

CASE 2160: Application of CONTINENTAL  
for quadruple completion of Northwest  
Apache 9 No. 1 Well.

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Case No.

2160

Application, Transcript,  
Small Exhibits, Etc.

CONFIDENTIAL - OIL CONSERVATION

P. O. Box 3312  
Durango, Colorado  
August 24, 1962

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*Coe # 2/60*

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

Attn: A. L. Porter, Jr., Secretary & Director

Gentlemen:

Attached is an "Application for Triple Completion" of Northeast Haynes Apache Well 9 No. 1 plus a diagrammatic sketch of the triple completion.

Northeast Haynes Apache Well 9 No. 1 was previously approved as a quadruple completion in the Greenhorn, Dakota, Mesa Verde, and Gallup formations by Commission Order No. R-1869 dated January 25, 1961. This order provided for the production of the Greenhorn formation through the string of 2 7/8-inch casing, production of the Dakota formation through 2 3/8-inch tubing installed within a string of 4 1/2-inch casing, production of the Mesa Verde formation through the 2 3/8 x 4 1/2-inch annulus of the latter casing string, and the production of the Gallup formation through 2 3/8-inch tubing installed within a second string of 4 1/2-inch casing. The well was completed in the prescribed manner with the exception that the Mesa Verde formation was never opened for production.

Production tests on the Greenhorn have proved this formation to be non-commercial. Therefore, we are requesting approval to utilize the string of 2 7/8-inch casing to test and produce the Mesa Verde gas reserves instead of the 2 3/8-inch x 4 1/2-inch annulus as specified in Order No. R-1869.

The proposed completion will be accomplished by setting a bridge plug to isolate the Greenhorn formation and perforating the 2 7/8-inch casing opposite the Mesa Verde formation by the orientation method. The perforated interval will be sand-water fraced.

Yours very truly,

*H. D. Haley*  
H. D. Haley  
District Superintendent  
Durango District  
Production Department

SH/cb

cc: NMOC, Aztec, New Mexico  
Gulf Oil Company, Petroleum Building, Roswell, New Mexico  
Southern Union Oil Company, Burt Building, Dallas, Texas  
Skelly Oil Company, P. O. Box 4083, Station A, Albuquerque, New Mexico  
El Paso Natural Gas Products Co., P. O. Box 977, Farmington, New Mexico  
Mr. R. E. White, Continental Oil Company, Denver, Colorado  
Mr. E. A. Austin, Continental Oil Company, Denver, Colorado

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

August 30, 1962

**Continental Oil Company**  
P. O. Box 3312  
Durango, Colorado

Attention: Mr. H. D. Maley

Re: Case No. 2160  
Order No. R-1869

Gentlemen:

Commission Order No. R-1869 granted approval to complete your Maynes Apache Well No. 9-1 as a quadruple completion in the Greenhorn, Dakota, Mesaverde and Gallup Formations. Inasmuch as there is no deviation from the provisions of said order other than the Greenhorn formation being proven non-commercial, you are hereby granted approval to utilize the string of 2-7/8 inch casing to test and produce the Mesaverde zone as requested in your application dated August 24, 1962.

