

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

MAIL OFFICE OCC

DENVER CLUB BUILDING

1962 JAN 1

PM

1:29

DENVER 1, COLORADO

PRODUCTION & ENGINEERING DEPT.

January 31, 1962

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 180

State of New Mexico
Oil Conservation Commission
P. O. Box 371
Santa Fe, New Mexico

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

Re: 1962 Plan of Development and Operation
West Dist. Lower Gallup, Carl Unit
San Juan County, New Mexico

Gentlemen:

Receipt is acknowledged of a copy of our 1962 Plan of Development and Operation which has been approved by the Oil Conservation Commission of the State of New Mexico.

So that your file will be complete on this matter, we furnish you herewith reproduced copies of subject matter which have been approved by the U. S. Department of the Interior, Geological Survey and by the Commissioner of Public Lands for the State of New Mexico.

Very truly yours,

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Thomas M. Hogan
Thomas M. Hogan
District Superintendent

AHF/cm

Attachments

cc: Mr. F. A. Norris



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

IN REPLY REFER TO:

January 22, 1962

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Gentlemen:

Your 1962 plan of development and operation dated December 21, 1961, for the West Bisti Lower Gallup Sand unit, San Juan County, New Mexico, which proposes the drilling of one Lower Gallup well, 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,

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

* WHEN YOU GET APPROVED COPIES, I WILL THEN FURNISH
STATE AND FEDERAL, U.S.G.S., AND MINERAL CLAIM WITH APPROVED
COPIES OF THE APPROVED PLANS.

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Denver Club Building
DENVER 1, COLORADO

Production & Engineering Department

Address All Correspondence To
Post Office Box 180

December 21, 1961

PLAN OF DEVELOPMENT AND OPERATION FOR 1962
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Pursuant to Section 10, Paragraph 2, "Plan of Further Development and Operation", of the Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, The British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation for 1962.

The present status of Lower Gallup Sand wells is 46 wells producing and 16 water injection wells for a total of 62 wells within the participating area under Unit operations. Effective November 1, 1961 one producing well, C NW NE 30-26N-13W, was added as a result of commitment of Tract No. 12 to the Unit Agreement by Elliott, Inc., the operator.

British-American's Navajo #3, WBU #58, located NE SE Section 13-T26N-R11W, was converted into a water injection well and was given the number WIW #16. British-American's Navajo #2, WBU #59, located SW SE Section 13, was originally recommended and approved to be a water injection well. However, since the Riddle vacancy well is not in the Unit, it has not been advisable to convert WBU #59 to water injection.

During November, 1961, water injection into the Lower Gallup Sand averaged 10,319 BWPB. This was a low injection rate caused by failure of one water supply well pump. The normal average injection rate is approximately 14,250 BWPB. A grand total of 5,704,914 barrels of water has been injected into the entire Unit.

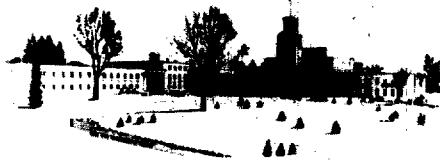
Production from the 46 producing wells averaged 3,354 BOPD and 491 BWPB in November, 1961. Cumulative oil production from all Unit wells was 5,464,125 barrels as of November 1, 1961.

Page #2

John H. ...
Oil & Gas ...
Subject to ... approval by the
appropriate ... officials.

3
FMH
File
RNH
File

State of New Mexico



Commissioner of Public Lands

E. S. JOHNNY WALKER
COMMISSIONER



P. O. BOX 791
SANTA FE, NEW MEXICO

December 27, 1961

The British-American Oil Producing Co.
P. O. Box 180
Denver 1, Colorado

Re: Plan of Development and
Operation, West Bisti
Lower Gallup Sand Unit
for 1962, San Juan County,
New Mexico

Attention: Mr. Thomas M. Hogan

Gentlemen:

The Commissioner of Public Lands approved your Plan of Development and Operation as of December 27, 1961, for 1962 Calendar Year, West Bisti Lower Gallup Unit Area, San Juan County, New Mexico, approval being subject to like approval by the U. S. Geological Survey.

* [We are enclosing one approved copy and request you furnish us another copy of this plan when fully approved.

Very truly yours,

E. S. Walker

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

ESW/mmcr/v

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Denver Club Building
DENVER 1, COLORADO

Production & Engineering Department

Address All Correspondence To
Post Office Box 180

December 21, 1961

PLAN OF DEVELOPMENT AND OPERATION FOR 1962
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Pursuant to Section 10, Paragraph 2, "Plan of Further Development and Operation", of the Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, The British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation for 1962.

The present status of Lower Gallup Sand wells is 46 wells producing and 16 water injection wells for a total of 62 wells within the participating area under Unit operations. Effective November 1, 1961 one producing well, C NW NE 30-26N-13W, was added as a result of commitment of Tract No. 12 to the Unit Agreement by Elliott, Inc., the operator.

British-American's Navajo #3, WBU #58, located NE SE Section 13-T26N-R11W, was converted into a water injection well and was given the number WIN #16. British-American's Navajo #2, WBU #59, located SW SE Section 13, was originally recommended and approved to be a water injection well. However, since the Riddle vacancy well is not in the Unit, it has not been advisable to convert WBU #59 to water injection.

During November, 1961, water injection into the Lower Gallup Sand averaged 10,319 BWPD. This was a low injection rate caused by failure of one water supply well pump. The normal average injection rate is approximately 14,250 BWPD. A grand total of 5,704,914 barrels of water has been injected into the entire Unit.

Production from the 46 producing wells averaged 3,154 BOPD and 491 BWPD during November, 1961. Cumulative oil production from all Unit wells was 1,125,125 barrels as of November 1, 1961.

MAILED

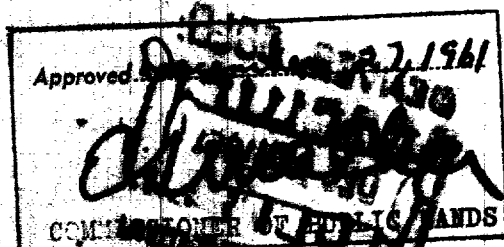
Plan of Development and Operation for 1962
West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico
Page #2

Three water supply wells have been drilled and equipped to produce water from the Lower Allison-Monafes formation at approximately 2,600' total depth. Water Supply Well #2 is located 2,200' FEL and 1,400' FEL of Section 28; Water Supply Well #3 is located C SE 1/4 NE of Section 35; and Water Supply Well #4 is located in the SE 1/4 of Section 27-T26N-R13W. Each well is capable of producing 6,000 BWPD; therefore, the water capacity is greater than the required injection volume.

In August, 1961, one additional triplex injection pump and equipment was installed in the main plant. This plant is now comprised of three pumps and engines, and is capable of injecting approximately 15,000 BWPD at 1420 psig plant pressure. The barrier injection plant, which was constructed near the center of Section 35, is still comprised of one pump and engine and is capable of injecting approximately 4,250 BWPD at 1420 psig.

It has not been feasible to install IACT equipment or electrification in this field; however, additional study will be made during 1962. No additional water supply wells are anticipated during 1962. Application will be made to drill a lower Gallup Sand well in C NE 1/4 1-25N-13W, being on acreage committed to the Unit but not within the participating area; if this well is commercially productive, an effort will be made to enlarge the participating area to include appropriate acreage resulting therefrom.

THE MEXICAN-AMERICAN OIL PRODUCING COMPANY,
UNIT OPERATOR, WEST BISTI LOWER GALLUP SAND UNIT



Thomas H. Hogan
Thomas H. Hogan
District Superintendent

1961 DEC 7 9 00

STATE LAND OFFICE
SANTA FE, N.M.



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

MAIN OFFICE OCT
1962 JAN 1 AM 8:14

1866
JAN 1 1962

British-American Oil Producing Company
Post Office Box 749
Dallas 21, Texas

Attention: Mr. E. L. Taylor

Gentlemen:

You have submitted for approval an Exhibit "C" revised to November 1, 1961, to show tract participations resulting from the commitment of unit tract 12 (S.F. 080402) to the West Bisti Lower Gallup Sand unit, San Juan County, New Mexico, pursuant to the pertinent provisions of section 28. The participation factor of 0.8066% has been assigned to tract 12 in conformance with the pertinent provisions of section 11.

An 80-acre portion of this tract (N $\frac{1}{2}$ NE $\frac{1}{4}$ 30-26N-13W) was included in the initial participating area but was given no participation allocation of unitized substances because it was not committed.

