STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

3-5-87

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

DHC-645

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:
MC ____
DHC X
NSL ____
NSP ____
SWD ____
WFX ____
PMX ____

Gentlemen:

I have examined the application for the:

Phillips Pet. Co. Leamex #20-B 23-17-33
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK JS

Yours very truly,

Jerry Sexton
Supervisor, District 1

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

Odessa, Texas
March 3, 1987

Application for Exception to
Statewide Rule No. 303-C to
Downhole Commingle Production

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Attn: William J. LeMay
Director

Gentlemen:

We respectfully request administrative approval to downhole commingle production on our Leamex, No. 20, as provided in Statewide Rule 303-C3. Pertinent well information and data is included herein:

(a) Name and address of operator:
Phillips Petroleum Company
4001 Penbrook Street
Odessa, Texas 79762

(b) Lease name, well number & location:
Leamex Lease, Well No. 20
550' FNL & 1703' FEL of Section 23, T-17-S, R-33-E
Lea County, New Mexico

Pools to be commingled:
North Corbin - Queen (Gas)
Maljamar - Grayburg/San Andres (Oil)

(c) Plat is attached showing acreage dedicated to the well and the ownership of all offsetting leases.

(d) Current productivity tests on each zone:
Neither zone has produced within 30 days. The North Corbin Queen zone last produced measurable quantities of gas in May, 1985. The Maljamar Grayburg/San Andres zone last produced oil in May, 1984 before the well was recompleted to the North Corbin Queen zone. The only 24-hour productivity tests available on either zone were run to determine initial potential upon completion and these tests are not representative of the zones' current productive potential.

(e) Allocation of commingled production based on production histories:
Production decline curves for both zones are attached. Based on these production histories, no oil production will be allocated to

the Queen zone. Gas production will be allocated to the Grayburg/San Andres zone based on the historical average GOR 4230 and current monthly oil production. The remaining gas not allocated to the Grayburg/San Andres zone will be allocated to the Queen zone. The Grayburg/San Andres zone has not produced any water in this well, therefore 100% of the water production will be allocated to the Queen zone.

Well completion history - wellbore sketch attached:

Well was drilled and completed in December, 1979 in the Grayburg/San Andres. After acidizing with 1000 gallons of 12% HCl/6% HF acid and fracture treating with 20,000 gallons of refined oil containing 24,000 lbs of 20/40 mesh sand, the well had an initial pumping of 20/40 mesh sand, the well had an initial pumping potential from perforations 4388' - 4498' of 17 BOPD, 14 MCFD, and 0 BWPD.

The Grayburg/San Andres was temporarily abandoned below a bridge plug at 4247' in June, 1983. After acidizing with 2500 gallons of 15% HEFE HCl acid, initial flowing potential from the Queen perforations 3778' - 3801' was 0 BOPD, 173 MCFD, and 19 BWPD. The Queen reservoir pressure has declined to the point where it is insufficient to unload produced water from the tubing. Thus the Queen zone is unable to produce.

Production decline curve is attached.

Prediction of future production:

The proposed commingled completion will allow the oil production from the Grayburg/San Andres and the water production from the Queen to be pumped up the tubing from below the Queen perforations. This will remove the fluid head in the wellbore above the Queen zone and allow gas production from the tubing-casing annulus.

Estimated initial oil production from the Grayburg/San Andres is 20 BOPD, 4230 GOR, with oil production declining exponentially at a 20% annual rate. Estimated initial production from the Queen is 20 MCFD and 5 BWPD declining exponentially at a 30-40% annual rate.

(f) Bottom hole pressures for each zone:

The bottom hole pressure of the Queen zone was measured at 677 psi at 3790' in June, 1986. The well has not produced since that time and bottom hole pressure will not have changed. The bottom hole pressure of the Grayburg/San Andres has not been measured; it is anticipated that the fluid level in the well will be within 100' of the Grayburg/San Andres perforations when the well is pumping.

