

# PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268  
Lubbock, Texas  
April 14, 1960

File: JET-4137-416

Subject: 1960 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties,  
New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission (3)  
State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

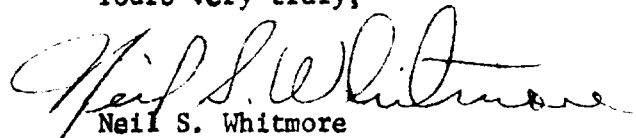
All Committed Working Interest Owners  
(See Addressee List Attached)

Gentlemen:

This is to advise that the 1960 Plan of Development for the Greenwood Pre-Grayburg Unit was approved by the United States Geological Survey on April 4, 1960 as submitted by Pan American Petroleum Corporation's letter of December 28, 1959, File: JWK-5071-416.

You will be advised when approvals have been received from the Commissioner and Commission.

Yours very truly,

  
Neil S. Whitmore  
District Superintendent

BJS:js

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Carper Drilling Company  
Carper Building  
Artesia, New Mexico

Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. W. A. Mead

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Mobil Oil Company  
P. O. Box 633  
Midland, Texas  
Attention: Mr. Fred S. Wright, Jr.

Mobil Oil Company  
P. O. Box 2406  
Hobbs, New Mexico  
Attention: Mr. C. H. Samples

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas

Texaco, Inc.  
P. O. Box 3109  
Midland, Texas  
Attention: Mr. E. P. Munson, Jr.

Texaco Seaboard, Inc.  
P. O. Box 3109  
Midland, Texas

97

**P. O. Box 6721  
Roswell, New Mexico**

**April 4, 1960**

**Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas**

**Attention: Mr. J. L. Hoyt, Jr.**

**Gentlemen:**

**Your plan of development for 1960, dated December 28, 1959, for the Greenwood Pre-Grayburg unit area, No. 14-08-001-2904, Lea and Eddy Counties, New Mexico, in which you propose to drill no additional wells, has been approved on this date subject to like approval by the appropriate State officials. Please furnish this office with suitable evidence of State approval.**

**Two approved copies of the plan are enclosed.**

**Very truly yours,**

**JOHN A. ANDERSON  
Regional Oil and Gas Supervisor**

**Enclosures**

**Copy to: Washington (w/cy of plan)  
Artesia (w/cy of plan)  
NMOCC, Santa Fe (ltr. only) ✓  
Comm. of Public Lands, Santa Fe (ltr. only)**

PAN AMERICAN PETROLEUM CORPORATION  
FORT WORTH, TEXAS

January 20, 1960

Re: AFE 20,579  
Contract No. 32,714  
Joinder of Tract No. 14 to  
Greenwood Pre-Grayburg Unit  
Eddy and Lea Counties  
New Mexico

United States Geological Survey  
P. O. Box 6721  
Roswell, New Mexico

Gentlemen:

Attached are two original and four Photostat copies of Ratification and Joinder of Unit Agreement and Unit Operating Agreement, covering the Greenwood Pre-Grayburg Unit Area, Lea and Eddy Counties, New Mexico, whereby Vola V. Bunnell (formerly Horst) and husband, Robert L. Bunnell, commit their interest under Tract No. 14 of and to said unit. Tract No. 14 consists of Federal lease No. NM-056379, covering the SE/4 SE/4 of Section 3, T-19-S, R-31-E, Eddy County, New Mexico, containing 40 acres. This ratification instrument has been approved by Pan American Petroleum Corporation, as Unit Operator, under date of January 18, 1960.

It is our understanding that concurrence of the other working interest owners in this unit is not necessary for the acceptance of this agreement by the U.S.G.S.; if so, please advise and we will substantiate such concurrence, inasmuch as we are now polling all the other unit members for their consent to commit this lease and tract to the unit.

Mrs. Bunnell has requested your prompt consideration and approval of this joinder.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION  
D. B. Mason, Jr., Division Landman

JDP:vc  
Attachments

By: J. D. POLLARD

cc: New Mexico State Land  
Commissioner - w/att.  
Capitol Annex Building  
Santa Fe, New Mexico

Mrs. Vola V. Bunnell - w/att.  
c/o Genesex, Inc.  
El Torreon Building  
Santa Fe, New Mexico

New Mexico Oil Conservation  
Commission  
Box 871

Mr. N. S. Whitmore

COPY

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

J. L. HOYT, JR.  
DIVISION PRODUCTION SUPERINTENDENT

January 15, 1960

File: GWK-26-416

Subject: Change of Address of  
Unit Operator,  
Greenwood Pre-Grayburg  
Unit, Lea and Eddy  
Counties, New Mexico

*Case 1-961*

SEE ADDRESSEE LIST ATTACHED

Gentlemen:

Pan American Petroleum Corporation as operator of the Greenwood Pre-Grayburg Unit hereby requests that all future correspondence relating to the operation of this Unit be directed to:

Mr. N. S. Whitmore  
Pan American Petroleum Corporation  
P. O. Box 268  
Lubbock, Texas

Your cooperation in this matter will be greatly appreciated.

Yours very truly,

*J. L. Hoyt Jr.*

DRC:md

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Carper Drilling Company  
Carper Building  
Artesia, New Mexico

Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. W. A. Mead

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Mobil Oil Company  
A Division of Socony Mobil Oil Company  
P. O. Box 633  
Midland, Texas

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas

Texaco, Inc.  
P. O. Box 3109  
Midland, Texas  
Attention: Mr. E. P. Munson, Jr.

Texaco Seaboard, Inc.  
P. O. Box 3109  
Midland, Texas

cc: Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission (3)  
State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

J. L. HOYT, JR.  
DIVISION PRODUCTION SUPERINTENDENT

January 15, 1960

File: GWK-26-416

Subject: Change of Address of  
Unit Operator,  
Greenwood Pre-Grayburg  
Unit, Lea and Eddy  
Counties, New Mexico

SEE ADDRESSEE LIST ATTACHED

Gentlemen:

Pan American Petroleum Corporation as operator of the Greenwood Pre-Grayburg Unit hereby requests that all future correspondence relating to the operation of this Unit be directed to:

Mr. N. S. Whitmore  
Pan American Petroleum Corporation  
P. O. Box 268  
Lubbock, Texas

Your cooperation in this matter will be greatly appreciated.

Yours very truly,



DRC:md

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Carper Drilling Company  
Carper Building  
Artesia, New Mexico

Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. W. A. Mead

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Mobil Oil Company  
A Division of Socony Mobil Oil Company  
P. O. Box 633  
Midland, Texas

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas

Texaco, Inc.  
P. O. Box 3109  
Midland, Texas  
Attention: Mr. E. P. Munson, Jr.

Texaco Seaboard, Inc.  
P. O. Box 3109  
Midland, Texas

cc: Oil and Gas Supervisor (6)  
United States Geological Survey  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission (3)  
State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico



# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

J. L. HOYT, JR.  
DIVISION PRODUCTION SUPERINTENDENT

December 28, 1959

File: GWK-5071-416

Subject: 1960 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico

Director (6)  
United States Geological Survey  
c/o Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Greenwood Pre-Grayburg Unit Agreement dated August 26, 1955 and approved by the Survey on April 23, 1956, Pan American Petroleum Corporation, as unit operator, on behalf of itself and the other working interest owners, hereby submits for your approval the 1960 Plan of Development.

History of Past Development - Well No. 1 was completed in the Siluro-Devonian Formation at a location in the SE/4 SE/4 Section 27, T-18-S, R-31-E, and an initial participating area of 640 acres has been approved. Well No. 2 was completed in the Pennsylvanian Formation at a location described as SW/4 NE/4 Section 34, T-18-S, R-31-E, and a Pennsylvanian Participating Area comprising 1440 acres has been approved. Well No. 3 is presently completed in the Siluro-Devonian Formation at a location described as the SE/4 NE/4 Section 27, T-18-S, R-31-E, which is outside the present limits of the Siluro-Devonian Participating Area. An application for expansion of the existing Siluro-Devonian Participating Area to include the NW/4 of Section 26 and the NE/4 of Section 27 in T-18-S, R-31-E has been filed but approval of that expansion has not yet been granted.

Unit Well No. 4, located in the NW/4 NW/4 of Section 27, T-18-S, R-31-E, was completed in the Cherry Canyon Formation January 30, 1959. Unit Well No. 5, located in the SE/4 NW/4 of Section 27, T-18-S, R-31-E, was dry in the Cherry Canyon Formation and completion attempts were abandoned in July, 1959. Application was made for an Initial Participating Area for the Cherry Canyon Formation August 5, 1959. Complete approval of that application has not yet been obtained.

December 28, 1959

Continental Oil Company is, at last report, attempting to complete a well located in the SW/4 SE/4 of Section 26, T-18-S, R-31-E in the Pennsylvanian Formation. This well is being drilled under the provisions of Section 13 of the Unit Agreement.

Proposed Additional Wells - At this time it is proposed to drill no additional wells to the Siluro-Devonian or Pennsylvanian Formations during 1960. This proposal is based on the fact that the three present completions can adequately supply all gas required under the present gas sales contract. If it should develop that the present wells are incapable of supplying the contract or if an additional outlet for gas should develop, consideration will be given to amending the present plan to allow for additional development as required.

No additional Cherry Canyon wells are planned for 1960 in view of the unsuccessful attempt in Unit Well No. 5.

Well Casing Program - The well casing program will include such surface casing and other casing as may be required by the Director, the Commissioner and the Commission, or as set forth in approvals of the applicable U.S.G.S. and State of New Mexico forms. The producing string of casing may be set and cemented on top of, partially through or completely through the producing zone.

Offset Obligations - Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Greenwood Pre-Grayburg Unit Agreement, or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in Section 17 of said Agreement.

Further Development - This plan of development shall constitute the drilling obligations of the Unit Operator under the terms of the Greenwood Pre-Grayburg Unit Agreement for the calendar year ending December 31, 1960. Before this plan expires, another plan for further development of the unit area will be submitted.

Modifications - It is understood that this plan of development is dependent upon certain information to be obtained prior to drilling and upon other contingencies such as availability of well casing; therefore, this plan of development may be modified to meet changing conditions or to protect the interest of all parties to this Agreement.

File: GWK-5071-416

-3-

December 28, 1959

Effective Date - This plan of development shall be effective  
January 1, 1960.

Dated: December 28, 1959.

PAN AMERICAN PETROLEUM CORPORATION  
Unit Operator

By:

J. L. Hoyt Jr

DRC:lj

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Oil Conservation Commission

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. W. A. Mead

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Mobil Oil Company  
P. O. Box 900  
Dallas 21, Texas  
Attention: Mr. James R. January

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas

Texaco, Inc.  
P. O. Box 3109  
Midland, Texas  
Attention: Mr. E. P. Munson, Jr.

Carper Drilling Company  
Carper Building  
Artiesia, New Mexico

# PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268  
Lubbock, Texas  
December 4, 1959

File: JET-4386-416

Subject: Initial Participating Area  
Cherry Canyon Formation  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico

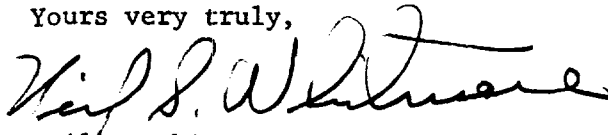
New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

Please disregard our letter of November 23, 1959, File: JET-4365-416 which again requested your approval of the Initial Participating Area for the Cherry Canyon Formation in the Greenwood Pre-Grayburg Unit. This request was approved by your office on August 26, 1959, however, the application was submitted to the Commissioner of Public Lands and your approval was inadvertently overlooked. We appreciate your prompt reply on this matter and apologize for any inconvenience our letter of November 23, 1959, may have caused.

Yours very truly,

  
Neil S. Whitmore  
District Superintendent

BJS:js

# PAN AMERICAN PETROLEUM CORPORATION

Lubbock, Texas  
P. O. Box 268  
November 23, 1959

File: JET-4365-416

Subject: Initial Participating Area  
Cherry Canyon Formation  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

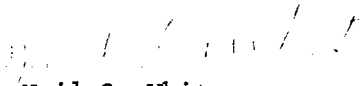
Attention: Mr. A. L. Porter, Jr.

Gentlemen:

This will have reference to our letter of August 21, 1959, File: JET-4275-416 which requested approval of the Initial Participating Area for the Cherry Canyon Formation in the Greenwood Pre-Grayburg Unit.

We will appreciate your early consideration of this matter and if we can be of further assistance or furnish any additional data you may desire concerning the application, please advise.

Yours very truly,

  
Neil S. Whitmore  
District Superintendent

BJS:js

cc: United States Geological Survey  
Box 6721  
Roswell, New Mexico

P. O. Box 6721  
Roswell, New Mexico

September 29, 1959

Pan American Petroleum Corporation  
Oil & Gas Building  
Fort Worth, Texas

Gentlemen:

Receipt is acknowledged of the following instruments pertaining to the Greenwood Pao-Grayburg unit agreement No. 14-08-001-2904 Eddy and Lea Counties, New Mexico:

1. Six copies of a joinder to the unit agreement and unit operating agreement by CAMPER DRILLING COMPANY, Inc., covering the record and working interests in unit tracts 8, 9, and 12, Federal leases LG 062082, 063727-A, and 064833, respectively, as shown in Exhibit "B". Consent to the joinder by unit operator is attached to each copy of the joinder. LG 064833 is partly within the unit area and partly outside the unit area and should be considered for segregation.

2. Five copies of a corrected joinder to the unit agreement by B. M. KECHANE and MARGIE T. KECHANE, his wife, and KECHANE, Inc., Exhibit "B" shows B. M. Kechane owns record and overriding royalty interests in tracts 3, 4A, 4B, 5A, 5B, 5C, 6, 15, 28 and 29. Consents to the joinder by the working interest owners are attached to each copy of the joinder. Original joinder erroneously indicated that tract No. 6 was in T. 18 S., rather than T. 19 S.

3. Five copies each of joinders by the following parties covering overriding royalty interests as follows:

<u>O. R. Owner</u>	<u>Unit Tracts</u>
MERCURY OIL CO.	3, 4B, 5A, 15
KIMEL McGUIRE	4A, 4B
M. E. BAISH	1, 4A, 4B, 6
RALPH SENGART et ux	4A, 4B

Consents to joinders by the corresponding working interest owners are attached to each copy of joinder.

By virtue of the Ratification and Joinder listed as Item 1 above, Federal land unit tracts 8, 9, and 12, (leases Las Cruces 063082, 063727-A, and 064833) are considered effectively committed to the Greenwood Pre-Guayburg unit agreement effective February 1, 1938, the first day of the month following filing of the Ratification and Joinder.

The Ratification and Joinder listed as Item 2 above (Federal land unit tracts 3, 4A, 4B, 5A, 5B, 5C, 6, 15, 28, and 29), amends the original Ratification and Joinder to the extent necessary to correct the description therein and is regarded as a corrected original joinder rather than a subsequent joinder.

The overriding royalty interests described by Item 3 above are considered effectively committed to the Greenwood Pre-Guayburg unit agreement, effective the first day of the month following filing, (which is March 1, 1938, for the Mercury Oil Company joinder; February 1, 1938, for the Ethel McGuire joinder, the M. E. Baish joinder, and the Ralph Shugart, et ux joinder.)

Copies of the Ratifications and Joinders are being distributed to appropriate Federal offices for inclusion in the official case records. It is assumed you will furnish other interested parties with appropriate evidence of this action. Two copies of joinder listed as Item 1 and one copy of each of the joinders listed as Items 2 and 3 are surplus to our needs and are returned herewith.

Very truly yours,

JOHN A. ANDERSON  
Regional Oil and Gas Supervisor

**Enclosures**

Copy to: Washington (w/cy of joinders)  
Artesia w/cy of joinders)  
BLM-Santa Fe (w/cy of joinders)  
State Land Office, (Mrs. Ehea) (Letter only)  
BHOCC



X

COLLECT

SEPTEMBER 16, 1959

J. L. HOYT, JR.  
PAN AMERICAN PETROLEUM CORP.  
FORT WORTH, TEXAS

RETEL SEPT 10 REQUESTING APPROVAL OF AMENDED PLAN OF DEVELOPMENT FOR THE GREENWOOD  
PRE-CRAYBURG UNIT, NEW MEXICO, NO. 14-08-001-2984, PROPOSING DRILLING OF A  
PENNSYLVANIAN TEST WELL OUTSIDE PARTICIPATING AREA IN SE4 SEC 26 T 18 S, R 31 E.  
AMENDED PLAN HEREBY APPROVED SUBJECT TO LIKE APPROVAL BY STATE OFFICIALS.