The participation factors set forth in said revised Exhibit "C" are hereby approved effective as of November 1, 1961, subject to like approval by the Commissioner of Public Lands of the State of New Mexico, and the New Mexico Oil Conservation Commission. Copies of such revised Exhibit "C" are being furnished to the appropriate Federal offices.

Very truly yours,

William A. Baker

Acting Director

New Mexico Oil Conservation Commission

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

DENVER CLUB BUILDING

DENVER 1, COLORADO

PRODUCTION & ENGINEERING DEPT.

December 21, 1961

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 180

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

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

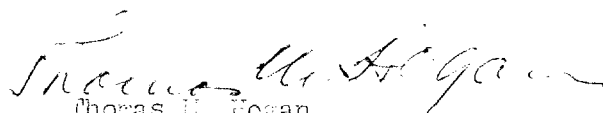
Re: Plan of Future Development and Operation
West Bisti Lower Gallup Sand Unit for 1962
San Juan County, New Mexico

Gentlemen:

Pursuant to Section 10, Paragraph 2, "Plan of Future Development and Operation," of the Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, the British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation for 1962.

Very truly yours,

THE BRITISH-AMERICAN OIL PRODUCING COMPANY,
Unit Operator of the West Bisti Lower Gallup
Sand Unit


Thomas H. Hogan
District Superintendent

EMJ/cm

Attachments (2)

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

January 26, 1962

C
O
P
Y

The British-American Oil Producing Co.
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Re: 1962 Plan of Development &
Operation West Bisti Lower
Gallup Sand Unit, San Juan
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1962 Plan of Development and Operation for the West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the plan is returned herewith.

Very truly yours,

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

ALP/JEK/ig

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



UNITED STATES
DEPARTMENT OF THE INTERIOR
MAIN OFFICE GEOLOGICAL SURVEY
Drawer 1857

Roswell, New Mexico

1962 JAN 24 PM 1:21

January 22, 1962

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Gentlemen:

Your 1962 plan of development and operation dated December 21, 1961, for the West Bisti Lower Gallup Sand unit, San Juan County, New Mexico, which proposes the drilling of one Lower Gallup well, 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

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Copy to: Washington (w/cy of plan)
Farmington (w/cy of plan)
✓ MIOGC, Santa Fe (ltr. only)
Com. of Publ Lands, Santa Fe (ltr. only)

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Denver Club Building
DENVER 1, COLORADO

Production & Engineering Department

Address All Correspondence To
Post Office Box 180

December 21, 1961

PLAN OF DEVELOPMENT AND OPERATION FOR 1962
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Pursuant to Section 10, Paragraph 2, "Plan of Further Development and Operation", of the Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, The British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation for 1962.

The present status of Lower Gallup Sand wells is 46 wells producing and 16 water injection wells for a total of 62 wells within the participating area under Unit operations. Effective November 1, 1961 one producing well, C NW NE 30-26N-13W, was added as a result of commitment of Tract No. 12 to the Unit Agreement by Elliott, Inc., the operator.

British-American's Navajo #3, WBU #58, located NE SE Section 13-T26N-R14W, was converted into a water injection well and was given the number WIW #16. British-American's Navajo #2, WBU #59, located SW SE Section 13, was originally recommended and approved to be a water injection well. However, since the Riddle vacancy well is not in the Unit, it has not been advisable to convert WBU #59 to water injection.

During November, 1961, water injection into the Lower Gallup Sand averaged 10,319 BWPD. This was a low injection rate caused by failure of one water supply well pump. The normal average injection rate is approximately 14,250 BWPD. A grand total of 5,704,914 barrels of water has been injected into the entire Unit.

Production from the 46 producing wells averaged 3,354 BOPD and 491 BWPD in November, 1961. Cumulative oil production from all Unit wells was 5,464,125 barrels as of November 1, 1961.

Page #2

THE UNITED STATES OF AMERICA
DO hereby certify that
SARAH ANN WILSON is the owner of the following described
LANDS OF THE STATE OF CALIFORNIA:

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

PRODUCTION AND ENGINEERING DEPARTMENT
VICE PRESIDENT - W. E. SCHOENECK

OPERATIONS - F. A. NORRIS
ENGINEERING - G. M. STEARNS
DRILLING ANALYSIS - W. W. MOORE
GAS AND GASOLINE - D. W. CONAWAY
JOINT INTERESTS - E. L. TAYLOR
CLERICAL - J. C. PULLIAM

MERCANTILE DALLAS BUILDING

DALLAS 21, TEXAS

November 22, 1961

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 749

Mr. A. L. Porter, Jr.
Oil Conservation Commission
State of New Mexico
P. O. Box 871
Santa Fe, New Mexico

Revision of Exhibit "C"
West Bisti Lower Gallup Sand Unit Agreement
San Juan County, New Mexico

Dear Mr. Porter:

Under date of October 9 you approved subject instrument which showed a proposed effective date of September 1, 1961, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

Similar approval was obtained from the Commissioner of Public Lands as evidenced by copy of its October 5 letter enclosed.

The United States Geological Survey also approved the Exhibit except as to the effective date which it specified to be November 1, 1961; copy of its November 6 letter enclosed.

In conformity with the United States Geological Survey's approval, commitment of the working interest in Tract No. 12 became effective November 1, 1961 and we enclose a copy of subject instrument so showing; this should be inserted in your copy of the Unit Agreement superseding Exhibit "C" heretofore in effect.

Yours very truly,

ELT:pr



State of New Mexico



Commissioner of Public Lands



E. S. JOHNNY WALKER
COMMISSIONER

P. O. BOX 791
SANTA FE, NEW MEXICO

October 5, 1961

The British-American Oil
Producing Company
P. O. Box 749
Dallas 21, Texas

Re: West Bisti Lower
Gallup Sand Unit,
San Juan County,
New Mexico

Attention: Mr. E. L. Taylor

Gentlemen:

The Commissioner of Public Lands by this letter approves the revised Exhibit "C", effective September 1, 1961, for the West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico.

The Commissioner's approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

ESW/mmrv

cc: Oil Conservation Commission
Santa Fe, New Mexico

U. S. Geological Survey
Roswell, New Mexico



IN REPLY REFER TO:

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

November 6, 1961

The British-American Oil Producing Company
P. O. Box 749
Dallas 21, Texas

Attention: Mr. E. L. Taylor

Gentlemen:

We hereby acknowledge receipt of the following ratifications and joinders to the West Bisti Lower Gallup Sand unit agreement, No. 14-08-0001-6890, New Mexico:

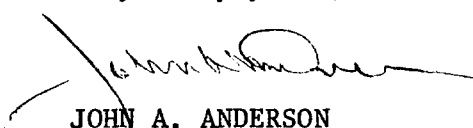
<u>Joinder To</u>	<u>Date Received</u>	<u>Executed By</u>
Unit agreement	10-3-61	Elliott, Inc., lessee and working interest owner in Federal land unit tract 12
Unit operating agreement	11-3-61	Elliott, Inc., lessee and working interest owner in Federal land unit tract 12

Federal land unit tract 12 (part of lease Santa Fe 080402) is considered effectively committed to the West Bisti Lower Gallup Sand unit agreement as of November 1, 1961.

Copies of the ratifications and joinders are being distributed to the appropriate Federal offices. All copies surplus to our needs are returned herewith.

Your Exhibit "C" revised as of September 1, 1961, is returned for revision as of November 1, 1961, to coincide with the effective date of commitment of tract 12.