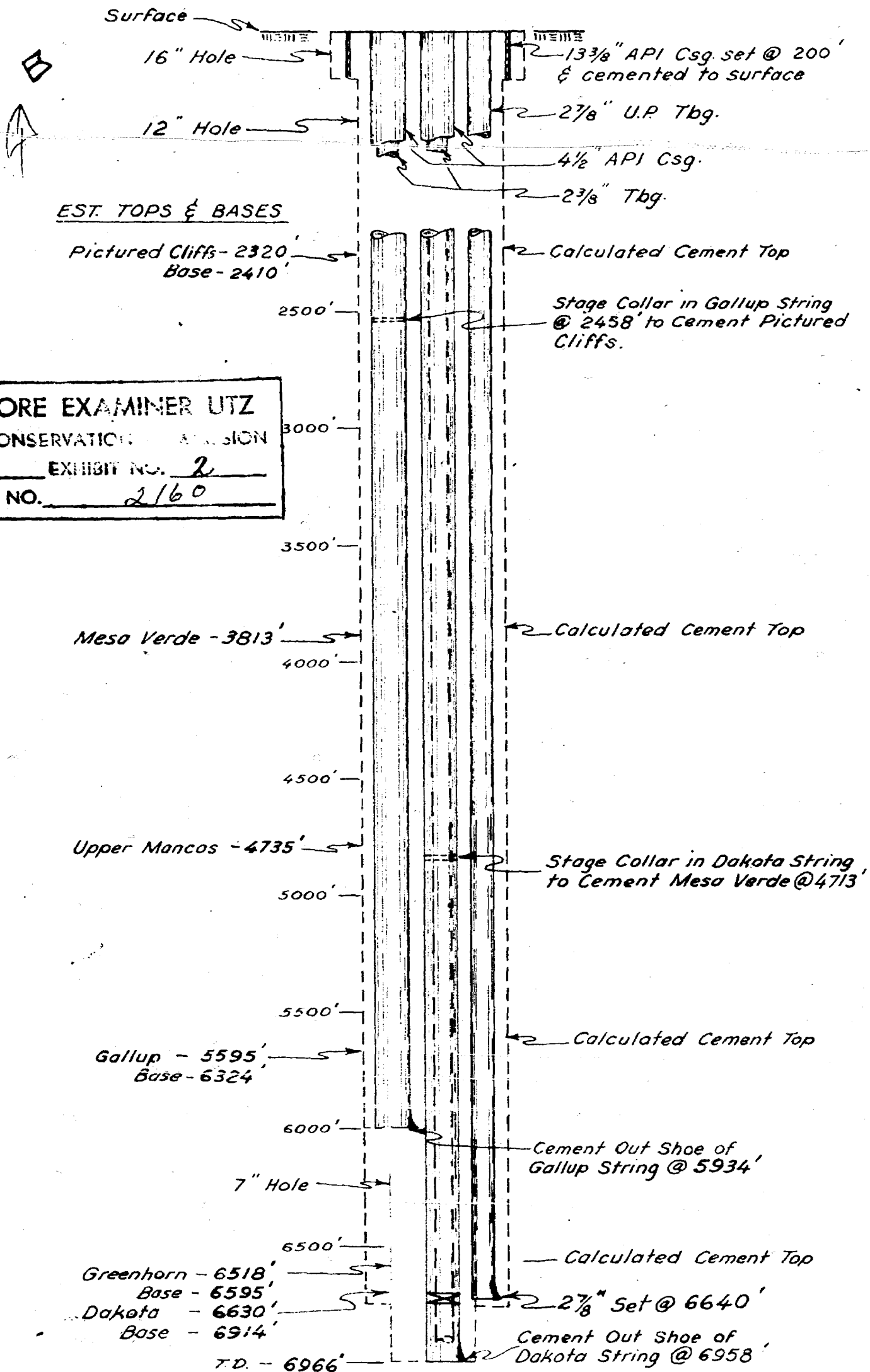
Very truly yours,

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

ALP/SM/CS

cc: Oil Conservation Commission - Artec

C  
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P  
Y



Northeast Haynes-Apache 9 No. 1

DST #2

4496' to 4515' Lower Mesaverde (Point Lookout)  
SI 1 hr., open 1 hr., SI 1 hr., fair blow in-  
creasing throughout test. Res. 330' of highly  
gas cut mud. IHP 2387, ISIP 1893, IFF 170, VFF  
237, FBIP 1743, FHP 2387.

DST #5

6522' to 6600' Greenhorn  
SI 1 hr., open 1 hr., SI 1 hr., good blow, in-  
creasing throughout test, gas to surface in 17  
min., 4.2 MCF after 30 min., 7.4 MCF after 1 hr.,  
res. 35' dark green high gravity crude, 135' oil  
and gas cut mud.