E. M. THOMASON  
ACTING OIL AND GAS SUPERVISOR  
U. S. GEOLOGICAL SURVEY

Confirmation copy to:

Washington  
Artesia  
MSDCC, Santa Fe  
Com. of Pub. Lands, Santa Fe  
Continental Oil Co., Roswell

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a fast telegram	
TELEGRAM	<input checked="" type="checkbox"/>
DAY LETTER	<input type="checkbox"/>
NIGHT LETTER	<input type="checkbox"/>

\$  
S  
E

# WESTERN UNION TELEGRAM

1206 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	<input type="checkbox"/>
LETTER TELEGRAM	<input type="checkbox"/>
SHORE SHIP	<input type="checkbox"/>

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			NEW MEXICO STATE LAND OFFICE	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

**PAN AMERICAN PET. CORP.  
OIL AND GAS BUILDING  
FORT WORTH, TEXAS  
ATTENTION: J. Hoyt Jr.**

**New Mexico State Land Office  
Santa Fe, New Mexico  
September 11, 1959**

**COMMISSIONER WILL APPROVE CONTINENTAL OIL COMPANY APPLICATION FOR  
PERMISSION TO DRILL SUBJECT WELL UNDER SECTION 13 GREENWOOD-PRE-GRAYBURG  
UNIT. SUBJECT WELL NOT A UNIT WELL AND SPECIFIC APPROVAL TO DRILL EXEMPTS  
SAME FROM PLAN OF DEVELOPMENT UNDER SECTION 10 OF UNIT.**

**WM O. JORDAN**

*General Counsel*

## CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

# WESTERN UNION

## TELEGRAM

W. P. MARSHALL, PRESIDENT

## SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

1220  
(R 11-54)

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA139 DB219 =L

D FWC141 LONG PD=WUX FORT WORTH TEX 10 204PMC=  
NEW MEXICO OIL CONSERVATION COMMISSION=  
SANTA FE NMEX=

CONTINENTAL OIL COMPANY AS A WORKING INTEREST OWNER IN THE GREENWOOD PRE-GRAYBURG UNIT, LEA AND EDDY COUNTIES, NEW MEXICO, HAS NOTIFIED US OF THEIR INTENTION TO DRILL A WELL TO THE PENNSYLVANIAN FORMATION OUTSIDE THE EXISTING PENNSYLVANIAN PARTICIPATING AREA. CONTINENTAL IS NOT UNIT OPERATOR AND PLANS THIS WELL UNDER PROVISION OF SECTION 13 OF THE UNIT AGREEMENT. IT IS OUR UNDERSTANDING THE WELL IS TO BE LOCATED IN THE SE/4, SECTION 26, T-18-S, R-31-E, EDDY COUNTY, NEW MEXICO AND THAT CONTINENTAL ANTICIPATES COMMENCING OPERATIONS IN APPROXIMATELY TWO WEEKS. WE REQUEST THAT YOU WIRE APPROVAL OF AN AMENDED PLAN OF DEVELOPMENT WITH THE ADDITIONAL DEVELOPMENT TO CONSIST OF THE WELL CONTINENTAL PROPOSES TO DRILL=

J HOYT JR PAN AMERICAN PETROLEUM CORP==

13 SE/4 26 T-18-S R-31-E.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

C - CONSERVATION COMMISSION

P. O. BOX 871  
SANTA FE, NEW MEXICO

August 26, 1959

C  
Pan American Petroleum Corporation  
P. O. Box 268  
Lubbock, Texas

ATTENTION: Mr. Neil S. Whitmore

RE: Initial Participating Area  
For Cherry Canyon Formation  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico.

O  
Gentlemen:

P  
This is to advise that the New Mexico Oil Conservation Commission has this date approved the Initial Participating Area for the Cherry Canyon Formation Greenwood Pre-Grayburg Unit Lea and Eddy Counties, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Y  
Nine approved copies of the application are returned herewith.

It is understood that the subject participating area has been submitted to take the place of the Request for Approval Initial Participating Area, Delaware Formation dated July 1, 1959 which was approved by the Commission July 15, 1959. It is further understood that the director of the United States Geological Survey has refused to approve the Delaware Participating Area, therefore making our approval of July 15, 1959 null and void under its own terms.

Very truly yours,

A.L. PORTER, Jr.,  
Secretary-Director

ALP/RLS/ig

cc: USGS - Roswell  
State Land Office - Santa Fe

# PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268  
Lubbock, Texas  
August 21, 1959

MAIL OFFICE 100

File: JET-4275-416 **30 AUG 24 AM 3 31**

Subject: Request for Approval of  
Initial Participating Area  
for Cherry Canyon Formation  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties,  
New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Dear Sir:

Pan American Petroleum Corporation respectfully requests your approval of the subject initial participating area. Twelve copies of this instrument are attached. Three copies are provided for your files; the remaining nine are required by Pan American Petroleum Corporation for further distribution and should be returned to the undersigned.

This application is very similar to that which you approved on July 15, 1959, for the Initial Participating Area, Delaware Formation, Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico. Subsequent approval of that application was also obtained from the State Land Commissioner; however, the United States Geological Survey declined to approve it in its then existing form. You will note that the revised application is for the Cherry Canyon Formation rather than the Delaware Formation and sets up an initial participating area of 80 acres. The 40 acres comprised by the SW/4 SW/4 of Section 22, T-18-S, R-31-E are operated by Gulf Oil Corporation and were also developed in the Cherry Canyon Formation of the Delaware section by Gulf as a non-participant in the Greenwood Pre-Grayburg Unit. The United States Geological Survey has stated that since Gulf's well is completed in the same formation as the Pan American Petroleum Corporation operated Greenwood Unit No. 4, and is a direct offset to the Pan American Petroleum Corporation operated well, it must be included in the participating area even though it does not participate in the Unit. The inclusion of this additional 40 acres in no way changes the participation from that previously set up by our original application which was captioned "Delaware Formation". As a matter of information, the United States Geological Survey has stated that they recognize only the Cherry Canyon Formation as being present in the Delaware in the Greenwood Pre-Grayburg Unit.

We will appreciate your early consideration of this matter and will be glad to provide any additional information that you may require.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Neil S. Whitmore", written in a cursive style.

Neil S. Whitmore  
District Superintendent

DRC:js  
Attachments

P. O. BOX 871  
SANTA FE, NEW MEXICO

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Re: 1959 Plan of Development and  
1959 Amended Plan of Development  
for the Greenwood Pre-Grayburg  
Unit, Lea and Eddy Counties, New  
Mexico.

We are herewith returning to you, unapproved, your 1959 Plan of Development and your Amended 1959 Plan of Development for the subject unit. The Commission feels that it cannot, in this case, approve a Plan calling for the drilling of no wells or an Amended Plan calling for the drilling of a well that has already been drilled.

Your prompt attention to this matter will be appreciated.

Very truly yours,

RLS/pj

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

August 5, 1959

File: GWK-4443-416

Subject: Request for Approval of  
Initial Participating Area  
for Cherry Canyon Formation  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement approved April 23, 1956, Pan American Petroleum Corporation as Unit Operator has determined subject to the approval of the Director, Commissioner, and Commission that the Cherry Canyon Formation is capable of producing unitized substances in paying quantities, and that an Initial Participating Area for the Cherry Canyon Formation should accordingly be established. The proposed initial participating area contains 80 acres and is described as the SW/4 SW/4 Section 22, and the NW/4 NW/4 Section 27, T-18-S, R-31-E, Eddy County, New Mexico. Attached hereto is Schedule I which describes the Initial Participating Area for the Cherry Canyon Formation and Exhibit A, a map of the Greenwood Pre-Grayburg Unit on which has been noted the proposed initial Cherry Canyon Participating Area. Attached in support of designation of the 80 acre initial participating area is a geological and engineering report.

The effective date for the Initial Participating Area is determined as January 30, 1959, the date on which Greenwood Unit Well No. 4 was completed. Gulf's Littlefield "AB" No. 1 was completed on December 2, 1958, but as it is located on land not



August 5, 1959

committed to the Unit, the effective date for the Participating Area has been selected as that on which the first well located on land committed to the Greenwood Pre-Grayburg Unit was completed.

Your approval of the proposed initial participating area is respectfully requested.


Very truly yours,



AJI:lj

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey  
(Subject to like approval by appropriate  
State Officials)

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
(Subject to like approval by U.S.G.S.  
and Oil Conservation Commission)

Approved  Date 8-26-59  
Oil Conservation Commission  
(Subject to like approval by U.S.G.S.  
and Commissioner of Public Lands)

"GEOLOGICAL AND ENGINEERING REPORT"  
CHERRY CANYON FORMATION, GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

The Gulf operated Littlefield "AB" No. 1 located in the SW/4 SW/4 of Section 22, T-18-S, R-31-E, Eddy County, New Mexico was completed on December 2, 1958 in the Cherry Canyon Formation, and flowed 387 barrels per day after being completed at a plug back total depth of 5032'. The Pan American operated Greenwood Unit No. 4 located 660' from north and west lines of Section 27, T-18-S, R-31-E, Eddy County, New Mexico was completed January 30, 1959, and has been determined to be a well capable of producing oil in commercial quantities. Greenwood Unit No. 4 was completed with a flowing potential of 63 barrels of oil and no water in 24 hrs. through an 1 1/64" choke with a tubing pressure of 300 psi. The well was completed through perforations from 4992' to 5010' after being drilled to a total depth of 5250' and plugged back to 5216'.

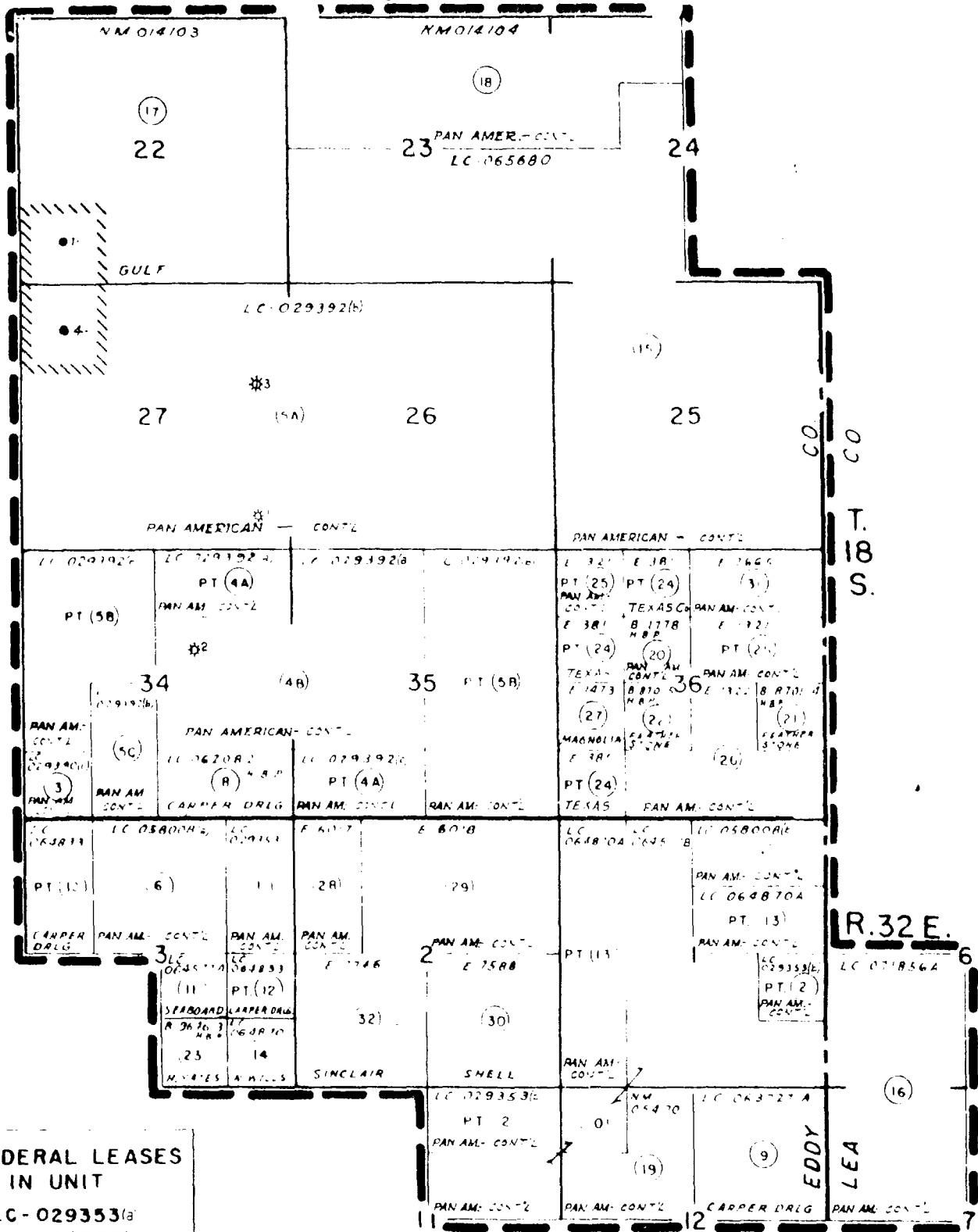
The east and west offsets to Gulf's Littlefield "AB" No. 1, the discovery well in the Area, namely Gulf's Littlefield "AB" No. 2 in the SE/4 SW/4 of Section 22 and Gulf's Keohane No. 1 in the SE/4 SE/4 of Section 21, T-18-S, R-31-E, both failed to find commercial production in the Cherry Canyon Formation. Unit Well No. 5 located in the SE/4 NW/4 Section 27, T-18-S, R-31-E has also been completed without finding commercial production in the Cherry Canyon Formation.

In view of only two commercial wells being obtained from the five locations drilled to date, an initial participating area of 80 acres, or 40 acres surrounding each producing well is being recommended. The acreage on which Gulf's Littlefield "AB" No. 1 is located has not been committed to the Greenwood Pre-Grayburg Unit, and therefore, the effective participating area will consist of only the 40 acres surrounding Greenwood Unit Well No. 4.

SCHEDULE I  
INITIAL PARTICIPATING AREA FOR THE CHERRY CANYON ZONE  
GREENWOOD PRE-GRAYBURG UNIT

<u>Tract Number</u>	<u>Description</u>	<u>Number Of Acres</u>	<u>Participating Area</u>		<u>Percent Tract Participation</u>
			<u>Ownership</u>	<u>Percentage</u>	
Pt 5A	NW/4 NW/4 Section 27 T-18-S, R-31-E	40.00	Royalty Production Payment Working Interest Continental Oil Co. Pan Am. Pet. Corp.	12.50 10.00 38.75 38.75	100%
Pt 17	SW/4 SW/4 Section 22 T-18-S, R-31-E	40.00	(Not committed to Unit and does not share in production)		

R.31 E.



FEDERAL LEASES  
IN UNIT

LC-029353(a)  
LC-029353(c)  
LC-029390(b)  
LC-029392(b)  
LC-029392(b)  
LC-058008(a)  
LC-058008(c)  
LC-062082  
LC-063727A  
LC-064577E  
LC-064577A  
LC-064833  
LC-064870A  
LC-065680  
LC-071856A  
NM-014103  
NM-014104  
NM-05470

- FEDERAL LAND  
□ STATE LAND  
--- UNIT BOUNDARY  
--- TRACT BOUNDARY  
(11) TRACT NUMBER

////// INITIAL PARTICIPATING AREA  
CHERRY CANYON FORMATION

EXHIBIT "A"  
TO ACCOMPANY  
GREENWOOD PRE-GRAYBURG UNIT AGREEMENT

EDDY AND LEA COUNTIES, NEW MEXICO

SCALE: 2"=1 MILE

(Corrected to 8-4-59)

P. O. Box 6721  
Roswell, New Mexico

August 3, 1959

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Attention: Mr. E. V. Hewitt

Gentlemen:

Your amended 1959 plan of development dated June 5, 1959, for the Greenwood Pre-Grayburg unit, No. 14-08-001-2904, Lea and Eddy Counties, New Mexico, which proposes the drilling of one Delaware sand well, has been approved on this date subject to like approval by appropriate State officials.

