



RECEIVED
APR 10 1972

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico 88201

IN REPLY REFER TO:

April 7, 1972

Amoco Production Company
P.O. Box 3092
Houston, Texas 77001

Attention: Mr. T. C. Borland

Gentlemen:

Your letter of March 23, 1972, accompanied by revised Exhibits A and B describes the lands contracted from the Buffalo unit area, Lea County, New Mexico, No. 14-08-001-1095, pursuant to Section 2 of the unit agreement. Preliminary concurrence was granted by Director's letter of February 7, 1972. The lands contracted from the unit area contain 5,719.45 acres which constitutes all legal subdivisions, no part of which is included in the Pennsylvanian or Queen participating areas which constitute the remaining 467.62 acres in the unit area.

Federal lands remaining within the contracted unit area are embraced in leases Las Cruces 060549, 064153 and New Mexico 01177-A, all of which also contain lands removed from the unit area. Leases New Mexico 025-A, 01178-A and 01351 are entirely eliminated from the unit area. You have complied with the requirements of Section 2 of the unit agreement to our satisfaction, provided you promptly notify all parties in interest. Returned herewith is one copy of the approved application effective December 31, 1971, pursuant to your request of March 23, 1972.

Sincerely yours,

N. O. FREDERICK
Regional Oil and Gas Supervisor

cc:
Washington (w/cy appln)
BLM, Santa Fe (w/cy appln)
Hobbs (w/cy appln)
NMOCC, Santa Fe (ltr only)
Com. Pub. Lands, Santa Fe (ltr only)
Accounts (ltr only)

JWillock:ds

APR 10 1972
576
April 5, 1972

Amoco Production Company
500 Jefferson Building
P. O. Box 3092
Houston, Texas 77001

Re: Application for Approval
Contraction Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. T. C. Borland

Gentlemen:

The Commissioner of Public Lands has this date given final approval to the Contraction of the Buffalo Unit, Lea County, New Mexico. The following lands is what will remain in the unit after contraction.

The NE/4 and N/2SE/4 Section 4, T-19S, R-33E
The W/2NW/4 and NW/4SW/4 Section 3, T-19S, R-33-E
The NW/4NE/4 Section 34, T-18-S, R-33-E

This approval is subject to like approval by the United States Geological Survey and is effective as of December 31, 1971.

Enclosed is one copy of the application reflecting the Commissioner's approval.

Very truly yours,

RAY D. GRAHAM, Director
Oil and Gas Department

AJA/RDG/s
encl.

cc: USGS-Roswell, New Mexico
OCC- Santa Fe, New Mexico ✓



Amoco Production Company

500 Jefferson Building
P.O. Box 3092
Houston, Texas 77001

T. C. Borland
Division Production
Manager

RECEIVED
MAR 30 1972

CONSERVATION COMM.
SANTA FE

576

March 23, 1972

File: CGF-416.-1013

Re: Application for Approval
Contraction Buffalo Unit
Federal Agreement No. 14-08-001-1095
Lea County, New Mexico

Regional Oil and Gas Supervisor (6)
United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands (3)
State of New Mexico
P. O. Box 1148
Santa Fe, New Mexico 87501

Gentlemen:

Pursuant to instructions contained in the Acting Director, U.S. Geological Survey's letter of February 7, 1972, granting preliminary concurrence for the Buffalo Unit Federal contraction, Amoco Production Company, as Unit Operator, hereby makes application for formal approval for the contraction of the Unit Area to eliminate all lands not in a participating Area.

By our letter of December 1, 1971, File: PEH-416.-3209, Continental Oil Company, Gulf Oil Corporation and Mobil Oil Company were notified of the proposed contraction; and Texco Oil Company (Roy H. Smith) was notified by our letter of December 1, 1971, File: PEH-416.-3210. All parties concurred in contracting the Unit in accordance with the referenced letters, copies which we attach hereto as Exhibits I and II to this application.

Subsequent to this above, our letter of December 17, 1971, File: PEH-416.-3647, addressed to the Supervisor and Commissioner with copies furnished the Working Interest Owners, filed notice for this proposed contraction. There were no objections and by letters dated January 6, 1972, February 7, 1972, and February 22, 1972, the Commissioner of Public Lands of the State of New Mexico, Director United States Geological Survey, and the New Mexico Oil Conservation Commissioner, respectively, concurred in this contraction.

The Unit contraction will be in compliance with the approved plan of development for 1971 as outlined in our letter of April 2, 1971, File: PEH-555-416., which stated that we would either drill or cause to be drilled a well in the Buffalo Unit before December 31, 1971, and that if a well was not drilled, we would initiate proceedings to contract the Unit Area as provided for in the Unit Agreement approved November 6, 1953.

The following lands which are now presently in a participating area will remain as the Buffalo Unit and are identified on Exhibit "B" attached:

Federal:

The NE/4 and N/2 SE/4 Section 4, T-19-S, R-33-E
The W/2 NW/4 and NW/4 SW/4 Section 3, T-19-S, R-33-E
The NW/4 NE/4 Section 34, T-18-S, R-33-E
ALL in Lea County, New Mexico

The following lands will be eliminated from the Buffalo Unit:

Federal Lands:

T-19-S, R-33-E

All of Section 4 except the NE/4 and the N/2 SE/4
NW/4 Section 9
All of Section 10
All of Section 3 except the W/2 NW/4 and the NW/4 SW/4
NE/4 Section 9

T-18-S, R-33-E

All of Section 33
All of Section 34 except the NW/4 NE/4
All of Section 35

T-19-S, R-33-E

SW/4; E/2 SE/4 Section 11
NW/4 Section 12
Lots 3, 4, S/2 NW/4; SW/4 of Section 1
N/2 Section 11
SW/4 Section 12
W/2 SE/4 Section 11

State Lands:

T-19-S, R-33-E

Lots 1, 2, S/2 NE/4 Section 2
Lot 3 Section 2
Lot 4, SW/4 NW/4; SE/4 NW/4 Section 2
S/2 Section 2
ALL in Lea County, New Mexico.

March 23, 1972

Furnished is revised Exhibit "A" which depicts the outline of the original Buffalo Unit Area and the contracted Unit Area. We also attach a revised Exhibit "B" which indicates the acreage, percentage, and kind of ownership of oil and gas interests in all lands in the contracted Unit Area.

For your information, the "Working Interest Owner and Percent" columns on Exhibit "B" for Tracts 1 and 2 have been corrected from Stanolind and Buffalo to Amoco Production Company and Continental Oil Company, respectively, since they are now the successor companies. Roy H. Smith is the present working interest owner for Tract 4 from the surface down to 4721'.

We respectfully request contraction of the subject Unit as of December 31, 1971, in accordance with the approved plan of development for 1971. We also would like to request that this office be furnished the final approval along with a decision letter extending the Federal Leases being eliminated from the Buffalo Unit.

Yours very truly,



Attachments

- ✓ cc: Oil Conservation Commission
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

EXHIBIT I

December 1, 1971

File: PEM-416-3209

Re: Contraction of the Buffalo Unit
Lea County, New Mexico

Mr. L. P. Thompson
Continental Oil Company
P. O. Box 460
Hobbs, New Mexico 88240

Mr. Hubie Braunig
Gulf Oil Corporation
P. O. Box 1150
Midland, Texas 79701

Mr. J. D. Howard
Mobil Oil Company
P. O. Box 633
Midland, Texas 79701

Gentlemen:

Our letter dated April 2, 1971, file PEM-555-416, copy of which was furnished your offices, resubmitted plan of development for 1971 for the Buffalo Unit, which in essence stated that if a well was not drilled prior to December 31, 1971, we would initiate proceedings to contract the Unit area as provided for in the Unit Agreement approved November 6, 1953.

This is to advise that we will be unable to justify additional development within the Unit Area and are recommending that we contract the Buffalo Unit to the participating areas described below:

NE/4 and E/2 SE/4, Section 4, and the W/2 NW/4 and the NW/4 SW/4 Section 3, all in T-19-S, R-33-E, also the NE/4 SE/4 Section 34, T-13-S, R-33-E, all in Lea County, New Mexico

We will appreciate your advising by December 14 of your concurrence with our recommendation.

Yours very truly,

[Signature]

ALEX CLARKE, JR.
District Production Superintendent

bcc - V. E. Staley

[Signature]
ABB:dm

[Handwritten signature]
Rec'd City of Midland

ILLEGIBLE

EXHIBIT II

December 1, 1971

File: PEH-416-3210

Re: Contraction of Buffalo Unit
Lea County, New Mexico

Texo Oil Company
728 First Wichita National Bank Building
Wichita Falls, Texas 76301

Attention: Mr. Roy Smith

Gentlemen:

As discussed in telephone conversation between you and our Mr. Buron, we are planning to voluntarily contract the Buffalo Unit, Lea County, New Mexico, on or before December 31, 1971. We will contract this Unit to the participating areas now approved within the Unit area. You have one participating area described as the NW/4 NE/4 Section 34, T-18-S, R-38-E, Lea County, New Mexico.

We request that you advise by December 14 of your concurrence with this plan. In the event you do not concur, please advise your recommendation regarding the participating area around your Buffalo-Federal well No. 7.

Yours very truly,

ALEX CLARKE, JR.
District Production Superintendent

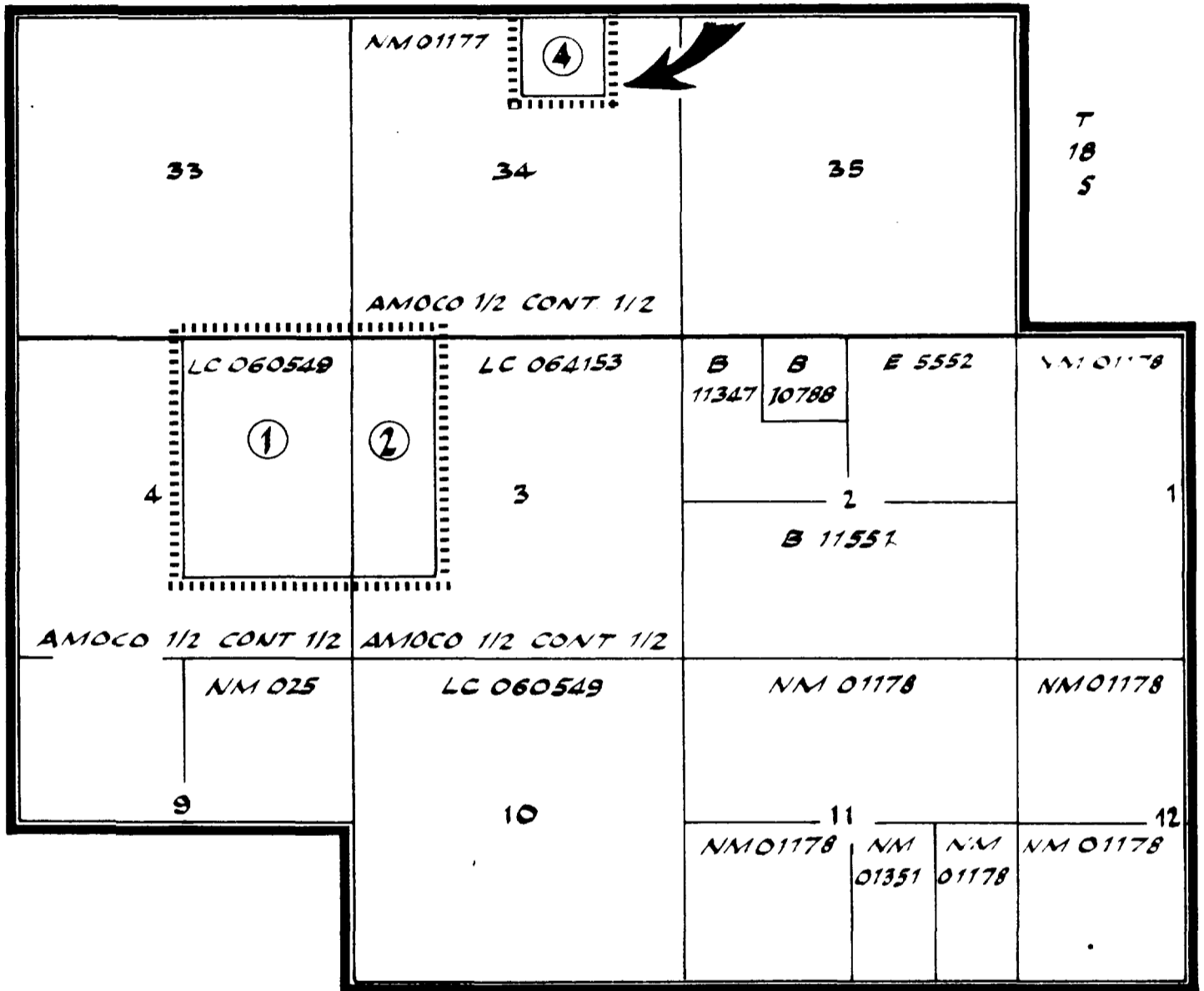
bcc - V. E. Staley

ABB:dm

*O.K. w/ Smith per letter 12-14-71
He raises no other concerns*

*New address after
3/19/72
PO Box 4436
Wichita Falls, Texas 76308
Per Mrs Boyd to
WGSW 3/14/72.*

SURFACE TO 4721' IN NE/4
 SEC. 34 - ROY H. SMITH
 BELOW 4721' - AMOCO 1/2
 R - 33 - E CONTINENTAL 1/2



- FEDERAL LAND
- STATE LAND
- UNIT BOUNDARY-(ORIGINAL)
- UNIT BOUNDARY-PRESENT,
CONTRACTED 12-31-71
- 2 TRACT NO.
- TRACT BOUNDARY

EXHIBIT "A"
 TO ACCOMPANY
BUFFALO UNIT AGREEMENT
 LEA COUNTY, NEW MEX.

UNIT CONTRACTION
 EFFECTIVE 12-31-71
 2"=1 MILE

EXHIBIT "B"

Schedule Showing the Percentage and Kind of Ownership
of Oil and Gas Interests in all Land in the
Buffalo Unit Area, Lea County, New Mexico
(Unit Contracted 12/31/71)

TRACT NO.	DESCRIPTION	NO. OF ACRES	LAS CRUCES		LAND OWNER & PERCENT OF ROYALTY	RECORD OWNER OF LEASE OR APPLICATION	NAME AND PERCENT OF OVERRIDING ROYALTY	WORKING INTEREST	
			SERIAL NO. AND DATE OF LEASE					OWNER AND PERCENT	
Federal Lands									
T-19S, R-33E									
1	Sec. 4, NE/4 and N/2 SE/4	244.81	060549 1/1/51		USA - 12-1/2%	William W. Dunn	Est. of E. G. Aycock Rollin E. Davis Gail Stoddard Ballard E. Spencer Trust, Inc. Elizabeth W. Crosby Chaney Ruby C. Bell Howard L. Brookshire Trustee J. H. Morris agent Featherstone Farms, Ltd. R. H. Dana	Amoco Production Company 42.25% Continental Oil Company 42.25%	.01800% .00750% .01500% .70000% .50000% .50000% .02400% .22500% 1.00000% .01050%
2	Sec. 3, W/2 NW/4 and NW/4 SW/4	122.81	064153 5/1/47		USA - 12-1/2%	Mark Whelan	Est. of E. G. Aycock Chas. G. Gonsales Rollin E. Davis Dorothy V. Hill Bob T. H. Hulsey Herman Lieneck Donald Scott, Jr. Gail Stoddard Edna B. Terry Florence S. Ullery Howard Brookshire Trustee J. H. Morris agent James B. Francis Leroy English	Amoco Production Company 38.515% to 41.25% Continental Oil Company 38.515% to 41.25%	.06000% .75000% .02500% .09905% .03962% .03962% .03962% .05000% .11886% .11886% .08000% 2.04437% .13125% .58125%

TRACT NO.	DESCRIPTION	NO. OF ACRES	LAS CRUCES		RECORD OWNER OF LEASE OR APPLICATION	NAME AND PERCENT OF OVERRIDING ROYALTY	WORKING INTEREST OWNER AND PERCENT
			SERIAL NO. AND DATE OF LEASE	LAND OWNER & PERCENT OF ROYALTY			
4 (cont'd)						Dorothy V. Hill	.05306%
						Herman Lieneck	.02122%
						Edna B. Terry	.06367%
						Florence S. Ullery	.06367%
						Donald Scott, Jr.	.02123%
						Bob T. H. Hulsey	.02123%
						Est. Paul B. English, dec. and Ruby English, dec.	.90625%
						Levi A. Hughes, Jr., a/k/a Levi A. Hughes, whose wife is Dorothy Hughes	.22656%
						Charles B. Gonsales, whose wife is Betty Gonsales	.45313%

*Production Payment Holders

TOTAL FEDERAL LANDS 407.62 Acres or 100% of Unit

OIL CONSERVATION COMMISSION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

February 22, 1972

576

C
O
P
Y

Amoco Production Company
P. O. Box 3092
Houston, Texas 77001

Attention: Mr. Alex Clarke, Jr.

Re: Contraction of Buffalo Unit
Lea County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the contraction to the current participating areas in compliance with the 1971 Plan of Development for the Buffalo Unit, Lea 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.

One approved copy of the application for contraction is returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/dr

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



Amoco Production Company

500 Jefferson Building
P.O. Box 3092
Houston, Texas 77001

February 18, 1972

File: PEH-416.-718

Re: Contraction of
Buffalo Federal Unit
Lea County, New Mexico

Mr. J. E. Kapteina
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Sir:

Reference is to our telephone conversation of February 18, 1972, and to a previous letter from Amoco Production Company dated December 17, 1971, File: PEH-416.-3647, requesting NMOCC approval for the proposed contraction of the Buffalo Unit. As you requested, I am hereby furnishing copies of letters from the USGS and from the State of New Mexico Commissioner of Public Lands granting preliminary approval for the proposed contraction.

Yours very truly,

P. E. HOSFORD

Attachment



United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

Amoco Production Company
500 Jefferson Building
P. O. Box 3092
Houston, Texas 77001

Attention: Mr. Alex Clarke, Jr.

Gentlemen:

Your letter of December 17 filed on December 27, 1971, with the Regional Oil and Gas Supervisor, Roswell, New Mexico, requests preliminary approval of a proposed contraction of the Buffalo unit area, Lea County, New Mexico.

The Buffalo unit agreement, No. 14-08-001-1095 was approved on November 6, 1953, and was effective on the date of approval. The agreement was formed to conserve natural resources, prevent waste and secure other benefits obtainable through development and operation of the unit area. Pursuant to such purposes, your plan of development for 1971 provided for the drilling of a well before December 31, 1971, and stated that if a well was not drilled you would initiate proceedings to contract the unit area. Inasmuch as a well was not drilled, your request for preliminary approval for the contraction of the unit area to eliminate all lands not in the participating area was filed.

Preliminary concurrence is hereby granted for the proposed contraction. Such contraction should be accomplished in accordance with the applicable provisions of Section 2 of the unit agreement. At least five copies of the application for final approval of the proposed contraction, accompanied by any objections which may be received relative to such action, and five copies of revised Exhibits A and B should be filed with the Regional Oil and Gas Supervisor, Roswell, New Mexico, after appropriate approvals have been granted by the Commissioner of Public Lands of the State of New Mexico.

Sincerely yours,

Acting Director

State of New Mexico



ALEX J. ARMIJO
COMMISSIONER

Commissioner of Public Lands
January 6, 1972

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D. L. R.	
J. C. B.	BY
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P.O. BOX 1148
SANTA FE, NEW MEXICO

Amoco Production Company
500 Jefferson Building
P. O. Box 3092
Houston, Texas 77001

Re: Contraction of Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Alex Clarke, Jr.

Gentlemen:

We are in receipt of your letter dated December 17, 1971, whereby you recommend that the above subject unit be contracted to the current participating areas.

The Commissioner of Public Lands is in full agreement with this recommendation.

When filing your application for final approval of the contraction please state all lands which will be contracted as well as lands remaining in the unit after contraction. Also submit your revised Exhibits "A" and "B" reflecting such contraction.

Enclosed is copy of your letter which you asked us to sign and return to you.

Very truly yours,

Ray D. Graham
RAY D. GRAHAM, Director
Oil and Gas Department

AJA/RDG/s
encls.

cc: USGS-Roswell, New Mexico



December 17, 1971

RECEIVED
DEC 31 1971
OIL CONSERVATION COMM
SA.

Amoco Production Company

500 Jefferson Building
P.O. Box 3092
Houston, Texas 77001

File: PEH-416.-3647

Re: Contraction of Buffalo Unit
Lea County, New Mexico

United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commission of Public Lands for
State of New Mexico
P. O. Box 791
Santa Fe, New Mexico

Oil Conservation Commission for
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:

Amoco Production Company as operator on behalf of itself and other affected working interest owners, recommends that the above subject unit be contracted to the current participating areas described below:

The NE/4 and N/2 SE/4 of Section 4, and W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, and also the NW/4 NE/4 Section 34, T-18-S, R-33-E, all in Lea County, New Mexico

This is in compliance with the approved plan of development for 1971 as outlined in our letter of April 2, 1971, File: PEH-555-416, which stated that we would either drill or cause to be drilled a well in the Buffalo Unit before December 31, 1971 and that if a well is not drilled, we would initiate proceedings to contract the unit area as provided for

in the Unit Agreement approved November 6, 1953.

If the above recommendation meets with your approval, please return one executed copy of this letter for our files.

Yours very truly,

Alex Clarke Jr

ALEX CLARKE, JR.
District Production
Superintendent

2/11

cc: All Working Interest Owners

Supervisor of United States Geological
Survey

Date: _____

Commissioner of Public Lands for the
State of New Mexico

Date: _____

A. H. Porter

Oil Conservation Commission for the
State of New Mexico

Date: February 22, 1972

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

May 14, 1971

576

C
O
P
Y

Amoco Production Company
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Alex Clarke, Jr.

Re: Resubmitted 1971 Plan of
Development, Buffalo Unit,
Lea County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil
Conservation Commission has this date approved the 1971
providing for the drilling of one well in Buffalo Unit,
Lea 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.

Two approved copies of the plan are returned
herewith.

Very truly yours,

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

ALP/JEK/og

CC: United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
Santa Fe, New Mexico 87501



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

April 7, 1971

576

Amoco Production Company
P.O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Alex Clarke, Jr.

Gentlemen:

Your resubmitted 1971 plan of development, for the Buffalo unit area, Lea County, New Mexico, proposes the drilling of at least one unit well to an unspecified depth before December 31, 1971, or your initiation of proceedings to contract the unit area to the currently established participating areas. Such plan, dated April 2, 1971, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

N. O. FREDERICK
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

71 APR 7 PM 1 00

5/6

April 6, 1971

Amoco Production Company
P. O. Box 1410
Fort Worth, Texas 76101

Re: Resubmittal of Plan of
Development for 1971
Buffalo Unit, Lea County,
New Mexico

ATTENTION: Mr. Alex Clarke, Jr.

Gentlemen:

The Commissioner of Public Lands has this date approved the resubmittal of your Plan of Development for 1971 for the Buffalo Unit, Lea County, New Mexico. This plan provides that a well will be drilled or cause to be drilled before December 31, 1971, if the well is not drilled you will initiate proceedings to contract the Unit area. This approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

One approved copy of the plan is enclosed herewith.

Please remit a Three (\$3.00) Dollar filing fee.

Sincerely yours,

GORDON G. MARCUM, II, Director
Oil and Gas

AJA/GGM/s

encl.

cc: USGS-Roswell, New Mexico
OCC- Santa Fe, New Mexico



3
3
3
3

Amoco Production Company

Oil and Gas Building
P. O. Box 1410
Fort Worth, Texas 76101

April 2, 1971

File: PEH-555-416

Subject: Resubmittal of Plan of
Development for 1971
Buffalo Unit, Lea County,
New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands for (3)
State of New Mexico
P. O. Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:

Amoco Production Company as operator on behalf of itself and other affected working interest owners, submitted for your approval a Plan of Development for 1971 for the Buffalo Unit dated November 20, 1970, which provided for no additional drilling during 1971. By letters dated March 10 and March 12, 1971, respectively, the United States Geological Survey and the Commissioner of Public Lands indicated their disapproval of this plan since it did not provide for any drilling during the year 1971. Both agencies stated that they felt a well should be drilled during 1971 and that the Unit area would be contracted to the current participating areas if additional drilling cannot be justified and initiated. Each also requested our decision to either drill or contract the Unit.

In response to these two referenced letters, we are resubmitting for your approval the attached Plan of Development for 1971 which provides that we will either drill or cause to be drilled a well in the Buffalo Unit before

April 2, 1971

December 31, 1971, and that if a well is not drilled we will initiate proceedings to contract the Unit area as provided for in the Unit Agreement approved November 6, 1953.

If the attached plan of Development for 1971 meets with your approval, please return one executed copy for our files.

Yours very truly,

A handwritten signature in cursive script that reads "Alex Clarke, Jr." with a stylized flourish at the end.

Alex Clarke, Jr.
District Production Superintendent

DLB/cd

Attachments

cc: Working Interest Owners



Amoco Production Company

Oil and Gas Building
P.O. Box 1410
Fort Worth, Texas 76101

April 2, 1971

File: PEH-73-416

Subject: Plan of Development for 1971
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands for (3)
State of New Mexico
P. O. Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Amoco Production Company, as operator, on behalf of itself and other affected working interest owners, hereby resubmits for your approval a Plan of Development for 1971.

History of Past Development

Presently within the boundary of the Buffalo Unit, there are six active producing wells. One producer is completed in the Buffalo (Penn) Pool, while the other five producers are completed in the South Corbin Queen Pool.

Mark Whelan Well No. 1, formerly Unit Well No. 1, was drilled to a total depth of 14,916' in September, 1954. The Morrow horizon tested at a non-commercial rate of 500 MCFD and plugged back to the Wolfcamp zone. Due to decline in production, the well became uneconomical to operate. After testing the Morrow formation again, the well was completed in the Bone Springs. Mechanical difficulties occurred during February, 1966, and the well was shut-in. Repairs were considered uneconomical since cumulative production for 13 months was 7,717 barrels of oil. Further development in this reservoir is not warranted. The well has since been permanently abandoned.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was plugged and abandoned on March 5, 1957, after a completion attempt was unsuccessful in the Penrose interval.

Buffalo Unit Well No. 4 was drilled and completed in the Morrow gas horizon in 1958. The well was designated to the Buffalo (Penn) Pool. In an attempt to increase the well's production, a compressor was installed during December, 1965. During January, 1971, it produced a total of 400 MCF and 14 BC. Additional development for the Buffalo (Penn) Pool is not warranted since this well has a cumulative production of only 2,206 MMCF and 85,949 barrels of condensate through January, 1971.

Buffalo Unit Well No. 5 was drilled to a total depth of 15,040'. Drill stem tests and logs indicated the Devonian and Fusselman formations were non-commercial. The well was completed as a Morrow gas well in December, 1962, after a CAOF potential of 24,500 MCF/GPD and was included in the East Buffalo (Penn) Pool. Non-commercial classification was approved on April 1, 1964. The well was shut-in in February, 1965, because it was uneconomical and in April, 1966, it was permanently abandoned. Cumulative production was 378 MMCF of gas and 17,569 barrels of condensate. Additional development is not warranted in this reservoir.