Very truly yours,


JOHN A. ANDERSON

Regional Oil and Gas Supervisor

EXHIBIT C
 SCHEDULE OF TRACT PERCENTAGE PARTICIPATION
 WEST BISTI LOWER GALLUP SAND UNIT
 SAN JUAN COUNTY, NEW MEXICO

Revised as of November 1, 1961

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
<u>Navajo Tribal Land</u>				
1	T26N-R14W Sec. 13: S/2 NE/4 SE/4	240.00	14-20-603-735 11-10-54 H.B.P.	3.1631
Total Navajo Tribal Land		240.00		3.1631
<u>Federal Lands</u>				
5	T26N-R13W Sec. 27: S/2 N/2 S/2 Sec. 28: A11 Sec. 29: N/2 N/2	1280.00	SF-078091 4-1-51 H.B.P.	26.9616
6	T26N-R13W Sec. 35: N/2 SE/4 N/2 SW/4	1039.72	SF-078155 2-1-48 H.B.P.	22.9762
	T25N-R13W Sec. 1: Lots 1, 2, 3 & 4 S/2 NE/4 SE/4 Sec. 12: E/2 NE/4			
7	T26N-R13W Sec. 33: N/2 NE/4 Sec. 34: N/2 NW/4	320.00	SF-078156	7.1402

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
<u>Federal Lands (Cont'd)</u>				
13	<u>T26N-R13W</u> Sec. 26: S/2 SE/4 SW/4	240.00	SP-081028-A 3-1-51 H.B.P.	2.7990
15	<u>T26N-R13W</u> Sec. 18: S/2 SE/4 Lots 7, 8, 11 & 12 Sec. 19: NE/4 N/2 SE/4 SE/4 SE/4 Lots 1, 2, 5 & 6 Sec. 20: S/2 NE/4 S/2 NW/4	1240.00	NM-013492 4-1-54 H.B.P.	23.1259
Total Federal Land		4421.96		86.5515

State of New Mexico Land

17	<u>T26N-R13W</u> Sec. 36: NW/4 NW/4	40.00	B-4501-8 10-24-50 H.B.P.	0.3811
17-A	<u>T26N-R13W</u> Sec. 36: NE/4 NW/4	40.00	B-4501-8 10-24-50 H.B.P.	0.2419
18-A*	<u>T26N-R13W</u> Sec. 36: N/2 SE/4 SE/4 SE/4 SW/4 SW/4 NW/4	320.00	B-9707 1-17-56 H.B.P.	

18-B* T26N-R13W

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

Case # 1866

October 9, 1961

C
O
P
Y

The British-American Oil
Producing Company
P. O. Box 749
Dallas 21, Texas

Attention: Mr. E. L. Taylor

Re: West Bisti Lower Gallup
Sand Unit, San Juan
County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the revised Exhibit "C", effective September 1, 1961 for the West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

Very truly yours,

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

ALP/JEK/ig

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

C
O
P
Y

October 5, 1961

The British-American Oil
Producing Company
P. O. Box 749
Dallas 21, Texas

Re: West Bisti Lower
Gallup Sand Unit,
San Juan County,
New Mexico

Attention: Mr. E. L. Taylor

Gentlemen:

The Commissioner of Public Lands by this letter approves the revised Exhibit "C", effective September 1, 1961, for the West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico.

The Commissioner's approval is subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

ESW/nmr/v

cc: Oil Conservation Commission
Santa Fe, New Mexico

U. S. Geological Survey
Roswell, New Mexico

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

MERCANTILE DALLAS BUILDING

PRODUCTION AND ENGINEERING DEPARTMENT

VICE PRESIDENT - W. E. SCHOENECK

OPERATIONS - F. A. NORRIS

ENGINEERING - G. M. STEARNS

DRILLING ANALYSIS - W. W. MOORE

GAS AND GASOLINE - D. W. CONAWAY

JOINT INTERESTS - E. L. TAYLOR

CLERICAL - J. C. PULLIAM

DALLAS 21, TEXAS

September 29, 1961

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 749

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

Attention: Mr. A. L. Porter

Revision of Exhibit "C" of Unit Agreement
for West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico

Gentlemen:

In Order No. R-1591, the Commission approved the Unit Agreement identified above and said Unit became effective July 1, 1960.

Due to non-commitment of the working interests in three Tracts, including Tract No. 12 described as N/2 NE/4 and Lots 4, 5 and 6, Section 30-T26N-R31W, a revised Exhibit "C" was filed with the Commission under date of July 27, 1960 and superseded Exhibit "C" in the Unit Agreement as of the effective date of the Unit.

Reason for non-commitment of Tract No. 12 was that the Working Interest Owner, C. M. & W. Drilling Company, was in receivership at the time and the Trustee in Bankruptcy did not feel he had authority to commit the working interest. Subsequently, Elliott, Inc., which owned other interests within the unit area and had committed same to the Unit as of its effective date, acquired the working interest formerly owned by C. M. & W. Drilling Company in Tract No. 12 and tendered said interest for commitment to the Unit; the basic royalty interest (being Federal land) and all overriding royalty interests were committed as of the effective date of the Unit, therefore, the committed Working Interest Owners are desirous of accepting commitment of the working interest tendered by Elliott, Inc. in order to more effectively control the pressure maintenance operation being conducted in the Unit. One ratification form executed by Elliott, Inc. committing the working interest in Tract No. 12 to the Unit Agreement is enclosed.

Section 11 of the Unit Agreement provides that upon commitment, subsequent to the effective date of the agreement, of an additional Tract within the initial participating area, Unit Operator shall revise Exhibit "C" to show participation of the additionally committed Tract and new participations of the previously committed Tracts in the initial participating area, whereon the revised percentage participations of the respective Tracts which were committed prior to such revision shall

Page 2
Oil Conservation Commission
September 29, 1961

remain in the same ratio one to the other. It further provides that such revised Exhibit "C" shall supersede the last previously effective Exhibit "C" on approval of the Director, Commissioner and the Commission.

Section 11 further provides that, upon enlargement of the participating area, participation of added Tracts shall be calculated in accordance with the formula set forth in the Unit Agreement; it is therefore logical that participation of a belatedly committed Tract within the initial participating area should be recalculated utilizing the same formula. The participation formula employs two parameters, namely, original stock tank oil in place in the reservoir and oil production during a base period. The first parameter has not changed for any Tract since the Unit became effective, however, because the base period used in the oil production parameter was the months of January, February and March 1959, the Working Interest Owners in the Unit believe that a more recent base period should be used, namely, May, June and July 1961. Percentage participations shown on the enclosed revised Exhibit "C" were calculated in this manner, with the relationship of each of the previously committed Tracts in the participating area remaining the same, one to the other.

Section 11 of the Unit Agreement also provides that the effective date of any revision of the participating area may be any date justified by the Unit Operator and approved by the Director, Commissioner and the Commission. It is the desire of both the Working Interest Owner of Tract No. 12 and Working Interest Owners in heretofore committed Tracts to make commitment of Tract No. 12 effective September 1, 1961.

We enclose two copies of revised Exhibit "C" and respectfully request the Commission's approval of same, to be effective September 1, 1961. Like approval of the Director and the Commissioner is simultaneously being requested.

For use in your verification of the participation percentages shown on Exhibit "C" revised as of September 1, 1961 we enclose a copy of our letter of even date, including the tabulation mentioned in the penultimate paragraph thereof, to the Regional Oil and Gas Supervisor stating how same were calculated.

Yours very truly,

The British-American Oil Producing Company
Unit Operator of West Bisti Lower Gallup Sand Unit

By  _____

ELT:pr

CONSENT, RATIFICATION AND JOINDER TO UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
WEST BISTI LOWER GALLUP SAND UNIT AREA
SAN JUAN COUNTY, NEW MEXICO

KNOW ALL MEN BY THESE PRESENTS:

In consideration of the execution or ratification by the working interest owners and other mineral owners of the Unit Agreement dated March 4, 1960, for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, San Juan County, New Mexico, a copy of which Unit Agreement has been furnished the undersigned, reference to which is here made for all purposes, the undersigned owners of lands or interests in lands or royalties covered by said Unit Agreement hereby severally, each to the extent of its particular ownership or interest, consent to the inclusion of said owner's land and its interest therein within the Unit Area defined in the above mentioned Unit Agreement; ratify, approve and adopt the terms of the said Unit Agreement as fully as though the undersigned had executed the original Agreement; agree that the terms of any lease given by the undersigned or under which the undersigned claims an interest herein is extended and modified to the extent necessary to make the same conform to the terms of said Unit Agreement; agree that the drilling and development requirements of all leases and other contracts in which its several rights and interests are created or defined shall be deemed fully performed by the performance of the provisions of said Unit Agreement.

This consent, ratification and joinder may be executed in any number of counterparts and each executed counterpart hereof shall have the same force and effect as to the party executing the same as if each and every party signing a counterpart hereof had signed the Unit Agreement and by the execution hereof the undersigned does hereby acknowledge the incorporation hereof by reference of all of the terms and provisions of said Unit Agreement and does hereby agree to all of such terms and provisions.

This commitment is of Tract No. 12, being N/2 NE/4 and Lots 4, 5, & 6 30-26N-13W.

EXECUTED this the 22d day of September, 1961.

ATTEST:

Edna M. Elliott
Secretary

ELLIOTT, INC.
By: L. E. Elliott President

Address: Box 1355
Roswell, New Mexico

STATE OF _____)
County of _____) ss.

The foregoing instrument was acknowledged before me this _____ day of _____, 19____, by _____.

Witness my hand and official seal.