One approved copy of the plan is enclosed.

Very truly yours,

JOHN A. ANDERSON  
Regional Oil and Gas Supervisor

Enclosure: 1

Copy to: Washington (w/cy of plan)  
Artesia (w/cy of plan)  
NMOCC - Santa Fe  
Comm. of Pub. Lands, Santa Fe

LETTER OF 1959

In reply refer to:  
Unit Division

JUL 15 AM 1959

July 15, 1959

Pan American Petroleum Corp.  
Oil and Gas Building  
Fort Worth, Texas

ATTENTION: Mr. E. V. Hewitt

Re: Initial Participating Area  
Delaware Formation  
Greenwood Pre-Grayburg  
Unit, Lea and Eddy Counties,  
New Mexico.

Gentlemen:

We are handing to Mr. Dan Currens, ten approved copies of the Initial Participating Area Delaware Formation for the Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

This Participating Area was approved by the Commissioner of Public Lands July 15, 1959.

Very truly yours,  
MURRAY E. MORGAN  
Commissioner of Public Lands

BY:  
Ted Bilberry, Supervisor  
Oil and Gas Division

MEM/SS/m  
cc:

Oil Conservation Commission-Santa Fe, New Mexico  
U. S. Geological Survey-Roswell

P. O. BOX 871  
SANTA FE, NEW MEXICO

P. O. BOX 871

**SANTA FE, NEW MEXICO**

1000

7/13

COPY

**Gentlemen:**

Eleven approved copies of the application were handed to Mr. Dan Currins.

Very truly yours,

**A. L. PORTER, Jr.,**  
**Secretary-Director**

ALP/RLS/or

cc: State Land Office - Santa Fe, New Mexico  
U. S. Geological Survey - Roswell



# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

July 1, 1959

File: GWK-4346-416

Subject: Request for Approval of  
Initial Participating Area  
for Delaware Formation  
Greenwood Pre-Grayburg  
Unit, Lea and Eddy Counties,  
New Mexico

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement approved April 23, 1956 Pan American Petroleum Corporation as Unit Operator has determined subject to the approval of the Director, Commissioner, and Commission that the Greenwood Unit No. 4 Well completed in the Delaware Formation is capable of producing unitized substances in paying quantities and that an Initial Participating Area for the Delaware Formation should accordingly be established. The proposed initial participating area contains 40 acres and is described as the NW/4 NW/4, Section 27, T-18-S, R-31-E, Eddy County, New Mexico.

The Greenwood Unit No. 4 Well is located 660' from the north line and 660' from the west line of Section 27, T-18-S, R-31-E, Eddy County, New Mexico, and was completed January 30, 1959 at a plugged back total depth of 5216' after being drilled to a total depth of 5250'. The Delaware Formation was perforated from 4992' to 5010'. The well was completed with a flowing potential of 63 barrels of oil and no water in 24 hours through an 11/64" choke with a tubing pressure of 300 psi.

The effective date for the Initial Participating Area is determined as January 30, 1959, the date on which the above well was completed.

July 1, 1959

Attached hereto is Schedule I which describes the Initial Participating Area for the Delaware Formation, and Exhibit "A" a map of the Greenwood Pre-Grayburg Unit on which has been noted the proposed initial Delaware Participating Area. Also attached is a geological and engineering report submitted in support of designation of a 40 acre initial participating area.

Your approval of this proposed initial participating area is respectfully requested.

Very truly yours,



AJI:l,j

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey  
(Subject to like approval by appropriate  
State Officials)

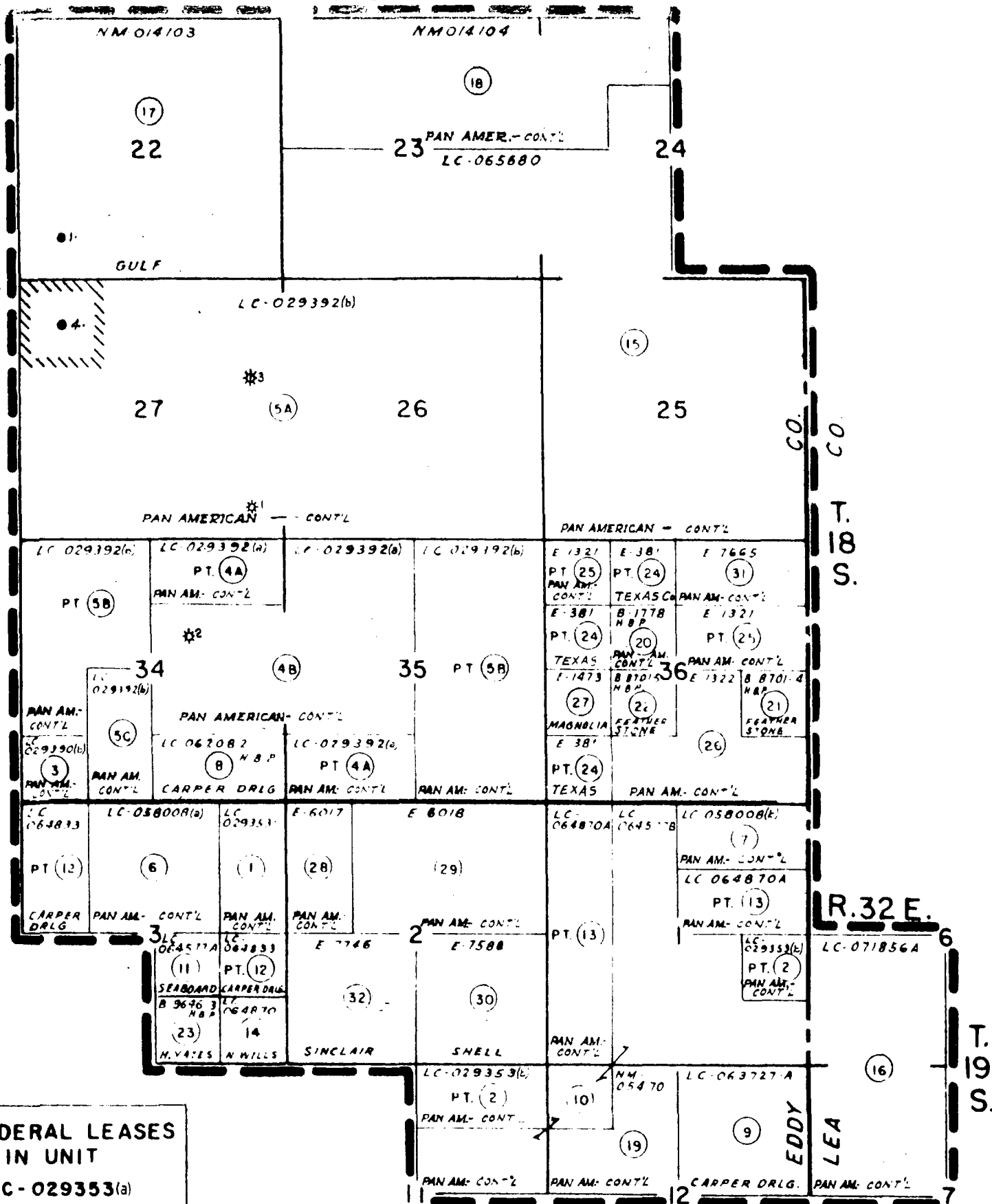
Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
(Subject to like approval by U.S.G.S.  
and Oil Conservation Commission)

Approved A. H. Porter Date July 15, 1959  
Oil Conservation Commission  
(subject to like approval by U.S.G.S.  
and Commissioner of Public Lands)

SCHEDULE I  
INITIAL PARTICIPATING AREA FOR THE DELAWARE ZONE  
GREENWOOD PRE-GRAYBURG UNIT

<u>Tract</u> <u>Number</u>	<u>Description</u>	<u>Number</u> <u>Of Acres</u>	<u>Participating Area</u>		<u>Percent</u> <u>Tract</u> <u>Participation</u>
			<u>Ownership</u>	<u>Percentage</u>	
Pt 5A	NW/4 NW/4 Section 27 T-18-S, R-31-E	40.00	Royalty	12.50	100%
			Production Payment	10.00	
			Working Interest		
			Continental Oil Co.	38.75	
			Pan Am. Pet. Corp.	38.75	

R.31 E.



# FEDERAL LEASES IN UNIT

LC-029353(a)  
LC-029353(b)  
LC-029390(b)  
LC-029392(a)  
LC-029392(b)  
LC-058008(a)  
LC-058008(b)  
LC-062082  
LC-063727A  
LC-064577B  
LC-064577A  
LC-064833  
LC-064870A  
LC-065680  
LC-071856A  
NM-014103  
NM-014104  
NM-05470

- FEDERAL LAND
- STATE LAND
- UNIT BOUNDARY
- TRACT BOUNDARY
- TRACT NUMBER

////// INITIAL PARTICIPATING AREA  
DELAWARE FORMATION

## EXHIBIT "A"

TO ACCOMPANY

## GREENWOOD PRE-GRAYBURG UNIT AGREEMENT

EDDY AND LEA COUNTIES, NEW MEXICO

SCALE: 2"=1 MILE

GEOLOGICAL AND ENGINEERING REPORT  
DELAWARE FORMATION  
GREENWOOD PRE-GRAYBURG UNIT  
EDDY AND LEA COUNTIES,  
NEW MEXICO

The Pan American operated Greenwood Unit No. 4 located 660' from the north line and 660' from the west line of Section 27, T-18-S, R-31-E, Eddy County, New Mexico, was completed January 30, 1959, as a well capable of producing oil in commercial quantities from the Delaware formation, thus necessitating formation of an initial participating area for the Delaware formation. Greenwood Unit No. 4 was completed with a flowing potential of 63 barrels of oil and no water in 24 hours through an 11/64" choke with tubing pressure of 300 psi through Delaware perforations from 4992' to 5010' after being drilled to a total depth of 5250' and being plugged back to 5216'.

On the basis of the completion and the geological information available to date, the initial participating area proposed is 40 acres in size and is as shown on Exhibit "A" attached. This participating area consists of one 40 acre tract which includes all the drilling tract assigned to the Greenwood Unit No. 4.

The extent of productive limits of the Delaware formation has not been defined to the south, west or east of the Greenwood Unit No. 4. Gulf's Littlefield "AB" No. 1 located as the north offset was the discovery well in the Delaware formation in the area. The northwest and northeast diagonal offsets; the Gulf Littlefield "AB" No. 2 in the SE/4 of the SW/4 of Section 22, T-18-S, R-31-E and the Gulf Keohane No. 1 in the SE/4 of the SE/4 of Section 21, T-18-S, R-31-E have defined the productive limits in those directions, both failing to find commercial Delaware production.

In view of the only two commercial wells being obtained from the four locations drilled thus far, an Initial Participating Area of only 40 acres is being recommended. Also Greenwood Unit Well No. 5 currently drilling in the SE/4 of the NW/4 of Section 27 should give additional information necessary to determine the productivity of the entire NW/4 of Section 27 at an early date.

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. R. L. Adams

Mr. O. F. Featherstone  
Roswell Petroleum Building  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attention: Mr. James R. January

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas  
Attention: Mr. C. S. Tinkler

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attention: Mr. E. P. Munson, Jr.

Carper Drilling Company  
Carper Building  
Artesia, New Mexico

May 19, 1959

File  
Case  
961

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

ATTENTION: E. V. Hewitt

Re: First Enlargement, Siluro-  
Devonian Participating Area  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the First Enlargement of the Siluro-Devonian Participating Area for the Greenwood Pre-Grayburg Unit Lea and Eddy Counties, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

If you wish an approved copy of the application it will be necessary for you to submit a second copy.

Very truly yours,

A. L. PONTEA, Jr.,  
Secretary-Director

ALP/ALS/pj

cc: State Land Office - Santa Fe, New Mexico  
United States Geological Survey - Roswell, New Mexico



# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT  
DIVISION PRODUCTION SUPERINTENDENT

April 23, 1959

File: GWK-4126-416

Subject: Request for Approval of  
First Enlargement, Siluro-  
Devonian Participating Area  
Greenwood Pre-Grayburg Unit,  
Lea and Eddy Counties, New  
Mexico

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement approved April 23, 1956 Pan American Petroleum Corporation as Unit Operator has determined subject to the approval of the Director, Commissioner, and Commission that the Greenwood Unit No. 3 Well completed in the Silurian-Devonian Zone is capable of producing unitized substances in paying quantities and that the participating area for the Siluro-Devonian Zone should accordingly be enlarged by 320 acres. The proposed enlarged participating area contains 960 acres, and consists of the following described acreage: Township 18 South, Range 31 East: Section 26; W/2; Section 27; E/2; Section 34; NE/4; Section 35; NW/4.

The Greenwood Unit No. 3 Well is located 1985' FNL and 660' FEL of Section 27, T-18-S, R-31-E, Eddy County, New Mexico, and was completed in July of 1958 with an initial deliverability of 1200 MCFD with 79 barrels per day of condensate against a back pressure of 690 psi. Subsequent work on the well has increased the productivity to approximately 1500 MCFD with 79 barrels of condensate per day. Gas produced from this well is currently being sold to the Potash Company of America as is all other gas production from this unit.

Attached is Exhibit "A", a map of the Greenwood Pre-Grayburg Unit Area on which has been noted the present participating area and the proposed 320 acre enlargement. Also attached is a revised Schedule I which describes the participating area for the Siluro-Devonian Zone and shows the percentages of unitized substances allocated to each

File: GWK-4126-416

-2-

April 23, 1959

unitized tract. Also included is a geological and engineering report and a north-south cross section of the Devonian Formation offered in support of the proposed enlargement.

The proposed effective date for the enlarged participating area is determined as July 1, 1958, being the first of the month in which the well was completed.

If this enlarged participating area meets with your approval, please indicate such approval hereon. A copy of this application is being furnished to all committed working interest owners in the Unit Area.