Buffalo Unit Well No. 6 was completed as a producer in October, 1963, and was included in the Corbin, South-Queen Pool. Non-commercial status was approved for this well in January, 1964. The well was later shut-in with cumulative production through November 1, 1965, of only 1,302 barrels of oil. The well is now plugged and abandoned.

Buffalo Unit No. 7 was drilled by Roy Smith, agent for Amoco Production Company. Buffalo Unit No. 7 which was completed in February, 1966, is included in the South Corbin Queen Pool Field. During January, 1971, the well pumped at an average rate of 7.4 BOPD. Cumulative production through January, 1971, was 37,633 BO.

Buffalo Unit Well No. 8 was completed on October 5, 1966, by Roy Smith, agent for Amoco Production Company. It flowed 61 BOPD and no water on potential and is also included in the South Corbin Queen Pool. During January, 1971, production averaged 4.3 BOPD (pumping) and cumulative through January, 1971, was 17,851 BO. Non-commercial classification was approved in November, 1967.

Buffalo Unit Well No. 9 was completed as plugged and abandoned Penrose and Queen test in March, 1967. Testing indicated the Penrose and the Queen were non-productive.

Buffalo Unit Well No. 10 was drilled by Roy Smith, agent for Amoco Production Company and completed on March 20, 1967, in the Penrose interval. Non-commercial classification for this well was approved by letter of November 17, 1967. During January, 1971, Buffalo Unit No. 10 averaged 6.3 BOPD. Cumulative production through January, 1971, was 18,447 BO.

Buffalo Unit Well No. 11 was drilled by Roy Smith, agent for Amoco Production Company. The Queen and Penrose intervals were cored but both intervals were considered non-productive, and the well was plugged and abandoned on July 8, 1968. Smith re-entered and deepened the well from 4603 to 4685'. The interval 4584-4635' was selectively perforated and treated with a resulting calculated absolute open flow of

of 1.7 MMCFPD. The well was completed as a shut-in gas well on October 8, 1969. Sales commenced during October, 1969, and during January, 1971, the well produced a total of 2854 MCF. Cumulative production through January, 1971, was 73,673 MCF. Non-commercial classification was approved by the United States Geological Survey on March 25, 1971.

Buffalo Unit Well No. 12 was to be drilled as a Queen well by Roy Smith, agent for Amoco Production Company. However, the location was abandoned on October 7, 1968.

Buffalo Unit Well No. 13 was drilled by Roy Smith, agent for Amoco Production Company. The well was completed as a Queen well on October 18, 1968, and was potentialized as a flowing well for 12 BOPD and no water with a GOR of 400. Non-commercial classification for this well was approved by letter dated February 25, 1969. The well averaged only 2.4 BOPD during January, 1971, and cumulative production through January, 1971 was 2857 BO.

The overall performance of the above discussed Queen and Penrose producing wells within the Buffalo Unit, coupled with the number of dry holes that have been drilled, clearly shows that additional development in those reservoirs is not warranted and cannot be economically justified.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area of the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Future Development

Unit performance is continuously monitored and evaluated in an effort to determine the feasibility of additional development. Both shallow and deep exploratory possibilities are also continuously evaluated in this area. This Plan of Development proposes to either drill or cause to be drilled before December 31, 1971, at least one well to an unspecified depth within the Unit; however, if a well is not drilled before December 31, 1971, we will initiate proceedings to contract the Unit area to the currently established participating areas.

Offset Obligations

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Plan of Development for 1971
Buffalo Unit
Lea County, New Mexico

April 2, 1971
PEH-73-416
Page 4

Additional Development

This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement ending December 31, 1971. Before this Plan expires, a subsequent Plan of Development will be forwarded for your approval.

Modification

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date

This Plan of Development shall be effective January 1, 1971. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

AMOCO PRODUCTION COMPANY

Alex Clarke, Jr.

Alex Clarke, Jr.
District Production Superintendent

DLB:kp

cc: All Working Interest Owners

Supervisor of United States Geological
Survey

Date: _____

Commissioner of Public Lands for the
State of New Mexico

Date: May 14, 1971

A. H. Porter

Oil Conservation Commission for the
State of New Mexico

Date: May 14, 1971



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

IN REPLY REFER TO:

March 25, 1971

576

Amoco Production Company
P.O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Alex Clarke, Jr.

Gentlemen:

Your undated letter, received on March 17, requests that we concur with your determination as unit operator that Buffalo unit well No. 11, located in the NW1/4 sec. 35, T. 18 S., R. 33 E., N.M.P.M., lease New Mexico 01177-A, is not capable of producing in paying quantities from the lower Penrose member of the Queen formation.

Unit well No. 11 was completed in the lower Penrose on July 24, 1969, in the interval from 4,584 feet to 4,685 feet. The calculated absolute open flow potential for the well was 1,700 MCF of gas per day. Production from the well has amounted to 73,673 MCF of gas and no liquids for the 16 month period from the first gas sales in October 1969, through January 1971 or an average of approximately 4,600 MCF per month. For the month of December 1970, the well produced 2,655 MCF of gas in 31 days for an average of 85.6 MCF per day. In January 1971, the well produced 2,858 MCF in 31 days for an average of 92.1 MCF per day.

This office concurs with your determination that Buffalo unit well No. 11 is not capable of producing in paying quantities.

Sincerely yours,

BILLY J. SHOGER
Acting Oil and Gas Supervisor

cc:
Washington (w/cy determination)
Hobbs (w/cy determination)
BLM, Santa Fe (ltr. only)
NMOCC, Santa Fe (ltr. only)
Com. of Pub. Lands, Santa Fe (ltr. only)
Accounts (ltr. only)

576

COPIES 15 11 10 30

March 12, 1971

Amoco Production Company
P. O. Box 1410
Fort Worth, Texas 76101

Re: Buffalo Unit
1971 Plan of Development
Lea County, New Mexico

ATTENTION: Mr. Alex Clarke, Jr.

Gentlemen:

Your 1971 Plan of Development dated November 20, 1970 for the Buffalo Unit Area, Lea County, New Mexico, proposing no additional wells has been received.

Section ten of the Buffalo Unit Agreement provides that the Plan of Development shall provide for the exploration of the unitized area and for the determination of that portion capable of producing unitized substances in paying quantities. In order to comply with this provision, we believe that a well should be drilled in the Buffalo unit area during 1971, or that the unit area will be contracted to the participating area if the operator cannot justify further drilling during 1971.

We would appreciate Amoco evaluating the situation and advising us of their decision.

Sincerely yours,

GORDON G. MARCUM, II, Director
Oil and Gas

AJA/GCM/s

cc: USGS-Boswell, New Mexico
OCC-Santa Fe, New Mexico



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

March 10, 1971

576

Amoco Production Company
P.O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Alex Clarke, Jr.

Gentlemen:

Your 1971 plan of development dated November 20, 1970, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of no additional wells, has been received in this office for consideration.

The Buffalo unit area was approved by the Acting Director, U. S. Geological Survey, on November 6, 1953, effective as of the date of approval. Since such date, twelve wells have been drilled within the unit area, of which one is completed as a commercial Pennsylvanian gas well, one is completed as a commercial Queen oil well, one is a producing Queen gas well with commercial status not yet determined, three are completed as non-commercial Queen oil wells, and six are plugged and abandoned. The last drilling activity in the unit area was in 1969, when unit well No. 11 was re-entered and completed as a small Queen gas producer.

Based on the commercial Pennsylvanian gas well mentioned above, a Pennsylvanian participating area consisting of 367.62 acres was established and a 40-acre Queen participating area was established based on the commercial Queen oil well mentioned above. Such participating areas have not been expanded since they were established.

Section 10 of the unit agreement provides that the plan of development shall provide for the exploration of the unitized area and for the determination of the area or areas thereof capable of producing unitized substances in paying quantities, and shall be as complete and adequate as the Supervisor, the Commissioner, and the Commission may determine to be necessary for timely development of the oil and gas resources of the unitized area. In order to comply with this obligation, we believe that a well should be drilled in the Buffalo unit area during 1971. Accordingly, you are requested to file a revised plan of development for 1971 if further drilling can be justified. If further drilling cannot be justified,

appropriate action to contract the unit area will be necessary under section 2(a) of the unit agreement. Please furnish this office with your decision in this matter within 30 days.

Sincerely yours,

CARL C. TRAYWICK
Acting Oil and Gas Supervisor

cc:
Washington
Hobbs
NMOCC, Santa Fe ✓
Com. Pub. Lands, Santa Fe


Pan American
Petroleum Corporation
Is Now...

Amoco Production Company

Pan American Petroleum Corporation, the U. S. exploration and production subsidiary of Standard Oil Company (Indiana) is now Amoco Production Company.

The change, effective February 1, 1971, enables our company to be more readily identified with other operating units of Indiana Standard.

We have only changed our name. The change in name in no way affects the policies or business methods which have enabled us to grow more rapidly than the industry and become one of the nation's largest producers of crude oil, natural gas and products extracted from natural gas, such as sulfur. As Amoco, we will continue to develop energy resources which are vital to our nation while, at the same time, operating in a manner which will preserve our environment.



Amoco Production Company
General Office—Amoco Building
P. O. Box 591
Tulsa, Oklahoma 74102
Denver, Colorado / Security Life Building—80202
Fort Worth, Texas / P. O. Box 1410—76101
Houston, Texas / P. O. Box 3092—77001
New Orleans, Louisiana / P. O. Box 50879—70150



a well-known corporation with a new name...

MAR 17 1968



5/0



Amoco Production Company

Oil and Gas Building
P.O. Box 1410
Fort Worth, Texas 76101

File: PEH-44-416

Subject: Non-Commercial Determination
Buffalo Unit Well No. 11
South Corbin Queen Field
Lea County, New Mexico

United States Geological Survey (3)
Drawer 1857
Roswell, New Mexico 88201

Attn: Mr. N. Orvis Fredrick
Regional Supervisor

Dear Sir:

Amoco Production Company, operator of record, and Roy H. Smith Drilling Company, their agent, requests non-commercial determination for Buffalo Unit Well No. 11, South Corbin Queen (Gas) Field, Lea County, New Mexico.

Buffalo Unit No. 11 was initially drilled to a total depth of 4603' in the Penrose formation at a location 2310' from the south line and 330' from the west line of Section 35, T-18-S, R-33-E. The Queen and Penrose formations were cored and evaluation indicated both zones to be non-productive and the well was subsequently plugged and abandoned on July 8, 1968. On July 14, 1969, the well was re-entered and deepened to the Lower Penrose from 4603 to 4685. Intervals between 4584 and 4685 were selectively perforated and treated and the well was potentialized for a CAOF of 1.7 MMCFD of dry gas. Gas sales commenced during October, 1969, and during January, 1971, the well's producing capacity had declined to a total of only 2854 MCF gas for the month. Cumulative gas production from October, 1969, through January, 1971, was 73,673 MCF with no liquids. The current flowing tubing pressure is now down to about 100#. The poor performance to date indicates that the approximate \$60,000 investment required to drill and install lease equipment will never be paid out. For this reason, non-commercial determination is respectfully requested for Buffalo Unit Well No. 11.

Yours very truly,

Alex Clarke, Jr.
District Production Supt.

DLB:kp

cc: New Mexico Oil Conservation Commission (2)
P. O. Box 2088
Santa Fe, New Mexico

Commissioner of Public Lands (2)
P. O. Box 791
Santa Fe, New Mexico

Roy Smith Drilling Company
728 First Wichita Natl. Bldg.
Wichita Falls, Texas



Amoco Production Company

Oil and Gas Building
P.O. Box 1410
Fort Worth, Texas 76101

File: PEH-44-416

Subject: Non-Commercial Determination
Buffalo Unit Well No. 11
South Corbin Queen Field
Lea County, New Mexico

United States Geological Survey (3)
Drawer 1857
Roswell, New Mexico 88201

Attn: Mr. N. Orvis Fredrick
Regional Supervisor

Dear Sir:

Amoco Production Company, operator of record, and Roy H. Smith Drilling Company, their agent, requests non-commercial determination for Buffalo Unit Well No. 11, South Corbin Queen (Gas) Field, Lea County, New Mexico.

Buffalo Unit No. 11 was initially drilled to a total depth of 4603' in the Penrose formation at a location 2310' from the south line and 330' from the west line of Section 35, T-18-S, R-33-E. The Queen and Penrose formations were cored and evaluation indicated both zones to be non-productive and the well was subsequently plugged and abandoned on July 8, 1968. On July 14, 1969, the well was re-entered and deepened to the Lower Penrose from 4603 to 4685. Intervals between 4584 and 4685 were selectively perforated and treated and the well was potentialized for a CAOF of 1.7 MMCFD of dry gas. Gas sales commenced during October, 1969, and during January, 1971, the well's producing capacity had declined to a total of only 2854 MCF gas for the month. Cumulative gas production from October, 1969, through January, 1971, was 73,673 MCF with no liquids. The current flowing tubing pressure is now down to about 100#. The poor performance to date indicates that the approximate \$60,000 investment required to drill and install lease equipment will never be paid out. For this reason, non-commercial determination is respectfully requested for Buffalo Unit Well No. 11.

Yours very truly,

Alex Clarke, Jr.
District Production Supt.

DLB:kp

cc: New Mexico Oil Conservation Commission (2)
P. O. Box 2088
Santa Fe, New Mexico

Commissioner of Public Lands (2)
P. O. Box 791
Santa Fe, New Mexico

Roy Smith Drilling Company
728 First Wichita Natl. Bldg.
Wichita Falls, Texas

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

January 23, 1970

576

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Re: 1970 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1970 Plan of Development dated December 3, 1969, for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/og
Enclosures

cc: United States Geological Survey
Roswell, New Mexico

Commissioner of Public Lands
Santa Fe, New Mexico

C
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P
Y



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEC 24 1969

Drawer 1857
Roswell, New Mexico 88201

December 24, 1969

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1970 plan of development for the Buffalo unit area, Lea County, New Mexico, proposing no additional drilling, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

DEC 16 1969

December 11, 1969

C
O
P
Y

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Re: Plan of Development for
1970
Buffalo Unit,
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has this date approved your Plan of Development for 1970. The effective date being January 1, 1970. This plan of development proposes the drilling of no additional wells for the Buffalo Unit, Lea County, New Mexico.

This approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

One approved copy of the plan is enclosed herewith.

Very truly yours,

Ted Bilberry, Director
Oil and Gas Department

TE/ML/s
encl.

cc: USGS-Roswell, New Mexico
OCC-Santa Fe, New Mexico

DEC 8 1969

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING P. O. BOX 1410

FORT WORTH, TEXAS—76101

December 3, 1969

File: SJO-728-416

Subject: Plan of Development for 1970
Buffalo Unit,
Lea County, New MexicoUnited States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201Commissioner of Public Lands for (3)
State of New Mexico
P. O. Box 791
Santa Fe, New MexicoOil Conservation Commission for (3)
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1970.

History of Past Development

Presently within the boundary of the Buffalo Unit, there are five active producing wells and one shut-in gas well. One producer is completed in the Buffalo (Penn) Pool, while the other four producers are completed in the South Corbin Queen Pool.

Mark Whelan Well No. 1, formerly Unit Well No. 1, was drilled to a total depth of 14,916' in September, 1954. The Morrow horizon tested at a non-commercial rate of 500 MCFPD and plugged back to the Wolfcamp zone. Due to decline in production, the well became uneconomical to operate. After testing the Morrow formation again, the well was completed in the Bone Springs. Mechanical difficulties occurred during February, 1966, and the well was shut-in. Repairs were considered uneconomical since cumulative production for 13 months was 7,717 barrels of oil. Further development in this reservoir is not warranted. The well has since been permanently abandoned.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was plugged and abandoned on March 5, 1957, after completion attempt was unsuccessful in the Penrose interval.

Buffalo Unit Well No. 4 was drilled and completed in the Morrow gas horizon in 1958. The well is designated to the Buffalo (Penn) Pool. In an attempt to increase the well's production, a compressor was installed during December, 1965. During August, 1969, it produced a total of 3975 MCF and 159 BC. Additional development for the Buffalo (Penn) Pool is not warranted since this well has a cumulative production of 2,147 MMCF and 85,523 barrels of condensate through August, 1969.

Buffalo Unit Well No. 5 was drilled to a total depth of 15,040'. Drill stem tests and logs indicated the Devonian and Fusselman formations were non-commercial. The well was completed as a Morrow gas well in December, 1962, after a CAOF potential of 24,500 MCFGPD and was included in the East Buffalo (Penn) Pool. Non-commercial classification was approved on April 1, 1964. The well was shut-in in February, 1965, because it was uneconomical and in April, 1966, it was permanently abandoned. Cumulative production was 378 MMCF of gas and 17,569 barrels of condensate. Additional development is not warranted in this reservoir.

Buffalo Unit Well No. 6 was completed as a producer in October, 1963, and was included in the Corbin, South-Queen Pool. Non-commercial status was approved for this well in January, 1964. The well was later shut-in with cumulative production through November 1, 1965, of only 1,302 barrels of oil. The well is now plugged and abandoned.

Buffalo Unit No. 7 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. Buffalo Unit No. 7 which was completed in February, 1966, is included in the South Corbin Queen Pool Field. During August, 1969, the well pumped at an average rate of 10 BOPD. Cumulative production through August, 1969, is 33,964 BO.

Buffalo Unit Well No. 8 was completed on October 5, 1966, by Roy Smith, agent for Pan American Petroleum Corporation. It flowed 61 BOPD and no water on potential and is also included in the South Corbin Queen Pool. During August, 1969, production averaged 3 BOPD (pumping) and cumulative through August, 1969, is 15,457 BO. Non-commercial classification was approved in November, 1962.

Buffalo Unit Well No. 9 was completed as plugged and abandoned Penrose and Queen test in March, 1967. Testing indicated the Penrose and the Queen were non-productive.

Buffalo Unit Well No. 10 was drilled by Roy Smith, agent for Pan American Petroleum Corporation and completed on March 20, 1967, in the Penrose interval. Non-commercial classification for this well was approved by your letter of November 17, 1967. During August, 1969, Buffalo Unit No. 10 averaged 5 BOPD. Cumulative production through August, 1969, is 14,328 BO.

Buffalo Unit Well No. 11 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. The Queen and Penrose intervals were cored but both intervals were considered non-productive and the well was plugged and abandoned on July 8, 1968. Smith has re-entered and deepened the well from 6403' to 4685'. The interval 4584'-4635' was selectively perforated and treated with a resulting calculated absolute open flow of 1.7 MMCFPD. The well was completed as a shut-in gas well on October 8, 1969.

Buffalo Unit Well No. 12 was to be drilled as a Queen well by Roy Smith, agent for Pan American Petroleum Corporation. However, the location was abandoned on October 7, 1968.

Buffalo Unit Well No. 13 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. The well was completed as a Queen well on October 18, 1968, and was potentialed as a flowing well for 12 BOPD and no water with a GOR of 400. The well averaged only 2 BOPD in August, 1969, and cumulative production through August, 1969, is 1412 BO.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area for the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Future Development

At the present time the unit performance is being closely monitored in an effort to determine the feasibility of additional development. Particular attention is directed toward Buffalo Unit No. 11. Although we have no plans for any development drilling in the immediate future, exploratory possibilities are still being evaluated in this area. If additional development appears warranted as a result of this evaluation, a revised Plan of Development will be submitted.

Offset Obligations

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Plan of Development for 1970
Buffalo Unit
Lea County, New Mexico

December 3, 1969
SJO-728-416
Page 4

Additional Development

This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement ending December 31, 1970. Before this Plan expires, a subsequent Plan of Development will be forwarded for your approval.

Modification

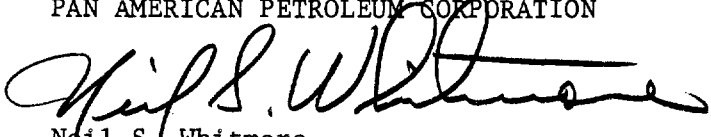
It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date

This Plan of Development shall be effective January 1, 1970. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION


Neil S. Whitmore
District Production Superintendent

JRJ/bc

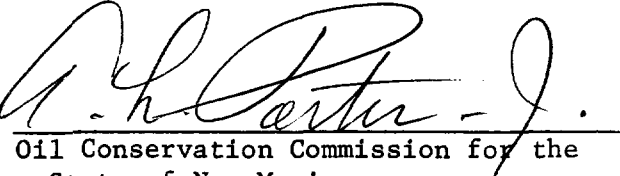
cc: All Working Interest Owners

Supervisor of United States Geological
Survey

Date: _____

Commission of Public Lands for the
State of New Mexico

Date: _____


Oil Conservation Commission for the
State of New Mexico

Date: January 23, 1970

PAN AMERICAN PETROLEUM CORPORATION

February 19, 1969

File: SJO-523-416

Subject: Non-commercial Determination,
Buffalo Unit Well No. 13,
South Corbin Queen Field,
Lea County, New Mexico

United States Geological Survey (3)
Drawer 1857
Roswell, New Mexico

Gentlemen:

Pan American, as operator of record, and Roy H. Smith Drilling Company, their agent, requests non-commercial determination for Buffalo Unit No. 13, South Corbin Queen Field, Lea County, New Mexico.

Buffalo Unit No. 13, located 1650' from the North line, 1650' from the East line, Section 34, T-18S, R-33E, was completed in the Corbin Queen Field for an initial flowing potential of 12 BOPD and 0 BWPD on November 18, 1968. During November, the well produced an average of 5 BOPD and no water. The poor performance of this well indicates that the cost of operations plus well cost and lease equipment, will not be paid out. For this reason, non-commercial determination is respectfully requested for Buffalo Unit Well No. 13.

Yours very truly,



Neil S. Whitmore

District Production Superintendent

VDS:bc

cc: New Mexico Oil Conservation Commission (2)
P. O. Box 2088
Santa Fe, New Mexico

Commissioner of Public Lands (2)
P. O. Box 791
Santa Fe, New Mexico

Roy Smith Drilling Company
728 First-Wichita National Building
Wichita Falls, Texas



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

IN REPLY REFER TO:

3/6
January 28, 1969

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1969 plan of development for the Buffalo unit area, Lea County, New Mexico, proposing no additional drilling, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

State of New Mexico



Commissioner of Public Lands

GUYTON B. HAYS
COMMISSIONER



December 9, 1968

P. O. BOX 1148
SANTA FE, NEW MEXICO

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Re: Buffalo Unit
Lea County, New Mexico
1969 Plan of Development

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has this date approved your Plan of Development, effective as of January 1, 1969, proposing the drilling of no additional wells for the Buffalo Unit, Lea County, New Mexico.

This approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

One approved copy of the plan is enclosed herewith.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
Malcolm L. Long, Supervisor
Unit Division

GBH/TB/ML/s
encl.

cc: USGS-Roswell, New Mexico
OCC- Santa Fe, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. Box 1410

FORT WORTH, TEXAS—76101

December 4, 1968

File: SJO-325-416

Subject: Plan of Development for 1969
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1969.

History of Past Development

Presently within the boundary of the Buffalo Unit, there are five active producing wells. One well is completed in the Buffalo (Penn) Pool, while the other four wells are producing in the South Corbin Queen Pool.

Mark Whelan Well No. 1, formerly Unit Well No. 1, was drilled to a total depth of 14,916' in September, 1954. The Morrow horizon tested at a non-commercial rate of 500 MCFPD and plugged back to the Wolfcamp zone. Due to decline in production, the well became uneconomical to operate. After testing the Morrow formation again, the well was completed in the Bone Springs. Mechanical difficulties occurred during February, 1966, and the well was shut-in. Repairs were considered uneconomical since cumulative production for 13 months was 7,717 barrels of oil. Further development in this reservoir is not warranted.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was plugged and abandoned on March 5, 1957, after completion attempt was unsuccessful in the Penrose interval.

Buffalo Unit Well No. 4 was drilled and completed in the Morrow gas horizon in 1958. The well is designated to the Buffalo (Penn) Pool. In an attempt to increase the well's production, a compressor was installed during December, 1965. During August, 1968, it produced a total of 152 MCF and 52 BC. Additional development for the Buffalo (Penn) Pool is not warranted since this well has a cumulative production of 2,097 MMCF and 84,609 barrels of condensate through August, 1968.

Buffalo Unit Well No. 5 was drilled to a total depth of 15,040'. Drill stem tests and logs indicated the Devonian and Fusselman formations were non-commercial. The well was completed as a Morrow gas well in December, 1962, after a CAOF potential of 24,500 MCFGPD and was included in the East Buffalo (Penn) Pool. Non-commercial classification was approved on April 1, 1964. The well was shut-in in February, 1965, because it was uneconomical and in April, 1966, it was permanently abandoned. Cumulative production was 378 MMCF of gas and 17,569 barrels of condensate. Additional development is not warranted in this reservoir.

Buffalo Unit Well No. 6 was completed as a producer in October, 1963, and was included in the Corbin, South-Queen Pool. Non-commercial status was approved for this well in January, 1964. The well was later shut-in with cumulative production through November 1, 1965, of only 1,302 barrels oil. The well is now plugged and abandoned.

Buffalo Unit Well No. 7 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. Buffalo Unit No. 7 which was completed in February, 1966, is included in the South Corbin Queen Pool Field. During August, 1968, the well pumped at an average rate of 22 BOPD. Cumulative production through August, 1968, is 29,478 BO.

Buffalo Unit Well No. 8 was completed on October 5, 1966, by Roy Smith, agent for Pan American Petroleum Corporation. It flowed 61 BOPD and no water on potential and is also included in the South Corbin Queen Pool. During August, 1968, production averaged 14 BOPD (pumping) and cumulative through August, 1968, is 12,781 BO. Non-commercial classification was approved in November, 1962.

Buffalo Unit Well No. 9 was completed as plugged and abandoned Penrose and Queen test in March, 1967. Testing indicated the Penrose and the Queen were non-productive.

Buffalo Unit Well No. 10 was drilled by Roy Smith, agent for Pan American Petroleum Corporation and completed on March 20, 1967, in the Penrose interval. Non-commercial classification for this well was approved by your letter of November 17, 1967. During August, 1968, Buffalo Unit No. 10 averaged 19 BOPD and no water. Cumulative production through August, 1968, is 11,322 BO.

Buffalo Unit Well No. 11 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. The Queen and Penrose intervals were cored, but both intervals were considered non-productive and the well was plugged and abandoned on July 8, 1968.

Buffalo Unit Well No. 12 was to be drilled as a Queen well by Roy Smith, agent for Pan American Petroleum Corporation; however, the location was abandoned on October 7, 1968.

Buffalo Unit Well No. 13 was drilled by Roy Smith, agent for Pan American Petroleum Corporation. The well was completed as a Queen well on October 18, 1968, and was potentialized as a flowing well for 12 BOPD and no water with a GOR of 400. Data is being collected so that the classification of the well can be determined.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area for the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Future Development

At the present time the unit performance is being closely monitored in an effort to determine the feasibility of additional development. Although we have no plans for any development drilling in the immediate future, exploratory possibilities are still being evaluated in this area. If additional development appears warranted as a result of this evaluation, a revised Plan of Development will be submitted.

Offset Obligations

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development

This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement ending December 31, 1969. Before this Plan expires, a subsequent Plan of Development will be forwarded for your approval.