Greenhorn Formation

A series of interbedded fractured marine limestones  
and limy shale. This formation is considered as having a  
common source of supply separate from that of the Dakota, due  
to its environment of deposition. The Greenhorn is isolated  
from zones above and below by impermeable shale.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. <u>1</u>
CASE NO. <u>2160</u>

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APPLICATION TO AMEND ORDER NO. R-1735

In order No. R-1735 of Case No. 2019 there was a finding by the Oil Conservation Commission of the State of New Mexico that Continental Oil Company is the owner and operator of the Northeast Haynes-Apache 9 No. 1 Well located in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 9, Township 24 North, Range 5 West, N.M.P.M., Rio Arriba County, New Mexico.

In said order Continental Oil Company was authorized to triple complete its Northeast Haynes-Apache 9 No. 1 Well in such a manner as to permit the production of hydrocarbons from the Mesa Verde Formation, the Gallup Formation and the Dakota Formation through parallel strings of 2 7/8 inch, 4 1/2 inch and 4 1/2 inch casing respectively. Continental would now like to have Order No. R-1735 amended to permit (1) the production of hydrocarbons from the Greenhorn Formation through the 2 7/8 inch casing and extend said casing to a depth of 5,640 feet; (2) the production of hydrocarbons from the Dakota Formation and from the Mesa Verde Formation (point lookout) through the 4 1/2 inch casing cemented at the base of the Dakota by the use of a 2 1/8 inch tubing, as indicated in the enclosed diagram. It is anticipated that the hydrocarbons from the Dakota Formation will be produced through the 2 1/8 tubing and that the production of hydrocarbons from the point lookout will be through the annulus between the tubing and 4 1/2 inch casing.

A schematic drawing showing the proposed completion and additional information concerning drill stem tests are included with this application. A copy of this application has

12-6

been forwarded to the following effect operators:

Gulf Oil Company  
P. O. Box 1589  
Durango, Colorado

Southern Union Company  
Bart Building  
Dallas, Texas

Shelly Oil Company  
P. O. Box 4083 - Station A  
Albuquerque, New Mexico

El Paso Natural Gas Products Company  
P. O. Box 977  
Farmington, New Mexico.

### C E R T I F I C A T E

We, the undersigned, state that we are attorneys for Continental Oil Company and that we are authorized by said company to make this report, and that this report was prepared under our supervision and direction and that the facts stated therein are true, correct and complete to the best of our knowledge.