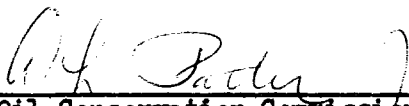
Very truly yours,



AJI:lj  
Attachments

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey  
Subject to like approval by appropriate State Officials

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
Subject to like approval by U.S.G.S.  
and Oil Conservation Commission

Approved  Date 5 19 59  
Oil Conservation Commission  
Subject to like approval by U.S.G.S.  
and Commissioner of Public Lands

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

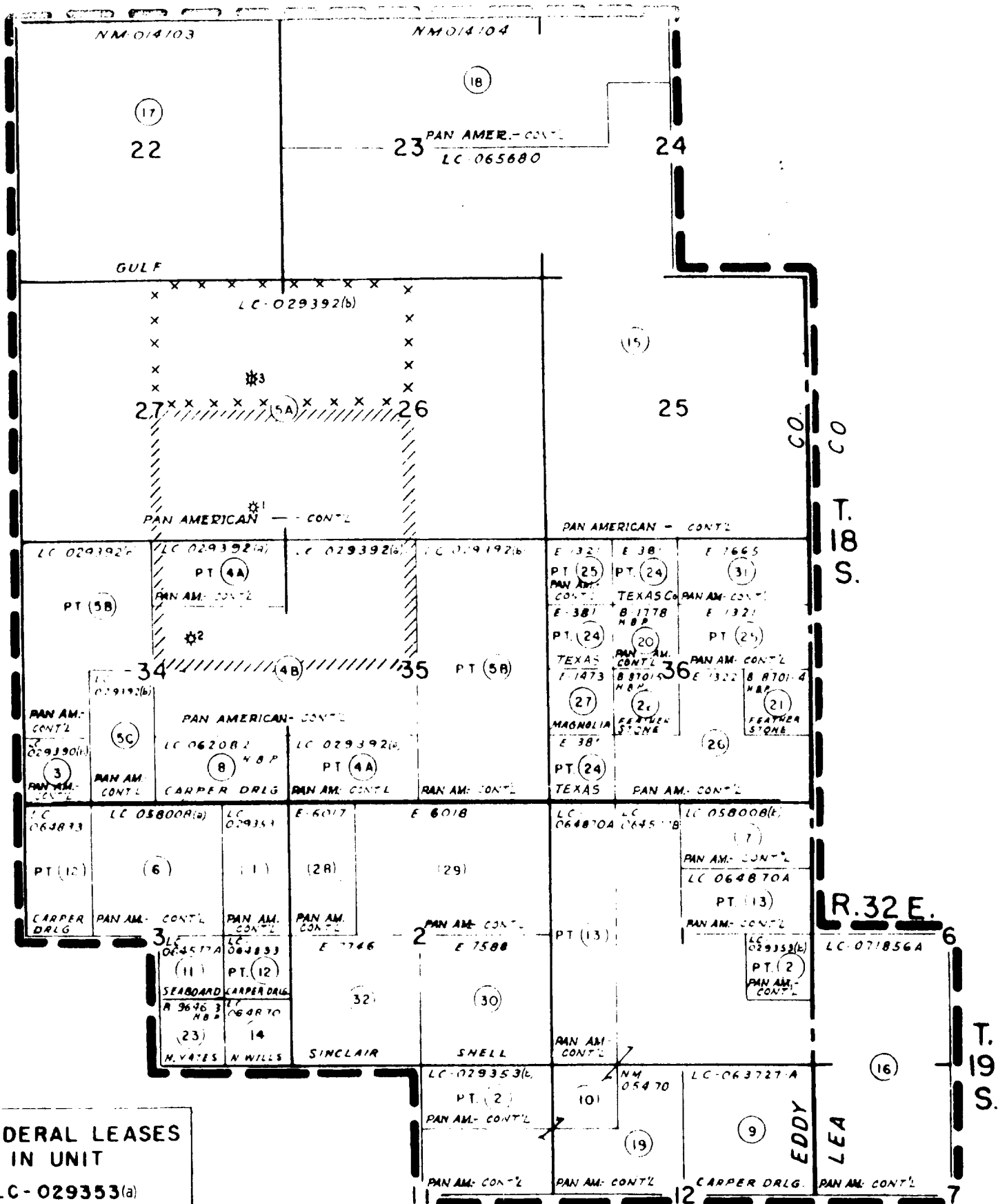
Continental Oil Company  
825 Petroleum Building  
Roswell, New Mexico  
Attention: Mr. R. L. Adams

Mr. O. F. Featherstone  
Roswell Petroleum Building  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
P. O. Box 1470  
Midland, Texas  
Attn: Mr. C. S. Tinkler

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.



SCHEDULE I  
FIRST ENLARGED PARTICIPATING AREA FOR THE SILURO-DEVONIAN ZONE  
GREENWOOD PRE-GRABURG UNIT

Tract Number	Description	Number Of Acres	Participating Area Ownership	& Percentage	Percent Tract Participatio
t. 4A	T-18-S, R-31-E N/2 NE/4 Sec 34	80.00	Royalty O.R.R.I. Production Payment Working Interest Continental Oil Company Pan American Pet. Corp.	5.00% 12.50% 5.00% 38.75% 38.75%	8.33%
Pt. 4B	T-18-S, R-31-E S/2 NE/4 Sec. 34 and NW/4 Sec. 35	240.00	Royalty O.R.R.I. Production Payment Working Interest Continental Oil Company Pan American Pet. Corp.	100.00% 5.00% 7.50% 10.00% 38.75% 38.75%	25.00%
Pt. 5A	T-18-S, R-31-E W/2 Sec. 26 and E/2 Sec. 27	640.00	Royalty Production Payment Working Interest Continental Oil Company Pan American Pet. Corp.	12.50% 10.00% 38.75% 38.75% 100.00%	66.67%
Total Initial Participating Area		960.00			100.00%

R E C A P I T U L A T I O N

Description of Lands in Participating Area: T-18-S, R-31-E: W/2 Sec. 26, E/2 Sec. 27, NE/4 Sec. 34, and NW/4 Sec. 35	
Total Number of Acres in Participating Area	960
Total Number of Acres Committed in Participating Area	960
Total Number of Acres Not Committed in Participating Area	-0-
Percent of Basic Royalty Committed	100.000
Percent of Working Interest Committed	100.000

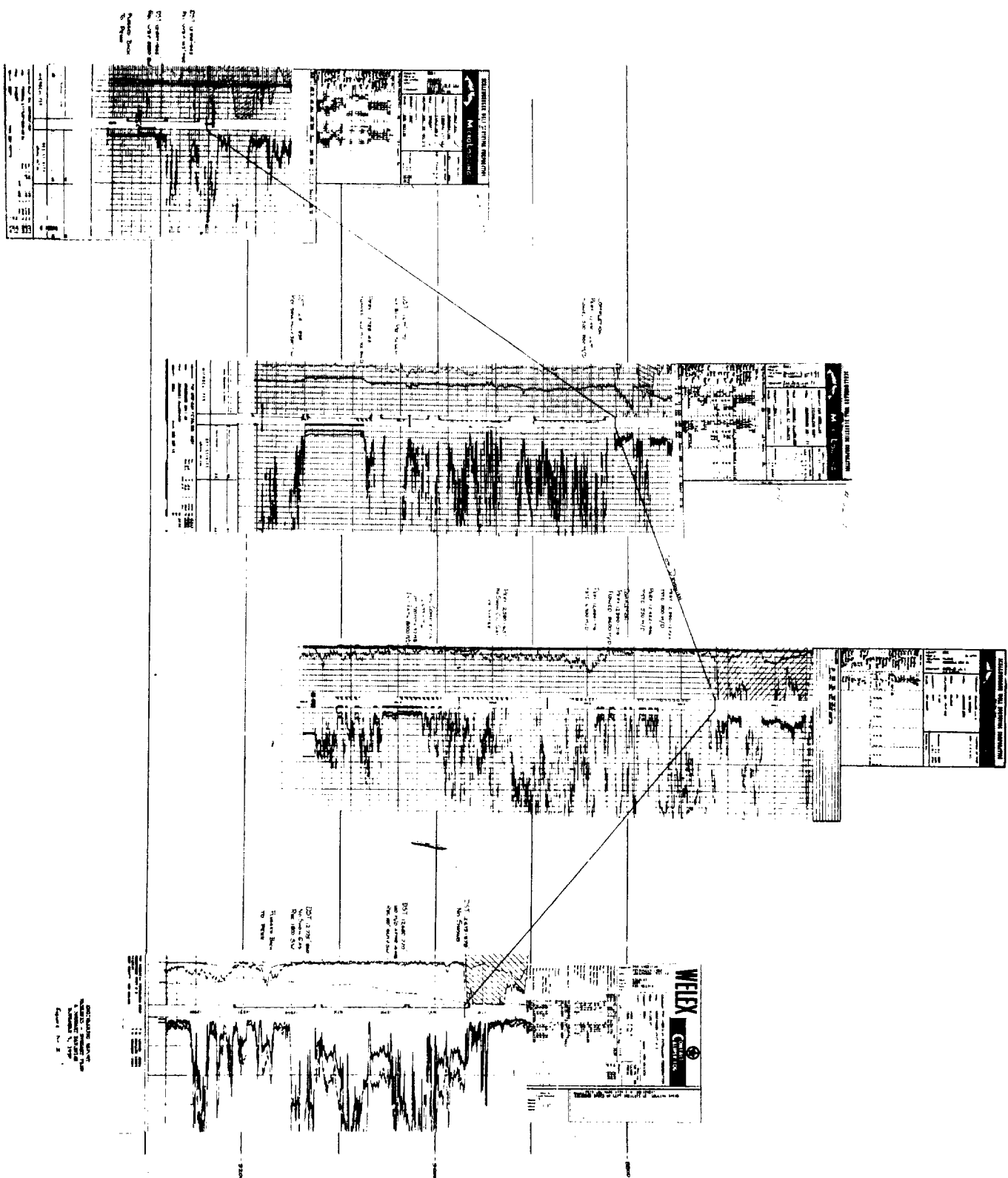
GEOLOGICAL AND ENGINEERING REPORT  
TO SUPPORT FIRST ENLARGED SILURO-DEVONIAN  
PARTICIPATING AREA, GREENWOOD PRE-GRAYBURG  
UNIT, LEA AND EDDY COUNTIES, NEW MEXICO

Completion of the Pan American operated Greenwood Unit No. 3 located 1985' FNL and 660' FEL of Section 27, T-18-S, R-31-E, Eddy County, New Mexico as a well capable of producing gas condensate in commercial quantities in the Silurian-Devonian Formation necessitates the enlargement of the subject participating area. Greenwood Unit No. 3 was completed in July 1958 with an indicated deliverability of 1200 MCF of gas and 79 barrels of condensate against a back pressure of 690 psi. Subsequent remedial work and additional testing indicates the well is capable of a deliverability of about 1500 MCF of gas with 79 barrels of condensate per day.

The extent of productive limits of the Siluro-Devonian Formation is fairly well defined to the south, west, and north by virtue of two dry holes being Gulf's Littlefield "AB" No. 1 in the SW/4 SW/4 of Section 22, T-18-S, R-31-E, and the Greenwood No. 2 in the SW/4 NE/4 of Section 34, T-18-S, R-31-E. It is indicated from these completions and the attached cross section that a gas-water contact occurs at approximately -9000'. The 320 acre tract being the NW/4 Section 26, T-18-S, R-31-E and the NE/4 Section 27, T-18-S, R-31-E is, therefore, indicated to lie within the productive limits of the Siluro-Devonian Zone.

Based on the above, it can be seen that an enlarged participating area consisting of 960 acres and comprising Wells No. 1 and 3 is reasonable.

# SHUGART DEVONIAN NORTH-SOUTH CROSS SECTION A-A'





In reply refer to  
Unit Division

March 9, 1959

File  
911

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

ATTENTION: Mr. E. V. Hewitt

Re: 1959 Plan of Development  
Greenwood Pre-Grayburg  
Unit

Gentlemen:

In reply to your letter of February 6, 1959 and your 1959 Plan for no development in the Greenwood Pre-Grayburg Unit Area, may we suggest you request a six month extension in which to file your 1959 Plan of Development, or until July 1, 1959.

This would give you time to produce your No. 4 Well, which was completed January 22, 1959. We believe until all the acreage in a unit is proven or released that a Plan of Development should be for development and operators of units are aware of their obligations at the time the units are approved.

Very truly yours,  
MURRAY E. MORGAN  
Commissioner of Public Lands

BY:  
Ted Bilberry, Supervisor  
Oil and Gas Division

MEM/MMR/m

cc: OCC- Santa Fe  
USGS- Roswell

C  
O  
P  
Y

P. O. Box 6721  
Roswell, New Mexico

February 13, 1959

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Attention: E. V. Hewitt

Gentlemen:

Your plan of development for 1959, dated December 23, 1958, for the Greenwood Pre-Grayburg unit area, Lea and Eddy Counties, New Mexico, which proposes the drilling of no wells has been approved on this date subject to like approval by the appropriate State officials.

One approved copy of the plan is enclosed.

Very truly yours,

(SIGNED) EDWIN M. THOMASSON

EDWIN M. THOMASSON  
Acting Oil and Gas Supervisor

Enclosure 1

Copy to: Washington (w/copy of plan)  
Artesia  
NMOCC, Santa Fe (letter only) ✓  
Com. of Pub. Lands, Santa Fe (letter only)



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

P. O. Box 6721  
Roswell, New Mexico

December 10, 1958

Pan American Petroleum Corporation  
Oil and Gas Building  
Ft. Worth, Texas

Attention: Mr. L. V. Hewitt

Gentlemen:

Your telegram-amendment of December 9, 1958 to the 1958 plan of development for the Greenwood Pre-Grayburg unit area, New Mexico, No. 14-08-001-2904, has been approved on this date subject to like approval by the appropriate officials of the State of New Mexico. The amendment provides for an additional well in the NW $\frac{1}{4}$  sec. 27, T. 18S, R. 31E, N.M.P.M. to test the Delaware sand at approximately 5900 feet.

Please consider this letter as formal evidence of approval in lieu of the customary approval of the amendment instrument.

Very truly yours,

E. M. THOMASSON  
Acting Oil and Gas Supervisor

Copies to : Artesia  
Washington  
Comm. Public Lands, Santa Fe  
Oil Conserv. Comm. Santa Fe  
Pan American Pet. Corp. Roswell

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT  
DIVISION PRODUCTION SUPERINTENDENT

*File*  
*701*

June 23, 1958

File: GWK-3489-416

Subject: Revised 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico

Director (6)  
United States Geological Survey  
c/o Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pan American, by its letter of June 10, 1958, File: GWK-3450-416, submitted for approval a revised 1958 Plan of Development for the Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico. The subject application was approved as follows:

United States Geological Survey - June 17, 1958  
Commissioner of Public Lands, State of New Mexico - June  
16, 1958  
New Mexico Oil Conservation Commission - June 16, 1958

Very truly yours,

*E. V. Hewitt*

AJI:lj



IN REPLY REFER TO:

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
P. O. Box 6721  
Roswell, New Mexico

File 961  
June 17, 1958

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Gentlemen:

Your revised 1958 plan of development, dated June 10, 1958, for the Greenwood Pre-Grayburg unit area, New Mexico, No. 14-08-001-2904, moving the location of the previously proposed Siluro-Devonian test well approximately  $\frac{1}{2}$  mile west, has been approved on this date subject to like approval by the appropriate officials of the State of New Mexico.

Three approved copies of the plan are enclosed.

Very truly yours,

JOHN A. ANDERSON  
Regional Oil and Gas Supervisor

Enclosures 3

Copy to: Artesia (w/cy of plan)  
Washington (w/cy of plan)  
Comm of Public Lands, Santa Fe  
Oil Cons. Comm., Santa Fe

CCTraywick:mm

In reply refer to:  
Unit Division

June 16, 1958

Pan American Pet. Corp.  
Oil and Gas Building  
Fort Worth, Texas

Re: Revised 1956 Plan of  
Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, N.M.

Attention: Mr. E. V. Hewitt

Gentlemen:

We are enclosing one copy of the revised 1956 Plan of Development for the Greenwood Pre-Grayburg Area. This was approved by the Commissioner of Public Lands June 16, 1958, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

Very truly yours,

MURRAY E. MORGAN  
Commissioner of Public Lands

BY:  
Ted Bilberry, Supervisor  
Oil and Gas Division

MEM/MMR/s

cc: OGC-Santa Fe  
USGS-Roswell

C  
O  
P  
Y

236  
OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

June 16, 1958

File  
copy  
101

C  
O  
P  
Y  
  
Pan-American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Attention: Mr. E. V. Hewitt

Re: Revised 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Revised 1958 Plan of Development for the Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Two approved copies of the Plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/RLS/ga

cc United States Geological Survey, Roswell, New Mexico  
Commissioner of Public Lands, Santa Fe, New Mexico

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT  
DIVISION PRODUCTION SUPERINTENDENT

June 12, 1958

File: GWK-3467-416

Subject: Approval of Initial Pennsylvanian  
Participating Area, Greenwood  
Pre-Grayburg Unit, Lea and Eddy  
Counties, New Mexico

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

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

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Application for approval of Initial Participating Area for the Pennsylvanian Formation, Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico was made by our letter of April 17, 1958, GWK-3293-416. The Initial Participating Area is described as follows:

Township 18 South, Range 31 East: All of Section 34;  
S/2 of Section 27; SW/4 of Section 26; W/2 of Section 35,  
containing 1440 acres more or less.

The effective date for this participating area is January 27, 1958.

Approval of the Initial Participating Area was obtained from the various regulatory bodies on dates shown below:

Director of United States Geological Survey - June 3, 1958.  
Commissioner of Public Lands of the State of New Mexico -  
April 24, 1958.  
Oil Conservation Commission, State of New Mexico, also  
April 24, 1958.

