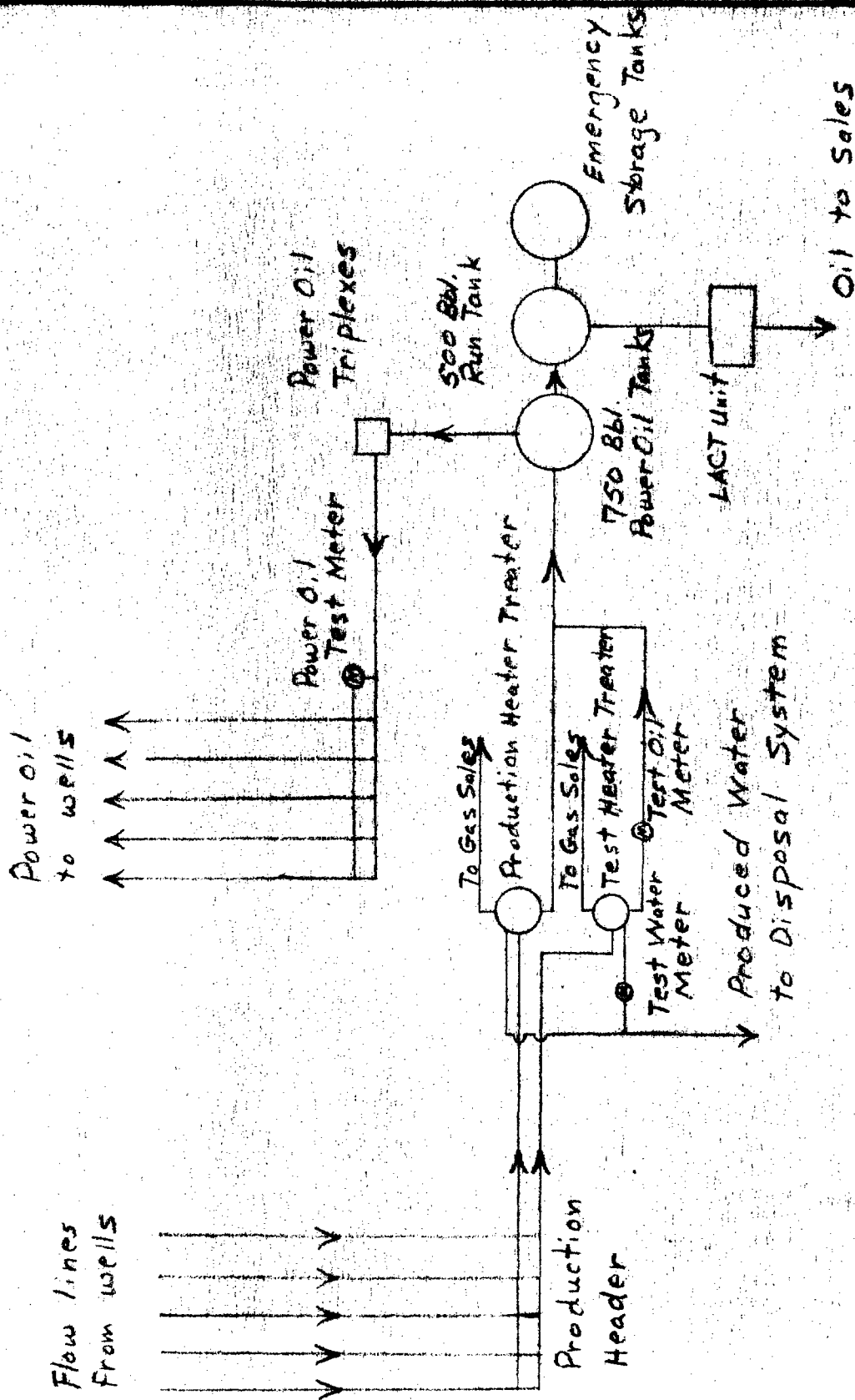
2. In the second part, we consider the function  $g(x)$  defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^4} dt$$

for  $x \in \mathbb{R}$ . It is shown that  $g(x)$  is an even function, i.e.,  $g(-x) = g(x)$ , and that it is strictly increasing on  $\mathbb{R}$ .

3. Finally, we study the function  $h(x)$  defined by the equation

$$h(x) = \int_0^x \frac{1}{1+t^6} dt$$
for  $x \in \mathbb{R}$ . It is shown that  $h(x)$  is an odd function, i.e.,  $h(-x) = -h(x)$ , and that it is strictly increasing on  $\mathbb{R}$ . Moreover, it is proved that  $h(x)$  is bounded on  $\mathbb{R}$ , with  $\lim_{x \rightarrow -\infty} h(x) = -\frac{\pi}{2\sqrt{3}}$  and  $\lim_{x \rightarrow \infty} h(x) = \frac{\pi}{2\sqrt{3}}$ .