My commission expires:

Notary Public

STATE OF NEW MEXICO)
County of CHAVES) ss.

The foregoing instrument was acknowledged before me this 22d day of September, 19 61, by L. E. Elliott as President and Edna M. Elliott as Secretary of Elliott, Inc., a corporation.

Witness my hand and official seal.

My commission expires:

Nina Crane
Notary Public

Dec. 20, 1963

EXHIBIT C
SCHEDULE OF TRACT PERCENTAGE PARTICIPATION
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Revised as of September 1, 1961

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
<u>Navajo Tribal Land</u>				
1	T26N-R14W Sec. 13: S/2 NE/4 SE/4	240.00	14-20-603-735 11-10-54 H.B.P.	3.1631
Total Navajo Tribal Land		240.00		3.1631
<u>Federal Lands</u>				
5	T26N-R13W Sec. 27: S/2 N/2 S/2 Sec. 28: A11 Sec. 29: N/2 N/2	1280.00	SF-078091 4-1-51 H.B.P.	26.9616
6	T26N-R13W Sec. 35: N/2 SE/4 N/2 SW/4	1039.72	SF-078155 2-1-48 H.B.P.	22.9762
	T25N-R13W Sec. 1: Lots 1, 2, 3 & 4 S/2 NE/4 SE/4 Sec. 12: E/2 NE/4			
7	T26N-R13W Sec. 33: N/2 NE/4 Sec. 34: N/2 NW/4 NE/4	320.00	SF-078156 2-1-48 H.B.P.	7.1493
9	T26N-R13W Sec. 21: W/2 SW/4 SE/4 SW/4	120.00	SF-078932 2-1-48 H.B.P.	2.3613
9-A	T26N-R13W Sec. 21: NE/4 SW/4	40.00	SF-078932 2-1-48 H.B.P.	0.3716
10	T26N-R13W Sec. 19: Lots 3 & 4	31.45	SF-080236 7-1-48	0.0000*
11	T26N-R13W Sec. 18: Lots 9 & 10	30.79	SF-080236-A 7-1-48 H.B.P.	0.0000*
12	T26N-R13W Sec. 30: N/2 NE/4	80.00	SF-080402 4-1-51	0.8066

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
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Federal Lands (Cont'd)

13	T26N-R13W Sec. 26: S/2 SE/4 SW/4	240.00	SF-081028-A 3-1-51 H.B.P.	2.7990
15	T26N-R13W Sec. 18: S/2 SE/4 Lots 7, 8, 11 & 12 Sec. 19: NE/4 N/2 SE/4 SE/4 SE/4 Lots 1, 2, 5 & 6 Sec. 20: S/2 NE/4 S/2 NW/4	1240.00	NM-013492 4-1-54 H.B.P.	23.1259
Total Federal Land		4421.96		86.5515

State of New Mexico Land

17	T26N-R13W Sec. 36: NW/4 NW/4	40.00	E-4501-8 10-24-50 H.B.P.	0.3811
17-A	T26N-R13W Sec. 36: NE/4 NW/4	40.00	E-4501-8 10-24-50 H.B.P.	0.2419
18-A*	T26N-R13W Sec. 36: N/2 SE/4 SE/4 SE/4 SW/4 SW/4 NW/4	320.00	E-9707 1-17-56 H.B.P.	
18-B*	T26N-R13W Sec. 36: SE/4 NW/4	40.00	E-4500-3 10-24-50 H.B.P.	
18-C*	T26N-R13W Sec. 36: SW/4 SE/4	40.00	E-3148-6 12-10-49 H.B.P.	

*Tracts 18-A, 18-B and 18-C represent the total Hospah
Unit Participation

9.6624

Total State of New Mexico Land 480.00

10.2854
100.0000
Summary

Committed Tracts:

Navajo Tribal Land	240.00	3.1631
Federal Land	4,359.72	86.5515
State of New Mexico Land	480.00	10.2854
Total Committed Tracts	5,079.72	100.0000

*Uncommitted Tracts:

Federal Land	62.24	0.0000
Total Participating Area	5,141.96	100.0000

EXHIBIT C
SCHEDULE OF TRACT PERCENTAGE PARTICIPATION
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Revised as of September 1, 1961

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
<u>Navajo Tribal Land</u>				
1	T26N-R14W Sec. 13: S/2 NE/4 SE/4	240.00	14-20-603-735 11-10-54 H.B.P.	3.1631
Total Navajo Tribal Land		240.00		3.1631
<u>Federal Lands</u>				
5	T26N-R13W Sec. 27: S/2 N/2 S/2 Sec. 28: A11 Sec. 29: N/2 N/2	1280.00	SF-078091 4-1-51 H.B.P.	26.9616
6	T26N-R13W Sec. 35: N/2 SE/4 N/2 SW/4	1039.72	SF-078155 2-1-48 H.B.P.	22.9762
	T25N-R13W Sec. 1: Lots 1, 2, 3 & 4 S/2 NE/4 SE/4 Sec. 12: E/2 NE/4			
7	T26N-R13W Sec. 33: N/2 NE/4 Sec. 34: N/2 NW/4 NE/4	320.00	SF-078156 2-1-48 H.B.P.	7.1493
9	T26N-R13W Sec. 21: W/2 SW/4 SE/4 SW/4	120.00	SF-078932 2-1-48 H.B.P.	2.3613
9-A	T26N-R13W Sec. 21: NE/4 SW/4	40.00	SF-078932 2-1-48 H.B.P.	0.3716
10	T26N-R13W Sec. 19: Lots 3 & 4	31.45	SF-080236 7-1-48	0.0000*
11	T26N-R13W Sec. 18: Lots 9 & 10	30.79	SF-080236-A 7-1-48 H.B.P.	0.0000*
12	T26N-R13W Sec. 30: N/2 NE/4	80.00	SF-080402 4-1-51 H.B.P.	0.8066

<u>Tract Number</u>	<u>Description</u>	<u>No. of Acres</u>	<u>Serial No. and Date of Lease or Application</u>	<u>Percentage Participation</u>
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Federal Lands (Cont'd)

13	T26N-R13W Sec. 26: S/2 SE/4 SW/4	240.00	SP-081028-A 3-1-51 H.B.P.	2.7990
15	T26N-R13W Sec. 18: S/2 SE/4 Lots 7, 8, 11 & 12 Sec. 19: NE/4 N/2 SE/4 SE/4 SE/4 Lots 1, 2, 5 & 6 Sec. 20: S/2 NE/4 S/2 NW/4	1240.00	NM-013492 4-1-54 H.B.P.	23.1259
Total Federal Land		4421.96		86.5515

State of New Mexico Land

17	T26N-R13W Sec. 36: NW/4 NW/4	40.00	E-4501-8 10-24-50 H.B.P.	0.3811
17-A	T26N-R13W Sec. 36: NE/4 NW/4	40.00	E-4501-8 10-24-50 H.B.P.	0.2419
18-A*	T26N-R13W Sec. 36: N/2 SE/4 SE/4 SE/4 SW/4 SW/4 NW/4	320.00	E-9707 1-17-56 H.B.P.	
18-B*	T26N-R13W Sec. 36: SE/4 NW/4	40.00	E-4500-3 10-24-50 H.B.P.	
18-C*	T26N-R13W Sec. 36: SW/4 SE/4	40.00	E-3148-6 12-10-49 H.B.P.	

*Tracts 18-A, 18-B and 18-C represent the total Hoshpah
Unit Participation

9.6624

Total State of New Mexico Land 480.00

10.2854
100.0000
Summary

Committed Tracts:

Navajo Tribal Land	240.00	3.1631
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State of New Mexico Land	480.00	10.2854
Total Committed Tracts	5,079.72	100.0000

*Uncommitted Tracts:

Federal Land	62.24	0.0000
Total Participating Area	5,141.96	100.0000

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

MERCANTILE DALLAS BUILDING

PRODUCTION AND ENGINEERING DEPARTMENT
VICE PRESIDENT - W. E. SCHOENECK

DALLAS 21, TEXAS

OPERATIONS - F. A. NORRIS
ENGINEERING - G. M. STEARNS
DRILLING ANALYSIS - W. W. MOORE
GAS AND GASOLINE - D. W. CONAWAY
JOINT INTERESTS - E. L. TAYLOR
CLERICAL - J. C. PULLIAM

September 29, 1961

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 749

Mr. John Anderson
Regional Supervisor
United States Geological Survey
P. O. Box 6721
Roswell, New Mexico

Revision of Exhibit "C" as of September 1, 1961
of Unit Agreement for West Bisti Lower Gallup
Sand Unit (Your Designation No. 14-08-0001-6890)
San Juan County, New Mexico

Dear Sir:

Transmitted herewith for your further handling is a letter to the Director submitting revised Exhibit "C" of subject agreement for his approval.