Very truly yours,

*E. V. Hewitt*  
2



MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

Carper Drilling Company  
Carper Building  
Artesia, New Mexico

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

June 10, 1958

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

File: GWK-3450-416

Subject: Revised 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico

Director (6)  
United States Geological Survey  
c/o Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
in Unit Area  
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Greenwood Pre-Grayburg Unit Agreement dated August 26, 1955 Pan American Petroleum Corporation as Unit Operator submitted for your approval a 1958 Plan of Development by letter of December 23, 1957, File: GWK-5096-416. The plan called for drilling a Siluro-Devonian test in the SE/4 NW/4 Section 26, T-18-S, R-31-E, Eddy County, New Mexico.

At the time the plan was submitted, Unit Well No. 1 located in the SE/4 SE/4 Section 27, T-18-S, R-31-E, was producing from the Siluro-Devonian and the initial participating area had been approved. Unit Well No. 2, a projected Siluro-Devonian test located in the SW/4 NE/4 Section 34, T-18-S, R-31-E, was drilling in the Siluro-Devonian and plans were being made for testing. Subsequent to filing of the Plan of Development the Siluro-Devonian was tested and no commercial shows of oil or gas were found, and the well was plugged back and completed as a Pennsylvanian producer. Pipe was set at 12,780' to allow use of the Siluro-Devonian as a possible salvage zone at a later date. An application for establishment of an initial Pennsylvanian Participating Area has been submitted for approval.

Based on seismic interpretation and the fact that the Siluro-Devonian in Well No. 2 ran about 251' low to Well No. 1 it was decided that the location originally requested on the Plan of Development was not as desirable as a location in the SE/4 NE/4 Section 27, T-18-S, R-31-E. In view of this Well No. 3 was spudded at the revised location and is currently drilling at a depth of about 11,200'. Your approval of the Plan

June 10, 1958

of Development calling for revision in the location of Well No. 3 is hereby respectfully requested.


Very truly yours,



AJI:lj

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands

Approved  Date June 16, 1958  
Oil Conservation Commission

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
Roswell Petroleum Building  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

PAN AMERICAN PETROLEUM CORPORATION  
FORT WORTH, TEXAS

May 7, 1958

File: OWK-3338-416

Subject: Development of Greenwood  
Pre-Grayburg Unit, Lea and  
Eddy Counties, New Mexico

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

Gentlemen:

Recently an application for establishment of Initial Participating Area for the Pennsylvanian Formation of the Greenwood Pre-Grayburg Unit was presented to your office for approval. You pointed out to our representative at that time that you had received no answer to your letter of January 15, 1958 which requested that consideration be given to drilling the 1958 Plan of Development well in either Section 36, T-18-S, R-31-E or in Section 2, T-19-S, R-31-E. As Well No. 3 was spudded on January 18, 1958 prior to receipt of your letter it was impossible to consider your request. Your letter was not answered as we were under the impression that you were aware of the facts by the time your letter reached us. We regret this oversight very much and have the following to offer in regards to consideration of development of your acreage.

At the time the 1958 Plan of Development was prepared and also during preparation of the application for the Initial Pennsylvanian Participating Area serious consideration was given to inclusion of the requested acreage in Section 36 and Section 2. It was the consensus of all concerned that this acreage was not the most optimum for present development and for that reason it was not included at that time. You may be sure that we will do our very best to give consideration to your request whenever further development is planned.

Very truly yours,

Original  
Signed by E. W. HEWITT

AJI:lj

cc: Oil Conservation Commission  
Capitol Annex Building  
Santa Fe, New Mexico

COPY

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

Disks  
all

April 24, 1958

C  
O  
P  
Y  
  
Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Re: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Request for Approval  
of Initial Participating Area  
for Pennsylvanian Formation  
Effective January 27, 1958.

Attention: E. U. Hewitt

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved your application dated April 17, 1958, for approval of the Initial Participating Area for the Pennsylvanian formation in the subject unit area, said participating area to be effective January 27, 1958.

Approval of this application is granted subject to like approval being obtained from the United States Geological Survey and from the Commissioner of Public Lands of the State of New Mexico.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/DSN/og

cc: United States Geological Survey - Roswell  
Commissioner of Public Lands - Santa Fe

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

April 17, 1958

File: GWK-3293-416

Subject: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Request for Approval of  
Initial Participating Area for  
Pennsylvanian Formation  
Effective January 27, 1958

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

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

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement, approved April 23, 1956, Pan American Petroleum Corporation, as Unit Operator, has determined, subject to the approval of the Director, Commissioner, and Commission, that the Greenwood Unit No. 2 Well, completed in the Pennsylvanian Formation is capable of producing unitized substances in paying quantities and that an Initial Participating Area for the Pennsylvanian Formation should accordingly be established. The proposed Initial Participating Area contains 1440 acres and is described as follows: Township 18 South, Range 31 East: All of Section 34; S/2 of Section 27; SW/4 of Section 26; W/2 of Section 35.

The Greenwood Unit No. 2 Well is located 1980' from the North and East lines of Section 34, Township 18 South, Range 31 East, Eddy County, New Mexico, and was completed January 27, 1958 at a plugged back total depth of 11,495', after being drilled to a total depth of 12,925'. The Pennsylvanian Formation was perforated from 10,912' to 10,948' and from 11,425' to 11,438'. On potential test the well produced at a rate of 6,640 MCF and 279 barrels of condensate per day through a 44/64" choke with a flowing casing pressure of 1226 psi. Tests conducted indicate the well has a calculated open flow potential of about 7600 MCF per day.

April 17, 1958

The effective date for the Initial Participating Area is determined as January 27, 1958, the date on which the above well was completed.

Attached hereto is Schedule I which describes the Initial Participating Area for the Pennsylvanian Formation, and shows the percentage of unitized substances allocated to each participating tract, and Exhibit "A", a map of the Greenwood Pre-Grayburg Unit Area on which has been noted the proposed Initial Participating Area for the Pennsylvanian Formation. Also attached are a geological and engineering report and a cross section showing the location and correlation of the productive Pennsylvanian Formation. The report and cross section are submitted as evidence of the productivity of the 1440 acres proposed as an Initial Participating Area.

If this Initial Participating Area meets with your approval, please indicate hereon. Approval of the Participating Area has been received from the committed working interest owners in the Unit Area.


Very truly yours,



AJI:lj  
Attachment

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey  
(Subject to like approval by appropriate  
State Officials)

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
(Subject to like approval by U.S.G.S.  
and Oil Conservation Commission)

Approved  Date 4-24-58  
Oil Conservation Commission  
(subject to like approval by U.S.G.S.  
and Commissioner of Public Lands)



MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

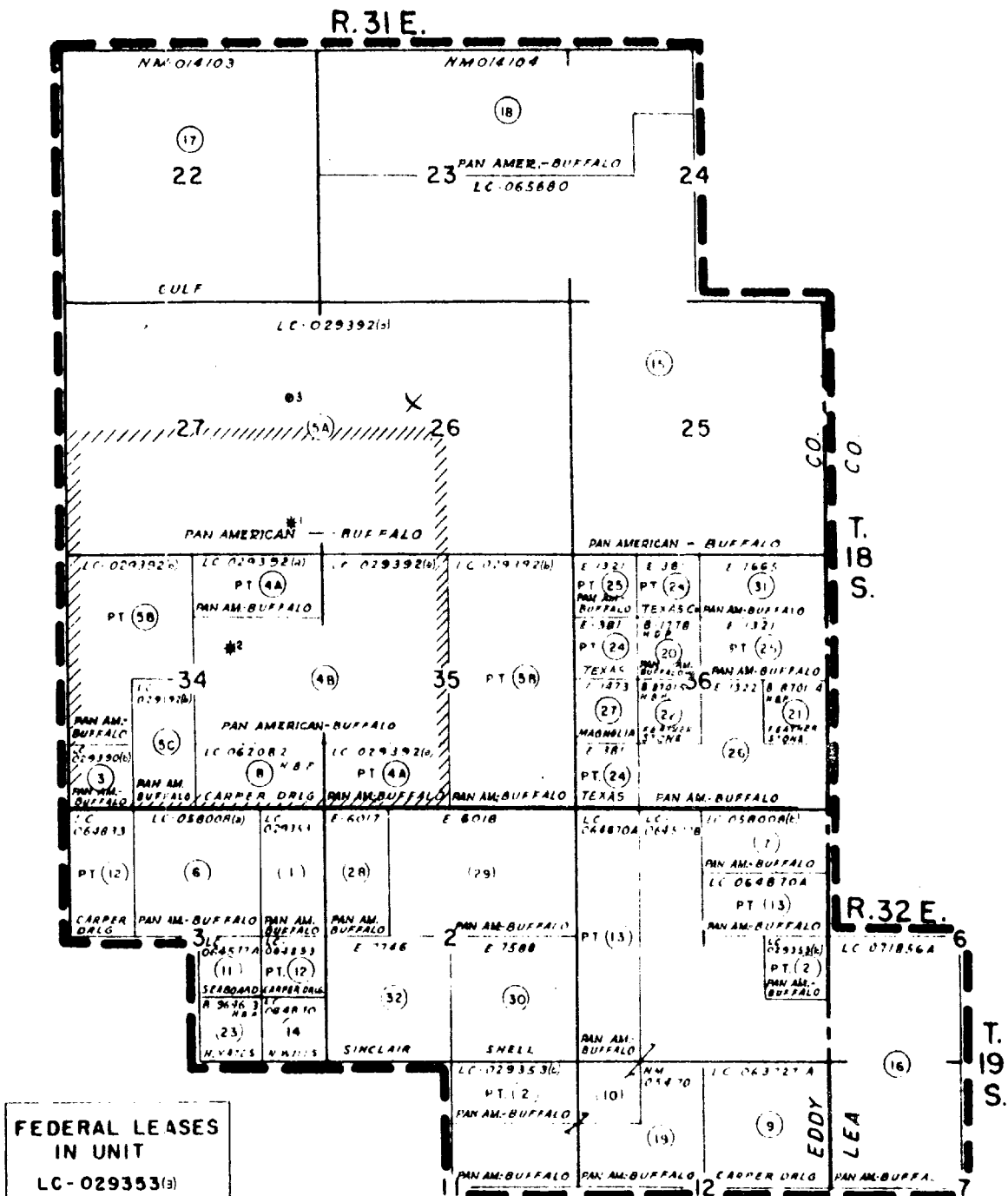
The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

**SCHEDULE I**  
**INITIAL PARTICIPATING AREA FOR THE PENNSYLVANIAN FORMATION**

Tract Number	Description	Number of Acres	Participating Area		Percentage Committed To Unit	Present Actual Participation
			Ownership	Percentage		
3	T-18-S, R-31-E SW/4 SW/4 Section 34	40.00	Royalty	12.50	12.50	2.77778
			ORRI	5.00	5.00	
			Production Payment	5.00	5.00	
			Working Interest			
			Buffalo Oil Company Pan American Pet. Corp.	38.75	38.75	
				38.75	38.75	
				100.00	100.00	
Pt. 4A	T-18-S, R-31-E N/2 NE/4 Section 34 S/2 SW/4 Section 35	160.00	Royalty	5.00	5.000	11.11111
			ORRI	12.50	10.625	
			Production Payment	5.00	5.000	
			Working Interest			
			Buffalo Oil Company Pan American Pet. Corp.	38.75	38.750	
				38.75	38.750	
				100.00	98.125	
Pt. 4B	T-18-S, R-31-E S/2 NE/4 and N/2 SE/4 Section 34 and NW/4 and N/2 SW/4 Section 35	400.00	Royalty	5.00	5.00	27.77778
			ORRI	7.50	7.50	
			Production Payment	10.00	10.00	
			Working Interest			
			Buffalo Oil Company Pan American Pet. Corp.	38.75	38.75	
				38.75	38.75	
				100.00	100.00	

Tract Number	Description	Number Of Acres	Participating Area		Percentage Committed To Unit	Present Actual Participation
			Ownership	Percentage		
Pt.5A	T-18-S, R-31-E SW/4 Section 26 and S/2 Section 27	480.00	Royalty Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	12.50 10.00 38.75 38.75 <u>100.00</u>	12.50 10.00 38.75 38.75 <u>100.00</u>	33.33333
Pt.5B	T-18-S, R-31-E NW/4 and NW/4 SW/4 Section 34	200.00	Royalty ORRI Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	12.50 5.00 5.00 38.75 38.75 <u>100.00</u>	12.5000 3.125 5.000 38.750 38.750 <u>98.125</u>	13.88888
5C	T-18-S, R-31-E E/2 SW/4 Section 34	80.00	Royalty* ORRI Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	12.50 5.00 5.00 38.75 38.75 <u>100.00</u>	12.500 3.125 5.000 38.75 38.75 <u>98.125</u>	5.55556
8	T-18-S, R-31-E S/2 SE/4 Section 34	80.00	Royalty ORRI Working Interest Carper Drilling Co.	5.00 13.75 81.25 <u>100.00</u>	5.00 7.50 81.25 <u>93.75</u>	5.55556
Total Initial Participating Area		1440.00				100.00000

\*Provision in original lease for sliding scale royalty payment. Estimated that at present time 12.5% rate will prevail.



GEOLOGICAL AND ENGINEERING REPORT  
PENNSYLVANIAN FORMATION  
GREENWOOD PRE-GRAYBURG UNIT  
EDDY AND LEA COUNTIES, NEW MEXICO

Pan American operated Greenwood Unit No. 2 located 1980' from the North and East lines of Section 34, T-18-S, R-31-E, Eddy County, New Mexico was completed January 27, 1958, as a well capable of producing gas in commercial quantities from the Pennsylvanian formation, thus necessitating formation of an Initial Participating Area for the Pennsylvanian Formation. This well was completed with a calculated open flow of 7600 MCFPD through Pennsylvanian perforations from 10,912' to 10,948' and 11,425' to 11,438', after being drilled to a total depth of 12,925' and being plugged back to 11,495'. During potential test the maximum stabilized flow was at the rate of 6640 MCF and 279 barrels of condensate per day through a 44/64" choke with a flowing casing pressure of 1226 psi.

Prior to the drilling of Well No. 2, Greenwood Unit No. 1, a Siluro-Devonian gas well had been drill stem tested in the Pennsylvanian. On this test it produced at the rate of 12,000 MCF Plus 360 barrels of condensate per day from an interval correlative to the main producing interval in Well No. 2. On the basis of the extended pay continuity demonstrated by correlation of these two wells and other available geological information, an Initial Participating Area of 1440 acres is proposed, as shown on the attached Exhibit "A". This area consists of all of Section 34, the S/2 Section 27, the SW/4 Section 26, and the W/2 Section 35, T-18-S, R-31-E.

Attached is a cross section showing by means of the Contact Log over the Pennsylvanian for each well, the location and correlation of the productive Pennsylvanian. The Contact Log shows the main or upper pay zone to increase in thickness of net porosity from 20' in Well No. 1 to 28' in Well No. 2, whereas, the lower zone is approximately 8' thick in both wells. A core recovered from well No. 2 over the main interval had a weighted average porosity of 9.3 per cent and a permeability of 3.1 millidarcies, for the 22' of cored section considered as net pay. The top few feet of net pay as indicated by logs were not cored. Radioactive and conventional Electric Logs obtained on these two wells further demonstrate the continuity and similarity of the two pays between wells.

The seismic map submitted with the application for the Greenwood Unit is still considered representative of the structure in this locality and closely reflects the structure of the Pennsylvanian. Initial testing conducted on both wells and the sustained production from Well No. 2 have not indicated the existence of a free water table in the Pennsylvanian, therefore, it is anticipated that the ultimate extent of the reservoir will be primarily a function of permeability and porosity development without significant relationship to structure. On the basis of pay continuity between the two wells, which have penetrated the Pennsylvanian on the Greenwood structure, it appears that an area significantly larger than the proposed Participating Area will be found capable of commercial production. From information now available it can be concluded that the

entire 1440 acres within the Proposed Initial Pennsylvanian Participating Area has been reasonably proven to be capable of gas production in commercial quantities.