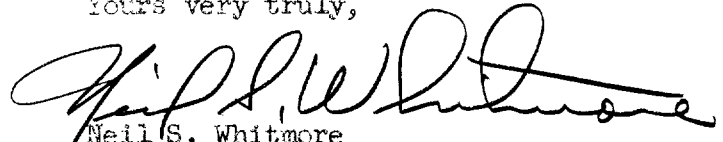
Modifications

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date

This Plan of Development shall be effective January 1, 1969. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,


Neil S. Whitmore
District Production Superintendent

VDS:kp

cc: All Working Interest Owners

Supervisor of United States Geological
Survey

Date: _____

Commissioner of Public Lands for the
State of New Mexico

Date: _____



Oil Conservation Commission for the
State of New Mexico

Date: January 9, 1968

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

27

July 24, 1968

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Re: 1968 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1968 Plan of Development dated June 19, 1968 for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/og
Enclosures

cc: Commissioner of Public Lands
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

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IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

July 16, 1968

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your supplemental plan of development for 1968, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of one Penrose well, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the supplemental plan are enclosed.

Sincerely yours,

(ORIG. SGD) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

*60 JUL 18 PM 1

State of New Mexico



Commissioner of Public Lands



GUYTON B. HAYS
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO

June 26, 1968

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Re: Buffalo Unit
Lea County, New Mexico
1968 Plan of Development

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has this date approved your Plan of Development submitted June 19, 1968, proposing the drilling of a test well to a depth sufficient to test the Penrose formation in the N/2SW/4, Section 35, Township 18 South, Range 33 East, for the Buffalo Unit, Lea County, New Mexico.

This approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

One approved copy of the plan is enclosed herewith.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
Eddie Lopez, Supervisor
Unit Division

GBH/TR/EL/s
encl. 1.

cc: USGS- Roswell, New Mexico
OCC-Santa Fe, New Mexico

68 JUN 27 AM 10 01

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. BOX 1410

FORT WORTH, TEXAS—76101
June 19, 1968

File: SJ0-684-416

Subject: Plan of Development for 1968
Buffalo Unit, Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

60 JUN 24 1968

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1968.

History of Past Development

Presently within the boundary of the Buffalo Unit, there are four active producing wells. One well is completed in the Buffalo (Penn) Pool, while the other three wells are producing in the South Corbin Queen Pool.

Mark Whelan Well No. 1, formerly Unit Well No. 1, was drilled to a total depth of 14,916' in September, 1954. The Morrow horizon tested at a non-commercial rate of 500 MCFPD. The well was recompleted to the Wolfcamp zone. Due to decline in production, the well became uneconomical to operate. After testing the Morrow formation again, the well was completed in the Bone Springs. Mechanical difficulties occurred during February, 1966, causing the well to be shut-in. Repairs were considered uneconomical since cumulative production for 13 months was 7,717 barrels of oil. Further development in this reservoir is not warranted.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned 4760' Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was completed as a plugged and abandoned 4540' Penrose test on March 5, 1957 when testing showed the Penrose from 4462' to 4510' not to be capable of commercial production.

Buffalo Unit Well No. 4 was drilled to a total depth of 11,514 feet and was completed in the Morrow gas horizon during May, 1958. The well is designated to the Buffalo (Penn) Pool. In an attempt to increase the well's production, a compressor was installed during December, 1965. During March 1, 1968, it flowed an average rate of 160 MCFPD with 2 barrels of condensate. Additional development for the Buffalo (Penn) Pool is not warranted since this well has a cumulative production of 2,099 MMCF and 84,470 barrels of condensate through January 1, 1968.

Buffalo Unit Well No. 5 was drilled to a total depth of 15,041 feet in the Simpson formation, but drillstem tests and logs found the Devonian and Fusselman formation to be non-commercial. In December 1962, this well was completed as a Morrow gas well and was included in the East Buffalo (Penn) Pool. Non-commercial classification was approved on April 1, 1964. The well was shut-in in February, 1965 because of uneconomical production, and in April, 1966, it was permanently abandoned, after total recovery of 378 MMCF of gas and 17,569 barrels of condensate. Additional development is not warranted in this reservoir.

Buffalo Unit Well No. 6 was completed as a producer in October, 1963 and was included in the Corbin, South-Queen Pool. Non-commercial status was requested and approved for this well on January 22, 1964. The well was later shut-in with cumulative production through November 1, 1965 being 1,302 barrels oil. The well is now plugged and abandoned.

Buffalo Unit Well No. 7 is included in the South Corbin Queen Pool after being completed on February 10, 1966 by Roy Smith, agent for Pan American Petroleum Corporation. During March, 1968, the well pumped at an average rate of 18 BOPD.

Buffalo Unit Well No. 8 was completed on October 5, 1966 by Roy Smith, agent for Pan American Petroleum Corporation. It flowed 61 BOPD on potential and was designated to the South Corbin Queen Pool. The well pumped at an average rate of 11 BOPD in March, 1968. Non-commercial classification was requested for this well by our letter of September 27, 1967 since it will not payout in a reasonable length of time. Non-commercial determination was approved by your letter of November 17, 1967.

Buffalo Unit Well No. 9 was completed as a plugged and abandoned Penrose and Queen test in March, 1967 when testing showed the Penrose from 4488' to 4526' not being capable of commercial production and the Queen from 4248' to 4272' to be dry.

Buffalo Unit Well No. 10 was drilled and completed on March 20, 1967 in the Penrose zone by Roy Smith, agent for Pan American Petroleum Corporation. On potential test, it pumped 65 BOPD. During March, 1968, the well averaged pumping 16 BOPD. Non-commercial classification for this well was requested and approved by your letter of November 17, 1967, since it will not payout in a reasonable length of time.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area for the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Future Development

The 1968 Plan of Development proposes the drilling of a test well to a depth sufficient to test the Penrose formation in the N/2 SW/4 Section 35, T-18-S, R-33-E.

Offset Obligations

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development

This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement ending December 31, 1968. Before this Plan expires, a subsequent Plan of Development will be forwarded for your approval.

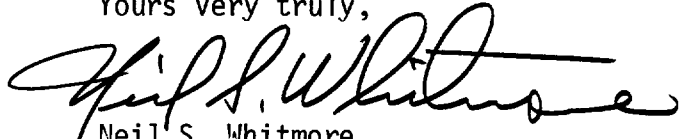
Modifications

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date

This Plan of Development shall be effective January 1, 1968.
If this Plan of Development meets with your approval, please indicate
in the appropriate space provided below and return one copy for our
files.

Yours very truly,


Neil S. Whitmore
District Production Superintendent

LDL:jn

cc: All Working Interest Owners

Supervisor of United States Geological Survey Date: _____

Commissioner of Public Lands for the State
of New Mexico

Date: _____



Oil Conservation Commission for the State
of New Mexico

Date: July 24, 1968

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

February 19, 1968

**Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101**

Attention: Mr. Neil S. Whitmore

**Re: 1968 Plan of Development
Buffalo Unit, Lea County,
New Mexico**

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Plan of Development for the calendar year 1968, providing for the drilling of no wells, for the Buffalo Unit, Lea County, New Mexico, subject to like approval by the United States Geological Survey.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEX/og

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

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

January 9, 1969

576

**Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101**

Attention: Mr. Neil S. Whitmore

**Re: 1969 Plan of Development
Buffalo Unit, Lea County,
New Mexico**

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Plan of Development for the calendar year 1969 for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/og

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

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

January 5, 1968

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1968 plan of development for the Buffalo unit area, Lea County, New Mexico, proposing no additional drilling, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(O.I.G. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil & Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

MAIN OFFICE 0

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PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 1410
Fort Worth, Texas 76101
December 13, 1967

File: SJ0-2032-416

Subject: Plan of Development for 1968
Buffalo Unit, Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

MAIN OFFICE 000

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

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Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1968.

History of Past Development

Presently within the boundary of the Buffalo Unit, there are four active producing wells. One well is completed in the Buffalo (Penn) Pool, while the other three wells are producing in the South Corbin Queen Pool.

Mark Whelan Well No. 1, formerly Unit Well No. 1, was drilled to a total depth of 14,916 in September, 1954. The Morrow horizon tested at a non-commercial rate of 500 MCFPD. The well was recompleted to the Wolfcamp zone. Due to decline in production, the well became uneconomical to operate. After testing the Morrow formation again, the well was completed in the Bone Springs. Mechanical difficulties occurred during February, 1966, causing the well to be shut-in. Repairs were considered uneconomical since cumulative production for 13 months was 7,717 barrels of oil. Further development in this reservoir is not warranted.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned 4760' Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was completed as a plugged and abandoned 4540' Penrose test on March 5, 1957 when testing showed the Penrose from 4462' to 4510' not to be capable of commercial production.

Buffalo Unit Well No. 4 was drilled to a total depth of 11,514 feet and was completed in the Morrow gas horizon during May, 1958. The well is designated to the Buffalo (Penn) Pool. In an attempt to increase the wells productions, a compressor was installed during December, 1965. During September, 1967, it flowed an average rate of 148 MCFPD with 3 barrels of condensate. Additional development for the Buffalo (Penn) Pool is not warranted since this well has a cumulative production of 2,071 MMCF and 83,850 barrels of condensate through October 1, 1967.

Buffalo Unit Well No. 5 was drilled to a total depth of 15,041 feet in the Simpson formation, but drillstem tests and logs found the Devonian and Fusselman formation to be non-commercial. In December 1962, this well was completed as a Morrow gas well and was included in the East Buffalo (Penn) Pool. Non-commercial classification was approved on April 1, 1964. The well was shut-in in February, 1965 because of uneconomical production, and in April, 1966, it was permanently abandoned, after total recovery of 378 MMCF of gas and 17,569 barrels of condensate. Additional development is not warranted in this reservoir.

Buffalo Unit Well No. 6 was completed as a producer in October, 1963 and was included in the Corbin, South-Queen Pool. Non-commercial status was requested and approved for this well on January 22, 1964. The well was later shut-in with cumulative production through November 1, 1965 being 1,302 barrels oil.

Buffalo Unit Well No. 7 is included in the South Corbin Queen Pool after being completed on February 10, 1966 by Roy Smith, agent for Pan American Petroleum Corporation. During September, 1967 the well pumped at an average rate of 23 BOPD.

Buffalo Unit Well No. 8 was completed on October 5, 1966 by Roy Smith, agent for Pan American Petroleum Corporation. It flowed 61 BOPD on potential and was designated to the South Corbin Queen Pool. The well pumped at an average rate of 14 BOPD in September, 1967. Non-commercial classification was requested for this well by our letter of September 27, 1967 since it will not payout in a reasonable length of time. Non-commercial determination was approved by your letter of November 17, 1967.

Buffalo Unit Well No. 9 was completed as a plugged and abandoned Penrose and Queen test in March, 1967 when testing showed the Penrose from 4488' to 4526' not being capable of commercial production and the Queen from 4248' to 4272' to be dry.

Buffalo Unit Well No. 10 was drilled and completed on March 20, 1967 in the Penrose zone by Roy Smith, agent for Pan American Petroleum Corporation. On potential test, it pumped 65 BOPD. During September, 1967, the well averaged pumping 20 BOPD. Non-commercial classification for this well was requested and approved by your letter of November 17, 1967, since it will not payout in a reasonable length of time.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area for the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Future Development

We are evaluating performance of unit completions for the dual purpose of maximum producing capacity and determining the feasibility of additional development. Thus, we have no plans for immediate development drilling; however, a supplement plan will be filed if such is indicated to be appropriate.

Offset Obligations

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development

This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement ending December 31, 1967. Before this Plan expires, a subsequent Plan of Development will be forwarded for your approval.

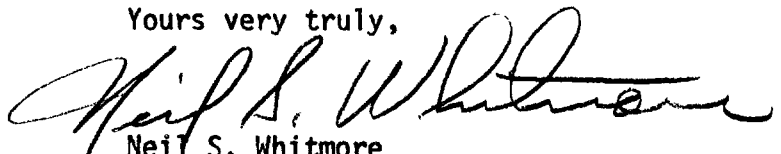
Modifications

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date

This Plan of Development shall be effective January 1, 1968. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,


Neil S. Whitmore
District Production Superintendent

LDL:jn
cc: All Working Interest Owners

Supervisor of United States Geological Survey

Date: _____

Commissioner of Public Lands for the
State of New Mexico

Date: _____

A. H. Carter

Oil Conservation Commission for the
State of New Mexico

Date: *Feb 19, 1968*

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. BOX 1410

FORT WORTH, TEXAS—76101

September 27, 1967

File: SJO-927-416

Subject: Non-Commercial Determination
for Buffalo Unit Wells No. 8
and 10, Lea County, New Mexico

Mr. Carl C. Traywick
United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico 88201

Dear Sir:

Reference is made to your letter of July 20, 1967, concerning the subject wells capabilities of being commercial producers.

Buffalo Unit Well No. 8, rather than Well No. 9 per your letter, located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, T-18-S, R-33-E, initially potentialized flowing 61 BOPD on October 5, 1966. At the present time the well is pumping 8 BOPD. Well No. 10, located in NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, T-18-S, R-33-E, potentialized pumping 65 BOPD on March 15, 1967 and is presently pumping 23 BOPD. Accumulative production to August 1, 1967 for Wells Nos. 8 and 10 are 13,534 barrels and 4,877 BO, respectively. Drilling and completion costs are approximately \$51,600 per well; thus, at the present producing rates an additional 11,000 barrels and 19,000 barrels, requiring a production period of 43 and 27 months, will be required to payout Wells Nos. 8 and 10, respectively. Since the wells are declining at a very rapid rate, we believe they will not produce these volumes in a reasonable length of time. Logs on the subject wells indicate less pay zone quality when compared to the log on Well No. 7, which is currently pumping 31 BOPD with accumulative production of 16,964 BO. We, therefore, consider Wells Nos. 8 and 10 to be non-commercial since they will not produce paying quantities from the Queen formation.

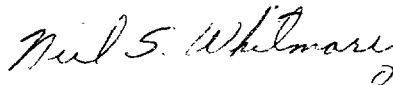
77 OCT 11 1967

Mr. Carl C. Traywick

United States Geological Survey -2- File: 330-927-416

We request your formal approval for non-commercial producer classification of Buffalo Unit Wells Nos. 8 and 10. Please indicate this approval by signing in the space provided below and return one copy of this letter to our office.

Yours very truly,



Neil S. Whitmore
District Production Superintendent

LDL:jn

APPROVED BY: _____
United States Geological Survey

DATE: _____

cc: New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico ✓

Roy H. Smith Drilling Co.
728 First-Wichita National Bldg.
Wichita Falls, Texas

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

576

May 19, 1967

**Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101**

Attention: Mr. Neil S. Whitmore

**Re: 1967 Plan of Development
Buffalo Unit, Lea County,
New Mexico**

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1967 Plan of Development dated April 4, 1967, for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

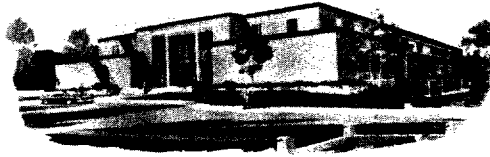
**A. L. PORTER, Jr.
Secretary-Director**

ALP/JEK/og

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

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State of New Mexico



MAIN OFFICE

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Commissioner of Public Lands

GUYTON B. HAYS
COMMISSIONER



May 17, 1967

P. O. BOX 1148
SANTA FE, NEW MEXICO

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Re: Buffalo Unit
Lea County, New Mexico
1967 Plan of Development

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has this date approved your 1967 Plan of Development for the Buffalo Unit, Lea County, New Mexico, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

We are returning one approved copy for your files.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
Eddie Lopez, Supervisor
Unit Division

GBH/TB/EL/s
encl. 1.

cc: USGS-Roswell, New Mexico
OCC-Santa Fe, New Mexico

MAIN OFFICE 000

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Drawer 1857
Roswell, New Mexico 88201

May 15, 1967

Pan American Petroleum Corporation
P. O. Box 1418
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1967 plan of development for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of one Queen test, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(ORIG. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Hobbs (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)

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PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING P. O. BOX 1410

FORT WORTH, TEXAS—76101

Fort Worth, Texas
April 4, 1967

File: SJO-619-416

Subject: Plan of Development for 1967
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1967.

History of Past Development:

There are presently five active producing wells within the unit area. Two additional wells were produced for a time. Unit Well No. 1 (now designated Mark Whelan No. 1) was drilled to a total depth of 14,980' in September 1954. On drillstem test, the Morrow formation indicated the possibility of commercial production. After setting casing, the initial test of this zone revealed a maximum stabilized productivity of 500 MCFPD which was considered non-commercial. Therefore, the well was recompleted to the Wolfcamp horizon and after initial production, declined steadily to a point where this formation became uneconomical. In November 1963, Well No. 1 was recompleted to the Bone Springs, after again testing the Morrow unsuccessfully. The well is now located in the Buffalo (Bone Springs) Pool and through February 1966 had cumulative production of 7,717 BO. In February 1966, mechanical difficulties occurred which caused the well to be shut-in since repairs were not economical. Further development in this reservoir is not warranted.

Buffalo Unit Well No. 2 was completed as a plugged and abandoned 4760' Penrose test on December 4, 1955.

Buffalo Unit Well No. 3 was completed as a plugged and abandoned 4540' Penrose test on March 5, 1957 when testing showed the Penrose from 4462' to 4510' not to be capable of commercial production.

The Buffalo Unit Well No. 4 was completed as a Morrow gas well in May 1958, and is now included in the Buffalo (Penn) Pool. Production from this well has continued since initial completion and in January 1967, it flowed an average rate of 123 MCFPD and 2 BCPD. A compressor was installed on December 1, 1965 in an attempt to improve this well's production. Cumulative production from this well as of February 1, 1967 was 2,049,164 MCF of gas and 83,578 barrels of condensate. At this rate additional development for the Buffalo (Penn) gas reservoir is not warranted.

Well No. 5 of the Buffalo Unit was completed in the Morrow Gas Sand in December 1962 and was located in the Buffalo (Penn), East Pool. Because this well was producing at low rates, non-commercial status was requested and approved on April 1, 1964. In February, 1965 the well was shut-in because of uneconomical production which totaled only 130 MCF and 10 barrels of condensate for that month. In April 1966, the well was permanently abandoned. Since cumulative recovery from this zone equaled 378,458 MCF of gas and 17,569 barrels of condensate, additional development in this reservoir is not warranted. This well was originally drilled to a total depth of 15,041' in the Simpson formation. Drillstem tests and logs found the Devonian and Fusselman formations to be non-commercial.

In October 1963, the Buffalo Unit Well No. 6 was completed as a producer and is now included in the Corbin, South-Queen Pool. Non-commercial designation was requested and approved for this well on January 22, 1964. In October 1965, the well pumped at an average rate of 1 BOPD and 0 BWPD and has been shut-in due to uneconomical production since that date. Cumulative production as of November 1, 1965 was 1,302 BO.

On February 10, 1966 Roy Smith, agent for Pan American Petroleum Corporation, completed his Buffalo Unit Well No. 7 (formerly designated Buffalo Federal Well No. 1) and the well is included in the Corbin, South-Queen Pool. On potential, Smith's well flowed 180 BO and 0 BWPD and as of October 1, 1966 had recovered 6854 BO.

On October 5, 1966, Roy Smith, agent for Pan American Petroleum Corporation, completed his Buffalo Unit Well No. 8 with a potential flowing 61 BOPD. The well is included in the Corbin, South-Queen Pool. Since completion of this well, the production from it and Buffalo Unit Well No. 7 have been reported together. Total production from the two wells from October 1, 1966 to February 1, 1967 has been 10,567 BO.

On December 3, 1966, Pan American spudded its Buffalo Unit Well No. 9 at a location 1650' FNL and 2310' FWL, Section 34, T-18-S, R-33-E. The Penrose Section was tested 4488' to 4526' including two acid stimulations and two fracture stimulations. Gas production was gauged at an uneconomic rate of approximately 225 MCFD. The Queen section was perforated 4248' to 4272', acidized with 2,000 gallons and found to be dry. Due to the lack of commercial production, the well was completed as plugged and abandoned in March 1967.

Participating Area:

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

An initial participating area for the Queen formation was established in the last half of 1966. Forty acres were included in this initial participating area for Buffalo Unit Well No. 7. The area is the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

Plan of Development

Permission to postpone the filing of a 1967 Buffalo Unit Plan of Development until after completion of the Buffalo Unit Well No. 9 was granted at the request of Pan American. This well was a dry hole as discussed above.

During this period, Roy Smith drilled and has now completed the Buffalo Unit Well No. 10. On March 20, 1967, Roy Smith, as agent for Pan American Petroleum Corporation, completed Buffalo Unit Well No. 10 to pump 65 BOPD from Penrose perforations 4520' to 4554'.

It is desired that this well (Buffalo Unit No. 10) constitute the 1967 Plan of Development of the Buffalo Unit.

Due to the limited success to date in completing commercial wells in this area, Pan American and its partners in the Buffalo Unit desire to further evaluate production from the currently producing Queen and Penrose wells, and especially Buffalo Unit Well No. 10 which was just completed. This further evaluation should indicate whether or not additional commercial Queen and Penrose wells can be drilled.

At such time as production data permit a reasonable evaluation to be made, an amendment to this Plan of Development will be filed.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

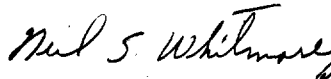
Modifications:

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date:

This Plan of Development shall be effective January 1, 1967. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,



Neil S. Whitmore
District Production Superintendent

EDN:jn

cc: All Working Interest Owners

Supervisor of United States Geological Survey Date: _____

Commissioner of Public Lands for the State of New Mexico Date: _____

Oil Conservation Commission for the State of New Mexico Date: _____

Unit Name BUFFALO UNIT
Operator PAN AMERICAN PETROLEUM CORPORATION
County IEA

516
ccc

DATE	OCC CASE NO.	576	EFFECTIVE DATE	TOTAL ACREAGE	STATE	FEDERAL	INDIAN-FEE	SEGREGATION CLAUSE	TERM
APPROVED	OCC ORDER NO.	R-379	11-6-53	6,127.07	656.32	5,470.75	XXXXXXXXXX	YES	5 YEARS
MISSIONER:	OCC:	10-15-53							
10-7-53									
U.S.G.S.:									
11-6-53									

UNIT AREA

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NEW MEXICO PRINCIPAL MERIDIAN, NEW MEXICO

SEC. 33: ALL
SEC. 34: ALL
SEC. 35: ALL

THE BUFFALO UNIT HAS BEEN CONTRACTED EFFECTIVE 12-31-71

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NEW MEXICO PRINCIPAL MERIDIAN, NEW MEXICO

THE FOLLOWING FEDERAL LANDS IS ALL THAT REMAINS IN UNIT:

SEC. 1: W/2
SEC. 2 to 4: INCLUSIVE: ALL
C. N/2
SECS. AND 11: ALL
SEC. 4/3

The NE/4 and N/2SE/4 Section 4-19S-33E
The W/2NW/4 and NW/4SW/4 Section 3-19S-33E
The NW/4NE/4 section 34-18S-33E

TOTAL ACREAGE 407.62

Unit Name BUFFALO UNIT
 Operator PAN AMERICAN PETROLEUM CORPORATION
 County LEA

STATE TRACT NO.	LEASE NO.	INSTI-TUTION	SEC.	TWP.	RGE.	SUBSECTION	RATIFIED DATE	ACRES	ACREAGE NOT RATIFIED	LESSEE
7	E-55552	C.S.	2	19S	33E	LOTS 1 (NE/4NE/4) 2 (NW/4NE/4), S/2NE/4	10-28-53	168.48		GULF OIL CORPORATION
8	B-10788	C.S.	2	19S	33E	LOT 3	9-11-53	43.98		PAN AMERICAN PET. CORP.
9	B-11347-5	C.S.	2	19S	33E	LOT 4 (NW/4NW/4), SW/4NW/4, SE/4NW/4	9-11-53	123.86		CONTINENTAL OIL COMPANY & PAN AMERICAN PET. CORP.
10	B-11551	C.S.	2	19S	33E	S/2	10-26-53	320.00		SOCOBY MOBIL OIL COMPANY INC.

*Combined
12-31-71*

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

576

January 24, 1967

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Re: Postponement for Filing
1967 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the requested postponement for the filing of a Plan of Development covering the year 1967 for the Buffalo Unit, Lea County, New Mexico until the completion of Buffalo Unit Well No. 9, now being tested, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Five approved copies of the application for postponement are returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/og
cc: Commissioner of Public Lands
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

C
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IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

January 17, 1967

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your application of December 29, 1966, for an extension of time in which to file the 1967 plan of development for the Buffalo unit area, Lea County, New Mexico, until Buffalo unit well No. 9 is completed, has been approved on this date subject to like approval by the appropriate State officials.

Nine approved copies of your application are enclosed.

Sincerely yours,

(Orig. Sgd.) CARL C. TRAYWICK

CARL C. TRAYWICK
Acting Oil and Gas Supervisor

cc:

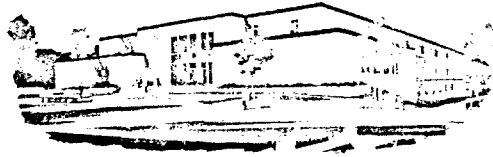
Washington (w/cy application)

Hobbs (w/cy application)

NMOCC, Santa Fe (ltr. only) ✓

Com. Pub. Lands, Santa Fe (ltr. only)

State of New Mexico



Commissioner of Public Lands



January 13, 1967

GUYTON B. HAYS
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas, 76101

Re: Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands approves your request for an extension of time in which to file a Plan of Development, subject to like approval by the United States Geological Survey.

This extension is granted only until the Buffalo Well No 9 is completed.

This office received an intention to drill for Well No 9 which states the well was spudded on December 3, 1966, however, we have not received any further reports for this well, since the proposed depth is only 4600' we assume it will not take too long to drill.

We are returning five approved copies of this application.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS
BY:

Ted Bilberry, Director
Oil and Gas Department

GBH/MMR/s
Encls.

Pan American Petroleum Corporation
P. O. Box 1410
January 13, 1967
Page 2.

cc: United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

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

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. BOX 1410

FORT WORTH, TEXAS—76101

December 29, 1966

File: SJO-632-416

Subject: Plan of Development for 1967,
Buffalo Unit, Lea County,
New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

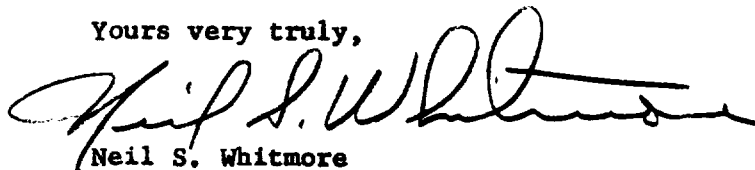
Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

Reference is made to Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, which requires Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, to submit a periodic plan of development for the Buffalo Unit.

As you are aware, Pan American is currently involved in completion operations on our Buffalo Unit No. 9, and we respectfully request your permission to postpone the filing of a plan of development for 1967 for the Buffalo Unit until this well has been completed. Please indicate your approval by signing in the space provided below and returning one copy of this letter to our office.

