

APR 3 1969

LAW OFFICES
GEORGE H. HUNKER, JR.
418 HINKLE BUILDING
ROSWELL, NEW MEXICO

505 622-3405

POST OFFICE BOX 2086

April 2, 1969

Mr. A. L. Porter, Jr.
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Elvis A. Utz,
Examiner

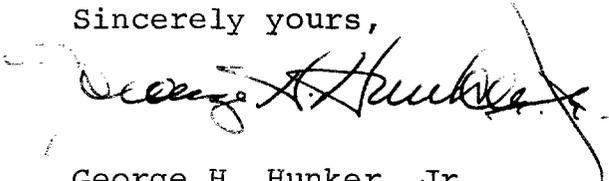
Re: Case No. 4081
Brushy Draw Deep Unit

Gentlemen:

In connection with the above case, I hand you here-
with five additional copies of the petitioner's exhibits
1 through 5. Will you please mark these exhibits and
place them in your file.

As soon as the Unit Agreement has been approved by
the U.S.G.S., we will notify your office and furnish you
with a copy of the agreement as required. Please let me
hear from you at an early date.

Sincerely yours,


George H. Hunker, Jr.

GHH:cd
Encl.

cc: Mr. Curtis Hankamer
714 Houston Bank & Trust Building
Houston, Texas 77002

JOSEPH W. MARSHALL
EXPLORATION CONSULTANT
6 FIVE HUNDRED ILLINOIS BUILDING
MIDLAND, TEXAS 79701

P. O. Box 4216

February 6, 1969

Mr. Curtis Hankamer, President
Great Southwest Oil and Gas Company
714 Houston Bank and Trust Building
Houston, Texas 77002

Dear Sir:

Enclosed please find:

1. Structure map, Top Delaware Limestone
2. Structure map, Top Devonian Limestone
3. Shot Point map, Seismic Survey
4. Copy of Sonic-Gamma Ray Log of Hankamer
No. 1 Gulf-Federal, discovery well in
the Brushy Draw Delaware (Bell Canyon)
sandstone field.

RECOMMENDATION

It is proposed that a well be drilled, not to exceed 16,000 feet, to test the Devonian formation which is expected below a depth of 14,800 feet. Based on the Texaco No. 65 Cotton Draw Unit well located in Section 2, Township 25 South, Range 31 East, Eddy County, New Mexico, the Devonian is expected to have a thickness of approximately 900 feet. The location of the proposed test well is to be in the southeast quarter of Section 19, Township 26 South, Range 30 East, N.M.P.M., Eddy County, New Mexico. It is further proposed that, should approval be obtained for the Brushy Draw Deep Unit, this test well be designated as the initial well to be drilled in the unit.

GEOLOGY

The Brushy Draw Deep Unit prospect is based upon a reflection seismograph anomaly (See Enclosure). No nearby deep Devonian tests are available for subsurface structural and seismic velocity control. As additional support for the seismic structural closure there are anomalies from a residual gravity interpretation, a residual ground magnetic interpretation, a second derivative aeromagnetic interpretation, and a geomorphic anomaly based on photogeologic interpretation. Shallow subsurface structural contours on the top of the Delaware Limestone reveal a broad east-northeast plunging anticlinal nose over the proposed Brushy Draw Unit area (See Enclosure).

A structural map on the top of the Devonian Limestone was constructed to conform, in general, with several known interpretations of the seismic structure at the Devonian event (See Enclosure). Paucity of Devonian tests in New Mexico and no nearby Devonian tests in Texas eliminates a velocity tie and gradient interpretation. This makes time conversion into depths below sea level relative; however, the subsea values used on the enclosed Devonian map are expected to be reasonable estimates provide the correlated reflections are not on some seismic event other than Devonian. The closing contour on the Devonian map is, therefore, considered to be the minus 12,200' contour.

