

Geological and Engineering Report to Support
First Enlargement to the Initial Participating Area
Gallup Formation, Northeast Hogback Unit
San Juan County, New Mexico

Since the establishment of the Initial Participating Area for the Gallup Formation in the Northeast Hogback Unit effective December 18, 1959, Pan American Petroleum Corporation, as Unit Operator, has completed six commercial wells in the Gallup Formation in the Northeast Hogback Unit Area. Four of the six wells were drilled within the Initial Gallup Participating Area and no enlargement of the Initial Participating Area is needed for these wells. Two of the wells were drilled immediately adjacent to but outside of the Initial Gallup Participating Area and an enlargement to the Initial Participating Area is recommended to include the acreage reasonably proved productive by these two wells.

O. J. Hoover "E" No. 3 located 410 feet from the north line and 910 feet from the west line of Section 15, T-30-N, R-16-W, was completed in the Gallup Formation on June 2, 1960. After stimulation of the Gallup intervals 1393-1434 and 1457-1463 by sand-oil fracture treatment, the well was completed for an initial potential of 104 barrels of oil per day. The NW/4 NW/4 of Section 15, T-30-N, R-16-W, being the quarter-quarter section on which this well is located, is considered reasonably proved productive by the completion of this well.

O. J. Hoover "E" No. 4 located 1980 feet from the north line and 2070 feet from the east line of Section 15, T-30-N, R-16-W, was completed in the Gallup Formation on June 13, 1960. After stimulation of Gallup perforations 1718-1760 and 1781-1787 by sand-oil fracture treatment, the well was completed

WELL DATA
PRODUCING WELLS
NORTHEAST HOGBACK UNIT
WELLS COMPLETED BETWEEN 12-18-59 AND 7-1-60

1. Pan American - Northeast Hogback Unit No. 5 (O. J. Hoover "E" No. 1)
NE/4 NW/4 Section 15, T-30-N, R-16-W
TD 1747 PBD 1706
Perf (Gallup) 1509-1559
Sand-Oil Frac: 40,000 gals. x 40,000# sand.
Potential: Pmp 166 BOPD
Complete: 5-3-60
2. Pan American - Northeast Hogback Unit No. 6 (O. J. Hoover "E" No. 2)
NW/4 NE/4 Section 15, T-30-N, R-16-W
TD 1750 PBD 1714
Perf (Gallup) 1681-1689
Sand-Oil Frac: 10,700 gals. x 10,000# sand.
Perf (Gallup) 1620-1658
Sand-Oil Frac: 36,600 gals. x 35,000# sand.
Potential: 384 BOHD
Complete: 5-6-60
3. Pan American - Northeast Hogback Unit No. 10 (J. W. Aidlin "B" No. 4)
SW/4 NW/4 Section 14, T-30-N, R-16-W
TD 2547 PBD 2502
Perf (Gallup) 2447-2453
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 2388-2400
Sand-Oil Frac: 33,400 gals. x 35,000# sand.
Potential: Pmp 25 BOPD
Complete: 6-8-60
4. Pan American - Northeast Hogback Unit No. 2
NE/4 NE/4 Section 15, T-30-N, R-16-W
TD 2623 PBD 2098
Perf (Gallup) 1892-1900
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 1832-1862
Sand-Oil Frac: 34,900 gals. x 35,000# sand.
Potential: Pmp 201 BOPD
Complete: 5-23-60
5. Pan American - O. J. Hoover "E" No. 3
NW/4 NW/4 Section 15, T-30-N, R-16-W
TD 1537 PBD 1490
Perf (Gallup) 1457-1463
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 1393-1434
Sand-Oil Frac: 34,100 gals. x 35,000# sand.
Potential: 104 BOPD
Complete: 6-2-60

for an initial potential of 21 barrels of oil per day. The SW/4 NE/4 of Section 15, T-30-N, R-16-W, being the 40-acre tract on which this well is located, is considered reasonably proved productive by the completion of this well.

The First Enlargement of the Gallup Participating Area, therefore, consists of the NW/4 NW/4 and SW/4 NE/4 of Section 15, T-30-N, R-16-W, as shown on the map, Exhibit "A", which is made a part of the application. Also attached as a part of this report is a tabular summary of well data for each of the six wells which have been completed in the Gallup since the effective date of the Initial Participating Area.