(g) Fluid characteristics:

Samples of produced water from the subject well are not available, so representative water analysis are attached for produced water from the Queen and Grayburg/San Andres zones taken from wells within one mile of the subject well. The water from the Queen is very similar to the Grayburg/San Andres water and will be com-

(h) Computation of value of commingled production vs individual streams:

Individual streams:

Grayburg/San Andres

(20 BOPD) X $15.00/bbl = $300/day
+ (85 MCFD) X $1.50/mcf = $128/day
Total Grayburg/San Andres = $428/day

Queen (0 MCFD) X $1.50/mcf = $0.0/day

Total Individual Streams = $428/day

Commingled production:

(20 BOPD) X $15.00/bbl = $300/day
+ (105 MCFD) X $1.50/mcf = $158/day
Total Commingled Production = $458/day

(i) Formula for allocation of production:

Grayburg/San Andres: 100% of oil production, gas production based on 100% of oil production multiplied times 4230 GOR, 0% of water production.

MONTHLY OIL (GB/SA) = (Total BOPM) X 1.0
MONTHLY GAS (GB/SA) = (MONTHLY OIL (GB/SA)) X 4.23 Mcf/bbl
MONTHLY WATER (GB/SA) = (Total BWPM) X 0.0

Queen zone: 0% of oil production, 100% of gas production less MCF gas allocated to Graxburg/San Andres as above, 100% of water production.

MONTHLY OIL (QUEEN) = (Total BOPM) X 0.0
MONTHLY GAS (QUEEN) = (Total MCFPM) - (MONTHLY GAS (GB/SA))
MONTHLY WATER (QUEEN) = (Total BWPM) x 1.0

* Where Total BOPM, Total MCFPM, and Total BWPM in the above formulas refer to the total monthly commingled well production of oil, gas and water respectively.

All offset operators, indicated on the attached list, were notified by copy of this application sent March 3, 1987.

The subject well produces oil in the Maljamar Grayburg/San Andres zone and it expected to equal the depth allowable of 20 BOPD in production. The Corbin Queen gas zone produces no oil and is currently uneconomical to operate. Both zones require artificial lift to produce and commingling with the oil zone will permit the gas zone to be produced economically. The well will be produced such that bottom hole pressure in the wellbore will be at a minimum, therefore there will be no opportunity for crossflow between commingled zones. The bottom hole pressure of the Queen is 677 psi which is greater than 50% of the bottom hole pressure of the Grayburg/San Andres zone (which is approximately 1300 psi when adjusted to the 3800' datum of the Queen. The Corbin Queen zone has averaged less than 8 BWPD while the Maljamar Grayburg/San Andres zone produces no water so zones are not subject to damage from produced fluids.

The ownership (including working interest, royalty, and overriding royalty) of the Queen and the Grayburg/San Andres is common to both zones. Commingling will not jeopardize the efficiency of present or future secondary recovery operations in either zone, nor will value of the crude oil be reduced by commingling with the gas zone.

Your consideration and administrative approval will be appreciated. Direct any questions to the attention of John Currie, telephone (915) 367-1342 or to me.

Yours very truly,

Larry M. Sanders

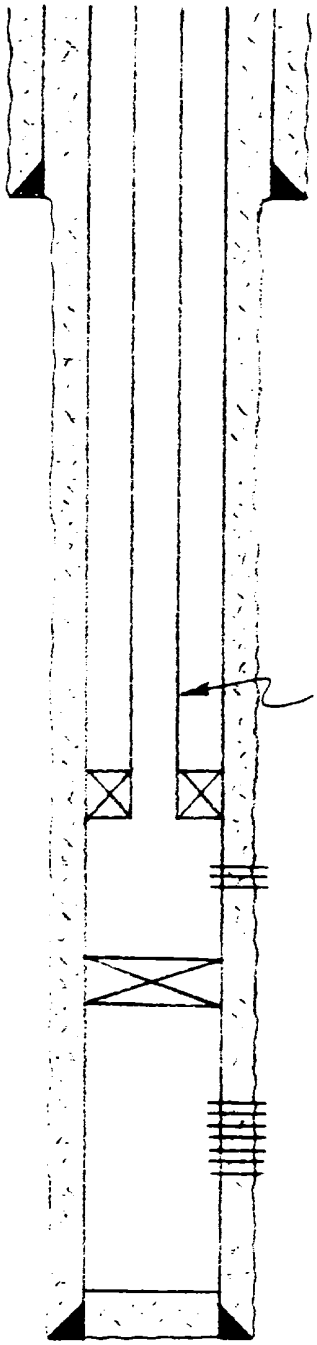
Larry M. Sanders
Regulation and Proration