Under date of December 29, 1959 our District Engineer furnished you, among other data, a tabulation designated Calculation of Participation Parameters and Formula (Nov. 6, 1959 Revision); this tabulation includes the two stock tank oil in place parameters for the 80 acres of present Tract No. 12 (Tract No. 7 at that time) in the initial participating area.

Under date of August 5, 1960 the writer furnished you a similar tabulation designated Revised Calculation of Participation Parameters and Formula (Rev. 6-27-60); this tabulation shows the parameters used and the resulting participation percentages for committed Tracts in the initial participating area as of the effective date of the Unit.

Enclosed are 6 copies of the tabulation mentioned in the preceding paragraph, revised 9-1-61. This tabulation shows the same stock tank oil in place figures as before, to which have been added like figures for Tract No. 12 as taken from the tabulation mentioned in the second preceding paragraph; current oil production figures shown in total for originally committed Tracts are, however, different due to use of a later base period. Oil production figures for Tract No. 12 for the same later base period have been added.

You will find that participation of all Tracts on Exhibit "C" revised as of September 1, 1961 have been calculated in accordance with procedure set forth in the enclosed letter to the Director.

Yours very truly,



ELT:pr

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

Case # 1866

July 3, 1961

C
O
P
Y

The British-American Oil Producing Co.
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hegan

Re: West Bisti Lower Gallup Sand
Unit San Juan County, New Mexico

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has approved the conversion of WBU Well No. 58 to a water injection well, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico, the effective date of this approval being June 20, 1961.

Very truly yours,

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

ALP/JEK/ig

cc: US Geological Survey, Roswell, New Mexico
Commissioner of Public Lands, Santa Fe, New Mexico



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico

IN REPLY REFER TO:

RECEIVED

JUN 19 1961

O.C.C.
ARTESIA OFFICE

June 15, 1961

The British American Oil Producing Company
P.O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Gentlemen:

Your supplemental plan of development and operation dated May 10, 1961, for the West Bisti Lower Gallup Sand unit agreement, San Juan County, New Mexico, which proposes the conversion of unit well No. 58 in the NE 1/4 sec. 13, T. 26 N., R. 14 W., N.M.P.M., to a water injection well, has been approved on this date subject to like approval by the appropriate State officials.

Very truly yours,

(Orig. Sgd.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Copy to: Washington (w/reproduced cy of plan)
Farmington (w/reproduced cy of plan)
NMOCC, Santa Fe (ltr. only)

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

DENVER CLUB BUILDING

DENVER 1, COLORADO

PRODUCTION & ENGINEERING DEPT.

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 180

May 10, 1961

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

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

Re: West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico

Gentlemen:

The British-American Oil Producing Company is the Operator of the West Bisti Lower Gallup Sand Water Flood Project. By Order No. R-1638 dated March 24, 1960, approval was given to The British-American Oil Producing Company to inject water into the Lower Gallup Sands in the West Bisti Field. Approval was given to inject water into seventeen (17) wells within this project area. One of these wells was the British-American Navajo No. 3 (WBU #58) located in the C NE SE Section 13-T26N-R14W. A hiatus exists between Section 13-T26N-R14W and Section 18-T26N-R13W. A well was drilled on this strip and the owner did not elect to join the Unit. Therefore, the Unit elected not to initially inject water into British-American's Navajo No. 3 (WBU #58). The Unit now believes it would be beneficial to inject water into WBU #58 as originally proposed and approved by the Regulatory Bodies. It is herein requested that you approve of our plan to convert WBU #58 into a water injection well for the purpose of recovering additional secondary oil in this area of the project.

The Initial Plan of Development of May 19, 1960 stated our intentions of injecting 12,000-16,000 BWPd into the Lower Gallup Sand. We are presently injecting approximately 12,000 BWPd into this reservoir. High injection pressures have been encountered in some of the injection wells. Therefore, we propose to install an additional triplex water injection pump and equipment in the main plant. We also propose other modifications in the plant. This will allow the injection of an additional 2,500 BWPd at a maximum plant injection pressure of 1,480 psig. Present conditions limit the injection pressure at the plant to 1,200 psig. The addition of one more injection pump unit and other modifications will allow a total volume of approximately 14,500 BWPd which will still be below the 16,000 BWPd maximum figure stated in our Initial Plan.

Very truly yours,

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Thomas M. Hogan
Thomas M. Hogan
District Superintendent

WR/flc
cc: Dallas P&E Dept.
N. R. Stone

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

DENVER CLUB BUILDING

DENVER 1, COLORADO

PRODUCTION & ENGINEERING DEPT.

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 180

June 20, 1961

*File 101
June 30.*

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

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

Re: West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico

Gentlemen:

Please refer to our letter of May 10, 1961, on this subject, in which your approval was requested for our plan to convert WBU #58 into a water injection well for the purpose of recovering additional secondary oil in this area of the project.

We have received approval from the working interest owners, the Commissioner of Public Lands for the State of New Mexico, the Regional Oil and Gas Supervisor for the U.S.G.S., and will appreciate very much receiving your approval as soon as possible.

Very truly yours,

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Thomas M. Hogan
Thomas M. Hogan
District Superintendent

AHH:ls

cc: Mr. Fred A. Norris
Mr. N. R. Stone

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

March 22, 1961

**The British American Oil Producing Co.
P. O. Box 180
Denver 1, Colorado**

Attention: Mr. Thomas M. Hogan

**Re: 1961 Plan of Development
and Operation West Bisti
Lower Gallup Sand Unit
San Juan County, New Mexico.**

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1961 Plan of Development and Operation for the West Bisti Lower Gallup Sand Unit San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the plan is returned herewith.

Very truly yours,

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

ALP/JEK/ig

**cc: Commissioner of Public Lands
Santa Fe, New Mexico**

**U. S. Geological Survey
Roswell, New Mexico**



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O. Box 6721
Roswell, New Mexico

February 28, 1961

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Gentlemen:

Your plan of development and operation for 1961, dated December 30, 1960, for the West Bisti Lower Gallup Sand unit 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

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Copy to: Washington (w/cy of plan)

Farmington (w/cy of plan)
MDOCC, Santa Fe (ltr. only)

7

In reply refer to:
Unit Division

February 25, 1961

C
O
P
Y

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Re: 1961 Plan of Development
and Operation
West Bisti Lower Gallup
Sand Unit

Attention: Mr. Thomas M. Hogan

Gentlemen:

The Commissioner of Public Lands by this letter, and as of this date, approved your additional Plan of Development and Operation, West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico. This Plan having been submitted pursuant to Section 10, Paragraph 2 of the Unit Agreement.

Very truly yours,

E. S. JOHNNY WALKER
COMMISSIONER OF PUBLIC LANDS

ESW/mmr/s
cc: US Geological Survey
Roswell, New Mexico

Oil Conservation Commission
Santa Fe, New Mexico

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

DENVER CLUB BUILDING

DENVER 1, COLORADO

PRODUCTION & ENGINEERING DEPT.

ADDRESS ALL CORRESPONDENCE TO
POST OFFICE BOX 180

December 30, 1960

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

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

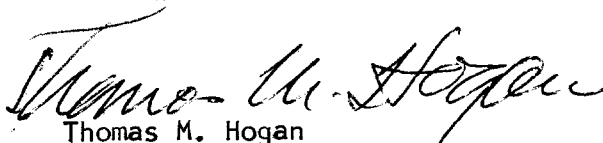
Re: Additional Plan of Development and Operation
West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico

Gentlemen:

Pursuant to Section 10, Paragraph 2, "Plan of Future Development and Operation", of the Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, the British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation for 1961.

Very truly yours,

THE BRITISH-AMERICAN OIL PRODUCING COMPANY,
Unit Operator of the West Bisti Lower Gallup
Sand Unit


Thomas M. Hogan
District Superintendent

TMH:ls

Attachments (2)

THE BRITISH-AMERICAN OIL PRODUCING COMPANY

Denver Club Building
DENVER 1, COLORADO

Production & Engineering Dept.