WELL DATA CONT'D)

-2-

6. Pan American - O. J. Hoover "E" No. 4
SW/4 NE/4 Section 15, T-30-N, R-16-W
TD 1870 FBD 1794
Perf (Gallup) 1781-1787
Sand-Oil Frac: 10,650 gals. x 10,000# sand.
Perf (Gallup) 1718-1760
Sand-Oil Frac: 36,750 gals. x 35,000# sand.
Potential: Pmp 21 BOPD
Complete: 6-13-60

Case #1767

August 30, 1960

C
O
P
Y

Pan American Petroleum Corporation
P. O. Box 480
Farmington, New Mexico

ATTENTION: Mr. L. O. Speer, Jr.,

Re: First Enlargement
Participating Area
Gallup Formation
Northeast Hogback Unit
San Juan
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the First Enlargement to the Gallup Participating for the Northeast Hogback Unit San Juan County, New Mexico subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Ten approved copies of the application are being forwarded to the United States Geological Survey, Roswell, New Mexico.

Very truly yours,

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

JK/mz

cc: United States Geological Survey
Roswell, New Mexico

Commissioner of Public Lands
Santa Fe, New Mexico

Jones
In reply refer to:
Unit Division

August 30, 1960

C
O
P
Pan American Petroleum Corporation
P. O. Box 480
Farmington, New Mexico

Re: First Enlargement Participating
Area, Gallup Formation-Northeast
Hogback Unit- San Juan County,
New Mexico

Attention: Mr. G. W. Eaton

Gentlemen:

The Commissioner of Public Lands has of this date approved Pan American's Application for the First Enlargement to the Gallup Participating Area, Northeast Hogback Unit, San Juan County, New Mexico.

We are handing eleven copies of the aforementioned to the Oil Conservation Commission for their consideration.

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

BY:
Ted Bilberry, Supervisor
Oil and Gas Division

MEM/amr/s

cc: Mr. A. L. Porter, Jr.
Oil Conservation Commission
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 480, Farmington, New Mexico
August 23, 1960

File: E-533-416

Subject: Application for Approval of
First Enlargement to the
Initial Participating Area
Gallup Formation
Northeast Hogback Unit
San Juan County, 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 Working Interest Owners
In Unit Area
(See Attached Addressee List)

Gentlemen:

Pursuant to Section 11 of the Northeast Hogback Unit Agreement approved December 18, 1959, Pan American Petroleum Corporation, as Unit Operator, has determined; subject to the approval of the Director, the Commissioner, and the Commission, that the Initial Gallup Participating Area should be enlarged to include additional lands which have been found to be capable of producing unitized substances in paying quantities. The proposed First Enlargement to the Initial Gallup Participating Area contains 80 acres and is described as follows:

NW/4 NW/4 Section 15, T-30-N, R-16-W
SW/4 NE/4 Section 15, T-30-N, R-16-W

Attached is a schedule reflecting the ownership and describing the acreage in the First Enlargement to the Initial Gallup Participating Area. The effective date for the First Enlargement is determined as June 1, 1960, since both wells upon which the enlargement is predicated were completed during the month of June, 1960. On the map attached, Exhibit "A", is shown the First Enlargement to the Gallup Participating Area. Also attached in support of this First Enlargement is a Geological and Engineering Report.

Your approval of the proposed First Enlargement to the Initial Gallup Participating Area in the Northeast Hogback Unit is respectfully requested.

Very truly yours,

PAN AMERICAN PETROLEUM CORPORATION



L. O. Speer, Jr.
Area Superintendent

Director - U.S. Geological Survey -2-
Oil Conservation Commission
Commissioner of Public Lands
All Working Interest Owners

August 23, 1960
File: E-533-416
Subject: Application for
Approval of First
Enlargement to the Initial
Participating Area, Gallup
Formation, Northeast
Hogback Unit, San Juan
County, New Mexico,
Consisting of NW/4 NW/4 and
SW/4 NE/4 Section 15, T-30-N
R-16-W

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

Approved *W. M. Morgan* Date August 30, 1960
Commissioner of Public Lands
(Subject to like approval by U.S.G.S.
and Oil Conservation Commission)