Yours very truly,



Neil S. Whitmore

District Production Superintendent


GRM:jn

United States Geological Survey

Date: _____

Commissioner of Public Lands for State of
New Mexico

Date: _____


Oil Conservation Commission for State of
New Mexico

Date: Dec 29, 1967

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. BOX 1410

FORT WORTH, TEXAS—76101

276

December 5, 1966

File: SJO-596-416

Subject: Approval of Initial Participating
Area for Queen Formation
Buffalo Unit, Lea County,
New Mexico

TO: ~~ALL WORKING INTEREST OWNERS~~
South Mattix Unit

Gentlemen:

Please be advised that the initial participating area for the Queen Formation of the Buffalo Unit, Lea County, New Mexico, has been approved by governmental agencies as outlined in our letter of August 30, 1966.

Please find attached copies of the governmental approvals.

Yours very truly,

Neil S. Whitmore

Neil S. Whitmore
District Production Superintendent

GRM:jn
Attachments

cc: Roy H. Smith Drilling Co.
728 First-Wichita Natl. Bldg.
Wichita Falls, Texas

Commissioner of Public Lands
for the State of New Mexico
P. O. Box 791
Santa Fe, New Mexico

Oil Conservation Commission for
State Of New Mexico
P. O. Box 2088
Santa Fe, New Mexico



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

576

Drawer 1857
Roswell, New Mexico 88201

November 29, 1966

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

1966 DEC 1 PM 1 30

Attention: Mr. Neil S. Whitmore

Gentlemen:

The initial Queen participating area for the Buffalo unit agreement, Lea County, New Mexico, was approved on November 18, 1966, by the Acting Director, Geological Survey, effective as of February 10, 1966.

Three approved copies of the application are enclosed. You are requested to furnish the State of New Mexico and any other interested party with appropriate evidence of this approval.

Sincerely yours,

(Orig.Sgd.) CARL C. TRAYNICK

CARL C. TRAYNICK
Acting Oil and Gas Supervisor

cc:
Washington (ltr. only)
Hobbs (w/cy of application)
NMOCC - Santa Fe (ltr. only) ✓
Com. of Pub. Lands - Santa Fe (ltr. only)

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

576

November 7, 1966

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O
P
Y

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Re: Plan of Development,
July 1, 1966 to January 1, 1967,
Buffalo Unit, Lea County, New
Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Plan of Development dated August 26, 1966, for the last half of 1966, for the Buffalo Unit, Lea 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.

Two approved copies of the plan of development are returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/og

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



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico 88201

September 12, 1966

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your plan of development dated August 26, 1966, covering the last half of 1966 for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of one Queen test, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(ONG. SGR.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
NMOCC, Santa Fe (ltr. only) ✓
Com. Pub. Lands, Santa Fe (ltr. only)
Hobbs (w/cy plan)

September 8, 1966

**Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101**

**Re: Buffalo Unit
Lea County, New Mexico
Initial Participating Area
for Queen Formation**

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has approved the Initial Participating Area, Queen Formation, for the Buffalo Unit, Lea County, New Mexico, subject to like approval by the Oil Conservation Commission and the United States Geological Survey.

We are returning one approved copy and retaining two for our files.

Very truly yours,

**GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS**

**BY:
Ted Bilberry, Director
Oil and Gas Department**

**GEH/MMR/s
encl.**

**cc: Oil Conservation Commission
Santa Fe, New Mexico
United States Geological Survey
Roswell, New Mexico**

SEP 1 AM 7 3 3

August 30, 1966

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Re: Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands approves your Plan of Development for the Buffalo Unit, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

This revised plan dated August 25, 1966, provides for an additional Queen test to be drilled in the Buffalo Unit prior to October 15, 1966.

We are returning one approved copy of this application.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
Ted Bilberry, Director
Oil and Gas Department

GBH/MMR/s

cc: Oil Conservation Commission
Santa Fe, New Mexico
United States Geological Survey
Roswell, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

P. O. BOX 1410

FORT WORTH, TEXAS—76101

August 30, 1966

File: CDF-3586-416

Subject: Request for Approval of
Initial Participating Area
For Queen Formation
Buffalo Unit, Lea County,
New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

Pursuant to Section 11 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as Unit Operator, has determined, subject to the approval of the Director, the Commissioner, and the Commission, that Buffalo Unit Well No. 7, completed in the Queen formation is capable of producing unitized substances in paying quantities and that an Initial Participating Area for the Queen formation should accordingly be established. The proposed Initial Participating Area contains 40 acres and is described as the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E, Lea County, New Mexico.

The Buffalo Unit Well No. 7, located 1980 feet from the east line and 660 feet from the north line of Section 34, T-18-S, R-33-E, Lea County, New Mexico, was drilled to a total depth of 4621 feet and completed through perforations from 4519 to 4550 feet in the Queen formation. On initial potential on February 10, 1966, the Buffalo Unit Well No. 7 flowed 180 barrels of oil per day with a gas-oil ratio of 326 cubic feet per barrel.

The effective date for the Initial Participating Area is determined as February 10, 1966, the date on which the above well was completed.

Attached hereto are the following exhibits which should aid in your evaluation of this application:

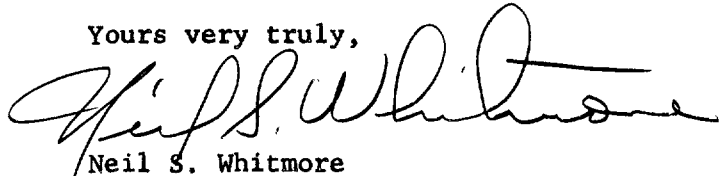
- (1) Schedule I which shows the tract to be included in the participating area and the percentage of unitized substances to be allocated to this tract.

- (2) Exhibit "A", a map of the unit area on which has been noted the proposed initial Queen Participating Area.
- (3) Attachment I, which provides pertinent data on the Buffalo Unit Well No. 7.
- (4) Attachment II, a portion of the Formation Density Log which shows the Queen formation and the completion interval.

In addition to the Buffalo Unit Well No. 7, there is one other well in the unit which is completed in the Queen formation. This well is the Buffalo Unit Well No. 6 which is located in the SW/4 of the SE/4 of Section 33, T-18-S, R-33-E. This well was completed on October 3, 1963 and on initial potential flowed 12 barrels of oil per day. A non-commercial classification was requested and approved for the Buffalo Unit Well No. 6. This well has produced 1302 barrels of oil and is currently shut-in due to non-commercial oil producing rates.

If the above proposed Initial Participating Area for the Queen formation meets with your approval, please indicate hereon. Approval of the Participating Area proposed has been received from the affected working interest owners.

Yours very truly,



Neil S. Whitmore

District Production Superintendent

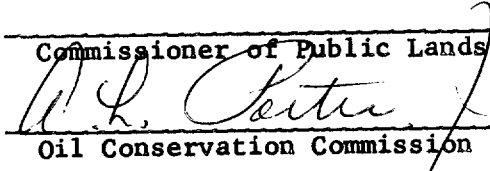
CDF:jn
Attachments

cc: Working Interest Owners

Roy H. Smith Drilling Co.
728 First-Wichita Nat Bldg.
Wichita Falls, Texas

APPROVED: _____ DATE: _____
Acting Director, United States Geological Survey

APPROVED: _____ DATE: _____
Commissioner of Public Lands

APPROVED:  DATE: 9/22/66
Oil Conservation Commission

SCHEDULE I

Lessee of Record: Pan American Petroleum Corp. 50%
Continental Oil Company 50%

Working Interest Owner: Roy H. Smith
d/b/a Roy H. Smith
Drilling Company 100%

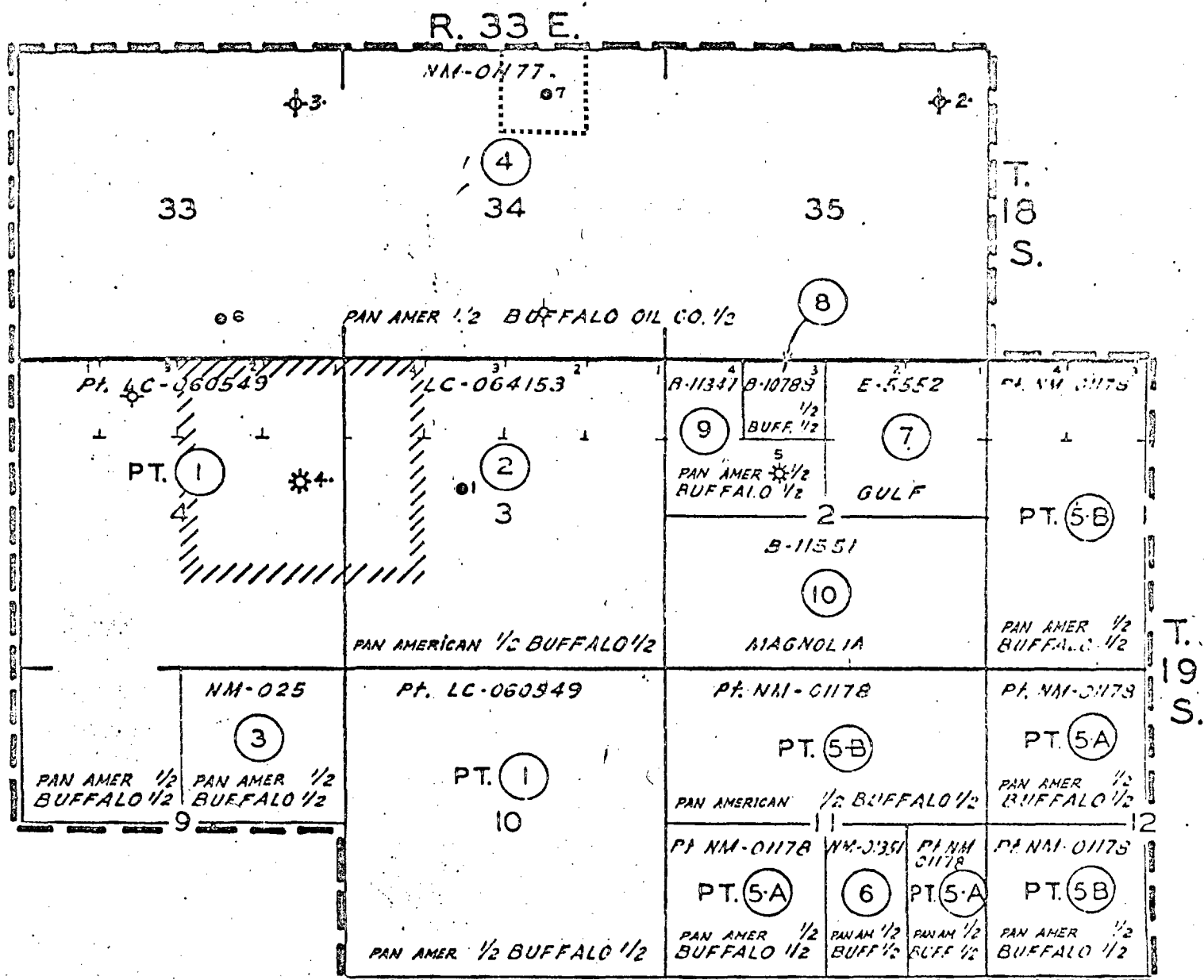
Serial Number: NM 01177-A USA-P. B. English

Tract Number: Part of Tract 4

Participating Acreage: 40 acres

Percent of Participation: 100%

Description: NW/4 NE/4 Sec. 34, T-18-S, R-33-E
Lea County, New Mexico



27223

LEGEND:

- UNIT BOUNDARY
- TRACT BOUNDARY
- (2) TRACT NUMBER
- ////// PARTICIPATING AREA
- PENNSYLVANIA FORMATION
- PROPOSED INITIAL PARTICIPATING AREA
- QUEEN FORMATION

EXHIBIT "A"
TO ACCOMPANY
BUFFALO UNIT AGREEMENT
LEA COUNTY, NEW MEXICO
SCALE: 2" = 1 MILE

Roy H. Smith Drilling Co.
Buffalo Unit No. 7
Corbin, South-Queen Pool

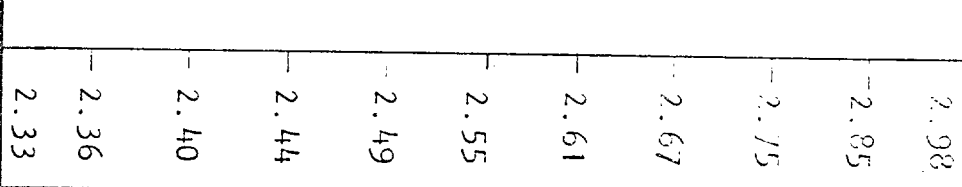
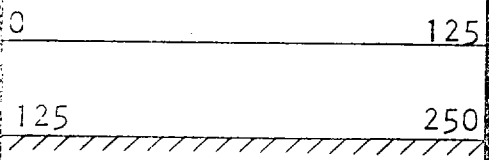
1530' E 1/4 Sec 34, T-13-S, R-33-E
Lee Co., New Mexico

Top of Queen 4257(-454)

Formation Density →

Caliper
Gamma Ray

TD 4621' 4 1/2" CSA 4621
1 1/2" 19.81 4525-30, 45-47-50
Add w/2 ccs 2 1/2" SWB 19.80 in 14 hrs
Free w/20 ccs 2 1/2" oil
T.F. 180.8000, GCR 326, 3-10-66



GAMMA RAY
API UNITS

BULK DENSITY
GRAMS/CC

ATTACHMENT I

PERTINENT DATA FOR BUFFALO UNIT WELL NO. 7
CORBIN, SOUTH-QUEEN POOL

I. General

Location: 1980' FEL and 660' FNL, Section 34, T-18-S, R-33-E, Lea County,
New Mexico.

Date Completed: February 10, 1966.

Depth: 4621' (Logger's TD)

Completion Interval: Perforated 4519-21, 4525-30 and 4547-50' w/2 JSPF

Stimulation: Acidized with 2,000 gals.

Fraced with 20,000 gals. oil and sand.

Initial Potential: Flowed 180 BOPD, GOR 326

Latest Test: Flowed 45 BOPD on 10/64" choke, August, 1966.

II. Reservoir Data - Queen

Porosity (From cores) - 14.5%

Permeability (from cores) - 11.8 md.

Water Saturation (estimated) - 25%

Net Pay (cores) - 19 feet

Reservoir Volume Factor (estimated) - 1.2

Recovery Factor (estimated) - 18%

III. Economic Data

Cost of drilling, completing and equipping a

Queen producing well - \$52,000

Operating Cost, \$/Well/Month - \$175

Crude Oil Price per Barrel - \$2.71

Taxes - 6.3% of net value

IV. Monthly Production Statistics

<u>Month, Year</u>	<u>Days Prod.</u>	<u>BO</u>	<u>Cum. Oil Prod.</u>
Feb., 1966	28	968	968
March, 1966	31	1266	2234
April, 1966	30	1260	3444
May, 1966	31	1364	4858
June, 1966	30	1320	6178

V. Miscellaneous

The Buffalo Unit Well No. 7 was drilled and is operated by the Roy H. Smith Drilling Company, as agent for the Buffalo Unit working interest owners.

100

Re: Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

Gentlemen :

This office on August 9, 1966, put Pan American as operator of the Buffalo Unit on notice to contract the Buffalo Unit. This being the second time we had found it necessary to make such a demand.

Your Plan of Development for the last half of 1966 providing for the drilling of a Queen Well prior to October 15, 1966 was approved as of this date. This office will expect a further Plan of Development to be submitted by January 1, 1967, providing for the drilling of a well during the first six months, or contraction of the unit area.

If the aforesaid is not forth coming, this office will immediately put a demand on the Unit Operator for contraction of the unit area.

Very truly yours,
GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS
BY:
Ted Bilberry, Director
Oil and Gas Department

Pan American Petroleum Corporation
August 30, 1966
Page 2.

cc: United States Geological Survey
Roswell, New Mexico

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 1410
Fort Worth, Texas 76101
August 25, 1966

File: CDF-3576-416

Subject: Plan of Development For
Last Half of 1966
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

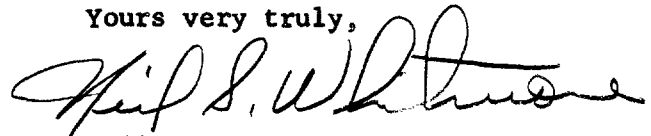
Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

By our letter of June 24, 1966, File: RES-3482-416, we submitted a Plan of Development for the last half of 1966 for the Buffalo Unit. Inasmuch as no approvals of this Plan of Development have been received, it is requested that this Plan of Development be replaced with the Plan of Development attached to this letter. The attached Plan of Development indicates that Pan American and the other working interest owners in the Buffalo Unit plan to have an additional Queen test drilled in the Buffalo Unit prior to October 15, 1966.

This is to also advise that we will submit in the near future an application to establish an initial participating area for the Queen formation consisting of the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E of the Buffalo Unit.

Yours very truly,



Neil S. Whitmore
District Production Superintendent

CDF: jn
Attachment

1966 AUG 29 AM 7 50

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 1410
Fort Worth, Texas 76101
August 26, 1966

File: CDF-3578-416

Subject: Plan of Development For
Last Half of 1966
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

MAILED 10
1966 Aug 29 AM 7 00

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for the last six months of 1966.

History of Past Development:

There are presently four completed wells within the Unit area. Unit Well No. 1 (now designated Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test, the Morrow formation indicated the possibility of commercial production. After setting casing, the initial test of this zone revealed a maximum stabilized productivity of 500 MCFPD which was considered non-commercial. Therefore, the well was recomplected to the Wolfcamp horizon and after initial potential, declined steadily to a point where this formation became uneconomical. In November 1963, Well No. 1 was recomplected to the Bone Springs, after again testing the Morrow unsuccessfully. The well is now located in the Buffalo (Bone Springs) Pool and through February 1966 had cumulative production of 7,717 BO. In February mechanical difficulties occurred which caused the well to be shut-in since repairs were not economical. Further development in this reservoir is not warranted.

The Buffalo Unit Well No. 4 was completed as a Morrow gas well in May, 1958 and is now included in the Buffalo (Penn) Pool. Production from this well has continued since initial completion and in May, 1966 flowed at an average rate of 185 MCFPD and 6 BCPD. A compressor was installed on December 1, 1965 in an attempt to improve this well's production. Cumulative production from this well as of June 1, 1966 was 2,009,444 MCF of gas and 83,316 barrels of condensate. At this rate additional development for the Buffalo (Penn) gas reservoir is not warranted.

Well No. 5 of the Buffalo Unit was completed in the Morrow Gas Sand in December 1962 and was located in the Buffalo (Penn), East Pool. Because this well was producing at low rates, non-commercial status was requested and approved on April 1, 1964. In February, 1965 the well was shut-in because of uneconomical production which totaled only 130 MCF and 10 barrels of condensate for that month. In April, 1966 the well was permanently abandoned. Since cumulative recovery from this zone equaled 378,458 MCF of gas and 17,569 barrels of condensate, additional development in this reservoir is not warranted. This well was originally drilled to a total depth of 15,041' in the Simpson formation. Drill stem tests and logs found the Devonian and Fusselman formations to be non-commercial.

In October, 1963 the Buffalo Unit Well No. 6 was completed as a producer and is now included in the Corbin, South-Queen Pool. Non-commercial designation was requested and approved for this well on January 22, 1964. In October 1965 the well pumped at an average rate of 1 BOPD and 0 BWPD and has been shut-in due to uneconomical production since that date. Cumulative production as of November 1, 1965 was 1,302 BO.

On February 10, 1966 Roy Smith completed the Buffalo Unit Well No. 7 (formerly designated Buffalo Federal Well No. 1) and the well is included in the Corbin, South-Queen Pool. On potential Smith's well flowed 180 BO and 0 BWPD and as of August 1, 1966 had recovered 7252 BO. The well is currently producing at a rate of 45 BOPD flowing.

Participating Area:

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

Future Development:

Pan American and the other working interest owners in the Buffalo Unit plan to have an additional Queen test drilled in the Buffalo Unit prior to October 15, 1966. This well will probably be located in the S/2 of the NE/4 of Section 34, T-18-S, R-33-E.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development:

This Plan of Development shall constitute the drilling obligations of the Unit operator under the terms of the Buffalo Unit Agreement for a period from July 1, 1966 through December 31, 1966. Before this Plan expires, a subsequent Plan of Development will be submitted.

Modifications:


It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date:

This Plan of Development shall be effective July 1, 1966. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator


Neil S. Whitmore
District Production Superintendent

CDF: jn

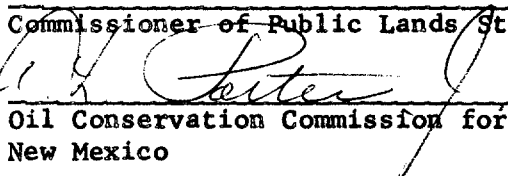
cc: All Working Interest Owners

Supervisor of United States Geological Survey

Date: _____

Commissioner of Public Lands State of New Mexico

Date: _____


Oil Conservation Commission for the State of
New Mexico

Date: Nov. 7, 1966

1966 AUG 10 AM 10 33
AUG 10 1966
August 9, 1966

REGISTERED MAIL

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

Re: Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

Gentlemen:

Section 2, Subsection (a) of the Buffalo Unit Agreement, provides for the contraction of the boundaries of the Unit Area, and states this shall be done upon the demand of the Commissioner.

This Unit was effective as of November 6, 1953 and the State has 656.32 acres in this unit none of which is participating.

This office has previously advised Pan American to continue development or contract the unit. By our letter of June 30, 1966, we refused to approve a Plan of Development for no development.

Therefore, under Section 2, Subsection (a) of the Buffalo Unit Agreement, the Commissioner is making demand upon the Operator to instigate the contraction of the Buffalo Unit to its present Participating Area as provided for under Section 2, Subsection (a) of the Unit Agreement.

This section further states, the operator shall prepare a notice of proposed expansion or contraction describing the

Pan American Petroleum Corporation
August 9, 1966
Page 2.

contemplated changes in the boundaries of the unit area-

We will expect to receive such notice in the very near future.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

GBH/MMR/s

cc: United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

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

C
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P
Y

Replaced by Plan dated August 25, 1966

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas 79401
June 24, 1966

File: RES-3482-416

Subject: Plan of Development For
Last Half of 1966
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2083
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for the last six months of 1966.

History of Past Development:

There are presently four completed wells within the Unit area. Unit Well No. 1 (now designated Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test, the Morrow formation indicated the possibility of commercial production. After setting casing, the initial test of this zone revealed a maximum stabilized productivity of 500 MCFPD which was considered non-commercial. Therefore, the well was recompleted to the Wolfcamp horizon and after initial potential, declined steadily to a point where this formation became uneconomical. In November 1963, Well No. 1 was recompleted to the Bone Springs, after again testing the Morrow unsuccessfully. The well is now located in the Buffalo (Bone Springs) Pool and through February 1966 had cumulative production of 7,717 BO. In February mechanical difficulties occurred which caused the well to be shut-in since repairs were not economical. Further development in this reservoir is not warranted.

RECEIVED

JUN 27 AM 7 46

The Buffalo Unit Well No. 4 was completed as a Morrow gas well in May, 1958 and is now included in the Buffalo (Penn) Pool. Production from this well has continued since initial completion and in April, 1966 flowed at an average rate of 234 MCFPD and 3 BCPD. A compressor was installed on December 1, 1965 in an attempt to improve this well's production. Cumulative production from this well as of May 1, 1966 was 2,003,745 MCF of gas and 83,124 barrels of condensate. At this rate additional development for the Buffalo (Penn) gas reservoir is not warranted.

Well No. 5 of the Buffalo Unit was completed in the Morrow Gas Sand in December 1962 and was located in the Buffalo (Penn), East Pool. Because this well was producing at low rates, non-commercial status was requested and approved on April 1, 1964. In February, 1965 the well was shut-in because of uneconomical production which totaled only 130 MCF and 10 barrels of condensate for that month. In April, 1966 the well was permanently abandoned. Since cumulative recovery from this zone equaled 378,458 MCF of gas and 17,569 barrels of condensate, additional development in this reservoir is not warranted. This well was originally drilled to a total depth of 15,041' in the Simpson formation. Drill stem tests and logs found the Devonian and Fusselman formations to be non-commercial.

In October, 1963 the Buffalo Unit Well No. 6 was completed as a producer and is now included in the Corbin, South-Queen Pool. Non-commercial designation was requested and approved for this well on January 22, 1964. In October 1965 the well pumped at an average rate of 1 BOPD and 0 BWPD and has been shut-in due to uneconomical production since that date. Cumulative production as of November 1, 1965 was 1,302 BO.

On February 10, 1966 Roy Smith, agent for Pan American Petroleum Corp., completed his Buffalo Unit Well No. 7 (formerly designated Buffalo Federal Well No. 1) and the well is included in the Corbin, South-Queen Pool. On potential Smith's well flowed 180 BO and 0 BWPD and as of May 1, 1966 had recovered 3494 BO. In April, 1966 the Buffalo Unit Well No. 7 flowed 42 BO and 0 BWPD.

Participating Area:

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

Future Development:

Due to the marginal recoveries of all wells in this area, Pan American and its partners in the Buffalo Unit have not formulated plans for additional development in 1966. For information; Roy Smith has until August 10, 1966 to exercise his option to drill another well within the Buffalo Unit area, and in all probability, this well will be drilled.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development:

This Plan of Development shall constitute the drilling obligations of the Unit operator under the terms of the Buffalo Unit Agreement for a period from July 1, 1966 through December 31, 1966. Before this Plan expires, a subsequent Plan of Development will be submitted.

Modifications:

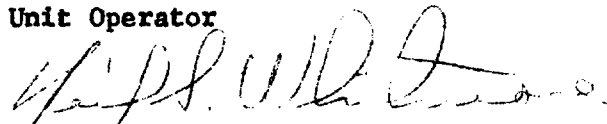
It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date:

This Plan of Development shall be effective July 1, 1966. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator



Neil S. Whitmore
District Production Superintendent

WCC:jb

cc: All Working Interest Owners

Supervisor of United States Geological Survey

Date: _____

Commissioner of Public Lands
State of New Mexico

Date: _____

Oil Conservation Commission for the State of
New Mexico

Date: _____

100-100-100
MAR 22 AM 7 55

Drawer 1857
Roswell, New Mexico 88201

March 22, 1966

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your plan of development dated February 4, 1966, for the Buffalo unit area, Lea County, New Mexico, covering the first half of 1966, has been approved on this date subject to like approval by the appropriate State officials. Said plan proposes the completion and testing of Ray Smith - Buffalo unit well No. 1 in the NW $\frac{1}{4}$ sec. 34, T. 18 S., R. 33 E., which was spudded on December 30, 1965, in accordance with the 1965 plan of development.

We believe that drilling within the unit area should be continued during 1966 and that your drilling program for the last half of the year should provide for at least one additional test well.

Three approved copies of the plan are enclosed.

Sincerely yours,

(ONE. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil & Gas Supervisor

cc:

Washington (w/cy of plan)

Hobbs (w/cy of plan)

N.M.O.C.C. - Santa Fe (ltr. only) ✓

Com. of Pub. Lands - Santa Fe (ltr. only)

PAN AMERICAN PETROLEUM CORPORATION

FEB 23 AM 7 54

P. O. Box 268
Lubbock, Texas 79401
February 25, 1966

File: RES-3156-416

Subject: Pertinent Data Regarding Your
Buffalo Federal Well No. 1
Buffalo Unit Area
Lea County, New Mexico

Roy Smith Drilling Company
728 Wichita National Bank Building
Wichita Falls, Texas

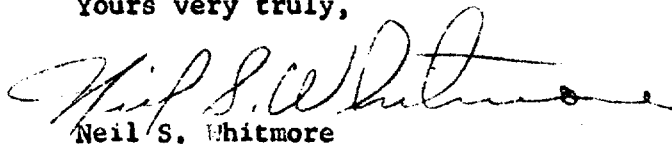
Gentlemen:

Pan American, as operator, submitted by letter dated February 4, 1966, File: RES-3097-416, a Plan of Development for the Buffalo Unit for the first six months of 1966 to various New Mexico Regulatory Bodies. Included in this Plan was the drilling of your Buffalo Federal Well No. 1, located in the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E.