*William M. Griffith*  
\_\_\_\_\_  
WILLIAM M. GRIFFITH

\_\_\_\_\_  
JAMES H. HARRIS

*Looked  
made  
1-12-61  
JH*



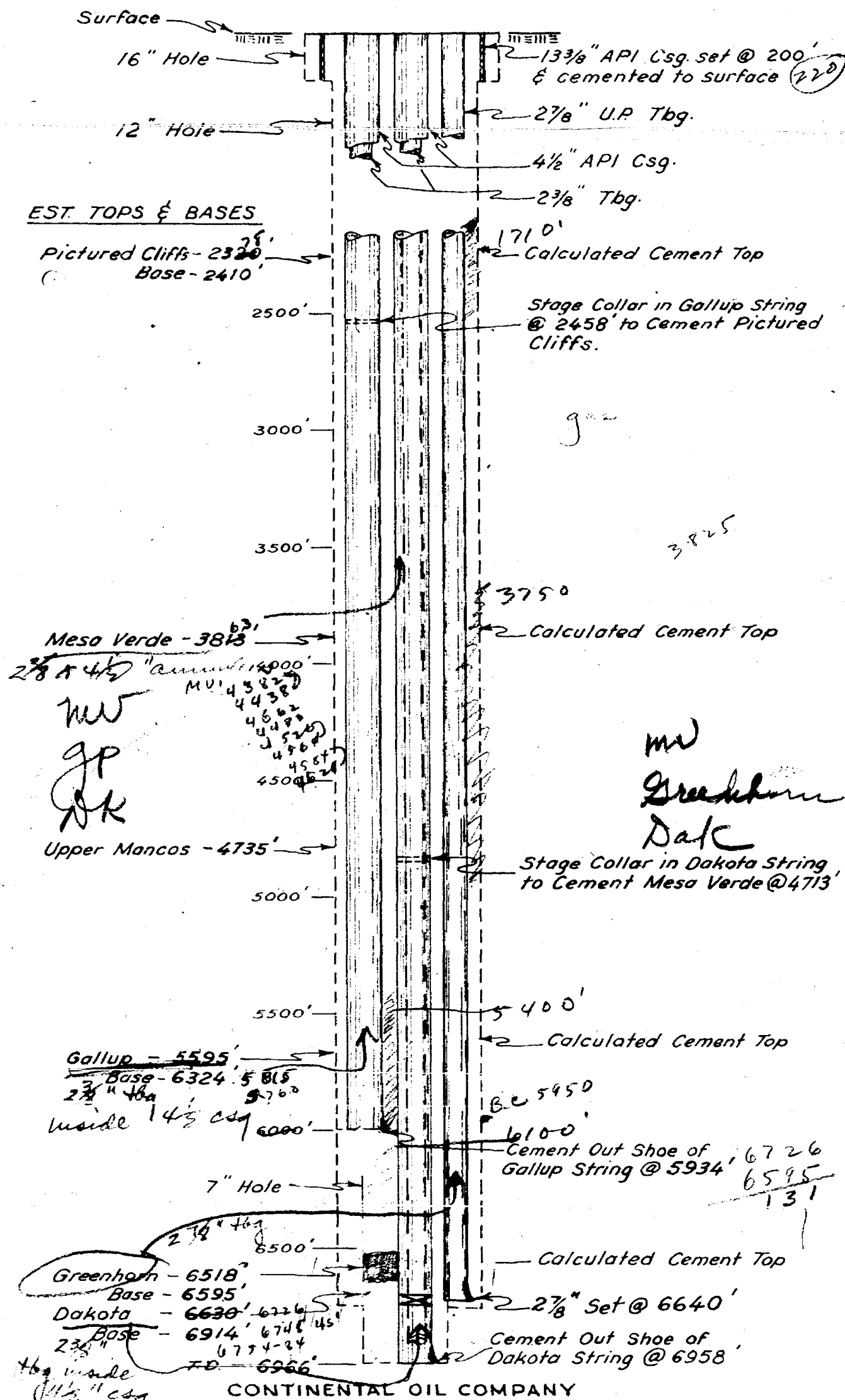
Northeast Haynes-Apache 9 No. 1

DST #2 4496' to 4515' Lower Mesaverde (Point Lookout)  
SI 1 hr., open 1 hr., SI 1 hr., fair blow in-  
creasing throughout test. Rec. 130' of highly  
gas cut mud. IHP 2387, ISIP 1893, IFP 170, VFP  
257, PSIP 1743, WHP 2387.

DST #5 6522' to 6500' Greenhorn  
SI 1 hr., open 1 hr., SI 1 hr., good blow, in-  
creasing throughout test, gas to surface in 17  
min., 4.2 MCF after 30 min., 7.4 MCF after 1 hr.,  
rec. 15' dark green high gravity crude, 135' oil  
and gas cut mud.

Greenhorn Formation

A series of interbedded fractured marine limestone  
and limy shale. This formation is considered as having a  
common source of supply separate from that of the Dakota, due  
to its environment of deposition. The Greenhorn is isolated  
from zones above and below by impermeable shale.



CONTINENTAL OIL COMPANY  
PROPOSED CASING AND CEMENTING PROGRAM  
FOR TRIPLE COMPLETING A WELL  
NORTHEAST HAYNES - APACHE 9 No.1

NOT TO SCALE

Case 2166

FILED 3 15 BEFORE THE  
OIL CONSERVATION COMMISSION  
OF NEW MEXICO

IN THE MATTER OF THE APPLICATION  
OF CONTINENTAL OIL COMPANY FOR A  
QUADRUPLE COMPLETION OF ITS  
NORTHEAST HAYNES-APACHE 9 No. 1  
WELL, NW $\frac{1}{4}$  SW $\frac{1}{4}$ , SEC. 9-24S-5W

CASE NO. 2160

ENTRY OF APPEARANCE

Come now Kellahin & Fox, P.O.Box 1713, Santa Fe, New  
Mexico, and enter their appearance in the above case as  
attorneys for Continental Oil Company, in association with  
William M. Griffith, Attorney-At-Law and a member of the  
Colorado Bar.