Approved *W. F. Patten* Date 8 30 60
Oil Conservation Commission
(Subject to like approval by U.S.G.S.
and Commissioner of Public Lands)

MAILING LIST OF WORKING INTEREST OWNERS
NORTHEAST HOGBACK UNIT
SAN JUAN COUNTY, NEW MEXICO

El Paso Natural Gas Company (2)
P. O. Box 1492
El Paso, Texas

El Paso Natural Gas Company
P. O. Box 990
Farmington, New Mexico
Att: Mr. Harry Gevertz

Pubco Petroleum Corporation
P. O. Box 1419
Albuquerque, New Mexico

Brookhaven Oil Company
P. O. Box 1267
Scottsdale, Arizona

Gulf Oil Corporation (2)
P. O. Box 2097
Denver, Colorado

Northwest Production Corporation
520 Simms Building
Albuquerque, New Mexico

The Sidwell Corporation
P. O. Box 8443
Denver 10, Colorado

Southern Petroleum Exploration, Inc. (2)
Sistersville, West Virginia

Mr. R. L. Harper
Waterflow, New Mexico

OWNERSHIP SCHEDULE
FIRST ENLARGEMENT TO THE GALLUP PARTICIPATING AREA
NORTHEAST HOGBACK UNIT
SAN JUAN COUNTY, NEW MEXICO
EFFECTIVE JUNE 1, 1960

<u>Tract No.</u>	<u>Description of Land</u>	<u>Serial No. & Date of Lease</u>	<u>Basic Royalty % of 8/8</u>	<u>Owner of Record</u>	<u>Overrides & Production Payments %</u>	<u>Working Interest</u>		<u>Acres</u>	<u>Percent Participation</u>
						<u>Owner</u>	<u>% of Lease</u>		
6	NW/4 Sec. 14, T-30N, R-16W	NM-04407 7-1-52	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	160	13.34935
7	N/2 SW/4 and SE/4 Sec. 14, T-30N, R-16W	NM-04407-A 7-1-52	12.50	Pan American Petroleum Corporation	4.00	Pan American Petroleum Corporation	100	24.0	20.02403
7	N/2 NW/4 Sec. 24, T-30-N, R-16-W	NM-04407-A 7-1-52	12.50	Pan American Petroleum Corporation	4.00	Pan American Petroleum Corporation	100	80	6.67468
11	Lot 1, SW/4 NE/4, NE/4 NW/4, NW/4 NE/4 Sec. 15, T-30N, R-16W	NM-04443 1-1-52	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	158.56	13.22921
13	NE/4 NE/4 Sec. 23, T-30N, R-16-W	NM-04443-B 1-1-52	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	40	3.33734
13	NW/4 NE/4 Sec. 24, T-30N, R-16W	NM-04443-B 1-1-52	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	40	3.33734
15	W/2 NE/4 Sec. 14, T-30N, R-16W	NM-04444 4-1-52	12.50	J. R. Abraham	3.00	J. R. Abraham	100	80	0.00000
16	S/2 SW/4 Sec. 13, T-30N, R-16W	NM-05859 8-1-51	12.50	Pan American Petroleum Corporation	3.00	Pan American Petroleum Corporation	100	80	6.67468

OWNERSHIP SCHEDULE (CONT'D)

<u>Tract No.</u>	<u>Description of Land</u>	<u>Serial No. & Date of Lease</u>	<u>Basic Royalty Owner</u>	<u>% of 8/8</u>	<u>Owner of Record</u>	<u>Overrides & Production Payments %</u>	<u>Working Interest Owner</u>	<u>% of Lease</u>	<u>Acres</u>	<u>Percent Participation</u>
17	E/2 NE/4 Sec. 15, T-30N, R-16W	NM-06686 3-1-55	USA	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	80	6.67468
18	NW/4 SW/4, Sec. 12, T-30N, R-16W	SF-081298 10-1-51	USA	12.50	El Paso Natural Gas Products Co.	4.00	El Paso Natural Gas Products Co. Colorado Oil & Gas Corporation	50	40	0.00000
19	NW/4 SE/4 Sec. 13, T-30N, R-16W	SF-081298-A 10-1-51	USA	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	40	3.33734
20	SW/4 NE/4, SE/4 Sec. 11, T-30N, R-16W	SF-081299 10-1-51	USA	12.50	El Paso Natural Gas Products Co.	4.00	El Paso Natural Gas Products Co. Colorado Oil & Gas Corporation	50	200	0.00000
20	SW/4 SW/4 Sec. 12, T-30N, R-16W	SF-081299 10-1-51	USA	12.50	El Paso Natural Gas Products Co.	4.00	El Paso Natural Gas Products Co. Colorado Oil & Gas Corporation	50	40	0.00000
21-A	SW/4 SE/4 Sec. 13 T-30N, R-16W	SF-081299-A 10-1-51	USA	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	40	3.33734
21-B	SW/4 NW/4, N/2 SW/4 Sec. 13, T-30N, R-16W	SF-081299-A 10-1-51	USA	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	120	10.01201
21-C	NW/4 NW/4 Sec. 13 T-30N, R-16W E/2 NE/4 Sec. 14 T-30N, R-16W	SF-081299-A 10-1-51	USA	12.50	Pan American Petroleum Corporation	5.00	Pan American Petroleum Corporation	100	120	10.01200
										<u>100.00000%</u>