By letter dated February 21, 1966, the Commissioner of Public Lands for the State of New Mexico approved our 1966 Plan of Development subject to similar approval by the United States Geological Survey. Included in the Commissioner's letter was a request that your well be designated Buffalo Unit Well No. 7 and that the Commissioner be forwarded copies of all forms and reports concerning this well.

We would greatly appreciate your complying with these requests, since your Company is the designated agent for the Buffalo Unit Working Interest Owners for this well. In addition, any and all future wells drilled within the Buffalo Unit boundary should be similarly designated. We suggest you forward these data direct to the Commissioner's office, with copy to us and other necessary regulatory bodies.

Yours very truly,



Neil S. Whitmore
District Production Superintendent

WCC:jn

cc: Commissioner of Public Lands
United States Geological Survey
New Mexico Oil Conservation Commission
Working Interest Owners

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

5/16

February 24, 1966

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Re: 1966 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1966 Plan of Development dated February 4, 1966 covering the period from January 1, 1966 to June 30, 1966 for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/04

cc: Commissioner of Public Lands
Santa Fe, New Mexico

U. S. Geological Survey
Roswell, New Mexico

C
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State of New Mexico



MAIN OFFICE, ODD

FEB 22 PM 1 41

Commissioner of Public Lands



GUYTON B. HAYS
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO

February 21, 1966

Pan American Petroleum Corporation
P. O. Box 258
Lubbock, Texas

Re: Buffalo Unit
Lea County, New Mexico

ATTENTION: Mr. Neil S. Whitmore

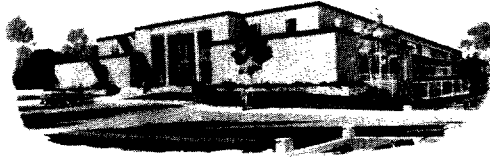
Gentlemen:

The Commissioner of Public Lands has approved the 1966 Plan of Development, dated February 4, 1966, for the Buffalo Unit Area, subject to like approval by the United States Geological Survey.

This plan covers the period ending June 30, 1966 and provides for a well which was spudded December 30, 1965 to be drilled to a total depth of 4600'. Although, the plan states this well has been drilled to a total depth of 4620' this office has not received any well reports, other than an intention to drill dated December 23, 1965. This well report does not designate this as a Buffalo Unit Well. Although, the well is being drilled by a designated agent, the well should be designated as Pan American's Buffalo Unit Well No. 7. Please furnish us reports on this well.

We are returning one approved copy of this plan.

State of New Mexico



Commissioner of Public Lands

GUYTON B. HAYS
COMMISSIONER



P. O. BOX 1148
SANTA FE, NEW MEXICO

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

February 21, 1966
Page 2.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY: Ted Bilberry, Director
Oil and Gas Department

GBH/TB/MMR/s

cc: Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

United States Geological Survey
P. O. Drawer 1857
Reswell, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

FIELD OFFICE 000

FEB 9 AM 10 20

P. O. Box 268
Lubbock, Texas 79401
February 4, 1966

File: RES-3097-416

Subject: Plan of Development for 1966
Buffalo Unit, Lea County
New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201

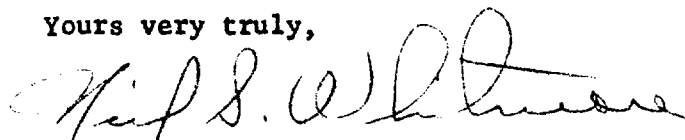
Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

Please find attached our revised Plan of Development for the subject Unit. This revision is in accordance with a request from the office of the Commissioner of Public Lands. We would appreciate your destroying copies of the Plan of Development dated January 17, 1966, File: RES-3043-416.

Yours very truly,



Neil S. Whitmore
District Production Superintendent

WCC:jn

cc: Working Interest Owners

PAN AMERICAN PETROLEUM CORPORATION

Lubbock, Texas 79401

February 4, 1966

File: RES-3095-416

Subject: Plan of Development For
First Half of 1966
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1966.

History of Past Development:

There are presently four completed wells within the Unit area. Two of these wells are to be abandoned, and the other two are operating at marginal producing rates. Unit Well No. 1 (now designated Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drillstem test, the Morrow formation indicated the possibility of commercial production. After setting casing, the initial test of this zone revealed a maximum stabilized productivity of 500 MCFPD which was considered non-commercial. Therefore, the well was recompleted to the Wolfcamp horizon and after initial potential, declined steadily to a point where this formation became uneconomical. In November 1963, Well No. 1 was recompleted to the Bone Springs, after again testing the Morrow unsuccessfully. The well is now located in the Buffalo (Bone Springs) Pool and in October 1965 pumped at an average rate of 7 BOPD and 3 BWPD, with cumulative production of 6,175 BO as of November 1, 1965. At this rate further development in this reservoir is not

warranted. The Buffalo Unit Well No. 4 was completed as a Morrow gas well in May, 1958 and is now included in the Buffalo (Penn) Pool. Production from this well has continued since initial completion and in October, 1965 flowed at an average rate of 44 MCFPD with no condensate being recovered. A compressor was installed on December 1, 1965 in an attempt to improve this well's production. Cumulative production from this well as of November 1, 1965 was 1,951,995 MCF of gas and 82,322 barrels of condensate. At this rate additional development for the Buffalo (Penn) gas reservoir is not warranted.

Well No. 5 of the Buffalo Unit was completed in the Morrow Gas Sand in December 1962 and is located in the Buffalo (Penn), East Pool. Because this well was producing at low rates, non-commercial status was requested and approved on April 1, 1964. In February 1965, this well was shut-in because of uneconomical production which totaled only 130 MCF and 10 barrels of condensate for that month. A recommendation has now been made to the Working Interest Owners to permanently abandon this well. Since cumulative recovery from this zone as of March 1, 1965 equaled 378,458 MCF of gas and 17,569 barrels of condensate, additional development in this reservoir is not warranted. This well was originally drilled to a total depth of 15,041' in the Simpson formation. Drill stem tests and logs found the Devonian and Fusselman formations to be non-commercial.

In October 1963, the Buffalo Unit Well No. 6 was completed as a producer and is now included in the Corbin (Queen), South Pool. Non-commercial designation was requested and approved for this well on January 22, 1964. In October 1965 the well pumped at an average rate of 1 BOPD and 0 BWPD. Cumulative production as of November 1, 1965 was 1,302 BO. The Working Interest Owners have also been requested to approve permanent abandonment of this well since it is uneconomical. Further development in this particular reservoir is not warranted.

Participating Area

An initial participating area of 367.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

Future Development

Pan American and its partners in the Buffalo Unit plan to have the Roy Smith-Buffalo Federal Unit Well No. 1 (located in the NW/4 of the NE/4 of Section 34, T-18-S, R-33-E) adequately tested and completed during the first six months of 1966. In the event that well is commercial, we will forward a supplemental Plan of Development for 1966.

The Smith-Buffalo Federal Unit Well No. 1 is being drilled and completed in accordance with the 1965 Supplemental Plan of Development submitted by Mr. Whitmore's letter dated September 8, 1965, File: RMB-3787-416. Smith's Well No. 1 is located in Section 34, in lieu of Section 33 as mentioned in our referenced letter.

This well was spudded on December 30, 1965 and drilled to a total depth of 4620'. After setting pipe the Penrose Sand was perforated, and after a 2,000 gallon acid job, swabbed 19 BO in 14 hours. A 20,000 gallon sand-oil frac job has been conducted and additional testing is currently underway to determine if this will be a commercial completion.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development:

This Plan of Development shall constitute the drilling obligations of the Unit operator under the terms of the Buffalo Unit Agreement for a period ending June 30, 1966. Before this plan expires, a subsequent Plan of Development will be submitted for the last six months of 1966.

Modifications:

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date:

This Plan of Development shall be effective January 1, 1966. If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator



Neil S. Whitmore
District Production Superintendent

WCC:jn

cc: All Working Interest Owners

Supervisor of United States Geological Survey

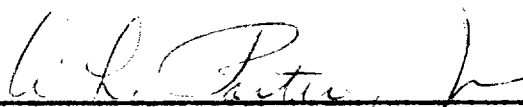
Date: _____

Commissioner of Public Lands
State of New Mexico

Date: _____

Page 4

File: RES-3095-416



Oil Conservation Commission for the State of
New Mexico

Date: Feb 24, 1966

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

5/6

September 28, 1965

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Re: 1965 Supplemental Plan
of Development, Buffalo
Unit, Lea County, New
Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Supplemental Plan of Development dated September 8, 1965, for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/og

cc: United States Geological Survey
Roswell, New Mexico

Commissioner of Public Lands - Santa Fe

C
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

MAIN
SEP 28 AM 5
1965

IN REPLY REFER TO:

September 24, 1965

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitman

Gentlemen:

Your supplemental plan of development dated September 8, 1965, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of a Queen test well, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(Orig. Sgd.) CARL C. TRAYWICK

CARL C. TRAYWICK
Acting Oil and Gas Supervisor

cc:
Washington (w/cy of plan)
Hobbs (w/cy of plan)
NMOCC-Santa Fe (ltr. only) ✓
Com. of Pub. Lands-Santa Fe (ltr. only)

MAIN OFFICE
SEP 17 PM 1

September 17, 1965

C
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P
Y

Pan American Petroleum Corporation
Post Office Box 268
Lubbock, Texas/79401

In RE: Buffalo Unit, Lea County, N.M.
Supplemental Plan of Development

Att: Neil S. Whitmore

Gentlemen:

We acknowledge receipt of your Supplemental Plan of Development for the above captioned Buffalo Unit for the period ending December 31, 1965.

This Plan provides for the completion of a well to test the Queen formation prior to December 31, 1965.

The Commissioner of Public Lands approves this Plan subject to like approval by the United States Geological Survey.

We are returning one (1) approved copy of this Plan.

Very truly yours,

GUYTON B. HAYS,
Commissioner of Public Lands

By

TED BILBERRY, Director,
Oil and Gas Department

GBH/TB/MMR/1/Enclosures
w/cc to: United States Geological Survey
New Mexico Oil Conservation Commission

MAIN OFFICE 000

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C
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September 17, 1965

Pan American Petroleum Corporation
Post Office Box 268
Lubbock, Texas/79401

In RE: Buffalo Unit, Lea County, N.M.

Att: Neil S. Whitmore

Gentlemen:

The Buffalo Unit became effective as of November 6, 1953. The first and only participating area was set up effective as of May 4, 1958. The elimination clause usually takes effect five (5) years after the effective date of the Initial Participating Area; however, we have some older Units which extend it to seven (7) years.

The last well drilled on the Buffalo Unit was the No. #6 well which was completed in September, 1963, and was drilled to 4,600 feet and completed as a non-commercial Queen well. The Plan of Development which you submitted for the period ending December 31, 1965, provides for the completion of a Queen well during this period.

In the future, we will require the operator of the Buffalo Unit to operate by a program consistent with an elimination clause; that is, a continuous drilling program on some part of the non-participating acreage with a period of not more than ninety (90) days elapsing between the completion of one well, and the commencement of the next well.

If the operator and his partners cannot justify such a drilling program, and do not wish to comply, he may contract the Unit to the participating area,

Pan American Petroleum Corporation
Neil S. Whitmore
September 17, 1965
Page -2-

or the Commissioner of Public Lands will make demand for such contraction
as provided for under Section 2.

Very truly yours,

GUYTON B. HAYS,
Commissioner of Public Lands

By

TED BILBERRY, Director,
Oil and Gas Department

GBH/TB/MMR/1

w/cc to:

United States Geological Survey
Roswell, New Mexico

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

C
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Y

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas 79401
September 8, 1965

SEP 9 11 11 AM '65

File: RMB-3784-416

Subject: Supplemental Plan of Development
for 1965, Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico 88201

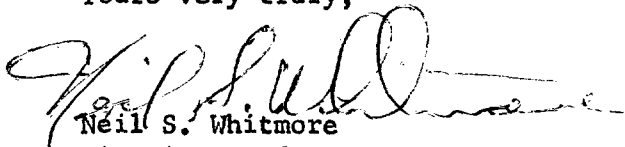
Commissioner of Public Lands
for State of New Mexico (3)
P. O. Box 791
Santa Fe, New Mexico

Oil Conservation Commission for
State of New Mexico (3)
P. O. Box 2088
Santa Fe, New Mexico

Gentlemen:


Reference is to previous correspondence on this subject ending with your copy of our telegram dated September 2, 1965 regarding further development in this area in 1965. Please be advised that Pan American, as operator of this unit, will drill or cause to be drilled a well to test the Queen formation in the Buffalo Unit prior to the end of the year. Location for this test is expected to be in the east half of Section 33, T-18-S, R-33-E, Lea County, New Mexico, or the general vicinity.

Yours very truly,


Neil S. Whitmore
District Production Superintendent

WCC:jn

cc: Working Interest Owners

Approved..... 9-28-65

A. G. Porter
Secretary-Director

NEW MEXICO OIL CONSERVATION COMMISSION

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

1201 (4-60)

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is 1 (44).

point of destination

LA130 DB196

D LUA276 PD 12 EXTRA=FAX LU~~BOO~~CK TEX 2 338P CST=

OIL CONSERVATION COMMISSION=

STATE OF NEW MEXICO BOX 2088 SANTA FE NMEX=

REFERENCE LETTERS FROM COMMISSIONER OF PUBLIC LANDS DATED MARCH 8 1965, UNITED STATE GEOLOGICAL SURVEY DATED MARCH 4, 1965 AND OIL CONSERVATION COMMISSION DATED MARCH 24, 1965, APPROVING THE 1965 PLAN OF DEVELOPMENT FOR THE BUFFALO UNIT AREA, LEA COUNTY, NEW MEXICO. SUPPLEMENTAL PLAN IS HEREBY SUBMITTED THAT, AS OPERATOR, PAN AMERICAN WILL DRILL, OR CAUSE TO BE DRILLED, A WELL TO TEST THE QUEEN FORMATION IN THE BUFFALO UNIT PRIOR TO THE END OF THE YEAR. WE WILL

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

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

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-60)

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

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

APPRECIATE YOUR ADVISING IF THIS SUPPLEMENTAL PLAN OF

DEVELOPMENT FOR 1965 MEETS WITH YOUR APPROVAL.=

PAN AMERICAN PETROLEUM CORPORATION,

UNIT OPERATOR NEIL S WHITMORE, DISTRICT

PRODUCTION SUPERINTENDENT PO BOX 268

LUBBOCK TEXAS=

=8 1965 4 1965 24 1965 1965 1965 268=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

576

March 24, 1965

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Re: 1965 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1965 Plan of Development dated January 22, 1965, for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEX/og

cc: Commissioner of Public Lands

United States Geological Survey - Roswell

C
O
P
Y

cc: United States Geological Survey
Oil Conservation Commission

March 8, 1965

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

Attention: Mr. Neil S. Whitmore

Re: Buffalo Unit
Lea County, New Mexico

Gentlemen:

Your 1965 Plan of Development dated January 22, 1965 for the Buffalo Unit area, Lea County, New Mexico, proposing no additional wells has been received.

Section 10 of the Buffalo Unit Agreement provides that the Plan of Development shall provide for the exploration of the unitized area and for the determination of that portion capable of producing unitized substances in paying quantities. In order to comply with this provision, we believe that additional testing of the unit area should be continued during 1965. Accordingly, we are approving your Plan of Development subject to the condition that a supplemental plan proposing the commencement of at least one well during 1965 will be filed with this office on or before September 1, 1965, or that the unit area will be contracted to the participating area if the operator cannot justify further drilling during 1965.

The aforementioned provisions are in concurrence with the approval by the United States Geological Survey dated March 4, 1965. We are returning one approved copy of the Plan.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
(Mr.) Ted Bilberry, Director
Oil and Gas Department

GBH/mm/d
Enclosure



1965 MAR 8 11:11 AM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico 88201

March 4, 1965

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Nail S. Whitmore

Gentlemen:

Your 1965 plan of development dated January 22, 1965, for the Buffalo unit area, Lea County, New Mexico, proposing no additional wells has been received in this office for consideration.

The Buffalo unit agreement was approved by the Acting Director, Geological Survey, on November 6, 1953, effective as of the date of approval. Since such date, six wells have been drilled within the unit area, of which one was completed as a commercial Pennsylvanian well, three were completed as noncommercial producers, and two were dry holes. Based upon information contributed by unit well No. 4 in the SW1/4 sec. 4, T. 19 S., R. 33 E., the commercial Pennsylvanian well, an initial 367.62-acre Pennsylvanian participating area was established effective May 4, 1958. The latest well drilled in the unit area was unit well No. 6 in the SW1/4 sec. 33, T. 18 S., R. 33 E., which was completed on October 2, 1963, as a noncommercial Queen well at a depth of 4,434 - 4,453 feet.

Section 10 of the unit agreement provides that the plan of development shall provide for the exploration of the unitized area and for the determination of that portion capable of producing unitized substances in paying quantities. In order to comply with this provision, we believe that additional testing of the unit area should be continued during 1965. Accordingly, we are approving your plan of development subject to the condition that a supplemental plan proposing the commencement of at least one well during 1965, will be filed with this office on or before September 1, 1965, or that you advise us that the unit area will be contracted to the participating area if further drilling during 1965 cannot be justified. The above approval of your plan is subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(S) [Signature] ANDERSON

JOHN A. ANDERSON

Regional Oil and Gas Supervisor

cc:

Washington (w/cy of plan)

Hobbs (w/cy of plan)

Com. of Pub. Lands, Santa Fe (ltr. only)

NMOCC, Santa Fe (ltr. only)✓

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas 79401
January 22, 1965

File: RES-3049-416

Subject: Plan of Development for 1965
Buffalo Unit
Lea County, New Mexico

United States Geological Survey (6)
Drawer 1857
Roswell, New Mexico, 88201

Commissioner of Public Lands for (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission for (3)
State of New Mexico
Box 2088
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as operator, and on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for 1965.

History of Past Development:

There are presently four completed wells within the Unit area. Unit Well No. 1 (now designated Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drillstem test, the Morrow formation indicated the possibility of commercial production. After setting casing, the initial test of this zone revealed a maximum stabilized productivity of 500 MCFPD which was considered non-commercial. Therefore, the well was recompleted to the Wolfcamp horizon and after initial completion, declined steadily to a point where this formation became uneconomical. In November 1963, Well No. 1 was recompleted to the Bone Springs, after again testing the Morrow unsuccessfully. The well is now located in the Buffalo (Bone Springs) Pool and in November, 1964 produced at an average rate of 7 BOPD and 3 BWPD. At this rate further development in this reservoir is not warranted.

The Buffalo Unit Well No. 4 was completed as a Morrow gas well in May, 1958 and is now included in the Buffalo (Penn) Pool. Production from this well has continued since initial completion and in November, 1964 produced at an average rate of 192 MCFPD with no condensate or water being recovered.

Plan of Development for 1965
Buffalo Unit

-2-

File: RES-3049-416

Well No. 5 of the Buffalo Unit was completed in the Morrow Gas Sand in December 1962 and is located in the Buffalo (Ponn), East Pool. Because this well was producing at low rates, non-commercial status was requested and approved on April 1, 1964. In November 1964, average production equaled 255 MCFPD, 2 barrels condensate per day and 13 BWPD. This well was originally drilled to a total depth of 15,041' in the Simpson formation. Drillstem test and logs found the Devonian and Fusselman formation to be non-commercial.

In October 1963, the Buffalo Unit Well No. 6 was completed as a producer and is located in the Corbin (Queen) South Pool. Non-commercial designation was requested and approved for this well on January 22, 1964. In November, 1964 the well produced at an average rate of 2 BOPD and 16 MCFPD with no water recovered.

Participating Area:

An initial participating area of 307.62 acres was established in 1958 for the Buffalo Unit Well No. 4. This includes the NE/4 and N/2 of the SE/4 of Section 4 and the W/2 NW/4 and the NW/4 SW/4 of Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

Future Development

Pan American and its partners in the Buffalo Unit plan no additional development during 1965.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit Agreement or pursuant to applicable regulations, fair and reasonable compensatory royalty will be paid as provided in the Unit Agreement.

Additional Development:

This Plan of Development shall constitute the drilling obligations of the unit operator under the terms of the Buffalo Unit Agreement for a period ending December 31, 1965. Before this plan expires, a subsequent plan regarding development within the unit area will be submitted.

Modification:

It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Plan of Development for 1965
Buffalo Unit

-3-

File: RES-3049-416

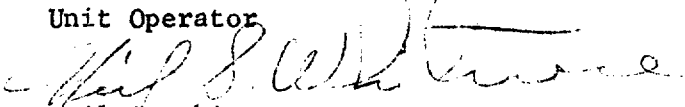
Effective Date:

This Plan of Development shall be effective January 1, 1965.

If this Plan of Development meets with your approval, please indicate in the appropriate space provided below and return one copy for our files.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator


Neil S. Whitmore
District Superintendent

WCC:jn

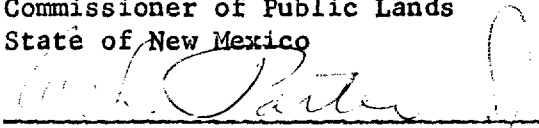
cc: All Working Interest Owners

Supervisor of United States Geological Survey

Date: _____

Commissioner of Public Lands
State of New Mexico

Date: _____



Oil Conservation Commission for the
State of New Mexico

Date: March 24, 1965

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

August 28, 1964

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Re: 1964 Plan of Development,
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1964 Plan of Development for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/og

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

MAIL ROOM 000

1964 MAY 12 PM 3 35

May 12, 1964

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

Re: Buffalo Unit
Lea County, New Mexico
Plan of Development

Attention: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands approves as of April 23, 1964, your 1964 Plan of Development for the Buffalo Unit Area, Lea County, New Mexico, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

We are returning one approved copy of this Plan.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
(Mrs.) Marian M. Rhea, Supervisor
Unit Division

ESJW/mmr/v

cc: United States Geological Survey
Roswell, New Mexico

Oil Conservation Commission
Santa Fe, New Mexico

Drawer 1857
Roswell, New Mexico 88201

May 6, 1964

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1964 plan of development dated March 10, 1964, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of no additional wells, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

(ORIG. SGO.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil & Gas Supervisor

cc:

Washington (w/cy of plan)

Hobbs (w/cy of plan)

NMOCC - Santa Fe (ltr. only).

Com. of Pub. Lands - Santa Fe (ltr. only)

576

April 2, 1964

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

Re: Buffalo Unit
Lea County, New Mexico
Well No. 5

Attention: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands approves Pan American's determination that the Buffalo Unit Well No. 5 is not capable of producing in paying quantities, under the terms of the Buffalo Unit Agreement, therefore, an establishment of a Morrow Sand participating area is unwarranted.

We are returning three approved copies of this application and retaining two copies for our files.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
(Mrs.) Marian M. Rhea, Supervisor
Unit Division

ESW/smr/v

cc: United States Geological Survey
Roswell, New Mexico

Oil Conservation Commission
Santa Fe, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas 79401
March 10, 1964

File: RES-3122-416

Subject: Plan of Development for 1964
Buffalo Unit, Lea County
New Mexico

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

Commissioner of Public Lands (3)
State of New Mexico
Box 791
Santa Fe, New Mexico

Oil Conservation Commission of the State of New Mexico (3)
Box 2088
Santa Fe, New Mexico

All Committed Working Interest Owners

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement 14-08-001-1095 approved November 6, 1953, Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval a Plan of Development for the year 1964.

History of Past Development:

There are presently four completed wells within the unit area. Unit Well No. 1 (Now designated Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drillstem test, the Morrow formation indicated the possibility of commercial production. However, initial tests after setting casing revealed a maximum stabilized rate of production of 500 MCF per day which was considered non-commercial so the well was recompleted in the Wolfcamp horizon. Production from the Wolfcamp horizon declined steadily from initial completion to the point where the well became uneconomical to operate and in November 1963, it was recompleted in the Bone Springs formation after again testing the Morrow unsuccessfully. On latest test, production from the Bone Springs was approximately 13 barrels of oil per day which indicates further development to this zone is unwarranted.

Buffalo Unit Well No. 4 was completed as a Morrow gas well in May 1958. In December 1963, this well produced an average of 729 MCF of gas and 30 barrels of condensate per day.

Plan of Development for 1964
Buffalo Unit

-2-

Unit Well No. 5 was completed in the Morrow horizon as a gas well in December 1962. On potential the well produced at the rate of 2,560 MCF and 240 barrels of condensate per day with a calculated absolute open flow of 24,500 MCFPD. In December 1963, the average daily production was 1,000 MCF gas, 10 barrels condensate and 50 barrels of water. Related facts indicate this well is non-commercial and a request for non-commercial designation has been filed with the Commissioner of Public Lands.

This well was originally drilled to total depth of 15,041' in the Simpson formation. Drillstem tests and logs proved the Devonian and Fusselman formations non-commercial.

In October 1963, Buffalo Unit Well No. 6 was completed as a producer from the Queen formation. Initial production was 12 barrels of oil and 143 MCF of gas per day. Non-commercial designation was approved by the USGS January 22, 1964.

Participating Area:

An initial participating area of 367.62 acres was established in 1958 for Buffalo Unit Well No. 4. This includes the NE/4 and N/2 SE/4, Section 4 and the W/2 NW/4 and the NW/4 SW/4 Section 3, all in T-19-S, R-33-E, Lea County, New Mexico.

In the event Buffalo Unit Well No. 5 is not classified non-commercial, an enlargement of the participating area will be in order. If this situation arises, we will submit recommendations for a participating area for this well.

Future Development:

Pan American and its partners in the Buffalo Unit do not plan to drill any additional wells during 1964.

Offset Obligations:

Appropriate and adequate measures will be taken to prevent drainage of unitized substances from lands subject to the Buffalo Unit agreement or pursuant to applicable regulations fair and reasonable compensatory royalty will be paid as provided in Section 17 of the Unit Agreement.

Additional Development:

This Plan of Development shall constitute the drilling obligations of the unit operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1964. Before this plan expires another plan regarding development of the unit area will be submitted.

Plan of Development for 1964
Buffalo Unit

-3-

Modification:

It is understood that this Plan of Development may be modified from time to time to meet with changing conditions.

Effective Date:

This Plan of Development shall be effective January 1, 1964.