KELLAHIN & FOX

By Jason W. Kellahin

DOCKET: EXAMINER HEARING - WEDNESDAY, JANUARY 25, 1961  
OIL CONSERVATION COMMISSION - 9 a.m., CONFERENCE ROOM - STATE LAND OFFICE  
BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz Examiner, or Oliver E. Payne, attorney, as alternate examiner:

CASE 2159: Application of Continental Oil Company for three non-standard gas proration units. Applicant, in the above-styled cause, seeks the establishment of the following-described non-standard gas proration units in the Jalmat Gas Pool, Lea County, New Mexico:

A 320-acre non-standard gas proration unit consisting of the W/2 E/2 and E/2 W/2 of Section 19, Township 25 South, Range 37 East, to be dedicated to the Sholes B-19 Well No. 1, located in the center of the SE/4 SW/4 of said Section 19.

A 320-acre non-standard gas proration unit consisting of the E/2 and NE/4 NW/4 of Section 1, Township 25 South, Range 36 East, to be dedicated to the Wells B-1 Well No. 1, located in the center of the NE/4 NE/4 of said Section 1.

A 360-acre non-standard gas proration unit consisting of the SE/4, E/2 W/2 and SW/4 SW/4 of Section 29, Township 22 South, Range 36 East, to be dedicated to the Meyer A-29 Well No. 3, located in the center of the SE/4 SW/4 of said Section 29.

CASE 2160: Application of Continental Oil Company for a quadruple completion. Applicant, in the above-styled cause, seeks an order authorizing the quadruple completion of its Northeast Haynes-Apache 9 No. 1 Well, located in the NW/4 SW/4 of Section 9, Township 24 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of hydrocarbons from the Greenhorn formation through a string of 2 7/8-inch casing, the production of hydrocarbons from the Dakota formation through 2 3/8-inch tubing installed within a string of 4 1/2-inch casing, the production of hydrocarbons from the Mesaverde formation through the 2 3/8 x 4 1/2-inch annulus of the latter casing string, and the production of hydrocarbons from the Gallup formation through 2 3/8-inch tubing installed within a second string of 4 1/2-inch casing, the three strings of casing being cemented in a common well bore.

CASE 2161:

Application of Texaco, Inc. for a triple completion. Applicant, in the above-styled cause, seeks an order authorizing the triple completion of the C. H. Weir "B" Well No. 4, located in Unit I, Section 11, Township 20 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of gas from the Eumont Gas Pool, the production of oil from the Skaggs-Glorieta Pool and the production of oil from the Skaggs-Drinkard Pool through the casing-tubing annulus, through 2 3/8-inch tubing, and through 2 3/8-inch tubing respectively.

CASE 2162:

Application of The Atlantic Refining Company for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to install an automatic custody transfer system to handle the commingled Justis Tubb-Drinkard and Justis-Blinbry production from the following-described leases:

Langlie Federal Lease, N/2 SE/4 of Section 14

Langlie Federal "A" Lease, S/2 NE/4 of Section 14

Langlie Federal "B" Lease, N/2 NE/4 of Section 14

all in Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 2163:

Application of Yates Drilling Company for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to install an automatic custody transfer system to handle the Pennsylvanian formation production from all wells presently completed or hereafter drilled on Federal Lease No. 03283, comprising the W/2 of Section 31, Township 8 South, Range 37 East, Roosevelt County, New Mexico.