The presence of gravity and magnetic maximum anomalies associated with deep Delaware Basin producing fields such as Cotton Draw and Bell Lake in New Mexico and Lockridge, Coyanosa, Worsham, Waha, and

Puckett in Texas is well known. Perhaps less known, but also true, are the presence of geomorphic features and dip controlled surface structural closures based on photogeologic interpretation that are also associated with the deep fields of the Delaware Basin. All of these reconnaissance methods have indicated an anomalous condition in the Brushy Draw area.

While structural entrapment at the Devonian horizon is the prime objective of the Brushy Draw Deep Unit prospect, other shallower horizons below 4,125 feet are potential reservoirs. These horizons, while dependent upon certain stratigraphic conditions, are most frequently productive on the flanks and over deeper growth structures. These "strato-structural" traps below 4,125 feet produce in various fields in the Delaware Basin and are expected to be encountered in the Cherry Canyon and Brushy Canyon sands of the lower Delaware group, the Bone Spring limes and sands, the Wolfcamp limestones and detrital zones where present, the Strawn limestone, and the sands of the Atoka and Morrow sections. All of these horizons are over 1,000 feet below the shallow Delaware Bell Canyon sand production of the Brushy Draw field. The top of the Delaware section is recorded at a depth of 3,125 feet on the enclosed Sonic-Gamma Ray log of the Hankamer No. 1 Gulf-Federal. This well is the discovery well of the Brushy Draw Delaware field and is located 660 feet from the south line and 1980 feet from the west line of Section 13, Township 26 South, Range 29 East, N.M.P.M., Eddy County, New Mexico. No wells have penetrated over 400 feet below the established production of this field in either the

adjacent sections of Texas or in the proposed Brushy Draw Deep Unit. The nearest Devonian test drilled in Texas or New Mexico to the proposed unit is the Richardson and Bass No. 1 Harrison-Federal, a dry hole located in Section 12, Township 25 South, Range 30 East. This well is about 8 miles northeast of the northeast corner of the proposed unit and it encountered the Devonian at 16,620 feet depth.

The production data of the Brushy Draw field are given in detail on the enclosed Delaware (Lamar) Limestone structure map. This field produces from several porous sandstones in the upper 200 feet of the Bell Canyon formation of the Delaware Mountain Group, Permian Age. The trap is the result of loss of porosity in lenticular sands over a broad structural nose. Minor closure is present on the north side of the field and may be present in other areas but closure cannot be contoured due to lack of sufficient well control updip. The presence of, or lack of, porous sands is the dominant factor in determining production. Structure is apparently a secondary, but contributing, factor in the entrapment of the hydrocarbons. This field has produced approximately 134,074 barrels of oil and 88.5 MCF of gas through October, 1968. The formation water produced with the oil is fresh water. The ultimate primary recovery of the eight productive wells in the field will be approximately 250,000 barrels of oil.

I have estimated the depths that some major stratigraphic horizons may be expected to be encountered at the proposed location. They are as follows:

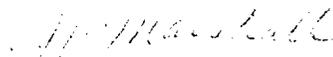
Estimated Elevation: 3,000' above sea level.

Permian Delaware Limestone	3,300'
Permian Cherry Canyon	5,000'
Permian Brushy Canyon	6,000'
Permian Bone Spring	7,000'
Permian Wolfcamp	10,500'
Pennsylvanian Strawn	11,900'
Pennsylvanian Atoka	12,300'
Pennsylvanian Morrow	13,000'
Pennsylvanian Lower Morrow	13,500'
Mississippian Chester	14,000'
Mississippian Meramec-Osage	14,400'
Devonian Woodford	14,700'
Devonian Limestone	14,800'
Base of Devonian Limestone	15,700'

CONCLUSION

The basis for mapping and delineating this particular prospect is a reflection seismograph survey interpretation. Shot point density and distribution are shown on the enclosed map. Preliminary evidence of a deep-seated structural anomaly, prior to the seismic survey, was revealed by photogeologic, magnetic, gravity, and shallow subsurface data. The multiple occurrence of this positive data indicates a drillable prospect similar to the prolific discoveries in Texas exists at the proposed location.