Address All Correspondence To
Post Office Box 180

December 30, 1960

PLAN OF DEVELOPMENT AND OPERATION FOR 1961
WEST BISTI LOWER GALLUP SAND UNIT
SAN JUAN COUNTY, NEW MEXICO

Pursuant to Section 10, Paragraph 2, "Plan of Further Development and Operation," of the Unit Agreement for the development and operation of the West Bisti Lower Gallup Sand Unit area, County of San Juan, State of New Mexico, The British-American Oil Producing Company, Operator of the West Bisti Lower Gallup Sand Unit, respectfully submits for your consideration and approval the Plan of Development and Operation For 1961.

The present status of Lower Gallup Sand wells is 46 wells producing and 15 water injection wells for a total of 61 wells within the participating area under unit operations. Riddle's #1 well (vacancy strip), which is located in a hiatus along the west side of Section 18-T26N-R13W, has not been committed to the Unit; therefore, it is not included in the Unit operations. Efforts will be made during 1961 to include this well in the Unit.

All West Bisti Unit wells were renumbered with WBU numbers for producing wells and WIW numbers for water injection wells.

British-American's Navajo #2, WBU #59, located SW SE Section 13-T26N-R14W, and Navajo #3, WBU #58, located NE SE Section 13, were originally recommended and approved to be water injection wells. However, since the Riddle vacancy well is not in the Unit, it is not advisable to use these two wells as water injection wells.

Water injection into the main part of the West Unit was commenced on October 2, 1960. During October, an average of 12,141 BWPd was injected into the Lower Gallup Sand. Water injection was commenced into the barrier system between the West Bisti Unit and the Central Bisti Unit in August, 1959. A grand total of 849,623 barrels of water has been injected into the entire West Unit.

Oil production from the 46 producing wells averaged 2,532 BOPd and 36 BWPd in October, 1960. Cumulative oil production from all West Unit wells was 4,169,840 barrels of oil as of November 1, 1960.

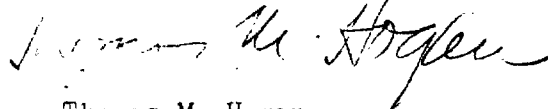
Three water supply wells have been drilled and equipped to produce water from the Lower Allison-Menefee formation at approximately 2,600' total depth. Water Supply Well #2 is located 2,200' FSL and 1,400' FEL of Section 28; Water Supply Well #3 is located C SE SW NE of Section 35; and Water Supply Well #4 is located in the SE/4 of Section 27-T26N-R13W, San Juan County, New Mexico. Each well is capable of producing 6,000 BWPd; therefore, the water capacity is greater than the required injection volume.

The main plant was constructed near the Center of the E/2 of Section 28. It is a two-pump engine installation capable of injecting 10,000 BWPd at 1,200 psig surface pressure. The barrier injection plant was constructed near the Center of Section 35. It is a one-pump engine installation capable of injecting 5,000 BWPd at 1,200 psig.

All equipment has been installed per previously approved plans using cement lined injection lines and plastic coated tubing in the injection wells.

It is proposed to study the feasibility of installing IACT equipment, electrification, and consolidation of equipment during 1961 and to make appropriate recommendations. No additional oil producing wells are anticipated within the Unit participating area. No additional water supply wells are anticipated. However, it could be necessary to drill additional water supply wells if the capacity to produce water declines.

THE BRITISH-AMERICAN OIL PRODUCING COMPANY,
UNIT OPERATOR, WEST BISTI LOWER GALLUP SAND UNIT



Thomas M. Hogan
District Superintendent

Approved... *March 22* ... 1961

A. C. Porter
Secretary-Director

FILED UNDER THE DEPARTMENT OF COMMERCE

MAILING LIST

WEST BISTI LOWER GALLUP SAND UNIT OPERATORS

Benson-Montin-Greer Drilling Corp.
Attn: Mr. Jack London, Jr.
2808 First National Building
Oklahoma City 2, Oklahoma

Benson-Montin-Greer Drilling Corp.
Attn: Mr. A. R. Greer
405-1/2 West Broadway
Farmington, New Mexico

Phillips Petroleum Company
Attn: Mr. Jack Tarnier
Phillips Building
Bartlesville, Oklahoma

Skelly Oil Company
Attn: Mr. D. E. Smith
P. O. Box 1650
Tulsa, Oklahoma

Skelly Oil Company
Attn: Mr. H. E. Aab
P. O. Box 426
Farmington, New Mexico

Mr. H. K. Riddle
P. O. Box 1985
Salt Lake City 10, Utah

Elliott, Inc.
Attn: Mr. Frank O. Elliott
P. O. Box 5669
Roswell, New Mexico

Honolulu Oil Corporation
Attn: Mr. F. C. Edwards (3)
P. O. Drawer 1391
Midland, Texas

Honolulu Oil Corporation
Attn: Mr. Neal J. Harr
P. O. Box 1410
Farmington, New Mexico

El Paso Natural Gas Products Company
Attn: Mr. R. L. Hamblin
P. O. Box 1161
El Paso, Texas

El Paso Natural Gas Products Co.
Mr. M. L. Ayers
P. O. Box 1161
El Paso, Texas

El Paso Natural Gas Products Co.
Mr. James C. Vandiver
P. O. Box 1560
Farmington, New Mexico

Brookhaven Oil Company
P. O. Box 396
Scottsdale, Arizona

Mr. John F. Sullivan
3825 Willat Avenue
Culver City, California

Mr. T. Jack Foster
P. O. Box 3656
Oklahoma City, Oklahoma

Shiprock Industries, Inc.
Attn: Mr. F. T. Anderson
2000 National Bank of Tulsa Bldg.
Tulsa 3, Oklahoma

Mr. Edward Arcaro
c/o Sullivan Hill Associates
3825 Willat Avenue
Culver City, Oklahoma

The British-American Oil Producing Company
Production & Engineering Department
P. O. Box 749
Dallas, Texas

MAIN OFFICE OCC

In reply refer to:
Unit Division

1960 JUN 7 AM 8:05

Case # 1866

June 6, 1960

**The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado**

**Re: Initial Plan of Development and
Operation for 1960
West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico**

ATTENTION: Mr. Thomas M. Hogan

Gentlemen:

The Commissioner of Public Lands has approved your Initial Plan of Development for 1960 for the West Bisti Lower Gallup Sand Unit Area as required under Section 10 of the unit agreement. This approval was made as of June 6, 1960.

We are returning one copy to you. Please furnish us with another copy when this has been approved by the United States Geological Survey.

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

**BY:
Ted Bilberry, Supervisor
Oil and Gas Division**

**MEM/WM/s
cc:**

**USGS- Roswell
OGG-Santa Fe**



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

1960 JUN 7 P. O. Box 6721
Roswell, New Mexico

June 3, 1960

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Gentlemen:

Your initial plan of development dated May 19, 1960, covering operations under the West Bisti Lower Gallup Sand unit agreement, San Juan County, New Mexico, was approved on this date subject to like approval by the Commissioner of Public Land and the New Mexico Oil Conservation Commission.

Three approved copies of the plan are returned herewith.

Very truly yours,

(OFF. FILE) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

Enclosures

Copy to: Wash. (w/ copy of plan)
Farmington (w/ copy of plan)
BUREAU (ltr only)
7 Conn. Pub. Lands (ltr only)

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

May 24, 1960

C
O
P
Y

The British-American Oil Producing Company
P. O. Box 180
Denver 1, Colorado

Attention: Mr. Thomas M. Hogan

Re: 1960 Plan of Development
and Operation, West Bisti
Lower Gallup Sand Unit, San
Juan County, New Mexico.

Gentlemen:

This is to advise that the New Mexico Oil Conservation Commission has this date approved the 1960 Plan of Development and Operation for the West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands of the State of New Mexico.

One approved copy of the plan is returned herewith.

Very truly yours,

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

ALP/JEK/pj

cc: State Land Office - Santa Fe

United States Geological Survey - Roswell

May 19, 1960

New Mexico Oil Conservation Commission
Mr. A. L. Porter, Jr., Secretary-Director
P. O. Box 871
Santa Fe, New Mexico

Initial Plan of Development and Operation
West Bisti Lower Gallup Sand Unit
San Juan County, New Mexico

Dear Sir:

Pursuant to Section 10, "Plan of Further Development and Operation", of Unit Agreement for the Development and Operation of the West Bisti Lower Gallup Sand Unit Area, County of San Juan, State of New Mexico, The British-American Oil Producing Company, Unit Operator thereunder, respectfully submits for your consideration and approval this Initial Plan of Development and Operation for 1960. Attached Exhibit No. 1 is a plat showing the unit area and pertinent facilities discussed herein.