If this Plan of Development meets with your approval, please indicate in the appropriate space provided below.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By Neil S. Whitmore
Neil S. Whitmore
District Superintendent

JCB/jn

APPROVED: _____ DATE: _____
Supervisor, United States Geological
Survey

APPROVED: _____ DATE: _____
Commissioner of Public Lands

APPROVED: A. L. Carter DATE: 8-28-64
Oil Conservation Commission of the
State of New Mexico

PAN AMERICAN PETROLEUM CORPORATION

1964 MAR 2

P. O. Box 268
Lubbock, Texas 79401
February 28, 1964

File: JET-4104-416

Subject: Application for Approval of
Non-Commercial Classification,
Morrow Sand, Buffalo Unit
Well No. 5, Undesig. Penn Gas
Pool, Lea County, New Mexico

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

Dear Sir:

Pan American Petroleum Corporation, as operator of the Buffalo Unit, Lea County, New Mexico, hereby requests determination of a non-commercial classification for the Morrow Sand in Buffalo Unit Well No. 5. Since the well is located on State land, this application is being submitted to you for your determination as set forth in Section 11 of the Unit Agreement, Buffalo Area, County of Lea, State of New Mexico.

Buffalo Unit Well No. 5 was completed in the Morrow Sand perforated interval 13,110' to 13,137' on December 11, 1962 for an initial calculated absolute open flow of 24,500 MCFGPD. First gas sales from this well commenced on February 15, 1963. To January 1, 1964 a cumulative volume of 236,773 MCF of gas and 14,259 barrels of condensate had been produced from this well.

Attachment No. 1 provides pertinent reservoir and economics data and monthly production statistics for the subject well. Attachment No. 2 is a microlog showing the Morrow pay interval in the subject well. As can be noted on Item III on Attachment 1 an approximate 42% decrease in bottom hole pressure had occurred after a cumulative production of only 179,674 MCF of gas and 11,533 barrels of condensate. Net value, excluding royalty and taxes, of these products is approximately \$44,000. Therefore, based on this substantial decrease in bottom hole pressure after only limited production, it can be concluded that the Morrow Sand is not capable of producing unitized substances in paying quantities to provide a reasonable return on the \$335,000 investment required to drill and complete the well.

Based on these economics, it is respectfully requested that the Commissioner approve the determination that the Buffalo Unit Well No. 5

is not capable of producing in paying quantities and that establishment of a Morrow Sand participating area is unwarranted.

Yours very truly,

Original
Signed By Neil S. Whitmore
Neil S. Whitmore
District Superintendent

JET:jb

Attachments

cc: Continental Oil Company
1710 Fair Building
Fort Worth, Texas

Socony Mobil Oil Company, Inc.
P. O. Box 633
Midland, Texas

Gulf Oil Corporation
P. O. Box 1938
Roswell, New Mexico

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

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

Approved: _____ Date _____
Commissioner of Public Lands, State of New Mexico

ATTACHMENT I
PERTINENT DATA
BUFFALO UNIT WELL NO. 5

I. General

Location: 2312' FWL and 1900' FWL, Section 2, T-19-S, R-33-E,
Lea County, New Mexico
Date Completed: 12-11-62
Total Depth: 15,041'
Plugged Back Depth: 14,050'
Surface Casing: 13-3/8" CSA 512'
Intermediate Casing: 9-5/8" CSA 4924'
Oil String: 7" CSA 14,172'
Completion Interval: 13,110'-13,137' w/2 SPF
Initial Stimulation: Acidized with 1000 gallons MCA
Calculated Absolute Open Flow: 24,500 MCFPD

II. Reservoir Data

Pay Zone: Morrow Sand
Porosity (From Logs): 7%
Water Saturation (From Logs): 35%
Net Pay: 21'

III. Pressure Data at Datum of -9148'

<u>Date</u>	<u>BHP, psia</u> <u>@ Datum</u>	<u>Cumulative</u> <u>Gas</u> <u>MCF</u>	<u>Production</u> <u>Condensate</u> <u>Bbls</u>
2-13-63	6273	Initial Pressure	
4-19-63	4826	88,282	5,713
10-2-63	3656	179,674	11,538

IV. Production Data

Gas Sales Commenced: 2-15-63

<u>Month and Year</u>	<u>Gas Production, MCF</u>	<u>Condensate</u> <u>Production</u> <u>Bbls.</u>
February, 1963	19,307	1,554
March, 1963	49,972	3,096
April, 1963	25,019	1,687
May, 1963	332,430	2,056
June, 1963	14,650	1,571
July, 1963	17,847	484

<u>Month and Year</u>	<u>Gas Production, MCF</u>	<u>Condensate Production Bbls.</u>
August, 1963	14	-147
September, 1963	20,435	1,237
October, 1963	17,510	1,339
November, 1963	16,300	1,150
December, 1963	23,209	232
Cumulative 1-1-64	236,773	14,259

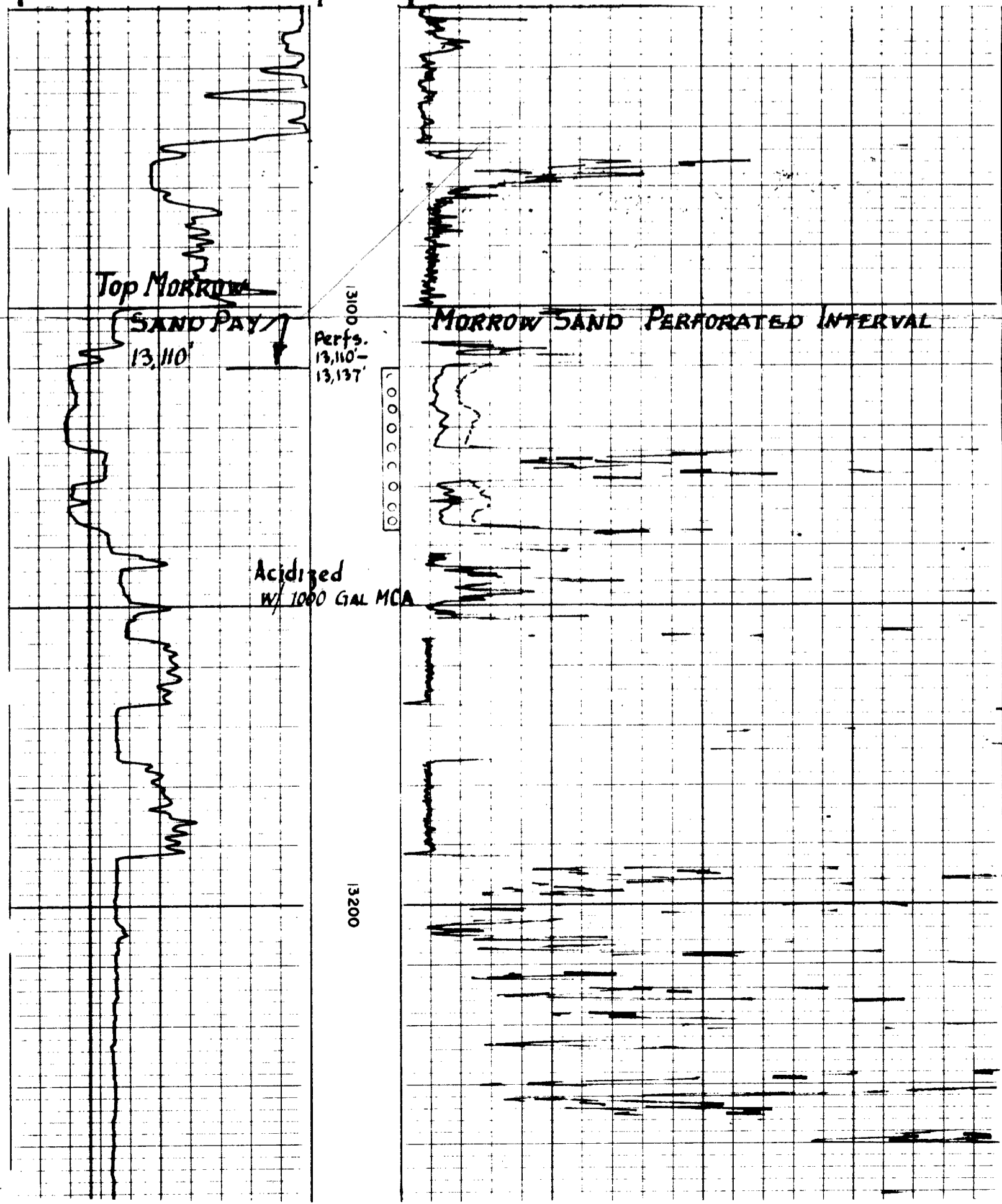
V. Economic Data

Cost of Drilling, Completing and Equipping Producing Well: \$335,000
 Operating Cost, \$/Month: \$200
 Average Gas Value, ¢/MCF: 15.04
 Condensate Value: \$2.79/Bbl. less 19½¢/Bbl. trucking charges

ATTACHMENT No. 2

		MICROLOG <small>(WITH CALIPER)</small> <small>SCHLUMBERGER WELL SURVEYING CORPORATION</small> <small>Houston, Texas</small>																																																																																																																									
COUNTY LEA FIELD or LOCATION WILDCAT LOCATION BUFFALO UNIT # 5 COMPANY PAN AMERICAN PETROLEUM CORPORATION	COMPANY PAN AMERICAN PETROLEUM CORPORATION WELL BUFFALO UNIT # 5 FIELD WILDCAT LOCATION SEC. 2-19S-33E COUNTY LEA STATE NEW MEXICO		Other Surveys SGR, GRN, IES Location of Well 2112' FROM N/L 1980' FROM W/L Elevation: K.B.: 3770 D.F.: or G.L.: 3747																																																																																																																								
	Log Depths Measured From KB 23 Ft. above GL																																																																																																																										
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MICROCALIPER <div style="text-align: center;"> </div> Hole Diameter in Inches SPONTANEOUS-POTENTIAL millivolts Micro <input type="checkbox"/> ES <input type="checkbox"/> — <input type="checkbox"/>	DEPTHS	RESISTIVITY ohms. m ² /m Micro Inverse 1" x 1" <div style="text-align: center;"> </div> Micro Normal 2" <div style="text-align: center;"> </div>
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Drawer 1857
Roswell, New Mexico 88201

January 22, 1964

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas 79401

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your application of January 9, 1964, advises that Pan American Petroleum Corporation as operator of the Buffalo unit, Lea County, New Mexico, has determined that unit well No. 6 in the SW $\frac{1}{4}$ sec. 33, T. 18 S., R. 33 E., N.M.P.M., is not capable of producing unitized substances in paying quantities from the Queen formation.

Unit well No. 6 was completed on October 3, 1963, for an initial potential of 12 barrels of oil per day from the Queen formation 4,434 to 4,453. This well has produced a total of 411 barrels of oil from October through December 1963, and is currently producing at a rate of 4 barrels of oil per day.

This office concurs with your determination that the well is not capable of producing unitized substances in paying quantities.

Sincerely yours,

(ORIG. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil & Gas Supervisor

cc:
Washington (w/cy of determination)
Hobbs (w/cy of determination)
NMOC - Santa Fe (ltr. only)
Com. of Pub. Lands - Santa Fe (ltr. only)
Accounts

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

September 25, 1963

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

Attention: Mr. Neil S. Whitmore

**Re: Amended 1963 Plan of
Development, Buffalo Unit
Lea County, New Mexico**

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Amended 1963 Plan of Development for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/og

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



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico

August 26, 1963

Pan American Petroleum Corporation
P. O. Box 260
Lubbock, Texas

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your amended 1963 plan of development dated August 6, 1963, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of a Fenrose well in the ~~SW 1/4~~ sec. 33, T. 18 S., R. 33 E., N.M.P.M., 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.

Sincerely yours,

(S. 500.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Enclosures

cc:
Washington (w/cy plan)
Artesia (w/cy plan)
Comm. of Pub. Lands, Santa Fe (ltr. only)
RMOC, Santa Fe (ltr. only) ✓

August 14, 1963

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

Re: Amended 1963 Plan of
Development, Buffalo Unit,
Lea County, New Mexico

Attention: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands approves as of August 14, 1963 your Amended 1963 Plan of Development for the Buffalo Unit Area, Lea County, New Mexico. Our Approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

This Amended Plan of Development provides for the drilling of a Penrose Test which is located in Section 33, Township 18 South, Range 33 East, Lea County, New Mexico. We are returning one approved copy of this Plan of Development.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
(Mrs.) Marian M. Rhea, Supervisor
Unit Division

ESJW/mmr/m
Enclosures
cc: Oil Conservation Commission

United States Geological Survey

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas 79401
August 6, 1963

File: RES-3588-416

Subject: Amended 1963 Plan of Development
Buffalo Unit
Lea 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
The State of New Mexico (3)
Capitol Annex Building
Santa Fe, New Mexico

All Committed Working Interest
Owners in Unit Area
(See addressee list attached)

Gentlemen:

Reference is made to our letter of January 8, 1963, File: WJS-3018-416, which submitted our 1963 Plan of Development for the Buffalo Unit, Lea County, New Mexico, which called for no additional development during the year 1963. This plan was approved by each of you..

We now desire to amend this Plan of Development to provide for the drilling of a Penrose test at a depth of 4600' at a location 660' FSL and 1980' FEL, Section 33, T-18-S, R-33-E, Lea County, New Mexico. If you are in agreement with this amended Plan of Development, please execute one copy of this letter and return same to this office.

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

BY

Neil S. Whitmore
Neil S. Whitmore
District Superintendent

RES/jn

APPROVED _____ DATE _____
Director, United States Geological Survey

APPROVED _____ DATE _____
Commissioner of Public Lands

APPROVED *A. H. Porter, Jr.* DATE *8.25.63*

WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Box 1938
Roswell, New Mexico

Mr. G. W. Barb,
Mobil Oil Company
Box 1800
Hobbs, New Mexico

8/7/63
jn

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

576

June 6, 1963

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

Attention: Mr. Neil S. Whitmore

Re: 1963 Plan of Development
Buffalo Unit, Lea County,
New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1963 Plan of Development for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/ig

cc: Commissioner of Public Lands
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

C
O
P
Y

May 20, 1963

Standard American Petroleum Corporation
P.O. Box 268
Lubbock, Texas

Re: Buffalo Unit
Lea County, New Mexico
1963 Plan of Development

Attention: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has approved as of May 17, 1963, your 1963 Plan of Development for the Buffalo Unit Area, Lea County, New Mexico.

We are returning one approved copy.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:

(Mrs.) Marian M. Rhea, Supervisor
Unit Division

BSW/mmr/v

encl:

cc: Oil Conservation Commission
Santa Fe, New Mexico

U. S. Department of Interior
Geological Survey
Roswell, New Mexico

RECEIVED 800

Drewer 1857
Roswell, New Mexico

1963 MAY 8 AM 10 10

May 8, 1963

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

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your 1963 plan of development dated January 8, 1963, for the Buffalo unit area, Lea County, New Mexico, proposing the drilling of no additional wells, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Sincerely yours,

JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy plan)
Artesia (w/cy plan)
Com. of Pub. Lands - Santa Fe (ltr. only)
NMOCC - Santa Fe (ltr. only)

PAN AMERICAN PETROLEUM CORPORATION

MAIN OFFICE OCC

1963 JAN 14 AM 8:24

P. O. Box 268
Lubbock, Texas
January 8, 1963

File: WJS-3018-416

Subject: 1963 Plan of Development
Buffalo Unit
Lea 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
The State of New Mexico (3)
Capitol Annex Building
Santa Fe, New Mexico

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

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as Unit Operator, on behalf of itself and other affected Working Interest Owners, hereby submits for your approval a Plan of Development for the year 1963.

History of Past Development - There are presently 3 completed wells within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September, 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and well was recompleted in the Wolfcamp Zone. This well produced approximately 1 BOPD on latest test.

Buffalo Unit Well No. 4 was completed as a Pennsylvanian gas well on May 4, 1958, at a plug back depth of 13,795', after being drilled to a total depth of 14,891'. This well produced 36,143 MCF of gas plus 389 barrels of distillate in September, 1962.

Well No. 5 located in Unit "F", Section 2, T-19-S, R-33-E, was completed in the Morrow Formation as a flowing gas well on December 11, 1962, from perforations at 13,110' to 13,137'. On potential, the well flowed at a rate of 2,560 MCFPD with 20 barrels of 56° API distillate in two

hours on a 12/64" choke with a GDR of 10,660 and a flowing tubing pressure of 3,761. Calculated absolute open flow was 24,500 MCFPD.

This well was drilled to a total depth of 15,041' in the Simpson and proved the Devonian and Fusselman Formations to be non-commercial.

Participating Area - An initial participating area of 367.62 acres was established in 1958 for Buffalo Unit Well No. 4, including the NE 1/4 and N 1/2, SE 1/4, Section 4 and W 1/2 of NW 1/4 and NW 1/4, SW 1/4, Section 3, T-19-S, R-33-E. Following initial production of approximately 3 to 5 months' duration of Buffalo Unit No. 5 to determine if this well is a commercial producer, we will submit recommendations for a participating area for this well. At this time Well No. 5 is shut in waiting on a gas market.

Further Development - Pan American and its partners in the Buffalo Unit do not plan to drill an additional well in this unit during 1963.

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

Additional Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1963. Before this plan expires, another plan regarding development of the Unit Area will be submitted.

Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective January 1, 1963.

If this Plan of Development meets with your approval, please indicate hereon.

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By

Neil S. Whitmore
Neil S. Whitmore
District Superintendent

RES:rl

APPROVED _____ DATE _____
Director, United States Geological Survey

APPROVED _____ DATE _____
Commission of Public Lands

APPROVED *A. H. Peter* _____ DATE *Jan. 6, 1963*

WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Box 1938
Roswell, New Mexico

Mr. G. W. Barb
Mobil Oil Company
Box 2406
Hobbs, New Mexico

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

ge 576

August 24, 1962

C
O
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Y

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

Attention: Mr. Neil S. Whitmore

Re: Amended 1962 Plan of
Development - Buffalo
Unit, Lea County, New
Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the Amended 1962 Plan of Development for the Buffalo Unit, Lea 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.

Two approved copies of the plan are returned herewith.

Very truly yours,

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

ALP/JEK/cg

cc: Commissioner of Public Lands - Santa Fe
U. S. Geological Survey - Roswell

Drawer 1857

Roswell, New Mexico

August 15, 1962

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

Attention: Mr. Neil S. Whitmore

Gentlemen:

Your amended 1962 plan of development filed with this office on July 30, 1962, for the Buffalo unit area, Lea County, New Mexico, which proposes the drilling of one Mississippian test well in the SE $\frac{1}{4}$ sec. 2, T. 19 S., R. 33 E., N.M.P.M., has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Very truly yours,

(Orig. Sgd.) CARL C. TRAYWICK

CARL C. TRAYWICK
Acting Oil and Gas Supervisor

Copy to: Washington (w/cy of plan)
Artesia (w/cy of plan)
Com. of Pub. Lands - Santa Fe (ltr. only)

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas

File: CDF-6366-416

Subject: Amended 1962 Plan of
Development, Buffalo Unit,
Lea 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 Committed Working Interest
Owners in Unit Area
(See Addressee List Attached)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as Unit Operator, on behalf of itself and other affected Working Interest Owners, hereby submits for your approval an amended Plan of Development for the year 1962.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and well was recompleted in the Wolfcamp Zone. This well produced approximately 1 BOPD on latest test.

Buffalo Unit Well No. 4 was completed as a Pennsylvanian gas well on May 4, 1958, at a plug back depth of 13,795; after being drilled to a total depth of 14,891'. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved. This well produced 38,202 MCF of gas plus 614 barrels of 49° gravity distillate in March, 1962.

Further Development - Pan American and its partners in the Buffalo Unit now propose to drill during 1962 a 13,600' Mississippian test

in the SE/4 of the NW/4 of Section 2, T-19-S, R-33-E, said location being on State of New Mexico acreage. It is further proposed that any additional Buffalo Unit development be contingent upon results at this location.

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

Additional Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1962. Before this plan expires, another plan regarding development of the Unit Area will be submitted.

Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective July 1, 1962.

If this Plan of Development meets with your approval, please indicate hereon.

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By: Neil S. Whitmore
District Superintendent

WJS:lam

APPROVED _____ DATE _____
Director, United States Geological Survey

APPROVED _____ DATE _____
Commission of Public Lands

APPROVED A. H. Carter, Jr. DATE 8-24-62

MAILING LIST

SOUTH MATTIX UNIT

Mr. H. W. Mathews
Standard Oil Company of Texas
P. O. Box 1249
Houston, Texas

Mr. W. A. Mead
Continental Oil Company
P. O. Box 1577
Roswell, New Mexico

Mr. A. D. Kloxin
The Atlantic Refining Company
P. O. Box 1978
Roswell, New Mexico

Mr. J. H. Doughman
Delhi-Taylor Oil Corporation
Fidelity Union Tower
Dallas 1, Texas

Mr. A. F. Bolton
Delhi-Taylor Oil Corporation
Box 1821
Midland, Texas

7-27-62

August 8, 1962

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

Re: Buffalo Unit
Lea County, New Mexico
1962 Plan of Development

Attention: Mr. Neil S. Whitmore

Gentlemen:

The Commissioner of Public Lands has approved as of August 3, 1962, a Plan of Development for the Buffalo Unit Area, Lea County, New Mexico, covering the period to December 31, 1962.

This Plan specifically covers a well to be drilled during 1962, in the SE/4 of the NW/4 of Section 2, T-19S, R-33E. This well is to be projected to 13,600' to test the Mississippian formation.

Our approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

We are returning our approved copy of this Plan. Please notify us when this Plan has been fully approved.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
(Mrs.) Marian M. Rhea, Supervisor
Unit Division

ESW/mmr/v

cc:

Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas
August 8, 1962
(Page 2)

United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

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

April 30, 1962

Pan American Petroleum Corporation
P. O. Box 208
Lubbock, Texas

REGISTERED MAIL

Re: Contraction of Buffalo
Unit, Lea County,
New Mexico

Attention: Mr. Neil S. Whitmore

Gentlemen:

This office wrote to you as of February 28, 1962 requesting that Pan American instigate the contraction of the Buffalo Unit as called for under Section 2 subsection (a) and (b) of the Unit Agreement. Subsection (b) of Section 2 states that the notice of Contraction by the Unit Operator as demanded by the Commissioner shall be delivered to the supervisor and Commissioner and copies mailed to the last know address of each working interest owner, lessee, and lessor whose interests are affected advising that thirty (30) days will be allowed for submission to the Unit Operator of any objections.

Pan American has had sixty days in which to send out such notice, however, this office has not received a copy of such notice. We do not believe Pan American has any alternative under this contract except to circulate such notice. Therefore, unless Pan American has already mailed this notice demand is made that such be done.

If such procedure has not been followed within thirty days, we will take such steps as are legally necessary to protect our rights under this contract.

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

April 30, 1962
(page 2)

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

BY:
(Mrs.) Marian M. Rhea, Supervisor
Unit Division

ESW/mmr/v

cc: U. S. Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

Oil Conservation Commission
Santa Fe, New Mexico

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas
December 29, 1961

File: CDF-6056-416

Subject: 1962 Plan of Development
Buffalo Unit, Lea 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) All Committed Working Interest
The State of New Mexico Owners in Unit Area
Capitol Annex Building (See Addressee List Attached)
Santa Fe, New Mexico

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners, hereby submits for your approval a Plan of Development for the year 1962.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and well was recompleted in the Wolfcamp Zone. This well produces approximately 8 BOPD.

Buffalo Unit Well No. 4 was completed as a Pennsylvanian gas well on May 4, 1958 at a plug back total depth of 13,795'; after being drilled to a total depth of 14,891'. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved. This well produced 31,317 MCF of gas plus 917 barrels of 49° gravity distillate in August, 1961.

Further Development - No development drilling is proposed for 1962.

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

Additional Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1962. Before this plan expires, another plan regarding development of the Unit Area will be submitted.


Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective January 1, 1962.

If this Plan of Development meets with your approval, please indicate hereon.

Dated December 29, 1961.

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By 
Neil S. Whitmore
District Superintendent

WJS:js

APPROVED _____ DATE _____
Director, United States Geological Survey

APPROVED _____ DATE _____
Commission of Public Lands

APPROVED _____ DATE _____

WORKING INTEREST OWNERS
BUFFALO UNIT

Mr. W. Mead
Continental Oil Company
P. O. Box 1377
Roswell, New Mexico

Gulf Oil Corporation
P. O. Drawer 1938
Roswell, New Mexico

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

576

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 268
Lubbock, Texas
December 29, 1960

File: WJS-6067-416

Subject: 1961 Plan of Development
Buffalo Unit, Lea 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 Committed Working Interest
Owners in Unit Area
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953 Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval a Plan of Development for the year 1961.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and well was recompleted in the Wolfcamp Zone. Mark Whelan No. 1 produced 267 BO in October 1960 and is currently producing with an assigned allowable of 8 BOPD from the Wolfcamp.

Buffalo Unit Well No. 4 was completed on May 4, 1958 at a plug back total depth of 13,795; after being drilled to a total depth of 14,891'. The well was tested upon completion and flowed at a maximum stabilized rate of 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery during the test was 90 barrels per million cu. ft. During September 1960 the well produced 34,824 MCF of gas and 1594 barrels of distillate. Its bottom hole pressure has declined sharply from 6325 psia to 4025 psia on September 17, 1960 while producing only 677 MMCF of gas plus 54,600 barrels of distillate. This rapid decline is indicative that the reservoir is limited in size. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved.

Further Development - It is proposed that development within the Unit Area during 1961 be contingent upon the results of additional development by other operators. El Paso, et al, are now drilling a Devonian test at a location approximately one mile east of the eastern boundary of the Unit and geological data from this well will aid in evaluating additional development prospects in the Unit.

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

Additional Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1961. Before this plan expires, another plan regarding development of the Unit Area will be submitted.

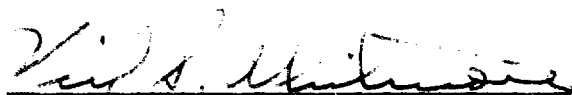
Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective January 1, 1961.

If this Plan of Development meets with your approval, please indicate hereon.

Dated: December 29, 1960.

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By 
Neil S. Whitmore
District Superintendent

WJS: js

Approved _____ Date _____
Director, United States Geological Survey

Approved _____ Date _____
Commissioner of Public Lands

Approved _____ Date _____
Oil Conservation Commission

WJS:js

WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 669
Roswell, New Mexico

Mobil Oil Company
Box 2406
Hobbs, New Mexico
Attn: Mr. C. H. Samples

PAN AMERICAN PETROLEUM CORPORATION

1960 AUG 19 AM 8:24

Box 268
Lubbock, Texas
August 18, 1960

2138 #576

File: JET-4310-416

Subject: 1960 Plan of Development
Buffalo Unit, Lea County,
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)

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

Gentlemen:

This is to advise that the 1960 Plan of Development for the Buffalo Unit was approved by the United States Geological Survey on August 5, 1960.

Attached is an executed copy of the Plan of Development.

Yours very truly,

Neil S. Whitmore

Neil S. Whitmore
District Superintendent

BJS:ab
Attachment

WORKING INTEREST OWNERS

BUFFALO UNIT

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

Gulf Oil Corporation
P.O. Drawer 1290
Fort Worth, Texas

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

PAN AMERICAN PETROLEUM CORPORATION

DEFERRED

OIL AND GAS BUILDING

JAN 1 1960

J. L. HOYT, JR.
DIVISION PRODUCTION SUPERINTENDENT

FORT WORTH, TEXAS

U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

December 29, 1959

File: GWK-5076-416

Subject: 1960 Plan of Development
Buffalo Unit, Lea 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 Committed Working Interest
Owners in Unit Area
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953 Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval a Plan of Development for the year 1960.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and the well was recompleted in the Wolfcamp Zone. Mark Whelan No. 1 is currently producing with an assigned allowable of 20 BOPD from the Wolfcamp.