Yours very truly,



Joseph W. Marshall
Exploration Consultant

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May 18, 1970

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P
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Mr. Curtis Hankamer
714 Houston Bank & Trust Building
Houston, Texas 77002

Re: Brushy Draw Deep Unit
TERMINATION
Eddy County, New Mexico

Dear Mr. Hankamer:

The Commissioner of Public Lands approved the captioned unit on September 29, 1969, effective November 14, 1969. Your initial test well was due six months after the effective date. Therefore, since the initial test well has not been commenced, the Brushy Draw Deep unit agreement automatically terminated by its own terms as of May 14, 1970.

Very truly yours,

Ted Bilberry, Director
Oil and Gas Department

TB/ML/s

- cc: USGS-Roswell, New Mexico
- OCC-Santa Fe, New Mexico ✓
- Sun Oil Company
- Tulsa, Oklahoma
- Atlantic Richfield Company
- Roswell, New Mexico

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Drawer 1857
Roswell, New Mexico 88201

November 14, 1969

Mr. George H. Harker, Jr.
P. O. Box 2086
Roswell, New Mexico 88201

Dear Mr. Harker:

The Brushy Draw Deep unit agreement, Eddy County, New Mexico, was approved on November 14, 1969. This agreement has been designated No. 14-00-0001-11578 and is effective as of the date of approval.

Enclosed are four approved copies of the unit agreement for your records. We request that you furnish the State of New Mexico and other interested principals with appropriate evidence of this approval.

Sincerely yours,

(ORIG. SGD.) JOHN A. ANDERSON

JOHN A. ANDERSON
Regional Oil and Gas Supervisor

cc:
Washington (w/cy appd. agreement)
NEM, Santa Fe (w/cy appd. agreement)
Artesia (w/cy appd. agreement)
BOMG, Roswell (ltr. only)
EMOCC, Santa Fe (ltr. only) ✓
Land Commissioner, Santa Fe (ltr. only)

4081 ✓

September 29, 1969

George H. Hunker, Jr.
418 Hinkle Building
Roswell, New Mexico

Re: Brushy Draw Deep Unit
Eddy County, New Mexico

Gentlemen:

The Commissioner of Public Lands has this date approved your Brushy Draw Deep Unit, Eddy County, New Mexico, subject to like approval by the United States Geological Survey and the Oil Conservation Commission.

Enclosed are ten (10) Certificates of Approval as per your request.

This Unit Agreement is effective upon approval by the United States Geological Survey, therefore, please furnish us a copy of their Certificate of Determination immediately so we may process this unit.

Very truly yours,

Ted Bilberry, Director
Oil and Gas Department

TB/ML/s
encls.

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

C
O
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Y



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

70 MAY 18 AM 8 33

IN REPLY REFER TO:

4081

May 15, 1970

Mr. Curtis Hankamer
714 Houston Bank & Trust Building
Houston, Texas 77002

Dear Mr. Hankamer:

The Brushy Draw Deep unit agreement, No. 14-08-0001-11578, Eddy County, New Mexico, was approved by the Regional Oil and Gas Supervisor on November 14, 1969, effective as of the date of approval. Section 9 of the unit agreement requires commencement of the initial test well within six months after the effective date of the unit agreement and provides that the agreement will automatically terminate upon failure to timely commence any required well.

Inasmuch as the initial test well has not been commenced, the Brushy Draw Deep unit agreement automatically terminated by its own terms as of May 14, 1970. Please furnish this office an explanation as to why the initial well commitment was not fulfilled.

Sincerely yours,

(ORIG. SGD.) CARL C. TRAYWICK
CARL C. TRAYWICK
Acting Oil and Gas Supervisor

cc:
Washington
BLM, Santa Fe
Artesia
BOMC, Roswell
NMOCC, Santa Fe ✓
Com. Pub. Lands, Santa Fe
Mr. George H. Hunker, P.O. Box 2086,
Roswell, New Mexico 88201