LMS/AP/cs
REG4.1/Lemay

Enclosures

cc: NMOCD, Hobbs Office
Offset Operators

WELLBORE DIAGRAM - CURRENT COMPLETION



8 5/8" SURFACE CASING SET TO 410', T.O.C. AT SURFACE

2 3/8" 4.7#/FT J-55 PRODUCTION TUBING

BAKER MODEL R PACKER AT 3698'

QUEEN PERFORATIONS 3778'-3801', 23' NET

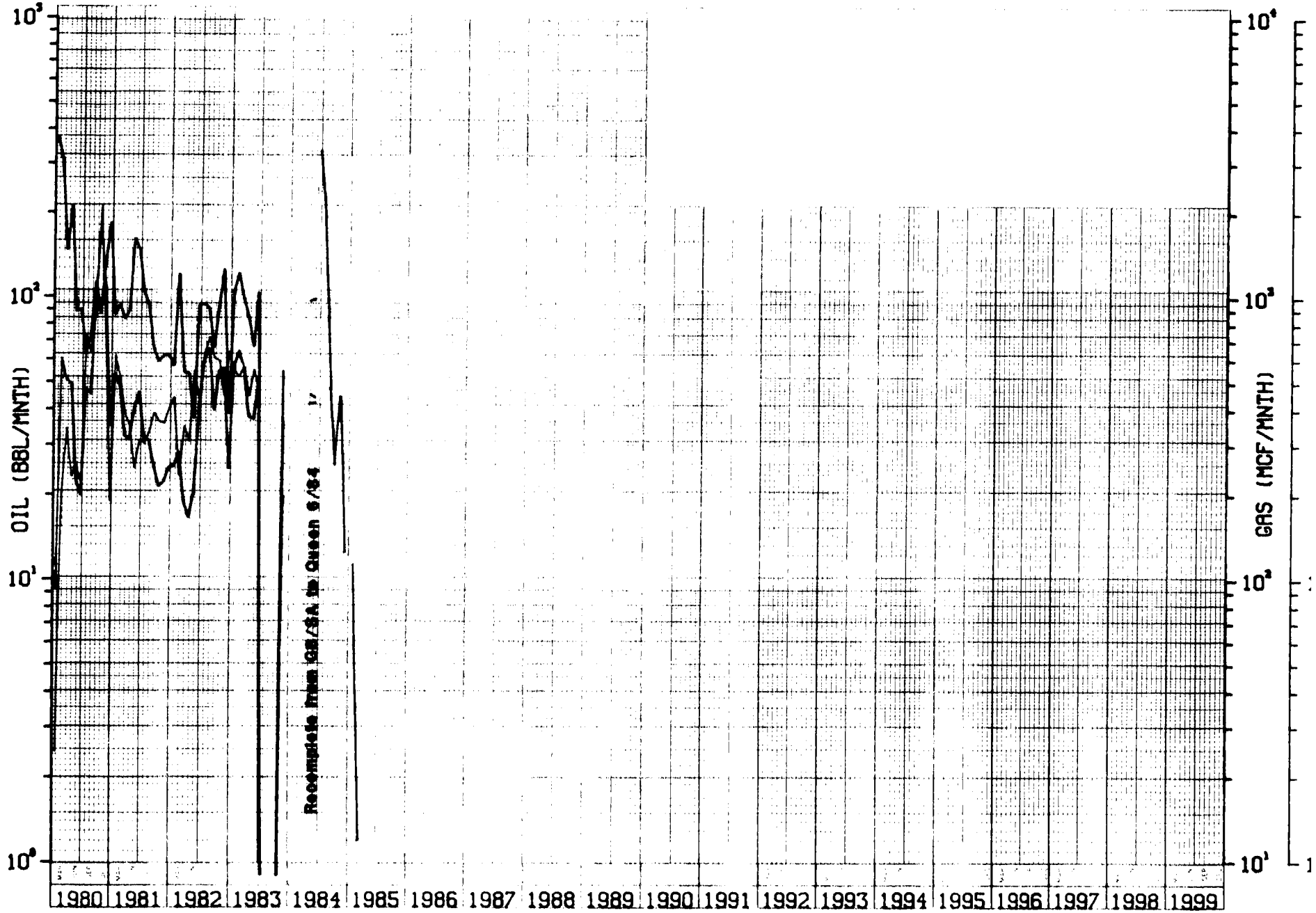
RETRIEVABLE BRIDGE PLUG AT 4247'