Buffalo Unit Well No. 4 was completed on May 4, 1958 at a plug back total depth of 13,795' after being drilled to a total depth of 14,891'. The well was tested upon completion and flowed at a maximum stabilized rate of 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery during the test was 90 barrels per million cu. ft. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved due to completion of this well.

ILLEGIBLE

December 29, 1959

Further Development - It is proposed that no additional wells be drilled within the Unit Area during 1960. Since Unit Well No. 4 was connected to a gas gathering line and sales were commenced in mid-September, 1959, sufficient production data are not available to justify additional Pennsylvanian development at this time. It is possible that performance data will prove it desirable to attempt a Pennsylvanian recompletion in the Mark Whelan No. 1; however, approval to do such work is not being solicited at this time.

If this Plan of Development meets with your approval, please indicate hereon.

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

Further Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1960. Before this plan expires, another plan regarding development of the Unit Area will be submitted.

Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective January 1, 1960.

Dated: December 29, 1959

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By: J. L. Hout Jr.

ERC-15

ILLEGIBLE

File. GWK-5076-416

-3-

December 29, 1954

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

APPROVED 8-5-60
Edwin M. Thompson
Acting Oil & Gas Supervisor

Subject to like approval by the
appropriate State Officials.

ILLEGIBLE

WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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

ILLEGIBLE

27
P. O. Box 6721
Roswell, New Mexico

August 3, 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 29, 1959, for the Buffalo unit area, Lea County, New Mexico, which proposes the drilling of no additional wells, has been approved on this date subject to like approval by the appropriate state officials.

Section 10 of the unit agreement requires that the plan of development shall provide for the determination of that portion of the unit area capable of producing unitized substances in paying quantities. In order to comply with this provision, we believe additional testing of the Pennsylvanian should be commenced as soon as enough production information from unit well No. 4 becomes available. Your 1961 plan of development should propose additional development of the Pennsylvanian.

Three approved copies of the plan are enclosed.

Very truly yours,

EDWIN M. THOMASSON
Acting Oil and Gas Supervisor

Enclosures

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

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT
DIVISION PRODUCTION SUPERINTENDENT

January 15, 1960

File: GWK-25-416

Subject: Change of Address
of Unit Operator
Buffalo Unit, Lea
County, New Mexico

SEE ADDRESSEE LIST ATTACHED

Gentlemen:

Pan American Petroleum Corporation as operator of the Buffalo 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

WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

Mobil Oil Company
A Division of Socony Mobil Oil Co.
P. O. Box 633
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 29, 1959

File: GWK-5076-416

Subject: 1960 Plan of Development
Buffalo Unit, Lea 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 Committed Working Interest
Owners in Unit Area
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953 Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval a Plan of Development for the year 1960.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and the well was recompleted in the Wolfcamp Zone. Mark Whelan No. 1 is currently producing with an assigned allowable of 20 BOPD from the Wolfcamp.

Buffalo Unit Well No. 4 was completed on May 4, 1958 at a plug back total depth of 13,795' after being drilled to a total depth of 14,891'. The well was tested upon completion and flowed at a maximum stabilized rate of 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery during the test was 90 barrels per million cu. ft. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved due to completion of this well.

December 29, 1959

Further Development - It is proposed that no additional wells be drilled within the Unit Area during 1960. Since Unit Well No. 4 was connected to a gas gathering line and sales were commenced in mid-September, 1959, sufficient production data are not available to justify additional Pennsylvanian development at this time. It is possible that performance data will prove it desirable to attempt a Pennsylvanian recompletion in the Mark Whelan No. 1; however, approval to do such work is not being solicited at this time.

If this Plan of Development meets with your approval, please indicate hereon.

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

Further Development - This Plan of Development shall constitute the drilling obligations of the Unit Operator under the terms of the Buffalo Unit Agreement for the period ending December 31, 1960. Before this plan expires, another plan regarding development of the Unit Area will be submitted.

Modifications - It is understood that this Plan of Development may be modified from time to time to meet changing conditions.

Effective Date - This Plan of Development shall be effective January 1, 1960.

Dated: December 29, 1959

PAN AMERICAN PETROLEUM CORPORATION
Unit Operator

By: J. L. Hoyt Jr.

DRC:lj

File: GWK-5076-416

-3-

December 29, 1959

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

In reply refer to:
Unit Division

November 4, 1959

C
O
P
Y

Pan American Petroleum Corporation
Oil and Gas Building
P. O. Box 1410
Fort Worth, Texas

Re: Buffalo Unit Agreement
Lea County, New Mexico

ATTENTION: Mr. J. L. Hoyt, Jr.

Gentlemen:

In reply to your letter dated October 6, 1959 in which you have requested this office to approve an amended Plan of Development for the Buffalo Unit, which calls for no further development for the calendar year 1959.

We wish to call to your attention Pan American's letter dated April 17, 1959, which sets forth the agreement which your representative made with this office in regard to a Plan of Development and which we believe was a very liberal agreement on our part. Our letter dated April 28, 1959, clearly states our position in regard to what would be an acceptable amended plan of development. Therefore, we refuse to approve an amended plan of development which calls for no development.

May we hear from you immediately concerning your intentions to further develop this unit.

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

BY:
Ted Bilberry, Supervisor
Oil and Gas Division

Pan American Petroleum Corporation
Fort Worth, Texas

(Page 2.)
11-4-59

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

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

C
O
P
Y

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT
DIVISION PRODUCTION SUPERINTENDENT

Fort Worth, Texas
May 5, 1959

File: GWK-4163-416 x 993.1

Subject: Notice of Approval of 1959
Plan of Development
Buffalo Unit, Lea County,
New Mexico, Lease No. 127578
Contract No. 27223

Director (6)
United States Geological Survey
c/o Oil and 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:

This is to advise that the Plan of Development for the year 1959 for the Buffalo Unit has been approved as follows:

- (1) Approved by the United States Geological Survey on February 16, 1959.
- (2) Approved by the Oil Conservation Commission on January 29, 1959.
- (3) Approved by the Commissioner of Public Lands of the State of New Mexico on April 28, 1959.

One conformed copy of the approved plan is being furnished to the working interest owners for their file.

Very truly yours,

E. V. Hewitt

AJI:ljj

ADDRESSEE LIST, COMMITTED WORKING INTEREST OWNERS, BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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

FILED

PM

P.O. Box 6721
Roswell, New Mexico

F, 1-
576

February 18, 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 22, 1958, for the Buffalo unit area, Lea County, New Mexico, which proposes the drilling of no wells, has been approved on this date subject to like approval by the appropriate State officials.

Three approved copies of the plan are enclosed.

Very truly yours,

(Orig. Sgd.) JOHN A. ANDERSON

EDWIN M. THOMASSON
Acting Oil and Gas Supervisor

Copy to: Washington (w/copy of plan)
Enclosures 3 Artesia

NMCCC, Santa Fe (letter only) ✓
Com. of Pub. Lands, Santa Fe (letter only)

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

FILE
576

January 21, 1959

C
O
P
Y

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

ATTENTION: Mr. E. V. Hewitt

Re: 1959 Plan of Development
Buffalo Unit, Lea County,
New Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1959 Plan of Development for the Buffalo Unit Lea 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.

Two approved copies of the application are returned herewith.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ RLS/pj

cc: State Land Office - Santa Fe
US Geological Survey - Roswell

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT
DIVISION PRODUCTION SUPERINTENDENT

January 9, 1959

File: GWK-6119-416

Subject: 1959 Plans of Development
Greenwood Pre-Grayburg and
Buffalo Units

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

Attention: Mr. Richard Stamets

Gentlemen:

You advised by your phone call of January 8, 1959 that before approval could be given for the 1959 Plans of Development for the Buffalo and Greenwood Pre-Grayburg Units it would be necessary for you to be advised concerning our plans for development of the shallow horizons such as the Seven Rivers, Queen, and San Andres.

We presently feel that no additional shallow development is warranted at this time in the Buffalo Unit. As you are probably aware, four wells have been drilled within the boundaries of this unit without finding commercial production in the shallow horizons. The Mark Whelan No. 1 (formerly Buffalo Unit No. 1) located 2082' from the north line and 1980' from the west line of Section 3, T-19-S, R-33-E, and presently completed in the Wolfcamp was drilled to approximately 14,900', and was extensively tested in all zones having any indication of possible commercial production. Buffalo Unit Well No. 2 located in the NE/4, Section 35, T-18-S, R-33-E, was drilled as a farmout well by Western Drilling Company to a total depth of 4760'. The Upper Queen and Penrose Horizons were cored and extensively tested in this well before the well was plugged and abandoned. Buffalo Unit Well No. 3 located 660' from the north and east lines of Section 33, T-18-S, R-33-E, was drilled to a total depth 4540'. Diamond cores were cut in the Queen from 4191' to

January 9, 1959

4245' and 4245' to 4295' with porosity ranging from 1% to 16%, water saturation ranging from 26% to 100%, and 0 oil saturation. Diamond cores were also cut in the Penrose from 4455' to 4531' with porosity ranging from 1% to 14%. The Penrose Sand was perforated and tested and no indications of commercial production were obtained. In view of the above, we do not feel that additional shallow development is warranted at this time.

The Greenwood Pre-Grayburg Unit Agreement covers only horizons below the base of the Grayburg, and consequently, we did not discuss development possibilities in the shallow zones.

If you desire any additional information in this regard, please advise.

Very truly yours,

A handwritten signature in dark ink, appearing to read "E. J. Hewitt". The signature is written in a cursive style with a large initial "E" and a small "2" at the bottom right.

AJI:lj

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT
DIVISION PRODUCTION SUPERINTENDENT

December 22, 1958

File: GWK-6056-416

Subject: 1959 Plan of Development
Buffalo Unit, Lea 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 Committed Working Interest
Owners in Unit Area
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953 Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval a Plan of Development for the year 1959.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and the well was recompleted in the Wolfcamp Zone. Mark Whelan No. 1 is currently producing with an assigned allowable of 20 BOPD from the Wolfcamp.

Buffalo Unit Well No. 4 was completed on May 4, 1958 at a plug back total depth of 13,795' after being drilled to a total depth of 14,891'. The well was tested upon completion and flowed at a maximum stabilized rate of 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery during the test was 90 barrels per million cu. ft. An initial participating area for the Pennsylvanian

December 22, 1958

Formation of 360 acres has been approved due to completion of this well.

Further Development - Pan American proposes to drill no additional wells within the Unit Area during 1959 until a gas market has been obtained. This proposal is based on the fact that no suitable gas market has as yet been developed in this area and we feel that some history of production should be obtained prior to commencement of additional drilling. We feel that it would be to the best interest of all to delay further drilling until suitable production history as mentioned above has been obtained, and can see no justification for further development until a market becomes available. Consideration will be given as soon as a market becomes available to recompletion of the Mark Whelan No. 1, currently producing from the Wolfcamp, as a Pennsylvanian gas producer. Information currently available indicates that a gas market advantageous to all parties should be available sometime during the latter half of 1959. Following connection to a market and testing of the current well, additional development will be attempted.

If this Plan of Development meets with your approval, please indicate hereon.

Effective Date - This Plan of Development shall be effective January 1, 1959.

Very truly yours,

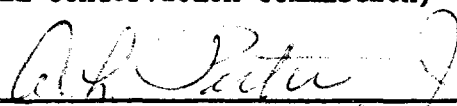


AJI:lj

Attachment

Approved _____ Date _____
Acting 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 Jan 29 1959
Oil Conservation Commission
(Subject to like approval by U.S.G.S.
and Commissioner of Public Lands)

ADDRESSEE LIST, COMMITTED WORKING INTEREST OWNERS, BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

December 9, 1958

File: GWK-6000-416

Subject: Approval of Initial Plan
of Development, Buffalo
Unit, Lea County, New Mexico

File
575

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:

Approval of the initial Plan of Development for the Buffalo Unit, Lea County, New Mexico was requested by Pan American's letter of October 28, 1958, File GWK-5852-416. The subject application was approved by the Oil Conservation Commission of the State of New Mexico on November 5, 1958, by the Commissioner of Public Lands of the State of New Mexico on November 19, 1958, and by the United States Geological Survey on November 20, 1958.

Yours very truly,

E. V. Hewitt

E. V. Hewitt

AJI:rk

Attachment

ADDRESSEE LIST
COMMITTED WORKING INTEREST OWNERS
BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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



IN REPLY REFER TO:

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

November 20, 1958

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

Attention: Mr. E. V. Hewitt

Gentlemen:

Your plan of development dated October 28, 1958, for the Buffalo Unit Area, New Mexico, for the remainder of calendar year 1958, and which provides for no drilling, 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,

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Enclosures 3

Copy to: Wash. (w/cy of plan)
artesia (w/cy of plan)
Comm. of Pub. Lands, Santa Fe (ltr only)
Oil Cons. Comm., Santa Fe (ltr only)



IN REPLY REFER TO:

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

1510
576
November 20, 1958

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

Attention: Mr. E. V. Hewitt

Gentlemen:

Your plan of development dated October 28, 1958, for the Buffalo Unit Area, New Mexico, for the remainder of calendar year 1958, and which provides for no drilling, 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,

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Enclosures 3

Copy to: Wash. (w/cy of plan)
Artesia (w/cy of plan)
Comm. of Pub. Lands, Santa Fe (ltr only)
Oil Cons. Comm., Santa Fe (ltr only)

MAIN OFFICE OCC
1958 NOV 19 AM 8:13

In reply refer to:
Unit Division

November 19, 1958

576
File

C
O
P
Y

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

Re: Initial Plan of Development
Buffalo Unit, Lea County,
New Mexico

ATTENTION: Mr. E. V. Hewitt

Gentlemen:

We are enclosing two copies of the above designated,
which was approved by the Commissioner of Public Lands
November 19, 1958.

This Initial Plan of Development calls for no wells to
be drilled for the remainder of 1958, therefore, we will ex-
pect another Plan of Development to be filed in January 1959.

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

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

File
176

November 5, 1958

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

O
ATTENTION: Mr. E. V. Hewitt

Re: Initial Plan of Development
Buffalo Unit, Lea County,
New Mexico.

Gentlemen:

P
This is to advise that the New Mexico Oil Conservation Commission has this date approved the Initial Plan of Development calling for no wells to be drilled during the remainder of 1958 for the Buffalo Unit Lea 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.

Two approved copies of the application are returned herewith.

Very truly yours,

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

Y
lg/

cc: Land Office, Santa Fe
USGS, Roswell

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

October 28, 1958

File: GWK-5852-416

Subject: Initial Plan of Development
Buffalo Unit, Lea 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 Committed Working Interest
Owners in Unit Area
(See Attached Addressee List)

Gentlemen:

In compliance with Section 10 of the Buffalo Unit Agreement No. 14-08-001-1095, approved November 6, 1953 Pan American Petroleum Corporation, as unit operator, on behalf of itself and other affected working interest owners hereby submits for your approval an initial plan of development for the Unit Area, such plan to remain in effect until December 31, 1958.

History of Past Development - There are presently 2 wells completed within the Unit Area. Unit Well No. 1 (now designated as Mark Whelan No. 1) was drilled to a total depth of 14,916' in September 1954. On drill stem test the Pennsylvanian Formation in this well gave evidence of possible commercial production. On initial tests the well produced at a stabilized rate of about 500 MCFPD which was not considered sufficient to secure a gas market and the well was recompleted in the Wolfcamp Zone. Mark Whelan No. 1 is currently producing with an assigned allowable of 20 BOPD from the Wolfcamp.

Buffalo Unit Well No. 4 was completed on May 4, 1958 at a plug back total depth of 13,795' after being drilled to a total depth of 14,891'. The well was tested upon completion and flowed at a maximum stabilized rate of 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery during the test was 90 barrels per million cu. ft. An initial participating area for the Pennsylvanian Formation of 360 acres has been approved due to completion of this well.

October 28, 1958

Further Development - Pan American proposes to drill no additional wells within the Unit Area, during the remainder of 1958. This proposal is based on the fact that no suitable gas market has as yet been developed in this area and we feel that some history of production should be obtained prior to commencement of additional drilling. We feel that it would be to the best interest of all to delay further drilling until suitable production history as mentioned above has been obtained, and can see no justification for further development until a market becomes available. Consideration will be given as soon as a market becomes available to recompletion of the Mark Whelan No. 1, currently producing from the Wolfcamp, as a Pennsylvanian gas producer. Information currently available indicates that a gas market advantageous to all parties should be available sometime during the latter half of 1959. Following connection to a market and testing of the current well, additional development will be attempted.

If this Plan of Development meets with your approval, please indicate hereon.

Very truly yours,

E. V. Smith

AJI:lj
Attachment

Approved _____ Date _____
Acting 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* _____ Date *Nov 5, 1958* _____
Oil Conservation Commission
(Subject to like approval by U.S.G.S.
and Commissioner of Public Lands)

ADDRESSEE LIST, COMMITTED WORKING INTEREST OWNERS, BUFFALO UNIT

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

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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

ADDRESSEE LIST, COMMITTED WORKING INTEREST OWNERS, BUFFALO UNIT

Buffalo Oil Company
Oil & Gas Building
Fort Worth, Texas
Attn: Mr. W. W. Lomerson

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

Magnolia Petroleum Corporation
P. O. Box 900
Dallas 21, Texas

Attn: Mr. James R. January

MAIN OFFICE OCC

1958 JUL 3 AM 8:16

July 2, 1958

File
576

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

Attention: Mr. E. V. Hewitt:

Re: Initial Pennsylvanian Formation
Participating Area, Buffalo Unit
Lea County, New Mexico

Gentlemen:

The Commissioner of Public Lands has this date, July 2, 1958, approved the Initial Participating Area, for the Buffalo Unit Lea County, New Mexico.

We are handing to Mr. Dan Currins eight copies of this application.

Very truly yours,

MURRAY E. MORGAN
Commissioner of Public Lands

BY:

Ted Bilberry, Supervisor
Oil and Gas Division

MEM/MMR/s

cc: United States Geological Survey
Roswell, New Mexico

Oil Conservation Commission
Santa Fe, New Mexico

C
O
P
Y

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

File
C 100
576

July 2, 1958

C
O
P
Y

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

Attention: Mr. E. V. Hewitt

Re: Initial Pennsylvanian Formation
Participating Area, Buffalo Unit
Lea County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the initial participating area for the Pennsylvanian formation for the Buffalo Unit, Lea 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.

Nine approved copies of the application are handed herewith to Mr. Dan Currins.

Very truly yours,

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

ALP/RLS/ir

cc: U. S. Geological Survey - Roswell, New Mexico
Commissioner of Public Lands - Santa Fe, N M.

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING

FORT WORTH, TEXAS

E. V. HEWITT

DIVISION PRODUCTION SUPERINTENDENT

June 17, 1958

File: GWK-3467-416

Subject: Buffalo Unit, Lea County,
New Mexico, Request for Approval
of Initial Participating Area
for Pennsylvanian Formation

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 Buffalo Unit Agreement #14-08-001-1095, approved November 6, 1953, Pan American Petroleum Corporation, as Unit Operator, has determined, subject to the approval of the Director, the Commissioner, and the Commission, that Buffalo Unit Well No. 4, 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 367.62 acres and is described as NE/4 and N/2 SE/4 Section 4 and W/2 NW/4 and NW/4 SW/4 Section 3, Lea County, New Mexico.

Buffalo Unit Well No. 4 located 1980' from the North line and 660' from the East line of Section 4, T-19-S, R-33-E, Lea County, New Mexico was completed May 4, 1958 at a plugged back total depth of 13,795', after being drilled to a total depth of 14,891'. The well was completed with a calculated open flow potential of 7302 MCFPD through Pennsylvanian perforations from 13,270' to 13,305'. The maximum stabilized rate of flow during the potential test was 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery while testing was 90 barrels per million cubic feet. No gas sales contract has been executed as yet, but there is every indication that reliable market outlets are available.

The effective date for the Initial Participating Area is determined as May 4, 1958, the date on which the above well was completed. A plan for further development of the Pennsylvania Formation is presently under consideration and will be presented as soon as agreement is obtained between the working interest owners.

June 17, 1958

Attached hereto are the following exhibits which should aid in your evaluation of the application:

- (1) Schedule I which shows the tracts to be included in the participating area and the percentage of unitized substances to be allocated to each.
- (2) Exhibit "A", a map of the unit area on which has been noted the proposed initial Pennsylvanian Participating Area.
- (3) A geological and engineering report covering the subject formation.
- (4) A cross section showing the location and correlation of the Pennsylvanian Formation.

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.


Very truly yours,



AJI:lj
Attachment

Approved _____ Date _____
Acting 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 7-2-58
Oil Conservation Commission/
(Subject to like approval by U.S.G.S.
and Commissioner of Public Lands)

ADDRESSEE LIST, COMMITTED WORKING INTEREST OWNERS, BUFFALO UNIT

Buffalo Oil Company
Oil & Gas Building
Fort Worth, Texas
Attn: Mr. W. W. Lomerson

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

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

SCHEDULE I
BUFFALO UNIT

INITIAL PARTICIPATING AREA FOR THE PENNSYLVANIAN FORMATION

<u>Tract Number</u>	<u>Description</u>	<u>Number Of Acres</u>	<u>Participating Area Ownership</u>	<u>Percentage</u>	<u>Percentage Committed To Unit</u>	<u>Present Tract Participating</u>
Pt.1	T-19-S, R-33-E NE/4 and N/2 SE/4 Section 4	244.81	Royalty ORRI Working Interest Buffalo Oil Company Pan American Pet. Corp.	12.50 3.00 42.25 42.25 42.25 100.00	12.50 2.00 42.25 42.25 42.25 99.00	66.59322
Pt.2	T-19-S, R-33-E W/2 NW/4 and NW/4 SW/4 Section 3	122.81	Royalty ORRI Production Payment Working Interest Buffalo Oil Company Pan American Pet. Corp.	12.500000 5.000000 5.468750 38.515625 38.515625 100.000000	12.500000 3.435380 2.734375 38.515625 38.515625 95.701005	33.40678
Total Initial Participating Area		<u>367.62</u>				<u>100.00000</u>

GEOLOGICAL AND ENGINEERING REPORT
PENNSYLVANIAN FORMATION
BUFFALO UNIT
LEA COUNTY, NEW MEXICO

The Pan American operated Buffalo Unit Well No. 4 located 1980' FNL and 660' FEL of Section 4, T-19-S, R-33-E, Lea County, New Mexico, was completed May 4, 1958, as a well capable of producing gas in commercial quantities from the Pennsylvanian Formation, thus necessitating establishment of an Initial Participating Area for the Pennsylvanian. Well No. 4 was completed with a calculated open flow potential of 7302 MCFPD through Pennsylvanian perforations from 13,270' to 13,305'. The maximum stabilized rate of flow during the potential test was 6664 MCFPD through a 48/64" choke with a flowing tubing pressure of 963 psi. Average condensate recovery while testing was 90 barrels per million cubic feet. Prior to its completion in the Pennsylvanian Well No. 4 was carried into the Devonian to a depth of 14,891'; however, commercial production could not be established from any of the prospective zones in the Pre-Pennsylvanian formations. Perforated intervals in the Devonian and Mississippian were therefore squeezed, the well plugged back to 13,795', and completion made in the Pennsylvanian as discussed above.

Buffalo Unit Well No. 4 is the second well within the Unit Area that has been bottomed in the Devonian. Unit Well No. 1 (now Mark Whelan No. 1, a Wolfcamp oil producer) was drilled to a total depth of 14,916' in September, 1954. On drill stem test of the Pennsylvanian in this well, the correlative interval to the completion zone in Well No. 4 gave evidence of possible commercial production. The relationship of the

Pennsylvanian zones in the two wells, and drill stem tests and completion data for the Pennsylvanian formation are shown on the attached electric log cross-section. Examination of the test data reveals that Pennsylvanian completion attempts in Well No. 1 were unsuccessful in establishing commercial rates of production. However, the well was capable of producing at a stabilized rate of 500 MCFPD through perforations from 13,200' to 13,244'. In view of the successful completion of Well No. 4, it now appears that a commercial Pennsylvanian producer may be obtained at Well No. 1, provided a satisfactory stimulation method can be determined. Consideration will be given to abandoning the Wolfcamp zone in this well and re-entering the Pennsylvanian when Wolfcamp production declines to the economic limit. The Pennsylvanian was originally plugged off in such a manner as to facilitate subsequent recompletion attempts.

Although the No. 1 well cannot be construed as having proved the section in which it is situated to be capable of commercial production, the logs of it and Well No. 4 demonstrate that the gas saturated pay sand is present over a reasonably large area. Examination of the cross-section shows that Well No. 1 has a thicker net section than Well No. 4 with comparable porosity development within that section. The superior performance of Well No. 4 indicates that possibly it has the better permeability development, or that the moderate 2000 gallon Hydrafrac attempted on Well No. 1 was insufficient stimulation to obtain a commercial well at this location.

Seismic data for the Buffalo area is unreliable and does not permit delineation of local structure, although the area is anomalous as shown by regional correlations. Available logs and subsurface information indicate that sand occurrence is not related to structure, however, it is possible that permeability development is superior on the structure's flank, since the No. 4 Well is lower than the No. 1 Well. This conclusion is derived from the apparent permeability improvement obtained between Well No. 1 and the lower Well No. 4. In all probability, the pay zone is a blanket sand deposit and good permeability development would be expected over the remainder of Section 4, all of which is apparently located along the flanks of the Buffalo feature.

Available information is insufficient to conclusively determine the probable ultimate productive extent of the Pennsylvanian Formation in this area. Therefore, it is recommended that an initial 360 acre participating area, consisting of the 40 acre tract on which the well is located and the 8 tracts which surround it be established. As pointed out above, there is good reason to believe that considerably more acreage is productive than the 360 acre area recommended, and it is the intention of the Unit Operator to petition for inclusion of additional acreage if additional development and well production history tend to show that the Pennsylvanian is productive over a larger area.