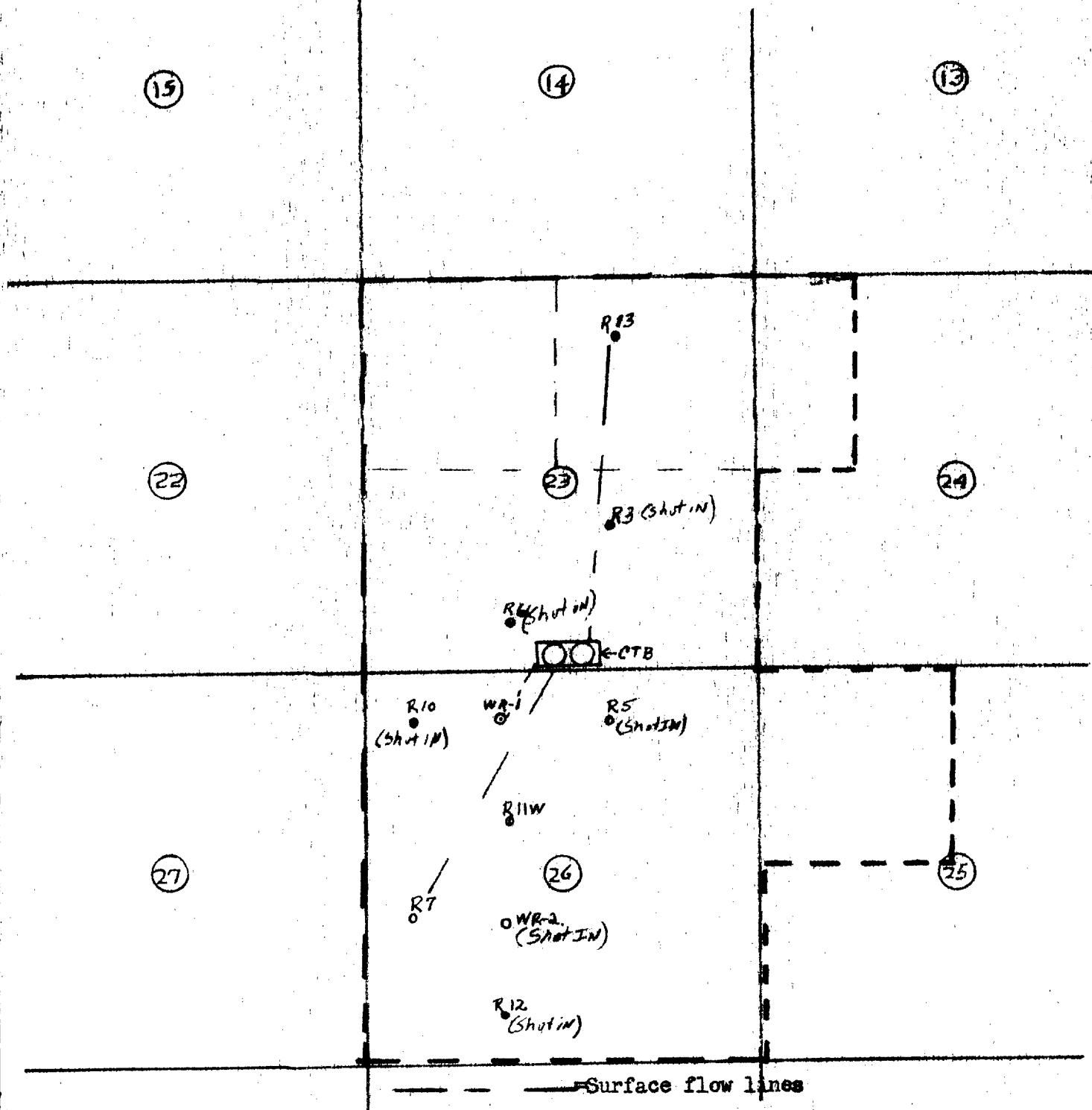


BARTLESVILLE, OKLAHOMA

# RANGER LEASE Schematic Flow Diagram

			RANGER LEASE Schematic Flow Diagram			
			DRAWN	MTR	3/2/75	APE. NO.
			CHECKED			DWG. NO.
REVISION	BY	DATE	APPROVED			SCALE NONE
						SHEET NO.