GRAYBURG/SAN ANDRES PERFORATIONS 4389'-4498', 22' NET

4 1/2" 11.6#/FT N-80 CASING SET TO 4700', T.O.C. AT SURFACE
TD 4700'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	JA NO	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	AFE NO	SCALE NONE
FOR CONST	**Leamex Well No. 20**	DWG NO	
DRAWN 12/9/86 JCC	**660' FNL & 1703' FEL Sec 23, T-17-S, R-35-E**	SH	
CHECKED	**North Corbin (Queen)/Maljamar (GB/SA) Pools**		
APP'D	**Lea County, New Mexico**		



LEASE- 198 : LEAMEX
RESVR- 2 :
WELL - 000020

DWIGHTS
WELL 150 025 17S33E23BPKGS
DWIGHT ID-1500217S33E23BPKGS

1342 A

ALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

~~Texas Reynolds~~
Shakki Justus

LABORATORY WATER ANALYSIS

No. W78-721

To Phillips Petroleum Company
Box 1178
Lovington, New Mexico

Date 8-7-78

Submitted by _____ Date Rec. 8-7-78

Well No. As Marked Depth As Marked Formation Grayburg-San Andres

County Lea Field Maljamar Source Pumping

	Phillips St. #E-30 4432-4582'	Phillips St. #E-31 4478-4486'	
Resistivity	0.056 @ 74°F.	0.057 @ 74°F.	
Specific Gravity	1.150	1.149	
pH	6.3	6.3	
Calcium (Ca)	14,800	15,500	*MPL
agnesium (Mg)	2,760	2,400	
Chlorides (Cl)	139,000	138,000	
Sulfates (SO_4)	1,100	1,400	
Bicarbonates (HCO_3)	185	35	
Soluble Iron (Fe)	Nil	90	

Remarks:

*Milligrams per liter

Respectfully submitted,

Analyst: Brewer

HALLIBURTON COMPANY

By W. L. Brewer
CHEMIST

NOTICE

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HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
LOVINGTON, NEW MEXICO 88260

LABORATORY WATER ANALYSIS No. M76-759

To Phillips Petroleum Company

Box 1178

Lovington, New Mexico

Date 11-18-76

Submitted by _____ Date Rec. 11-18-76

Well No. Phillips St. E #25 Depth 3808 - 28' Formation QUEEN

County LEA, N.M. Field MALJAMAR Source Swab

Resistivity	0.039 @ 74°F.			
Specific Gravity	1.214			
pH	6.5			
Calcium (Ca)	7,200			*MPL
Magnesium (Mg)	15,000			
Chlorides (Cl)	203,000			
Sulfates (SO_4)	1700			
Bicarbonates (HCO_3)	160			
Soluble Iron (Fe)	30			

Remarks:

*Milligrams per liter

Respectfully submitted,

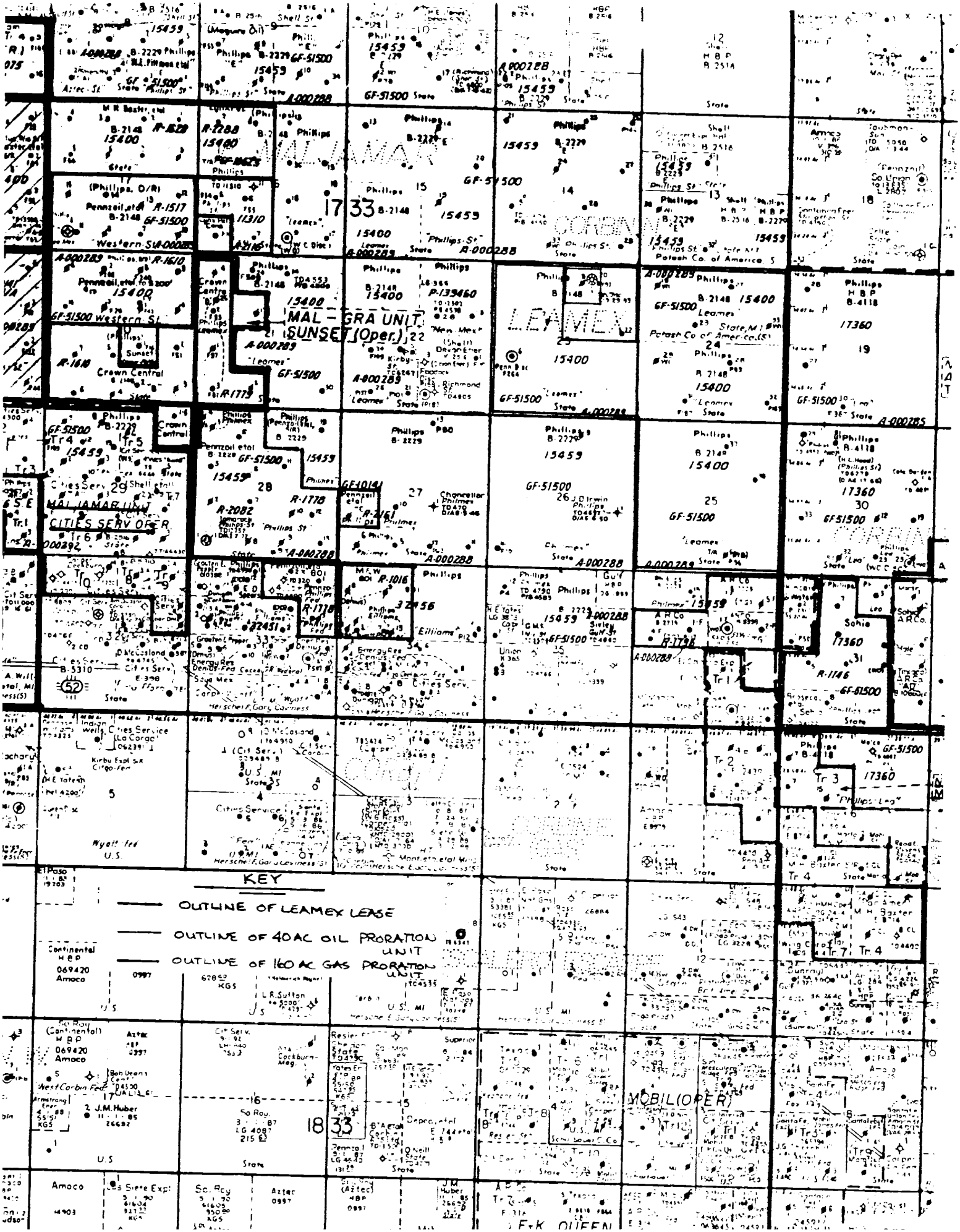
Analyst: Brewer

cc:

HALLIBURTON COMPANY

By W. L. Brewer
CHEMIST

NOTICE


KEY
OUTLINE OF LEAMEX LEASE
OUTLINE OF 40 AC OIL PRORATION UNIT
OUTLINE OF 160 AC GAS PRORATION UNIT
MAL-GRA UNIT
SUNSET (Oper.)
LEAMEX
MAL-JAMAR UNIT
CITIES SERV.OPER.
MOBIL(OPER)
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GF-51500
A-000289
A-000288
R-1610
R-1517
R-1778
R-2082
R-1016
R-1146
17360
15459
B-2229
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Tr 1000

Phillips Petroleum Company
Leamex, Well No. 20

Offset Operators

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P. O. Box 3092
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ARCO Oil & Gas Company
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Chevron U.S.A.
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