PAN AMERICAN
BUFFALO UNIT NO.4
NW/4, 4 - 19 - 33
ELEV. 3741'

CROSS SECTION
"PENNSYLVANIAN SECTION"
BUFFALO UNIT

PAN AMERICAN
USA-M. WHELAN NO.1
NW/4, 3 - 19 - 33
ELEV. 3745'

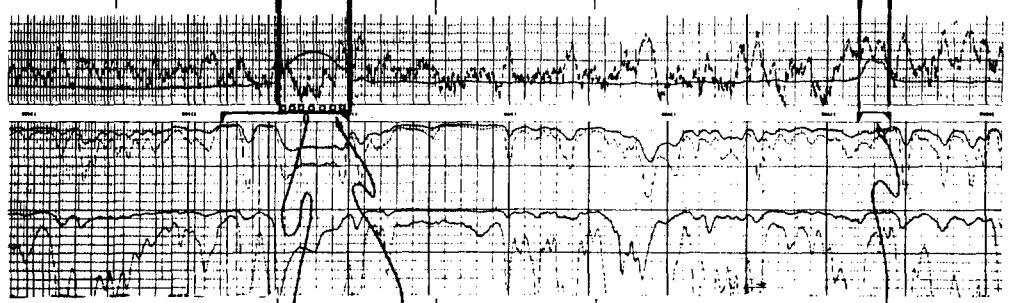
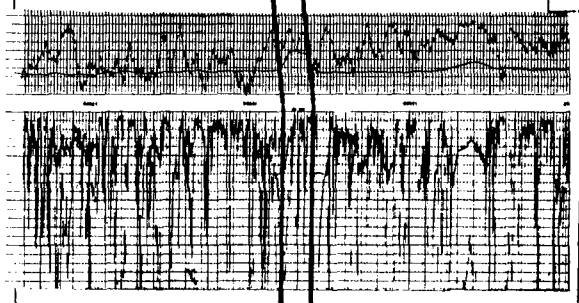
DST 12706-12905 On 7 hrs
GTS 35, Pw 457 MCFPD Rec.
1500 Wb + 40 Muf
18MPSI 6380 PSIG
18MPSI 6380 PSIG
18MPSI 6380 PSIG
18MPSI 6380 PSIG

DST 13075-13180 On 3.20
GTS 36, Pw 457 MCFPD
Rec. 1500 Wb + 30 CCM
18MPSI 6380 PSIG
18MPSI 6380 PSIG
18MPSI 6380 PSIG
18MPSI 6380 PSIG

DST 13253-13272 On 2 hrs
Rec. 1500 Wb + 90 Muf
Shore On or Gas

COMPL. DATA
Pw 1.13270-13305
Shore 1500 Wb + 90 Muf
CMT 7302 MCFPD +
90 Muf / MCFPD

DST 13460-13510 On 2 hrs
Rec. 1500 Wb + 90 Muf
Shore On or Gas



DST 13500-13580 On 1 hr
GTS 35, Pw 457 Muf
20 VSSCM

DST 13500-13580 On 6 hrs
GTS 125 Pw 450 MCFPD
Rec. 50 Dnt + 900 Dnt B
GCM - 18
18MPSI 6380 PSIG

COMPL. ATTEND
Pw 1.13500-13544 A / 700
HYDROPHASE W 2000 Muf 1250 Wb
The SHORE ON or GAS
See BP @ 10700 Capable w/ 70 Muf

T.D. 14916
P.B. 10705

576

May 23, 1955

file

Stanolind Oil and Gas Company
Stanolind Building
Fort Worth, Texas

Attention: Mr. C. F. Bedford

Re: Participating Area
Buffalo Unit Area,
Lea County, New Mexico

Gentlemen:

This is to advise you that the Commissioner of Public Lands has today approved your determination that the formation of a Participating area of Buffalo Unit Well No. 1, SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 3, T 19S R 33E, is not warranted.

This approval is in concurrence with findings and approval already obtained from both the United States Geographical Survey and New Mexico Oil Conservation Commission.

Two approved copies of the said application are returned herewith.

Very truly yours,

E. S. Walker

E. S. Walker
Commissioner of Public Lands

Encl.
cc: USGS-Roswell
N. M. O.C.C.

MPR:m

May 16, 1955

file

Stanolind Oil and Gas Company
Stanolind Building
Fort Worth, Texas

Attention: Mr. C. F. Bedford

Re: Participating Area
Buffalo Unit Area
Lea County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission concurs with your determination that the well Buffalo Unit No. 1, SE/4 NW/4 of Section 3, Township 19 South, Range 33 East, is not capable of production in paying quantities, as outlined in your application of April 27, 1955.

We therefore have approved the application that the formation of a participating area is not warranted, subject to similar findings by the United States Geological Survey and by the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the application is herewith returned.

WBM

Very truly yours,

W. B. Macey
Secretary-Director

WBM:jh
cc: USGS-Roswell
Commissioner of Public Lands-Santa Fe

encl.



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Post Office Box 6721
Roswell, New Mexico

May 10, 1955

Stanolind Oil and Gas Company
Stanolind Building
Fort Worth, Texas

file

Gentlemen:

Your application dated April 27, 1955, filed pursuant to section 11 of the Buffalo Unit Agreement, New Mexico No. 14-08-001-1095, requesting approval of your determination that well Buffalo Unit No. 1, located in the SE $\frac{1}{4}$ sec. 3, T.19S., R. 33E., lease Las Cruces 064153, is not capable of producing unitized substances in paying quantities and inclusion of the land on which it is situated in a participating area is unwarranted, has been approved on this date.

Two approved copies of said application are returned herewith.

Very truly yours,

(Signature)

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Enclosures 2

Copy to: Cons. Div. Wash., D.C. (w/1 copy of application)
Hobbs, (w/1 copy of application)
BHM, (w/1 copy of application)
R.M.O.C.C., Santa Fe, (letter only) ✓
Comm. Public Lands, Santa Fe, (letter only)

John

APPLICATION FOR APPROVAL
OF
~~DETERMINATION OF~~ STATUS OF WELL,
BUFFALO UNIT AREA, LEA COUNTY
NEW MEXICO

TO: REGIONAL OIL AND GAS SUPERVISOR
UNITED STATES GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

COMMISSIONER OF PUBLIC LANDS
STATE OF NEW MEXICO
SANTA FE, NEW MEXICO

OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
SANTA FE, NEW MEXICO

Pursuant to the provisions of Section 11 of the Unit Agreement for the development and operation of the Buffalo Unit Area, Lea County, New Mexico, dated September 8, 1953, Stanolind Oil and Gas Company, as Unit Operator, on behalf of itself and the other owners of working interests in oil and gas leases covering lands within the Buffalo Unit Area, hereby submits for your approval its determination that the Buffalo Unit Well No. 1 is not capable of production in paying quantities (to-wit, quantities sufficient to repay the costs of drilling and producing operations, with a reasonable profit), and that formation of a participating area because of such well is unwarranted.

In support of this application the applicant states that the aforesaid well, located 1980 feet East of the West line and 2082 feet South of the North line of Section 3, Township-19-South, Range-33-East, Lea County, New Mexico, was drilled to a total depth of 14,916 feet and was completed on October 27, 1954, in the Wolfcamp formation at a plugged back total depth of 10,705 feet. Such completion was made in a porous interval at the upper Wolfcamp formation through perforations from 10,597 feet to 10,620 feet. After the stimulation of this interval with 500 gallons of mud-cleaning acid, the well, on potential test, pumped at a rate of 113 barrels of oil per day and 16 barrels of water per day, with a gas-oil ratio of 1053 cubic feet of gas per barrel of oil. Production history is as follows:

<u>Period</u>	<u>Average Daily Production</u>	
	<u>Oil-Bbbls.</u>	<u>Water-Bbbls.</u>
November 1954	71	11
December 1954	53.3	9.2
January 1955	35.2	7.3
February 1955	49.1	8.1

Analysis of all available data, including the performance of the well, indicates that the well is not capable of production in paying quantities, as that term is defined in the Unit Agreement.

Pertinent data concerning Buffalo Unit Well No. 1 was furnished you attached to "Application For Extension of Time For Commencement of Second Test Well" dated March 9, 1955, filed by Stanolind Oil and Gas Company as Unit Operator. These data included, among other things, formations encountered and depths of formations as well as drill stem tests taken and the results of such tests.

The applicant respectfully requests that the Supervisor, the Commissioner and the Commission approve its determination that the aforesaid well is not capable of production in paying quantities and that the formation of a participating area because of such well is unwarranted.

EXECUTED, this 27th day of APRIL, 1955.

ATTEST:

STANOLIND OIL AND GAS COMPANY

C. J. Matthe
Assistant Secretary

By *E. T. [Signature]*
Attorney in Fact



cc: To All Working Interest Owners

Approved.....5/12.....1955

orig. / s / [Signature]
Secretary-Director

NEW MEXICO OIL CONSERVATION COMMISSION

THIS APPROVAL GRANTED SUBJECT TO LIKE APPROVAL
AND GRANTED BY THE UNITED STATES GEOLOGICAL
SURVEY AND BY THE COMMISSIONER OF PUBLIC LANDS
OF THE STATE OF NEW MEXICO.

March 22, 1955

Mr. C. F. Bedford
Stanolind Oil & Gas Company
Oil & Gas Building
Fort Worth, Texas

File: JEM-8138-921.3

Re: Buffalo Unit Agreement
Lea County, New Mexico

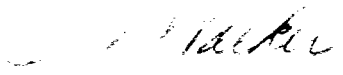
Application for Extension of
Time for Drilling Second Test Well

Dear Sir:

Your letter dated March 8, 1955 with reference to Article 9 of the above captioned Unit Agreement whereby you request that a six month extension after April 27, 1955 to the Stanolind Oil & Gas Company as Unit Operator, within which to commence the drilling of the second test well within the Buffalo Unit Area.

Please be advised that we have approved this extension of time as requested, to October 27, 1955, subject to like approval by the Oil Conservation Commission and the United States Geological Survey.

Very truly yours


E. S. WALKER
COMMISSIONER OF PUBLIC LANDS

cc Oil Conservation Commission
Santa Fe, New Mexico

United States Geological Survey
Roswell, New Mexico

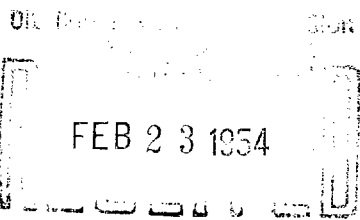
576



SHELL OIL COMPANY

THIS LETTER IS FROM OUR
FIELD OFFICE

AT P. O. Box 845
Roswell, New Mexico



February 19, 1954

Subject: Roosevelt County, New Mexico
~~Bluit Unit~~

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

Attention: Miss Nancy Royal

Gentlemen:

We are enclosing the Transcript of Hearing had
in Case 576 which we borrowed from your office on Tuesday,
February 16, 1954.

The enclosed papers have served our purposes,
and we wish to thank you again for the use of them.

Yours very truly,

O. V. Lawrence
Roswell District Land Agent

Enclosure

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

October 21, 1953

Mr. Oliver Seth, Attorney
Box 828
Santa Fe, New Mexico

Dear Mr. Seth:

RE: Case 576, Order R-379

For your records and those of your client, Stanolind Oil and Gas Company, we enclose two signed copies of Order R-379 issued by the Commission in Case 576, Stanolind's application for approval of the Buffalo Unit Area.

Very truly yours,

W. B. Macey
Chief Engineer

WBM:nr

C
O
P
Y

STANOLIND OIL AND GAS COMPANY

OIL AND GAS BUILDING

FORT WORTH, TEXAS

C. F. BEDFORD
DIVISION PRODUCTION SUPERINTENDENT

April 7, 1955

File: JEM-8186-921.3

Subject: Buffalo Unit
~~Lea County~~
New Mexico

Buffalo Oil Company
15th Floor
1st National Bank Bldg.
Tulsa, Oklahoma

Gulf Oil Corporation
P. O. Drawer 1290
Fort Worth, Texas

Magnolia Petroleum Company
P. O. Box 900
Dallas 1, Texas
Attention: Mr. G. W. Stell

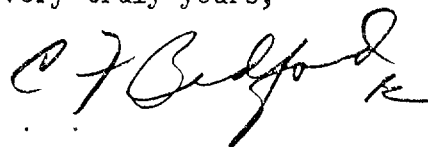
Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Commissioner of Public Lands
State of New Mexico
Santa Fe, New Mexico

Gentlemen:

On March 29, 1955, Acting Director of the United States Geological Survey, Thomas B. Nolan, approved Stanolind's application for a six months extension of time from April 27, 1955 within which to commence the drilling of a second test well on the subject unit. Accordingly, a second test well must be commenced on or before October 27, 1955. One copy of the approved application is transmitted herewith for your files.

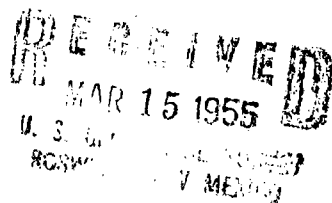
Very truly yours,



JEM:pb



APPLICATION FOR EXTENSION OF TIME
FOR COMMENCEMENT OF TEST WELL



TO: The Director (6)
United States Geological Survey

Stanolind Oil and Gas Company, as Unit Operator of the Buffalo Unit, County of Lea, State of New Mexico, has heretofore drilled the first test well to a total depth of 14,916 feet, thereby thoroughly testing the Devonian formation in compliance with Article 9 of said Unit Agreement. Under the terms of Article 9 of the said Unit Agreement, the Unit Operator is obligated to commence drilling a second test well within six months of the completion date of the first test well. Buffalo Unit Well No. 1, located 1980 feet from the west line and 2082 feet from the north line of Section 3, T-19-S, R-33-E, Lea County, New Mexico, the first test well, was drilled to a total depth of 14,917 feet. Said well was plugged back to a total depth of 10,705 feet and is producing from the Wolfcamp formation. Recent performance of said well indicates conclusively that production in commercial quantities as defined by the Buffalo Unit Agreement has not been discovered as yet and it is the intention of the Unit Operator on behalf of the other working interest owners in the unit to file a non-commercial determination for said well. Attached hereto are pertinent data with respect to the drilling and completion of Buffalo Unit Well No. 1. In view of the very discouraging behavior of Unit Well No. 1 and considering the tremendous amount of expense incurred in drilling said well, it is the unanimous opinion of the Unit Operator and other working interest owners in the unit that before further investment in drilling additional wells is made, a careful review of the area is warranted. More intelligent development can be made if sufficient time is granted for proper evaluation of the present geophysical information in light of the results obtained from the drilling of the first well.

Premises considered, Stanolind Oil and Gas Company, Unit Operator under the Buffalo Unit Agreement, with the approval of the other working interest owners in the unit, hereby makes application to the Director of the United States Geological Survey, pursuant to Article 9 of said Unit Agreement for an extension of six months after April 27, 1955, for the commencement of the second test well to

be drilled on the unit area so that said test well shall be commenced on or before October 27, 1955.

Copies of this application have been filed with the Commissioner of Public Lands, State of New Mexico, and the Oil Conservation Commission, State of New Mexico.

IN WITNESS WHEREOF, this application is hereby made this 9 day

March, 1955.

STANOLIND OIL AND GAS COMPANY
UNIT OPERATOR OF THE BUFFALO
UNIT AGREEMENT

ATTEST:

Assistant Secretary

By _____
Attorney-in-fact

The foregoing is hereby approved this 29th day of March, 1955, and the time for the commencement of the test well referred to in the foregoing application is hereby extended to October 27, 1955.

By Thomas B. Nolan
Acting Director, United States
Geological Survey

PERTINENT DATA
CONCERNING
BUFFALO UNIT WELL NO. 1

Location: 1980' FWL and 2082' FNL, Sec. 3, T-19-S, R-33-E, Lea County,
New Mexico

Total Depth: 14,916'

Plugged Back Total Depth: 10,705'

Elevation: 3748 RDB

Spudded: December 16, 1953

Completed: October 27, 1954

Casing Record: 16" CSA 440' w/575 SX
10-3/4" CSA 4,987' w/650 SX
7" CSA 14,197' w/380 SX plus 380 Cu. Ft. Perlite

FORMATIONS ENCOUNTERED
AND DEPTHS

Anhydrite - Top	1430	Bone Spring - Top	7,522
Salt - Top	1555	Wolfcamp - Top	10,580
Salt - Base	2870	Pennsylvanian - Top	11,975
Yates - Top	3050	Strawn - Top	12,180
Queen - Top	4245	Mississippian - Top	13,575
Delaware Sand - Top	5130	Woodford - Top	14,135
San Andres - Top	5390	Devonian - Top	14,300

DISCUSSION

The Buffalo Unit Well No. 1 was drilled to a total depth of 14,916 feet and bottomed in dry Fusselman. On October 27, 1954, completion was made in a porous interval of the Upper Wolfcamp formation through perforations from 10,597 feet to 10,620 feet. On initial potential the well pumped 113 barrels of oil and 18 barrels of water per day with a gas-oil ratio of 1,053 cubic feet per barrel. Production history is as follows:

<u>Period</u>	<u>Average Daily Production</u>	
	<u>Oil Bbls.</u>	<u>Water Bbls.</u>
November 1954	71	11
December 1954	53.3	9.2

In addition to the Wolfcamp production, a potential gas horizon exists in the Penn sand at a depth of about 13,200 feet, but completion efforts in this zone were unsuccessful in establishing a commercial producing rate.

BUFFALO UNIT WELL NO. 1

DRILL STEM TESTS

DST # 1 - 1/11/54 - 4239 to 4277 to test drlg. break. Tool open 3 hrs. w/weak blow of air throughout test. No gas to surface. re. 200' of slightly gas cut mud and 1150' of salt water FBHP 60 to 655 psi. 20 min SIBHP 1305 psi. Bottom water above tool titrated 143,000 PPM total chlorides. Mud titrated 133,000 PPM total chlorides.

DST # 2 - 1-21-54 - 4830 to 4890. 1/22/54 - DST #2 (Cont.) 4830 - 4890. Tool open 1-3/4 hrs. Light blow of air for 30 min gradually declined and died in 45 min. Rec. 480' drilling mud. No show oil, gas, or water. FBHP 275 - 305. 20 min SIBHP 1285.

DST # 3 - 2-12-54 - 6065 to 6108. To test drlg. break and kick on mud indicator. 2-15-54 - DST #3 (cont.) Tool open 2 hrs. 5 min. Weak blow air at once, dead in 1 hr. Rec. 70' slightly gas cut drlg. mud FBHP 30 psi 20 min. SIBHP 30 psi.

DST # 4 - 2-15-54 - 6115 to 6204 to test drlg. break and gas kick. Tool open 4 hrs. light blow throughout test rec. 420' slightly gas cut mud and 60' of slightly gas and oil cut mud. FBHP 25 to 185 psi 20 min. SIBHP 1610 psi.

DST # 5 - 2-19-54 - running to 6985 to 7066. to test gas kick. 2-22-54 - DST # 5 (Cont.) 6985 - 7066. Tool open 1 hr weak blow 4 min and died. FBHP 0 - 30 min SIBHP - 0. Rec. 15' drlg. mud.

DST # 6 - 2-22-54 - 7245 - 7320. Tool open 1 hr 20 min. Light blow 20 min and died. FBHP 30-55, 20 min SIBHP - 90. Rec. 110' mud.

DST # 7 - 3-1-54 - 7930 - 7979 to test kick on gas indicator. 3-2-54 - (Cont.) 7930 - 7979. Tool open 2 hrs. very weak blow air 1 hr and died. Rec. 130' drlg. mud BHPF zero 30 min BHPFI did not record.

DST # 8 - 3-18-54 - 8830' to 8986' to test Bone Springs sand. Kick on gas indicator florescence in samples. (Cont.) 3-19-54 - 8830 to 8937. Tool open 4 hrs. strong blow in 1 hr diminishing gradually to end of test. Rec. 270 bbls slightly oil and gas cut mud. Trace of free oil below circ. Sub. BHPF115 - 180. 30 min BHPFI 500.

DST # 9 - 3-23-54 - 9067 - 9101 to test good drlg. break w/stain and florescence. (Cont.) 3-23-54 - 9067 - 9101. Tool open 5 hrs weak to moderate blow for 20 min. Increased throughout test. Rec. 690' oil and gas cut mud, 300' slightly oil and gas cut mud and 390' oil and gas cut mud BHPF 94 - 370 pis. 30 min SIBHP 3775.

DST # 10 - 3-26-54 - 9165 to 9210. To test Bone Springs. Clean DT and stain POR x flourescence. Tool opened at 5:45 gas to surface in 30 min. Continuing to test. (Cont.) 3-29-54. Bone Springs 9165 - 9210. Open 4 hrs. st. blow air to surface. Gas to surface in 30 min, died in 1:15 min. Remained dead 10 min and resumed weak blow gas to end of test. Not enough gas to measure. Rec. 240' heavy GC mud 90' GCM & SW, 7685 SW. Titrated 104,500 PPM total chlorides. BHPF 1695 - 3865 BHPFI 30 min 3898.

DST # 11 - 3-31-54 - 9390 - 9437. (Cont.) 4-1-54 - 9390 to 9437 Bone Spring. Tool open 1 hr x 35 min. Very weak blow air for 2 min and died. Rec. 50' Drilling Mud NS FBHP 0 - 30. 30 min SIBHP - 30. H. P. - 4570.

DST # 12 - 4-8-54 - 9740 - 9780 to test Fluoresence good gas kick (Bone Springs) (Cont.) 4-9-54 - 9740 - 9780. Open 1 hr 12 min. Very weak blow air 12 min and died. Rec. 30' drl mud x very light trace of oil in last 5' BHPF 90. 30 min BHPFI 90.

DST # 13 - 4-19-54 - 10,300 to 10,350 to test drlg. break. Tool open 7 hrs. Weak blow of air. Gas to surface in 3 hrs. 15 min. Continued throughout test. Gas volume too small to measure. Rec 320' oil & gas cut mud (Est. 50% oil and 100' of free oil. No indication of water. BHPF - 95 to 215 psi. 30 min SIBHP 1080 psi. Bit #136. W7R, made 51' in 13 1/2 hrs. w/60,000. Bit #137, W7R, made 52' in 15-3/4 hrs. w/60,000. Bit #138, W7R, made 43' in 6 hrs. w/55,000.

DST # 14 - 4-23-54 - 10,619' to test Wolfcamp drlg. break porosity, fluorescence and slight stain. Picked T. Wolfcamp from samples at 10570'. Tool opened 5:20 A.M. Strong blow air at once. Gas to surface in 10 min., gradually decreasing to weak blow. Fluid to surface 2 hrs. 20 min. Oil to surface 2 hrs. 30 min. Continuing to flow to clean up. Gravity of oil rec. from DST #14, 4315 @ 90°. Corrected API 41.1 @ 60°. (Cont.) 4-26-54 - 10560 to 10619. Tool open 8 hrs. 5/8 bottom and 1" surface choke; strong blow air at once, strong gas to surface in 10 min weakened to heads; oil cut mud to surface in 2 hrs & 20 min; clean oil in 2 hrs and 30 min. Well flowing by heads - 1st hr. 5-1/2 BO; 2nd hr. 5-1/2 BO; 3 hr. 5-1/2 BO; 4th hr. 8 BO: total 25 bbls no water; BHPF 180 to 1220 30 min BHPSI 3705. Core #1 10,619 to 10,631 (4-3/4hrs.) Recovered 5-1/2' - 5 BUFF fine chrystallin lime Pin Point porosity, scattered Vugs, staining 2" Black Pyritic shale; 4" Grey, brown coarse chrystallin tight dolo. w/large anhy. Inclisions. Reamed Core hole & drilled.

DST # 15 - 4-26-54 - 10,645 to 10,670. Tool open 6 hrs, 5/8 bottom and 1" surface choke. Moderate blow of air at once, gas to surface 4 hrs. and 13 min. Recovered 180' of heavy oil and gas cut mud; 450' of mud and gas cut water and 840 of salt water. BHPF 750 to 880; 30 min BHPSI 1020. Water titration Buffalo Unit #1 70,500 PPM chlorides. Measured resistivity on water sample from DST #15 .069 ohms @ 75° F.

DST # 16 - 5-11-54 - 11130- 11161 800' WB (Lower Wolfcamp) Tool open 12 hrs. 45 min. Gas to surface in 38 min. Strong blow gas throughout test. After tool open 7 hrs. some condensate to surface. Reversed out 4 bbls. clean oil. 800' heavy oil and gas cut water blanket x 600' of heavy oil and gas cut mud. Prep to come out of hole. (Cont.) 5-12-54 - Rec. 15' free oil Corr. gravity 38° 75' heavily oil and gas cut mud no water. BHPF 465 to 585 2 hrs. BHPSI 1540.

DST #17 - 5-17-54 - 11,270 to 11,320 900' water blanket. Tool open 1 hr x 45 min. Very weak blow air for 45 min x died. Rec 5 gal free oil. 130' of slightly oil & gas. Cut mud & water, 615' of water blanket, 415' of slightly oil cut mud & water. (Total 1160 including 900' water blanket.) BHPF 420 to 450, 30 min. BHPC 680 psi.

DST # 18 - 5-21-54 - 11,590 to 11,686 Lower Wolfcamp. 1400' water blanket. Tool open 1 hr 45 min. Slight blow air for 45 min x died. Rec 1220' water blanket, 180' oil cut water blanket, 450' slightly gas cut drilling mud. BHPF 750 to 780 30 min. BHIC 350.

DST # 19 - 5-26-54 - 11970 to 12025. To test kick on gas machine, 1800' water blanket Tool open 1 hr. No. blow. Rec. 1800' of water blanket x 10' of drl. mud. No shows. BHPF 860 psi; 30 min. BHPSI 895 psi.

DST # 20 - 6-15-54 - 12,860 to 12,881. Water blanket 2600'. Tool open 1 hrs. and 18 min. Slight blow air for 18 min. and died. Recovered 2500' WB; 75' of drl. mud, 20' of slightly gas cut mud. FBHP 1170 psi. 30 min. SI 1880 psi.

DST # 21 - 13,200 - 13,280 (Perm) 1" BC x 5/8" x 1" TC. 3000' WB. Tool open 6 hr. 5 min. Gas to surface 1 hr. 25 min. Initial rate 971 MCFPD - Final rate 1320 MCFPD. Flw. DP pressure 80 psi. Rec part of WB while flowing. Did not clean up unloaded 2250' gas distillate x mud cut WB. Rec. 60' clean distillate x 900' heavy distillate x gas cut mud. No water. FBHP 1440 - 1480 1 hr. SIBHP 5920. Hyd. in 6475 - out 6440.

DST # 22 - 7-30-54 - 14,100 -14,350. (Devonian) Used 200' WB 5/8" BC. DP leaking before packer was set. Tool open 1 hr. light blow air throughout test. SI 15 min. Rec. 2000' WB, 5100' LM NS oil, gas or water. IFBHP 1855. FFBHP 2710. 15 min SIBHP 3410. Hy. BHP in 17,270 out 7100. Added approx. 3 bbl to annulus to keep casing full while testing.

DST # 23 - Mud 10.1 - 63 - 12.8 - 3/32. Core #4: 14,424' to 14,466' Rec. 41'. 12' Tan F x ls, 1" tan FX ls x scattered small vugs; 27' tan Fx ls, 1" tan Gx ls. vuggy porosity, open fractures. no show. (Lost circ. at 14,466'. Pulled core. (Cont.) 3-4-54 - w.269' of 3-1/2" flush joint drill collar's below packer. Tool opened at 5:45 A.M. w/strong blow of air to surface immediately, gradually decreasing after 30 min. 2,500' WB. (Contd.) Tool open 2-1/4 hrs. w/strong blow of air for 30 min. decreased dead in 1 hr. - rec. 2500' WB, 3600' brackish water and 6400' of salt water cut mud no shows - BHPF - 2545 PSI to 5925 PSI, 1-1/4 hr. SIBHP - 5925 PSI.

DST # 24 - 8-30-54 - 14,875 - 14,917 - Set packer at 6:35 a.m. opened tool with strong blow of air to surface. Completed running surveys. Core #6 - 14,905 to 14,916. Rec. 11' Grey-white chrystallin dol; poor to good, pin point porosity good flouresence, no staining strong sulphur odor. (Cont.) 8-31-54 - 14,875 - 14,916 - 2000' water blanket. Tool open 1 hr strong blow air to surface for 25 min & died. Recovered 2000' water blanket - 500' mud cut formation water and 11,625' of Formation water titrated 10,000 PPM Cl. FBHP 3870 - 6270. 1 hr. SIBHP 6270. Hyd. Pressure - in - 6270. Hyd. Pressure - out - 6270. Initial 3870 - Surge 7670.