CASE 2164:

Application of Hudson and Hudson for an exception to Rule 506 (A) of the Commission Rules and Regulations and for permission to transfer allowables. Applicant, in the above-styled cause, seeks an exception to Rule 506 (A) by increasing the limiting gas-oil ratio for the West Tonto Yates Seven Rivers Pool, Lea County, New Mexico, from 2,000 to 6,000 cubic feet of gas per barrel of oil. Applicant further seeks permission to shut-in one well in said pool and transfer its allowable to another well.

CASE 2165:

Application of Pan American Petroleum Corporation for two unorthodox oil well locations and a non-standard oil proration unit. Applicant, in the above-styled cause, seeks approval of two unorthodox oil well locations in the Cha Cha-Gallup Oil Pool, San Juan County, New Mexico, said locations to be as follows:

Navajo Tribal "E" Well No. 7, to be located 250 feet from the South line and 800 feet from the West line of Section 16.

Navajo Tribal "G" Well No. 5, to be located 1830 feet from the South line and 885 feet from the East line of Section 18, both in Township 29 North, Range 14 West.

Applicant also seeks an 88.7-acre non-standard oil proration unit in said pool comprising that portion of the SW/4 of Section 16, within the Navajo Reservation lying South of the mid-channel of the San Juan River, Township 29 North, Range 14 West, to be dedicated to said Navajo Tribal "E" Well No. 7.

CASE 2166:

Application of Pan American Petroleum Corporation for permission to take interference tests and transfer allowables. Applicant, in the above-styled cause, seeks permission to take interference tests in the Cha Cha-Gallup Oil Pool, San Juan County, New Mexico, by shutting in its Navajo Tribal "E" Well No. 3, located in the NE/4 SW/4 of Section 21, Township 29 North, Range 14 West and transferring the allowable of said well in equal parts to the other five wells on the said Navajo "E" Lease.

CASE 2167:

Application of Chambers & Kennedy for a 200-acre non-standard gas proration unit and for an unorthodox gas well location. Applicant, in the above-styled cause, seeks the establishment of a 200-acre non-standard gas proration unit in the Eumont Gas Pool, Lea County, New Mexico, comprising the NE/4 NE/4, S/2 NE/4, and the N/2 SE/4 of Section 34, Township 19 South, Range 37 East. Said unit is to be dedicated to the Monument State Well No. 1, located on an unorthodox location at a point 1649 feet from the South line and 2197 feet from the East line of said Section 34.

CASE 2168:

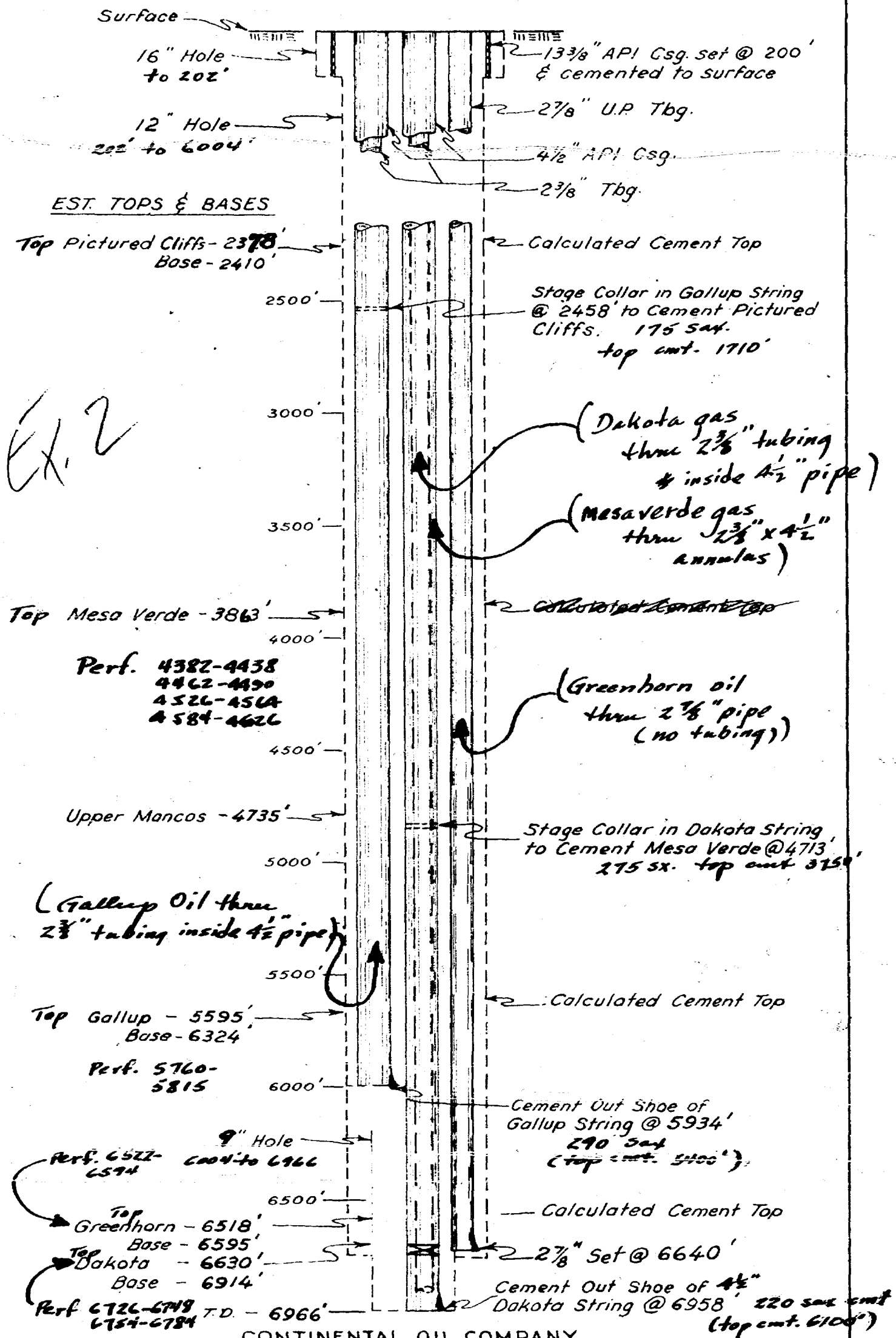
Application of Continental Oil Company for permission to shut-in one well and transfer its allowable to other wells. Applicant, in the above-styled cause, seeks permission to shut-in its Wilder Well No. 20, located 1980 feet from the South and East lines of Section 26, Township 26 South, Range 32 East, El Mar-Delaware Pool, Lea County, New Mexico, and transfer its allowable to the following offset wells in said Section 26: Wilder Lease Well Nos. 17, 18, 22 and 25.

CASE 2169:

Application of Gulf Oil Corporation for a salt water disposal well. Applicant, in the above-styled cause, seeks an order authorizing the disposal of produced salt water into the Grayburg and San Andres formations through its J. F. Janda "F" Well No. 17, located in Unit A, Section 4, Township 22 South, Range 36 East, Lea County, New Mexico, with the proposed injection interval from 3999 feet to 5650 feet.

CASE 2170:

Application of Amerada Petroleum Corporation for an amendment of Order R-1750. Applicant, in the above-styled cause, seeks an amendment of Order No. R-1750, which authorized the triple completion of its Wimberly Well No. 13, located in Unit M, Section 24, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico, to substitute an undesignated oil pool, probably Paddock, for the Langlie-Mattix which was previously authorized. Applicant also proposes to use three parallel strings of tubing rather than two as provided in Order R-1750.