History of Development

The Lower Gallup Sand Reservoir is a stratigraphic trap composed of three zones of the Lower Gallup Sandstone of Cretaceous Age found at a depth of approximately 4900'. Exhibit No. II is a typical electric log on which the three zones are identified. The first zone is a fine to coarse grained sandstone with porosity averaging 14.9%, permeability ranging from 0.1 to 375 md. with an average of approximately 31 md., and an average water saturation of approximately 28.1%. The second zone is a fine grained, dirty sandstone with an average permeability of 1.74 md., average porosity of 9.3% and average water saturation of 31.7%. The third zone is a fine grained, dirty sandstone with an average permeability of 2.7 md., average porosity of 9.6%, and average water saturation of 35.8%. Exhibit No. III is a microlog isopachous map of zone I which exists throughout the participating area of West Bisti Unit. Effective porosity in the second and third zones exists primarily in the eastern portion of the proposed participating area. The present status of Lower Gallup Sand wells in the participating area is 59 producing, 1 former oil producer now shut down because of uneconomical operation, 1 former oil producer used as a gas injection well

for the approximately eight months ending 12-30-59 but now shut in due to high gas saturation in the immediate area of the well bore, and 2 former oil producers now being used for water injection; and in the Unit Area but not in the participating area is 2 producing and 1 former oil producer now shut down because of uneconomical operation. All wells are open in the first zone, most wells in the east half of participating area are also open in the third zone, and certain wells in the east end and center of the participating area are open in all three zones.

The east boundary of this Unit is common with the west boundary of the Central Bisti Lower Gallup Sand Unit in which pressure maintenance operations by injection of LPG and gas commenced during July, 1959. A boundary line agreement has been entered into by the two Units whereunder water is being injected into the Lower Gallup Sand to minimize net migration of hydrocarbons between Units. Injection is at the average rate of 700 BWPD with surface pressures of less than 900 psi into each of 5 wells located as follows:

- 5' SE of NW Corner of Section 6-25N-12W
- C SW NW 6-25N-12W
- C NE SE 1-25N-13W
- C SW SW 6-25N-12W
- C NE NE 12-25N-13W

Production from the 59 wells in the participating area during November 1959 averaged 4518 BOPD, 31 BWPD, and 3500 MCF casinghead gas per day. Cumulative oil produced therefrom as of November 30, 1959 was 2,723,111 barrels. Casinghead gas is being sold for consumption. The Lower Gallup Sand Reservoir has been produced primarily under a depletion drive mechanism, which is an inefficient method. Ultimate recovery by primary method is estimated to be 6,320,000 S.T.B.O. or about 14.45% of the original oil in place.

Water flood susceptibility tests were run on core samples which were representative of the range of permeability found in the West Bisti Unit. These tests indicated that a large amount of secondary oil can be recovered from the West Bisti Lower Gallup Sand Reservoir. The average recovery factor indicated by these tests for a flood with an estimated 70% vertical and 65% horizontal sweep efficiency, was 30.0% of the original oil in place.

Future Plan of Operation

Based on present reservoir voidage, it is desired to inject approximately 12,000-16,000 BWPD to maintain the reservoir pressure in all three zones

It is proposed to convert 17 wells to water injection utilizing every 5th row of wells as shown on Exhibit No. 1. Initial results from the five barrier wells indicate that the proposed injection wells will be sufficient to inject the desired quantity of water. However, should injection into the proposed wells fall appreciably below 12,000 barrels per day, additional wells will be converted to water injection; although, in no event will water be injected at pressures in excess of critical breakdown pressures of the Lower Gallup Sand. Each of these injection wells will be equipped with plastic coated tubing with a retrievable packer to isolate the annulus. The mandrel and other exposed parts of the packer will be plastic coated.

A total of three water supply wells will be drilled and completed, with possibly a fourth, in the Lower Allison-Menefee formation at approximately 2600' TD. Two of these wells have been drilled and completed, and one has production equipment installed. WSW #2 is located 2200' FSL and 1400' FEL of Section 28-26N-13W, and WSW #3 is located C SE SW NE, Section 35-26N-13W. We propose to drill WSW #4 in the SE/4 of Section 27-26N-13W. WSW's #2 and #3 each tested in excess of 8,000 BWP and each is capable of producing 6,000 BWP.

Water injection station No. 1, located near the center of Section 35-26-13W, which is now pumping water into the boundary wells will continue in use; another and larger, designated as water injection station No. 2, will be constructed near the center of Section 28-26N-13W. The system will consist of adequate injection pumps with engines and accessory equipment to inject a sustained minimum rate of approximately 12,000 BWP into the reservoir.

The injection lines have been sized to give, as nearly as possible, no more than 200 psi pressure drop from the plant to the injection wells when carrying approximately 800 BWP per injection well. Cement lined pipe will be used to prevent corrosion.

It is planned to proceed immediately after the effective date of the Unit with development of the water supply and injection system, and well conversions as set forth in this plan.

Your approval of this proposed plan is solicited.

Yours very truly,

The British-American Oil Producing Company
as Unit Operator of the
West Bisti Lower Gallup Sand Unit

By Thomas M. Hogan, Jr.
Thomas M. Hogan, District Superintendent
P. O. Box 180
Denver 1, Colorado