T-12-S, R-34-E  
Lea County



PHILLIPS PETROLEUM COMPANY

(E-797,

West Ranger Unit (Approved by NM CofPL 5-2-56) = NE/4 Sec. 23 (E-9718), NW/4 Sec. 23 (E-2793), S/2 Sec. 23 (E-1027), W/2 NW/4 Sec. 24 (E-9718), NW/4 Sec. 25 (E-1233-1-4), Sec. 26 (E-906), All T-12-S, R-34-E, Lea County, New Mexico

Ranger Lake (Penn) Field

Producing wells:

Ranger Lease Wells Nos. 7 and 13

Ranger Lake (Bough) Field

Producing wells:

West Ranger Lake Unit Well No. 1





**Amoco Production Company**

Oil Purchases & Sales Department  
P. O. Box 1725  
Midland, Texas 79701

March 23, 1973

Mr. Harold McLemore  
Phillips Petroleum Company  
Box B-2  
Phillips Building  
Odessa, Texas 79760

Dear Mr. McLemore:

RE: Phillips Petroleum Company, Ranger Lease, Ranger Lake (Penn.) Field,  
Lea County, New Mexico and Phillips Petroleum Company, West Ranger  
Lake Unit, Ranger Lake (Bough) Field, Lea County, New Mexico

Please be advised that Amoco Production Company, as purchaser of production from the Ranger Lake (Bough) Field and the Ranger Lake (Penn.) Field, has no objection to Phillips Petroleum Company commingling the production from these fields.

This will in no way effect the present price of this material which is now and will continue to be on a commingled basis tied to Amoco's New Mexico Intermediate Sweet (Segregated) posting.

Yours very truly,

  
J. E. Leascher

RED:pr



## PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79760  
PHILLIPS BUILDING, FOURTH & WASHINGTON

EXPLORATION & PRODUCTION DEPARTMENT

March 27, 1973

Reply to: T. Harold McLemore  
(915) 337-8611, Ext. 257

Request for Common Tank Battery Storage  
Facilities--West Ranger Unit Area  
Leases--Lea County, New Mexico

File: W2-Ed-182-73

Honorable Alex J. Armijo  
Commissioner of Public Lands  
State of New Mexico  
Land Office Building  
P. O. Box 1148  
Santa Fe, New Mexico 87501

Attention: Mr. Ray D. Graham  
Director, Oil and Gas Department

Gentlemen:

We respectfully request your approval of our proposal to use common commingled oil storage facilities on the West Ranger Unit to handle production from the Ranger Lake (Penn) and Ranger Lake (Bough) Fields. The West Ranger Unit was approved by the Commissioner May 2, 1956, by Order No. R-797 and consists of the following land tracts:

NE/4 Section 23 (E-9718), NW/4 Section 23 (E-2793), S/2 Section 23 (E-1027), W/2 NW/4 Section 24 (E-9718), NW/4 Section 25 (E-1233-1-4), Section 26 (E-906), all in T-12-S, R-34-E, Lea County. Beneficiary of each lease is Common School Land.

Ranger Lake (Penn) production on this unit is from Ranger Lease Wells Nos. 7 and 13 with respective production capacities of 33 BOPD, 5 BWP, GOR TSTM; 24 BOPD, 156 BWP, GOR TSTM. Ranger Lake (Bough) production on this unit is from the West Ranger Lake Unit Well No. 1 with its production capacity at 25 BOPD, 251 BWP, with a GOR of 828/1. The locations of these producing wells, surface flow lines and the common tank battery are depicted on the attached plat. There is no change in the actual commercial value of the commingled production over that sold separately from each lease. Also attached is a schematic diagram of the entire commingling system whose components are available commercially.

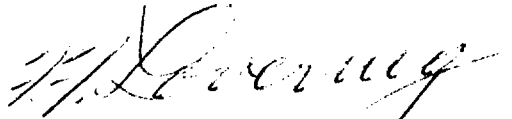
To: Honorable Alex J. Armijo  
File: W2-Ed-182-73  
Date: March 27, 1973  
Page: 2

Since these wells are marginal producers, we propose to allocate monthly the production to each reservoir on the basis of periodic well tests of the individual wells in each reservoir. Accurate test metered facilities will be installed in order that separate and individual tests may be taken on each well.

Draft No. 127080 in the amount of \$10.00 is attached to cover the required filing fee. Your early approval advice will be appreciated.

Yours very truly,

PHILLIPS PETROLEUM COMPANY



F. F. Lovering, Manager  
Southwestern District

HM:rm  
Attachments

cc: New Mexico Oil Conservation Commission - 4  
Santa Fe, New Mexico  
Attachments