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

<u>Type of Acreage</u>	<u>Committed Acres</u>	<u>Uncommitted Acres</u>	<u>Total Acres</u>
Federal	1198.56	360.00	1558.56

Geological and Engineering Report to Support
First Enlargement to the Initial Participating Area
Gallup Formation, Northeast Hogback Unit
San Juan County, New Mexico

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O. J. Hoover "E" No. 3 located 410 feet from the north line and 910 feet from the west line of Section 15, T-30-N, R-16-W, was completed in the Gallup Formation on June 2, 1960. After stimulation of the Gallup intervals 1393-1434 and 1457-1463 by sand-oil fracture treatment, the well was completed for an initial potential of 104 barrels of oil per day. The NW/4 NW/4 of Section 15, T-30-N, R-16-W, being the quarter-quarter section on which this well is located, is considered reasonably proved productive by the completion of this well.

O. J. Hoover "E" No. 4 located 1980 feet from the north line and 2070 feet from the east line of Section 15, T-30-N, R-16-W, was completed in the Gallup Formation on June 13, 1960. After stimulation of Gallup perforations 1718-1760 and 1781-1787 by sand-oil fracture treatment, the well was completed

for an initial potential of 21 barrels of oil per day. The SW/4 NE/4 of Section 15, T-30-N, R-16-W, being the 40-acre tract on which this well is located, is considered reasonably proved productive by the completion of this well.

The First Enlargement of the Gallup Participating Area, therefore, consists of the NW/4 NW/4 and SW/4 NE/4 of Section 15, T-30-N, R-16-W, as shown on the map, Exhibit "A", which is made a part of the application. Also attached as a part of this report is a tabular summary of well data for each of the six wells which have been completed in the Gallup since the effective date of the Initial Participating Area.

WELL DATA
PRODUCING WELLS
NORTHEAST HOGBACK UNIT
WELLS COMPLETED BETWEEN 12-18-59 AND 7-1-60

1. Pan American - Northeast Hogback Unit No. 5 (O. J. Hoover "E" No. 1)
NE/4 NW/4 Section 15, T-30-N, R-16-W
TD 1747 PBD 1706
Perf (Gallup) 1509-1559
Sand-Oil Frac: 40,000 gals. x 40,000# sand.
Potential: Pmp 166 BOPD
Complete: 5-3-60

2. Pan American - Northeast Hogback Unit No. 6 (O. J. Hoover "E" No. 2)
NW/4 NE/4 Section 15, T-30-N, R-16-W
TD 1750 PBD 1714
Perf (Gallup) 1681-1689
Sand-Oil Frac: 10,700 gals. x 10,000# sand.
Perf (Gallup) 1620-1658
Sand-Oil Frac: 36,600 gals. x 35,000# sand.
Potential: 384 BOED
Complete: 5-6-60

3. Pan American - Northeast Hogback Unit No. 10 (J. W. Aidlin "B" No. 4)
SW/4 NW/4 Section 14, T-30-N, R-16-W
TD 2547 PBD 2502
Perf (Gallup) 2447-2453
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 2388-2400
Sand-Oil Frac: 33,400 gals. x 35,000# sand.
Potential: Pmp 25 BOPD
Complete: 6-8-60