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

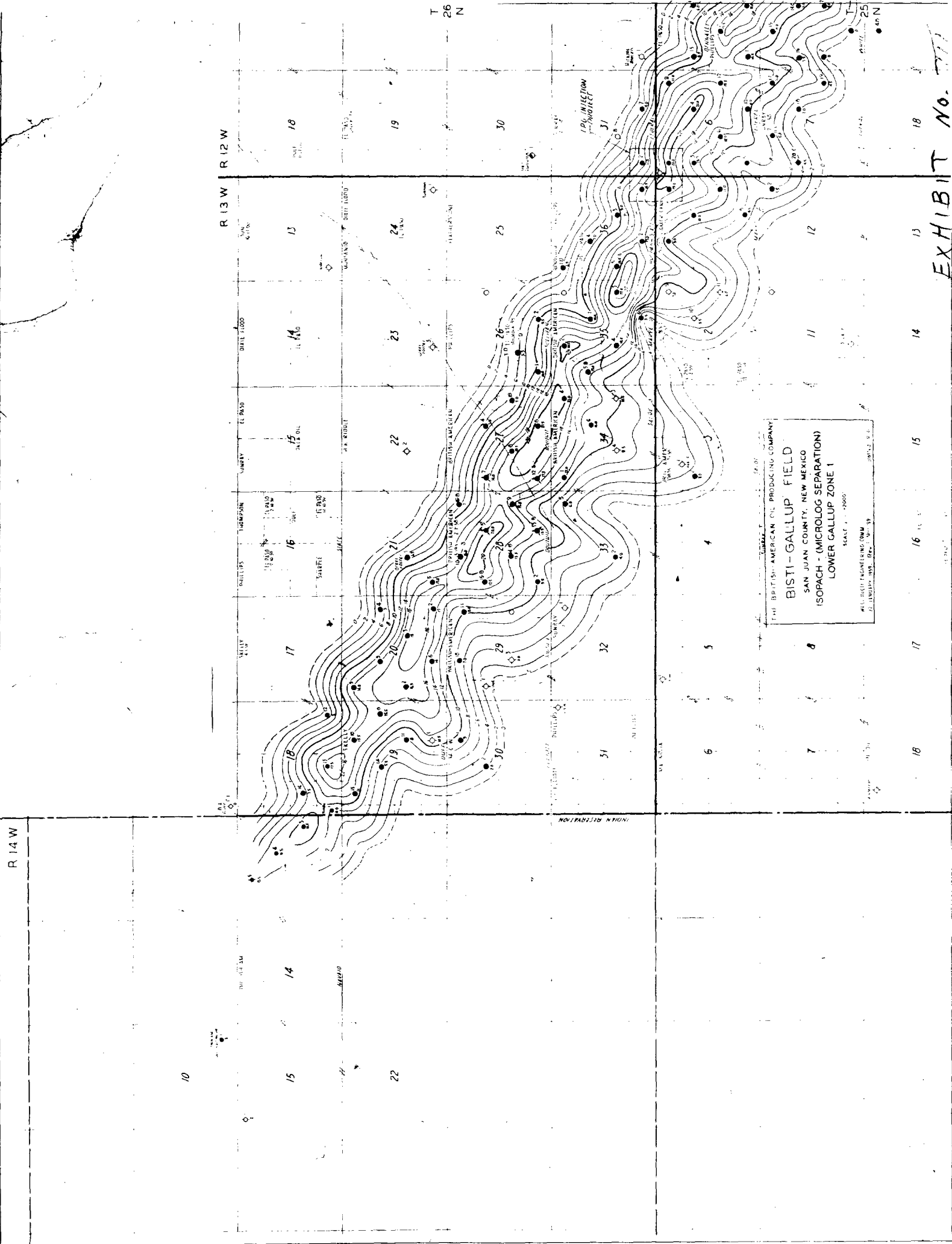


Electrical Log

COUNTY <u>SAN JUAN, N.M.</u> FIELD or LOCATION <u>WILDCAT</u> WELL <u>MARYE #1</u> COMPANY <u>BRITISH AMERICAN OIL PRODUCING CO.</u>	COMPANY <u>BRITISH AMERICAN</u>	Location of Well
	<u>OIL PRODUCING CO.</u>	<u>600' FR N/L</u> <u>600' FR E/L</u> <u>SEC. 1-25N-13W</u>
	WELL <u>MARYE #1</u>	
	FIELD <u>WILDCAT</u>	<u>ES</u> <u>(ML-LL)</u>
	LOCATION <u>SEC. 1-25N-13W</u>	
	COUNTY <u>SAN JUAN,</u>	Elevation: D.F. <u>6187'</u> K.B. <u>6189'</u> or G.L. <u>6179'</u>
	STATE <u>NEW MEXICO</u>	FILING No. _____

RUN No.	ONE	TWO			
Date	3/7/56	3/12/56			
First Reading	4751	5004			
Last Reading	232	4751			
Feet Measured	4519	253			
Csg. Schlum.	232	---			
Csg. Driller	229	229			
Depth Reached	4752	5005			
Bottom Driller	4746	5000			
Depth Datum	K.B.	K.B.			
Mud Nat.	GEL-CHEM	GEL-			
" Density	9.9	9.6			
" Viscosity	73	78			
" Resist.	2.3@45°F	2.8@42°F	@ °F	@ °F	@ °F
" Res. BHT	1.0@115°F	1.1@120°F	@ °F	@ °F	@ °F
" pH	8.5@ °F	8.5@ °F	@ °F	@ °F	@ °F
" Wtr. Loss	9.0 CC 30 min.	7.0 CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.
Max. Temp. °F	115	120			
Bit Size	8 3/4"	8 3/4"			
Spcgs.—AM	16"	16"			
A M'	64"	64"			
AO	18'8"	18'8"			
Opr. Rig Time	---	1 HR.			
Truck No.	1773 FARM	1786 FARM			
Recorded By	COX	MONTGOMERY			
Witnessed By	CALLAHAN	RUCKER			

EXHIBIT No. II



In reply refer to:
Unit Division

April 12, 1960

Case # 1866

C
O
P
Y
The British-American Oil
Producing Company
P. O. Box 749
Dallas 21, Texas

Re: West Bisti Lower Gallup
Sand Unit
San Juan County, New Mexico

Gentlemen:

The Commissioner of Public Lands approved your West Bisti Lower Gallup Sand Unit, San Juan County, New Mexico, as of April 12, 1960, and we are handing Mr. George B. Judd, seventeen copies of our certificate of approval.

Your Official Receipt in the amount of \$145.00, which covers the filing fee, will be mailed to you as soon as it is processed.

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

In reply refer to:
Unit Division

January 21, 1960

1866

Mr. E. L. Taylor
The British-American Oil
Producing Company
P. O. Box 749
Dallas 21, Texas

Re: Proposed West Bisti Lower
Gallup Sand Unit
San Juan County, New Mexico

Dear Mr. Taylor:

In reply to your letter of January 18, 1960 please be advised that your proposed Bisti Lower Gallup Sand Unit has been approved as to form and context.

We note the inclusion of two additional wells within the participating area.

We will personally attend the hearing on January 27th.

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

BY:
Marian M. Rhea, Supervisor
Unit Division

MEM/MMR/m
cc:

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

LAW OFFICES OF
MODRALL, SEYMOUR, SPERLING, ROEHL & HARRIS

SIMMS BUILDING

P. O. BOX 466

ALBUQUERQUE, NEW MEXICO

TELEPHONE CHAPEL 3-4514

April 8, 1960

JOHN F. SIMMS (1885-1954)

J. R. MODRALL
AUGUSTUS T. SEYMOUR
JAMES E. SPERLING
JOSEPH E. ROEHL
GEORGE T. HARRIS
DANIEL A. SISK

LELAND S. SEDBERRY
BURNS H. ERREBO
ALLEN C. DEWEY
FRANK H. ALLEN

New Mexico Oil
Conservation Commission
Post Office Box 871
Santa Fe, New Mexico

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

Re: Case No. 1866
Order No. R-1591

Gentlemen:

The Commission, by the above order, approved the unit agreement for the development and operation of the West Bisti - Lower Gallup Sand Unit Area, as presented at the hearing on January 27, 1960.

The British American Oil Producing Company now advises me that certain minor changes in the unit agreement as approved have been made, primarily at the request of the United States Geological Survey. Enclosed is the final draft of the unit agreement, incorporating these changes, and also enclosed are copies of pages 11, 12, 14, 22, 23, 24 and 29 which show such changes written in.

In addition to the changes requested by the U.S.G.S., the following additional changes have been made as follows:

Index, page (i) - Erroneous page number on which Section 12 commences has been corrected.

Text, page 1 - Date of the agreement has been changed to reflect the date USGS preliminary approval was received.

*Case
file
1866*

*Letter written
4/21/60 stating that
these changes are
minor and
another hearing
not necessary
JFP*

Oil Conservation Commission
April 8, 1960
Page 2

Execution and Acknowledgment pages following
page 35 - rewritten for conciseness.

Certificate of Approval - rewritten to show
the date of the Unit Agreement, and to pro-
vide for execution in 1960.

Exhibits "A", "B", and "C" have been revised
to show more recent ownership, some subdivision
of tracts and renumbering of most tracts.
Neither the unit area, participating area,
nor tract participation percentages have
been changed.

It is my opinion that the changes which have been
made are minor, and that the agreement as modified is
substantially the same as approved by the Commission, and
that therefore, Order No. R-1591 approves the plan of unit
operation set forth in the revised agreement.

I would appreciate your writing me to this
effect if you so find, so that the question of any further
hearing for approval may be eliminated. I discussed this
matter with Mr. Oliver Payne, and he suggested that this
information be forwarded to you for your examination.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Burns H. Errebo", with a stylized, flowing script.

Burns H. Errebo

BHE/b
enclosures
cc Mr. E. L. Taylor
British American
Mercantile Dallas Building
Dallas 21, Texas

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

February 8, 1960

**Mr. Burns Errebo
P. O. Box 466
Simms Building
Albuquerque, New Mexico**

Dear Mr. Errebo:

On behalf of your clients, British American and Val R. Reese, we enclose two copies each of Order R-1591 in Case 1866 and Order R-1593 in Case 1874 issued by the Oil Conservation Commission this date.

Very truly yours,

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

ir/

Enclosures

C
O
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Y

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a fast telegram	
TELEGRAM	
DAY LETTER	
NIGHT LETTER	

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WESTERN UNION

TELEGRAM

1213 (7-58)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	
LETTER TELEGRAM	
SHORE-SHIP	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			BENSON-MONTIN-GREER DRILLING CORP.	

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

To **A. L. PORTER JR.** 1 - 26 - 1960

Street and No. **NEW MEXICO OIL CONSERVATION COMMISSION**
 Care of or
 Apt. No. _____ Destination **SANTA FE, NEW MEXICO**

**REGARDING CASE NO. 1867 BRITISH-AMERICAN'S APPLICATION FOR APPROVAL OF
 PRESSURE MAINTENANCE PROJECT IN THE BISTI LOWER GALLUP FORMATION AND
 INCORPORATION OF FIELD RULES, BENSON-MONTIN-GREER DRILLING CORP.**

**CONCURS IN THIS APPLICATION STOP WE BELIEVE THAT ESTABLISHMENT OF
 ALLOWABLES AND TRANSFER OF ALLOWABLES AS HEREIN REQUESTED ARE IN ACCORD
 WITH THE PRINCIPLES AND BENEFITS TO BE DERIVED FROM UNITIZATION STOP
 WE THEREFORE URGE THE COMMISSION TO APPROVE BRITISH-AMERICAN'S
 APPLICATION IN THIS CASE.**

**BENSON-MONTIN-GREER DRILLING CORP.
 ALBERT R. GREER**

Senders's name and address (For reference)

Sender's telephone number