CROSS SECTION  
GREENWOOD UNIT  
SHOWING PENNSYLVANIAN PAY  
DEVELOPMENT  
EDDY COUNTY, NEW MEXICO

GREENWOOD UNIT NO. 1  
DEVONIAN COMPLETION

GREENWOOD UNIT NO. 2  
PENNSYLVANIAN COMPLETION

DST PENN 10,900 to 10,971  
Open 24 hrs GTS 10 min  
Avg rate 5478 MCFPD BHPV INT 905 PSI  
Final 1455 PSI BHPV 102 hrs, 4740 PSI  
Rec Discharge NO WATER

COMPLETION DATA  
Top Pay 10,987  
Perf 10,987 to 11,026  
8,425 to 11,436  
POTENTIAL 1.27-5R  
COAF 7600 MCFPD  
Max Per 6640 MCF + 279 B/D  
TPV 954 PSI 44/64" CW

DST PENN 8,420' to 8,458'  
Open 6 hrs Stab Gas Rate 750 MCFPD  
BHPV Initial 1435 PSI, Final 1775 PSI  
BHPV 50 hrs 4840 PSI

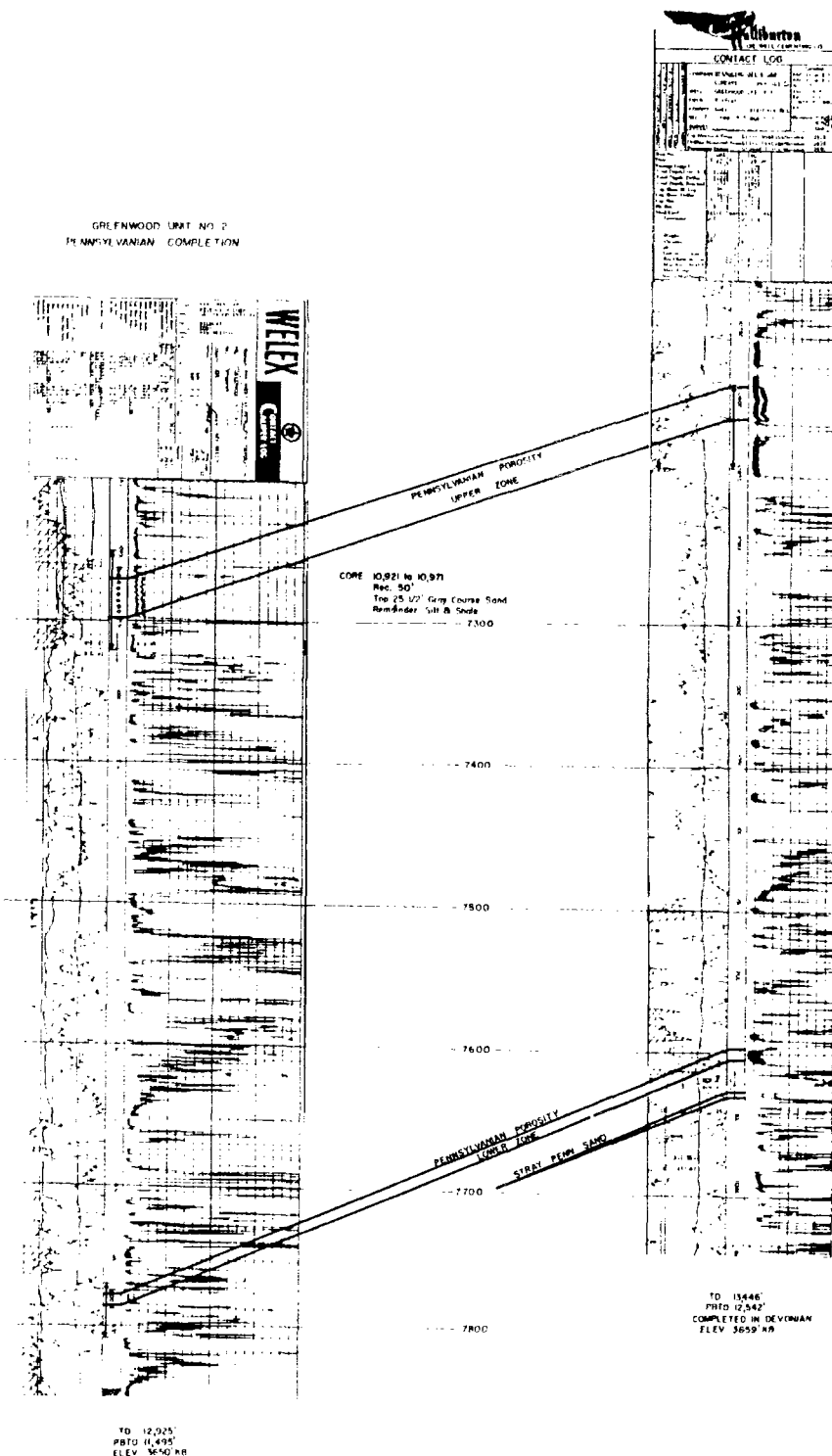
TD 12,925'  
P8TD 11,495'  
ELEV 5650' RH

CORE 10,921 to 10,971  
Rec. 50'  
Top 25 1/2' Gray Course Sand  
Remainder Silt & Shale  
7300

DST 10,792 to 10,837  
Open 2 hrs 20 min in GTS 10 min  
2 at the rate 12,000 MCF + 540 B/D Discharge  
BHPV Int 1735 PSI, Final 2770  
BHPV 4760 PSI

NO TEST 8,256' to 11,264'  
Correlative to LOWER PENN  
in Well No 2

TD 13446'  
P8TD 12,542'  
COMPLETED IN DEVONIAN  
ELEV 5659' RH





OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

March 28, 1958

C  
O  
P  
Y  
  
Pan American Petroleum Corporation  
Box 1410  
Fort Worth, Texas

Attention: Mr. E. V. Hewitt

Re: 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1958 Plan of Development for the Greenwood Pre-Grayburg Unit Area, dated December 23, 1957, subject to like approval by the United States Geological Survey and by the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the Plan is returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/RLS/ga

Enclosure



IN REPLY REFER TO:

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

P. O. Box 6721  
Roswell, New Mexico

January 28, 1938

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Gentlemen:

Your plan of development dated December 23, 1937, for the Greenwood Pre-Grayburg Unit Area, for the calendar year 1938, has been approved on this date subject to like approval by the appropriate State of New Mexico officials.

Three approved copies of the plan are enclosed.

Very truly yours,

*[Signature]*

JOHN A. ANDERSON  
Regional Oil and Gas Supervisor

Enclosures

Copy to: Washington (w/copy of plan)  
Artesia (w/copy of plan)  
Comm. of Public Lands, Santa Fe (letter only)  
Oil Cons. Com., Santa Fe (letter only)

a reply refer to:  
Oil Division

January 15, 1958

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Re: 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico

Attention: Mr. E. V. Hewitt

Gentlemen:

We have received your 1958 Plan of Development, in which you propose to drill one Siluro-Devonian Well to be located in the SE/4NW/4 of Section 26, 18s, 31E.

In our letter dated August 20, 1957, we waived our request made in our letter of June 3, 1957, however, we stated we would expect consideration when the next plan of development was submitted.

Therefore, we are requesting that you consider drilling the well planned for your 1958 Drilling Program, either in Section 36, 18s, 31E, or Section 2, 19s, 31E.

Thanking you for your consideration in this matter.

Very truly yours,

MURRAY E. MORGAN,  
Commissioner of Public Lands

BY:

Ted Bilberry, Supervisor  
Oil and Gas Division

MEM/MMR/s  
cc:

Oil Conservation Commission  
Capitol Annex Building  
Santa Fe, New Mexico

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

December 23, 1957

File: GWK-5096-416

Subject: 1958 Plan of Development  
Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico

Director (6)  
United States Geological Survey  
C/O Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

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

All Committed Working Interest Owners  
in Unit Area  
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Greenwood Pre-Grayburg Unit Agreement dated August 26, 1955 and approved by the Survey on April 23, 1956, Pan American Petroleum Corporation, as unit operator, hereby submits for your approval the 1958 Plan of Development.

History of Past Development. To date one well has been completed in the SE/4 SE/4 Section 27, T-18-S, R-31-E. Well No. 2 is currently drilling in the SW/4 NE/4 Section 34, T-18-S, R-31-E, and is expected to be completed this year.

A request for approval of an initial participating area of 640 acres has been requested, and was approved by the Director, United States Geological Survey, November 26, 1957, the Commissioner of Public Lands, State of New Mexico, October 24, 1957, and the Oil Conservation Commission, State of New Mexico, October 24, 1957.

Proposed Additional Wells. During the calendar year 1958 it is planned that one Siluro-Devonian Well be drilled in the SE/4 NW/4 Section 26, T-18-S, R-31-E, Eddy County, New Mexico. This location is outside the proposed Initial Participating Area for the Siluro-Devonian Zone.

Well Casing Program. The well casing program will include such surface casing and other casing as may be required by the Director, the Commissioner and the Commission, or as set forth in approvals of the applicable U.S.G.S. and State of New Mexico forms. The producing string of casing may be set and cemented on top of, partially through or completely through the producing zone.

December 23, 1957

Offset Obligations. Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Greenwood Pre-Grayburg Unit Agreement, or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in Section 17 of said Agreement.

Further Development. This plan of development shall constitute the drilling obligations of the Unit Operator under the terms of the Greenwood Pre-Grayburg Unit Agreement for the calendar year ending December 31, 1958. Before this plan expires, another plan for further development of the unit area will be submitted.

Modifications. It is understood that this plan of development is dependent upon certain information to be obtained prior to drilling and upon other contingencies such as availability of well casing; therefore, this plan of development may be modified to meet changing conditions or to protect the interest of all parties to this Agreement.

Effective Date. This plan of development shall be effective January 1, 1958.

Dated: December 23, 1957

PAN AMERICAN PETROLEUM CORPORATION  
Unit Operator

By:  H

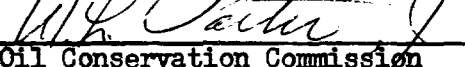
E. V. HEWITT

Division Production Superintendent

AJI:ljl

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Supervisor, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands

Approved  Date 3/28/58  
Oil Conservation Commission

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Corner

Mr. O. F. Featherstone  
Roswell Petroleum Building  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Stimolair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Manson, Jr.

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT  
DIVISION PRODUCTION SUPERINTENDENT

December 12, 1957

File: GWK-5072-416

Subject: Approval of Initial Participating  
Area, Greenwood Pre-Grayburg  
Unit, Lea and Eddy Counties,  
New Mexico

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

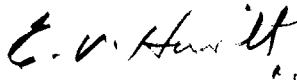
Application for approval of Initial Participating Area for the Silurc-Devonian Zone, Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico was made by our letter of October 16, 1957, File: KJB-4907-416. The Initial Participating Area is described as follows: Township 18 South, Range 31 East, SW/4 Section 26, SE/4 Section 27, NE/4 Section 34, NW/4 Section 35, containing 640 acres more or less. The effective date for the establishment of this Initial Participating Area is February 10, 1957.

Approval of the Initial Participating Area was obtained from the various parties on dates shown below:

Director, United States Geological Survey, November 26, 1957.  
Commissioner of Public Lands of the State of New Mexico,  
October 24, 1957.  
Oil Conservation Commission, State of New Mexico, October 24, 1957.

Attached is Schedule I which reflects the ownership of the Initial Participating Area. This schedule will be revised from time to time to reflect any necessary enlargements or changes brought about by additional interests being committed to the Unit.

Very truly yours,



AJI:lj  
Attachment

MAILING LIST OF COMMITTED WORKING  
INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
Roswell Petroleum Building  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sizelair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.



SCHEDULE I  
INITIAL PARTICIPATING AREA FOR THE SILURO-DEVONIAN ZONE  
GREENWOOD PRE-GRAYBURG UNIT

Tract Number	Description	Number of Acres	Participating Area Ownership & Percentage	Percentage Committed To Unit	Present Actual Participation
Tr. 1A	T-18-S, R-31-E N/2 NE/4 Sec. 34	80.00	Royalty O.R.R.I. Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp. 5.00% 12.50% 5.00% 38.75% 38.75%	5.000% 9.125% 5.000% 38.750% 38.750%	12.50%
Tr. 1B	T-18-S, R-31-E S/2 NE/4 Sec. 34 and NW/4 Sec. 35	240.00	Royalty O.R.R.I. Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp. 5.00% 7.50% 10.00% 38.75% 38.75%	5.00% 6.00% 5.00% 38.75% 38.75%	37.50%
Tr. 5A	T-18-S, R-31-E SW/4 Sec. 26 and SE/4 Sec. 27	320.00	Royalty Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp. 12.50% 10.00% 38.75% 38.75%	12.50% 4.00% 38.75% 38.75%	50.00%
Total Initial Participating Area		640.00			100.00%

# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING  
FORT WORTH, TEXAS

October 16, 1957

*file 7.1*

File: KJB-4907-416

Subject: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Notice of Discovery  
and Request for Approval of  
Initial Participating Area  
For Siluro-Devonian Zone  
Effective February 10, 1957

Director (6)  
United States Geological Survey  
c/o Oil and Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest  
Owners in Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement, approved April 23, 1956, Pan American Petroleum Corporation, as Unit Operator, determined, subject to the approval of the Director, Commissioner and Commission, that the Greenwood Unit No. 1 Well, completed in the Siluro-Devonian Zone, is capable of producing unitized substances in paying quantities and that an Initial Participating Area for the Siluro-Devonian Zone should accordingly be established. The proposed Initial Participating Area contains 640 acres and is composed of four quarter sections around the discovery well including the quarter section on which the well is located. The proposed participating area is described as follows: Township 18 South, Range 31 East: Section 26: SW/4; Section 27: SE/4; Section 34: NE/4; Section 35: NW/4 containing 640 acres more or less. The proposed Initial Participating Area has been reduced to 640 acres from the 1440 acres proposed by our letter of July 16, 1957, File: KJB-4690-416, in accordance with a request from the United States Geological Survey. This application ~~cancels~~ the application contained in our letter of July 16, 1957.

The Greenwood Unit No. 1 Well is located 660' from the South line and 660' from the East line of Section 27, Township 18 South, Range 31 East, Eddy County, New Mexico, and was completed February 10, 1957 at a plugged back total depth of 12,784' having been plugged back from a total depth of 13,446'. The Siluro-Devonian Zone between 12,655' - 12,700' and 12,741' - 12,766' was perforated and treated with 2500 gallons of acid in the upper zone and 1000 gallons of acid in the lower zone. On potential test the well produced at a rate of 8,372 MCF of gas per day with a gas condensate rate of 15,610 cu. ft. per barrel and with a flowing tubing pressure of 1094 psig. This test and subsequent testing conducted on April 2, 1957 indicates that the well has a calculated open flow potential of about 20,000 MCF per day. Gas produced from this well is currently being sold to The Potash Company of America.

October 16, 1957

The effective date for the Initial Participating Area is determined as February 10, 1957, the date on which the well was completed.

Attached is Exhibit "A", a map of the Greenwood Pre-Grayburg Unit Area on which has been noted the proposed Initial Participating Area for the Siluro-Devonian Zone. Also attached is Schedule I which describes the Initial Participating Area for the Siluro-Devonian Zone and shows the percentages of Unitized Substances allocated to each unitized tract.

If this Initial Participating Area meets with your approval, please indicate such approval hereon. A copy of this revised application is being furnished to all committed working interest owners in the Unit Area, from whom 100% approval for the original application was obtained.