4. Pan American - Northeast Hogback Unit No. 2
NE/4 NE/4 Section 15, T-30-N, R-16-W
TD 2623 PBD 2098
Perf (Gallup) 1892-1900
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 1832-1862
Sand-Oil Frac: 34,900 gals. x 35,000# sand.
Potential: Pmp 201 BOPD
Complete: 5-23-60

5. Pan American - O. J. Hoover "E" No. 3
NW/4 NW/4 Section 15, T-30-N, R-16-W
TD 1537 PBD 1490
Perf (Gallup) 1457-1463
Sand-Oil Frac: 10,000 gals. x 10,000# sand.
Perf (Gallup) 1393-1434
Sand-Oil Frac: 34,100 gals. x 35,000# sand.
Potential: 104 BOPD
Complete: 6-2-60

WELL DATA CONT'D)

-2-

6. Pan American - O. J. Hoover "E" No. 4
SW/4 NE/4 Section 15, T-30-N, R-16-W
TD 1870 PBD 1794
Perf (Gallup) 1781-1787
Sand-Oil Frac: 10,650 gals. x 10,000# sand.
Perf (Gallup) 1718-1760
Sand-Oil Frac: 36,750 gals. x 35,000# sand.
Potential: Pmp 21 BOPD
Complete: 6-13-60

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 480, Farmington, New Mexico
 RECEIVED AUGUST 26, 1960

Case # 1767

1960 AUG 29 AM 8:37 File: E-553-416

Subject: Application for Approval of
 First Enlargement to the
 Initial Participating Area
 Gallup Formation
 Northeast Hogback Unit
 San Juan County, New Mexico

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

Attention: Mrs. Marian Rhea

Gentlemen:

Attached are twelve (12) copies of Pan American's Application for the First Enlargement to the Initial Participating Area, Gallup Formation, Northeast Hogback Unit, San Juan County, New Mexico. We would appreciate your processing this application through the State Land Office and, after obtaining the Commissioner's approval, to forward all copies to the New Mexico Oil Conservation Commission for their review and approval. By copy of this letter to the New Mexico Oil Conservation Commission, we ask that following their approval, that they forward all copies to the United States Geological Survey in Roswell for their processing. When the United States Geological Survey approval has been obtained, we will furnish both you and the Oil Conservation Commission with fully executed copies of the application.

In order that we may keep current on the progress of obtaining approval of the application, we would appreciate it if you would furnish us a copy of your letter transmitting the application to the Oil Conservation Commission, and if the Oil Conservation Commission would furnish us a copy of their letter transmitting it to the United States Geological Survey.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

L. O. Speer, Jr.
 Area Superintendent

GWE:ep
 Attachments

cc: Mr. A. L. Porter, Jr. ✓
 New Mexico Oil Conservation Commission
 Santa Fe, New Mexico

COPY

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 480, Farmington, New Mexico
July 13, 1960

Case # 1764

File: E-436-993

Subject: Revised Exhibit "B"
Northeast Hogback Unit
San Juan County, New Mexico

1960 JUL 20 10 31 AM
MAIL ROOM OFFICE 000

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

Gentlemen:

Attached is a revised Exhibit "B", Schedule of Ownership, for the
Northeast Hogback Unit No. 14-C8-C01-6674 effective July 1, 1960.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION



L. O. Speer, Jr.
Area Superintendent

MAILING LIST OF WORKING INTEREST OWNERS
NORTHEAST HOGBACK UNIT
SAN JUAN COUNTY, NEW MEXICO

El Paso Natural Gas Company (2)
P. O. Box 1492
El Paso, Texas

El Paso Natural Gas Company
P. O. Box 990
Farmington, New Mexico
Att: Mr. Harry Gevertz

Pubco Petroleum Corporation
P. O. Box 1419
Albuquerque, New Mexico

Brookhaven Oil Company
P. O. Box 1267
Scottsdale, Arizona

Gulf Oil Corporation (2)
P. O. Box 2097
Denver, Colorado

Northwest Production Corporation
520 Simms Building
Albuquerque, New Mexico

The Sidwell Corporation
P. O. Box 8443
Denver 10, Colorado

Southern Petroleum Exploration, Inc. (2)
Sistersville, West Virginia

Mr. R. L. Harper
Waterflow, New Mexico