Very truly yours,

*E. V. Hewitt*

AJI:lj  
Attachments

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey  
Subject to like approval by appropriate State Officials

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
Subject to like approval by U.S.G.S.  
and Oil Conservation Commission

Approved *A. L. Porter Jr* Date 10-24-57  
Oil Conservation Commission  
Subject to like approval by U.S.G.S.  
and Commissioner of Public Lands

*by Daniel S. Nutter*

DANIEL S. NUTTER  
Petroleum Engineer

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

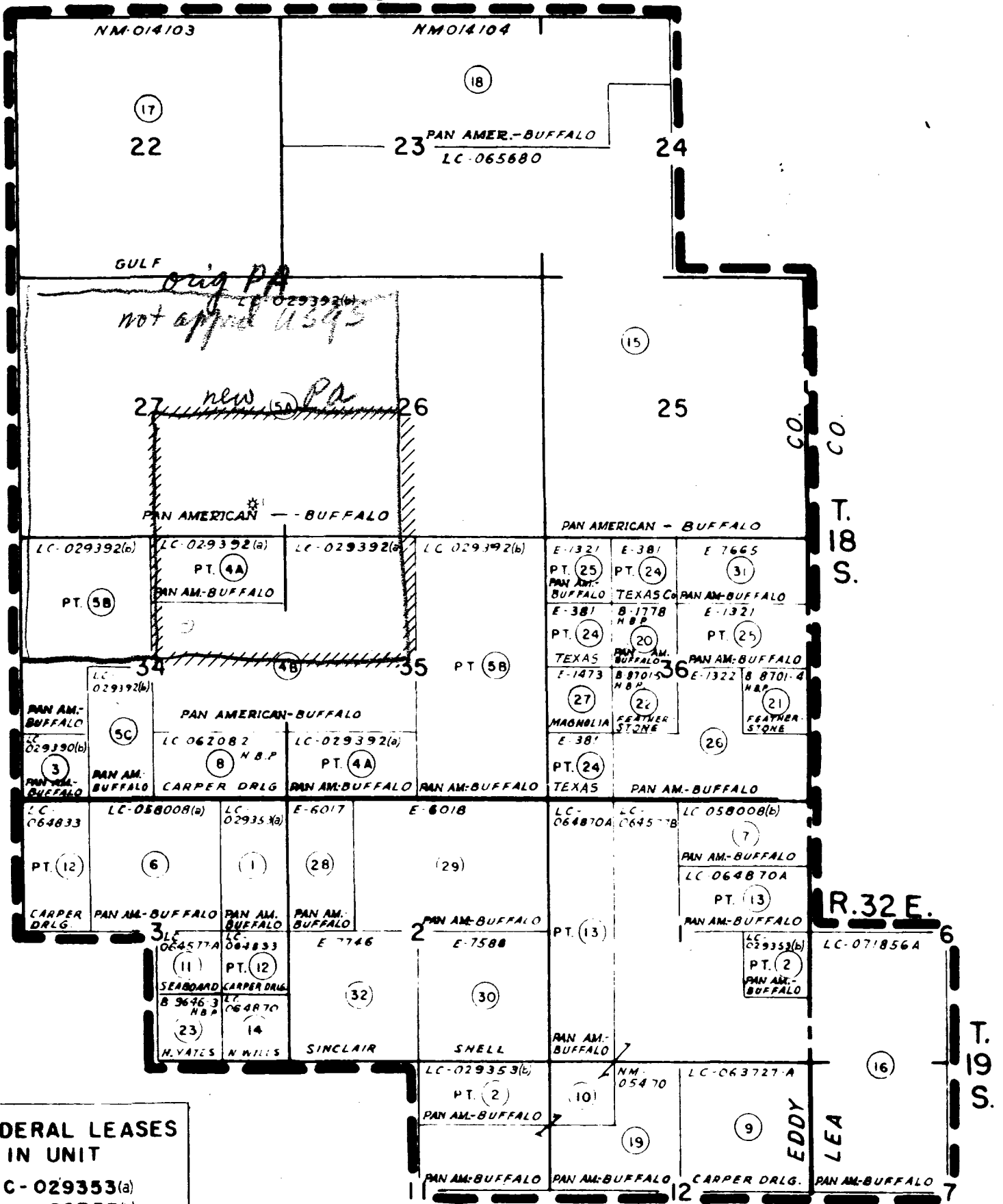
Mr. O. F. Featherstone  
200 West First Street  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

31 E.



**FEDERAL LEASES IN UNIT**

- LC-029353(a)
- LC-029353(b)
- LC-029390(b)
- LC-029392(a)
- LC-029392(b)
- LC-058008(a)
- LC-058008(b)
- LC-062082
- LC-063727A
- LC-064577B
- LC-064577A
- LC-064833
- LC-064870A
- LC-065680
- LC-071856A
- NM-014103
- NM-014104
- NM-05470

- FEDERAL LAND
- STATE LAND
- UNIT BOUNDARY
- TRACT BOUNDARY
- TRACT NUMBER
- INITIAL PARTICIPATING AREA  
SILURO-DEVONIAN ZONE

**EXHIBIT "A"**  
TO ACCOMPANY  
**GREENWOOD PRE-GRAYBURG UNIT AGREEMENT**  
EDDY AND LEA COUNTIES, NEW MEXICO  
SCALE: 2"=1 MILE  
(Corrected to 8-6-57)

SCHEDULE I

INITIAL PARTICIPATING AREA FOR THE SILURO-DEVONIAN ZONE  
GREENWOOD PRE-GRAYBURG UNIT

<u>Tract Number</u>	<u>Description</u>	<u>Number of Acres</u>	<u>Ownership</u>	<u>Participating Area &amp; Percentage</u>	<u>Percentage Committed To Unit</u>	<u>Present Actual Participation</u>
Pt. 4A	T-18-S, R-31-E <u>N/2 NE/4 Sec. 34</u>	80.00	Royalty O.R.R.I. Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	5.00% 12.50% 5.00%  38.75% 38.75%	5.000% 9.125% 5.000%  38.750% 38.750%	12.50%
Pt. 4B	T-18-S, R-31-E <u>S/2 NE/4 Sec. 34 and NW/4 Sec. 35</u>	240.00	Royalty O.R.R.I. Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	 5.00% 7.50% 10.00%  38.75% 38.75%	 5.00% 6.00% 5.00%  38.75% 38.75%	37.50%
Pt. 5A	T-18-S, R-31-E <u>SW/4 Sec. 26 and SE/4 Sec. 27</u>	320.00	Royalty Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	 12.50% 10.00% 38.75% 38.75%	 12.50% 4.00% 38.75% 38.75%	50.00%
Total Initial Participating Area		640.00		100.00%	94.00%	100.00%

RECAPITULATION

Description of Lands in Participating Area: T-18-S, R-31-Es SW/4 Sec. 26, SE/4 Sec. 27, NE/4 Sec. 34, and NW/4 Sec. 35  
Total Number of Acres in Participating Area 640  
Total Number of Acres Committed in Participating Area 640  
Total Number of Acres Not Committed in Participating Area -0-  
Percent of Basic Royalty Committed 100.000  
Percent of Working Interest Committed 100.000



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
P. O. Box 6721  
Roswell, New Mexico

September 27, 1957

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Gentlemen:

Your application of July 17, 1957, for establishment of an initial Siluro-Devonian participating area of 1440 acres under the Greenwood Pre-Grayburg unit agreement was returned to us unapproved.

Our Washington office advises that your report supporting the inclusion of 1440 acres in the initial participating area does not appear unreasonable, but inasmuch as the unit agreement does not permit reduction of the participating area once approved, they are reluctant to approve so large an initial participating area on the basis of only one well. They suggest the establishment of a 640-acre initial participating area with appropriate revisions to follow the completion of other successful wells.

The application is returned herewith. If this office can be of any assistance to you, please feel free to call on us.

Very truly yours,

JAMES A. KNAUF  
Acting Oil and Gas Supervisor

Copy to: Commissioner of Public Lands, Santa Fe  
Oil Conservation Commission, Santa Fe



# PAN AMERICAN PETROLEUM CORPORATION

MAIL ROOM 000

OIL AND GAS BUILDING

FORT WORTH, TEXAS

RECEIVED 11 21 1957

*file*

September 9, 1957

File: KJB-4811-416

Subject: Plan of Development  
Year 1957  
Greenwood Pre-Grayburg Unit

Director (6)  
United States Geological Survey  
C/O Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
in Unit Area  
(See Attached Addressee List)

Gentlemen:

This is to advise that the 1957 Plan of Development for the Greenwood Pre-Grayburg Unit, Lea and Eddy Counties, New Mexico has been approved as follows:

- (1) Supervisor, U.S.G.S., August 5, 1957.
- (2) Commissioner of Public Lands of the State of New Mexico, August 20, 1957.
- (3) Oil Conservation Commission of the State of New Mexico, August 27, 1957.

Very truly yours,



T. H. ANDREWS

Asst. Division Production Superintendent

AJI:lj

# PAN AMERICAN PETROLEUM CORPORATION

(FORMERLY STANOLIND OIL AND GAS COMPANY)

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT  
DIVISION PRODUCTION SUPERINTENDENT

August 26, 1957

File: KJB-4765-416

Subject: Greenwood Pre-Grayburg Unit  
Eddy and Lea Counties, New  
Mexico, Corrections to Exhibit  
"A" of Unit Agreement

Director (6)  
United States Geological Survey  
C/O Regional Oil & Gas Supervisor  
P. O. Box 6721  
Roswell, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
In Unit Area  
(See Attached Addressee List)

Gentlemen:

Our letter of July 3, 1957 submitted a revised Exhibit "A" to the Greenwood Pre-Grayburg Unit Agreement which was approved April 23, 1957. Our attention has been called to several errors in regard to lease numbers shown on Exhibit "A".

We are attaching a corrected Exhibit "A" and will appreciate your inserting them in your copy of the Unit Agreement.

Very truly yours,

*E. V. Hewitt*

AJI:lj  
Attachment

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

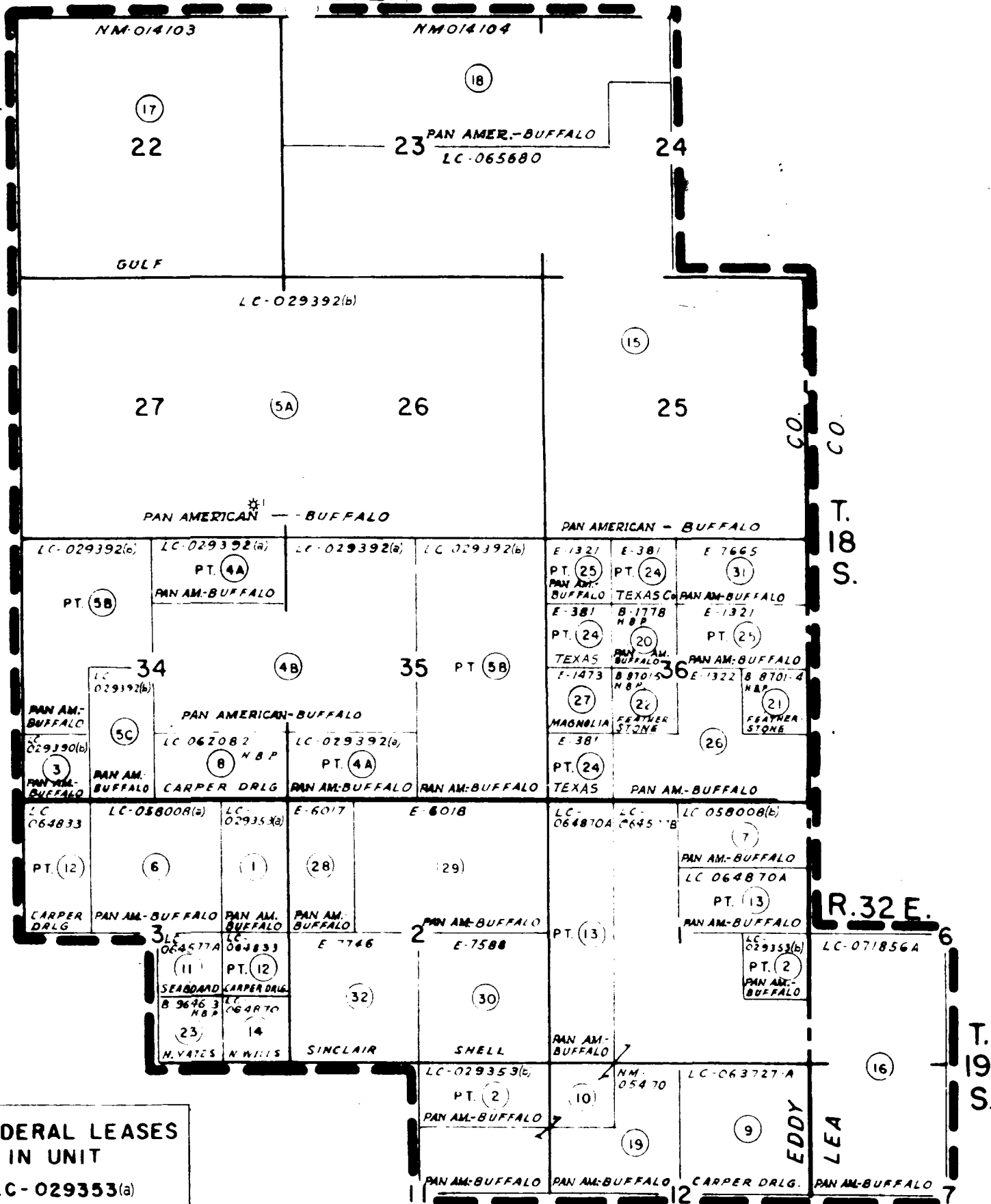
Mr. O. F. Featherstone  
200 South Pennsylvania  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

R.31 E.



## EXHIBIT "A"

TO ACCOMPANY

## GREENWOOD PRE-GRAYBURG UNIT AGREEMENT

EDDY AND LEA COUNTIES, NEW MEXICO

SCALE: 2"=1 MILE

(Corrected to 8-6-57)

OIL CONSERVATION COMMISSION  
P. O. BOX 871  
SANTA FE, NEW MEXICO

August 26, 1957

Pan American Petroleum Corporation  
Roswell, New Mexico

Attention: Mr. C. L. Kelley

Re: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Plan of Development  
for Remainder of 1957

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved your Plan of Development for the remainder of 1957 for the subject unit area, dated July 31, 1957, subject to like approval by the United States Geological Survey and by the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the Plan of Development is returned herewith.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/DSN/ir

cc: U. S. G. S. - Roswell, New Mexico  
Commissioner of Public Lands - Santa Fe, New Mexico

C  
O  
P  
Y

MAIN OFFICE OCC  
1957 AUG 20 8:37

August 20, 1957

In reply refer to:  
Unit Division

Pan American Petroleum Corporation  
Roswell, New Mexico

Re: Greenwood Pre-Grayburg Unit -  
Plan of Development up to  
December 31, 1957

Attention: Mr. C. L. Kelley

Gentlemen:

We are enclosing two copies of your proposed Plan of Development for the remainder of 1957, which was approved by the Commissioner of Public Lands August 20, 1957.

We are waiving our request of June 3, 1957, that you include either Section 2-195-31E or Section 36-18S-31E in this plan of development, however, we trust you will give this request consideration in your next plan of development, which must be filed by January 1, 1958.

Very truly yours,

MURRAY E. MORGAN  
Commissioner of Public Lands

By: Ted Bilberry, Supervisor  
Oil and Gas Department

MEM:MMR/m

cc: OCC-Santa Fe  
USGS-Roswell



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
MAIN OFFICE OCC GEOLOGICAL SURVEY

1957 AUG 20 PM 1 33  
P.O. Box 6721  
Roswell, New Mexico

August 5, 1957

Pan American Petroleum Corporation  
Oil and Gas Building  
Fort Worth, Texas

Gentlemen:

The plan of development, dated July 31, 1957, for the remainder of 1957 for the Silure-Devonian zone, Greenwood Pre-Grayburg unit area, New Mexico, No. 14-08-001-2904, has been approved on this date.

Two approved copies of the said plan are returned herewith.

Very truly yours,

(Orig. Sgd.) JOHN A. ANDERSON

JOHN A. ANDERSON  
Regional Oil and Gas Supervisor

Copy to: Cons. Dir., Wash. (w/1 copy of plan)  
Artesia (w/1 copy of plan)  
New Mexico Oil Cons. Com. - Santa Fe ✓  
Com. of Public Lands - Santa Fe

APK:leeman:bw

# PAN AMERICAN PETROLEUM CORPORATION

MANUFACTURING

1957 AUG 77 PM 11:16

Roswell, New Mexico  
August 5, 1957

File: S-129-416

Subject: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Request for Approval of  
Plan of Development for the  
Remainder of 1957 for the Siluro-  
Devonian Zone

Oil Conservation Commission (4)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Commissioner of Public Lands (4)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Gentlemen:

*Return to Hill*

Transmitted herewith are four copies of the Proposed Plan of Development for the remainder of 1957 for the Siluro-Devonian Zone of the Greenwood Pre-Grayburg Unit which are being forwarded to you at this time for your approval. Copies of the attached Plan of Development have been forwarded to the USGS for their approval and execution. It is requested that upon approval of this Plan of Development you provide us with one executed copy. An extra copy has been provided above your normal requirements for this purpose.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

*Shreeve*  
C. L. Kelley  
District Superintendent

/js  
Attachments



# PAN AMERICAN PETROLEUM CORPORATION

Fort Worth, Texas

July 31, 1957

File: KJB-4730-416

Subject: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Request For Approval of  
Plan of Development For The  
Remainder of 1957 For The Siluro-  
Devonian Zone

Director (6)  
United States Geological Survey  
C/O Regional Oil and Gas Supervisor  
Roswell, New Mexico

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
in Unit Area  
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Greenwood Pre-Grayburg Unit Agreement dated August 26, 1955 and approved by the Survey on April 23, 1956, Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners, hereby submits for your approval the plan of development of the unit area for the remainder of 1957. Your early consideration is respectfully requested.

History of Past Development. One (1) well was completed on February 10, 1957 in the Siluro-Devonian Zone at a plugged back depth of 12,784' having been plugged back from 13,446'. On potential test the well produced gas at the rate of 8372 MCF per day with a gas condensate ratio of 15,610 cu. ft. per barrel and with a flowing tubing pressure of 1094 psig. Subsequent testing on April 2, 1957 indicates this well to have a calculated open flow potential of approximately 20,000 MCF per day.

A request for approval of an initial participating area of 1440 acres has been requested.

Proposed Additional Wells. During the remainder of the calendar year 1957 it is planned that one Siluro-Devonian well will be drilled at the following location: SW/4 NE/4 Section 34, T-18-S, R-31-E, Eddy County, New Mexico. This location is inside the proposed Initial Participating Area for the Siluro Devonian Zone.

July 31, 1957

Well Casing Program. The well casing program will include such surface casing and other casing as may be required by the director, the Commissioner and the Commission, or as set forth in approvals of the applicable U.S.G.S. and State of New Mexico forms. The producing string of casing may be set and cemented on top of or partially through or completely through the producing zone.

Offset Obligations. Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Greenwood Pre-Grayburg Unit Agreement, or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in Section 17 of said Agreement.

Further Development. This plan of development shall constitute the drilling obligations of the Unit Operator under the terms of the Greenwood Pre-Grayburg Unit Agreement for the period ending December 31, 1957. Before this plan expires, another plan for further development of the unit area will be submitted.

Modifications. It is understood that this plan of development is dependent upon certain information to be obtained prior to drilling and upon other contingencies such as availability of well casing; therefore, this plan of development may be modified to meet changing conditions or to protect the interest of all parties to this Agreement.

Effective Date. This plan of development shall be effective immediately upon approval of the Supervisor, Commission and Commissioner.

Dated: July 31, 1957

Pan American Petroleum Corporation  
Unit Operator

By 

T. H. ANDREWS

Asst. Division Production Superintendent

FAM:lj

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Director, United States Geological Survey

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands

Approved  Date **AUG 27 1957**  
Oil Conservation Commission

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
200 South Pennsylvania  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

# PAN AMERICAN PETROLEUM CORPORATION

(FORMERLY STANOLIND OIL AND GAS COMPANY)

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

July 16, 1957

File: KJB-4690-416

Subject: Greenwood Pre-Grayburg Unit  
Lea and Eddy Counties, New  
Mexico, Notice of Discovery  
and Request For Approval of  
Initial Participating Area  
For Siluro-Devonian Zone  
Effective February 10, 1957



Director (6)  
United States Geological Survey  
Department of the Interior  
Washington 25, D. C.

Commissioner of Public Lands (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

Oil Conservation Commission of (3)  
The State of New Mexico  
Capitol Annex Building  
Santa Fe, New Mexico

All Committed Working Interest Owners  
In Unit Area  
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Greenwood Pre-Grayburg Unit Agreement, approved April 23, 1956, Pan American Petroleum Corporation, as Unit Operator, determined, subject to the approval of the Director, Commissioner and Commission, that the Greenwood Unit No. 1 Well, completed in the Siluro-Devonian Zone, is capable of producing unitized substances in paying quantities and that an Initial Participating Area for the Siluro-Devonian Zone should accordingly be established. The proposed Initial Participating Area contains 1440 acres and is composed of nine quarter sections around the discovery well including the quarter section on which the well is located. The proposed participating area is described as follows: Township 18 South, Range 31 East: Section 26: W/2; Section 27: All; Section 34: N/2; Section 35: NW/4 containing 1440 acres more or less.

The Greenwood Unit No. 1 Well is located 660' from the South line and 660' from the East Line of Section 27, Township 18 South, Range 31 East, Eddy County, New Mexico, and was completed February 10, 1957 at a plugged back total depth of 12,784' having been plugged back from a total depth of 13,446'. The Siluro-Devonian Zone between 12,655' - 12,700' and 12,741' - 12,766' was perforated and treated with 2500 gallons of acid in the upper zone and 1000 gallons of acid in the lower zone. On potential test the well produced at a rate of 8,372 MCF of gas with a gas condensate ratio of 15,610 cu. ft. per barrel and with a flowing tubing pressure of 1094 psig. This test and subsequent testing conducted on April 2, 1957 indicates that the well has a calculated open flow potential of about 20,000 MCF per day. This well is not currently producing.

July 16, 1957

The effective date for the Initial Participating Area is determined as February 10, 1957, the date on which the well was completed.

We are attaching a Geological and Engineering Report to support the proposed Initial Participating Area. Exhibit "A" is a map of the Greenwood Pre-Grayburg Unit Area on which has been noted the proposed Initial Participating Area for the Siluro-Devonian Zone. Exhibit "B" is a dip map on top of the Mississippian for the area surrounding the Unit Area. Exhibit "C" is a portion of the microlog survey of the Siluro-Devonian section in Greenwood Unit No. 1 showing approximately 420' of gross pay section above the indicated water table. Also attached is Schedule I which describes the Initial Participating Area for the Siluro-Devonian Zone and shows the percentages of Unitized Substances allocated to each unitized tract.

If this Initial Participating Area meets with your approval, please indicate such approval hereon. Approval of this Participating Area has been received from 100% of the committed working interest owners in the unit area.

Very truly yours,

*Herbert*

FAM:lj  
Attachment

Approved \_\_\_\_\_ Date \_\_\_\_\_  
 Director, United States Geological Survey  
 Subject to like approval by appropriate State Officials

Approved \_\_\_\_\_ Date \_\_\_\_\_  
Commissioner of Public Lands  
 Subject to like approval by U.S.G.S. and  
 Oil Conservation Commission

Approved A. L. Porter Jr Date JUL 24 1957  
Oil Conservation Commission  
Subject to like approval by U.S.G.S. and  
Commissioner of Public Lands  
by Daniel S. Nutter  
DANIEL S. NUTTER  
Petroleum Engineer

MAILING LIST OF COMMITTED WORKING INTEREST OWNERS  
GREENWOOD PRE-GRAYBURG UNIT  
LEA AND EDDY COUNTIES, NEW MEXICO

Buffalo Oil Company  
First National Bank Building  
Tulsa 3, Oklahoma  
Attn: Mr. Paul Conner

Mr. O. F. Featherstone  
200 South Pennsylvania  
Roswell, New Mexico

Magnolia Petroleum Company  
P. O. Box 900  
Dallas 21, Texas  
Attn: Mr. James R. January

Sinclair Oil and Gas Company  
Fair Building  
Fort Worth, Texas

The Texas Company  
Continental Life Building  
Fort Worth, Texas  
Attn: Mr. E. P. Munson, Jr.

GEOLOGICAL AND ENGINEERING REPORT  
TO SUPPORT INITIAL PARTICIPATING AREA  
SILURO-DEVONIAN FORMATION  
GREENWOOD PRE-GRAYBURG UNIT  
EDDY AND LEA COUNTIES, NEW MEXICO

Completion of the Pan American operated Greenwood Unit No. 1, located 660' from the south line and 660' from the east lines of Section 27, T-18-S, R-31-E, Eddy County, New Mexico, as a well capable of producing gas condensate in commercial quantities from the Siluro-Devonian formation, necessitates the formation of an initial participating area. Greenwood Unit No. 1 was completed February 10, 1957, at a plug-back depth of 12,784' through casing perforations 12,655' to 12,766'. Initial potential of the well was 8372 MCF of gas and 536 barrels of 58.1 degree API gravity condensate with a flowing tubing pressure of 109½ psig. This test and subsequent testing of the well conducted on April 2, 1957, indicates that the well has a calculated absolute open flow potential of about 20,000 MCF per day.

On the basis of completion, as well as local and regional geologic information, the initial participating area proposed is 1440 acres in size and is as shown on Exhibit "A" attached. This initial participating area consists of the nine 160-acre tracts which include all direct and diagonal offsetting drilling tracts immediately surrounding the Greenwood Unit No. 1. Under New Mexico Oil Conservation Commission rules and regulations, a drilling tract in a gas pool consists of 160 surface acres.

Exhibit "C" is a portion of the microlog survey of the Siluro-Devonian section on Greenwood Unit No. 1 which shows that there is approximately 420' of gross pay section present above the indicated water table. Other logs, as well as core information, indicate that the entire Siluro-Devonian section penetrated has about the same order of porosity development, although permeability development is somewhat erratic. In the Greenwood Unit No. 1, the interval 12,846' to 13,036' was diamond cored. The average porosity of this interval from core analysis was 4.0%. The completion of the well was in an interval which was not cored. Correlation of core data with logs showed, however, that the completion interval has about the same order of porosity as the cored interval. Further correlation showed also that the entire Siluro-Devonian formation penetrated contained some porosity although of a uniformly low order. On this basis, it is concluded that the entire 420' of Siluro-Devonian formation above a depth of about 12,800' in this well is productive of gas condensate.

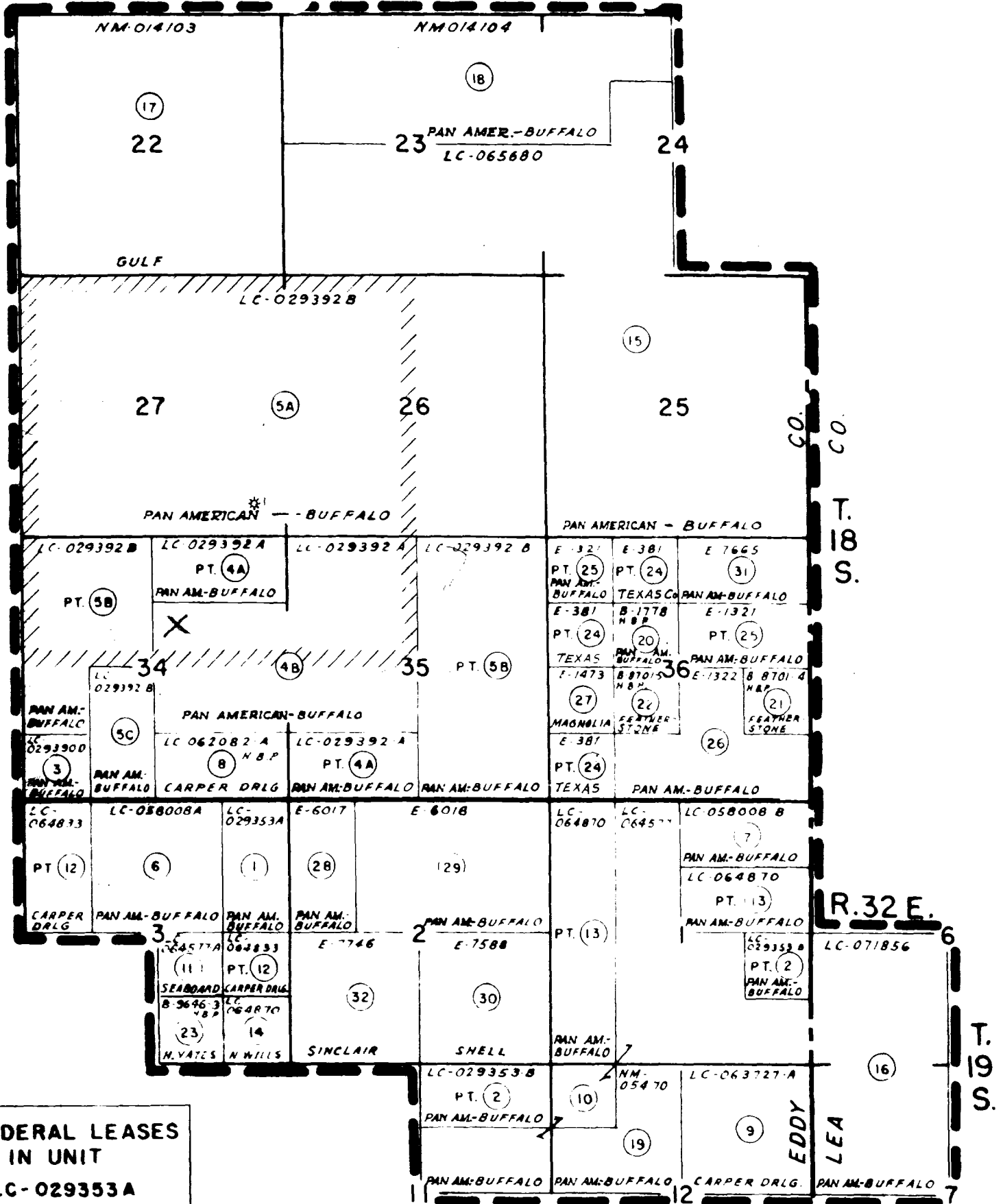
Regionally, as shown by Exhibit "B", the Greenwood Unit is located on a major structural trend established by the Greenwood Unit No. 1, the Shell Perry No. 1, and the Texas Company Richards No. 1. Although Exhibit "B" is a dip map on top of the Mississippian it is believed to also reflect the structural configuration of the Siluro-Devonian and deeper formations. On the basis of data shown on Exhibit "B", this trend could be at least 15 miles long. East-west reversal of dip is shown both by the Shell and the Texas Company wells. North critical dip at Greenwood Unit No. 1 is approximately 600' in a distance of about 8 miles.



Locally, as shown by the seismic map submitted with the application for formation of the Greenwood Unit, the Greenwood structure includes approximately 12 sections with an effective closure of about 400'. Since the Greenwood Unit No. 1 was drilled near the top of this indicated structure and included about 400' of productive section, this tends to confirm the seismic interpretation and indicates that a large portion of the Greenwood Unit is proven productive in the Siluro-Devonian formation.

Completion data on Greenwood Unit No. 1, sub-surface control afforded by this well and others in this general area showing the regional geologic picture, and seismic data on the local structure all indicate that most of the Greenwood Unit is probably productive in the Siluro-Devonian. Therefore, an initial participating area consisting of nine 160-acre tracts immediately surrounding the discovery well is reasonable.

R.31 E.



# FEDERAL LEASES IN UNIT

LC-029353A  
LC-029353B  
LC-029390D  
LC-029392A  
LC-029392B  
LC-058008A  
LC-058008B  
LC-062082A  
LC-063727A  
LC-064577  
LC-064577A  
LC-064833  
LC-064870  
LC-065680  
LC-071856  
NM-014103  
NM-014104  
NM-05470

- FEDERAL LAND
- STATE LAND
- UNIT BOUNDARY
- TRACT BOUNDARY
- TRACT NUMBER
- INITIAL PARTICIPATING AREA  
SILURO-DEVONIAN ZONE

## EXHIBIT "A"

TO ACCOMPANY

## GREENWOOD PRE-GRAYBURG UNIT AGREEMENT

EDDY AND LEA COUNTIES, NEW MEXICO

SCALE: 2"=1 MILE

(Corrected to 7-12-57)