CONTINENTAL OIL COMPANY

PROPOSED CASING AND CEMENTING PROGRAM  
FOR TRIPLE COMPLETING A WELL  
NORTHEAST HAYNES - APACHE 9 No.1



BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
January 25, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Continental Oil Company for a quadruple completion. Applicant, in the above-styled cause, seeks an order authorizing the quadruple completion of its Northeast Haynes-Apache 9 No. 1 Well, located in the NW/4 SW/4 of Section 9, Township 24 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of hydrocarbons from the Greenhorn formation through a string of 2 7/8-inch casing, the production of hydrocarbons from the Dakota formation through 2 3/8-inch tubing installed within a string of 4 1/2-inch casing, the production of hydrocarbons from the Mesaverde formation through the 2 3/8 x 4 1/2-inch annulus of the latter casing string, and the production of hydrocarbons from the Gallup formation through 2 3/8-inch tubing installed within a second string of 4 1/2-inch casing, the three strings of casing being cemented in a common well bore. ) Case 2160

BEFORE:

Elvin A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order. First case on the docket will be Case 2160.

MR. PAYNE: Application of Continental Oil Company for a quadruple completion.

MR. GRIFFITH: I am Bill Griffith, appearing for Continental Oil Company in this case. We have one witness, M. A.

MacLennan. I would like to have him sworn.

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



(Witness sworn.)

MR. UTZ: Are there other appearances?

MR. PAYNE: Mr. Griffith, you have associated with you Mr. Jason Kellahin?

MR. KELLAHIN: I filed an appearance in the case, Mr. Payne.

MR. GRIFFITH: This is an application to amend the previous order of the Commission, Number R-1735, and I would like to ask that our original application and the finding of the Commission in Case 2019, and the order just referred to, be incorporated by reference into this application.

M. A. MAC LENNAN

called as a witness, having been previously duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. GRIFFITH:

Q Would you please state your name?

A M. A. MacLennan.

Q By whom are you employed and in what capacity?

A I am employed by Continental Oil Company as District Engineer for the Durango District, Durango, Colorado.

Q Have you ever testified as a petroleum engineer before the New Mexico Conservation Commission before?

A Yes, I have.

~~MR. GRIFFIN: I'd like to request that the Commission~~

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ALBUQUERQUE, NEW MEXICO



accept the witness's qualifications as an expert witness.

MR. UTZ: They are acceptable.

Q (By Mr. Griffith) Did you previously testify before the Commission in Case No. 2019, which was Continental's application for a triple completion of its Northeast Haynes-Apache 9 No. 1 well?

A Yes, I did.

Q From which formations did Continental originally plan to complete this well?

A The well was originally intended as a triple completion in the Mesaverde, Gallup and Dakota formations.

Q Would you please give a brief history of the well up to date?

A The Northeast Haynes-Apache 9 No. 1 was spudded September 9, 1960; drilled a 17-inch hole to 2020 feet, seven joints 13 and 3/8 surface pipe; 12 and 1/4-inch hole, 6,004 feet; nine-inch hole drilled from 6,004 feet to T.D. the well at 6,966. Then ran a long string of 4 and 1/2-inch O.D. casing through the Dakota formation, 2 and 7/8-inch tubing through the Greenhorn, 4 1/2-inch casing through the Gallup formation. The long string of 4 and 1/2-inch, Dakota string, was cemented with 80 sacks of cement mixed with 80 cubic feet of Stratocrete, followed with 140 sacks regular.

MR. UTZ: Do you have a diagrammatic exhibit, or do you want to use the one you presented with your application?

MR. GRIFFITH: We will have an exhibit which is identical to the one we presented with our application.

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PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



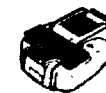
MR. UTZ: He is going through all this casing and cementing. I wonder if you will distribute that.

MR. GRIFFITH: We don't have an exhibit for that, sir.

MR. UTZ: Do you have some extras that you can give Mr. Nutter one of?

A (Continued) I will go back. A long string of 4 and 1/2 to the Dakota was cemented through a shoe in the Dakota string with 80 sacks regular cement mixed with 80 cubic feet of Stratocrete, followed with 140 sacks of regular; the Gallup 4 and 1/2-inch string cemented through the Gallup string with 90 sacks of regular cement mixed with 90 cubic feet of Stratocrete followed with 200 sacks of regular cement. The Mesaverde formation was cemented through a stage collar in the 4 and 1/2-inch Dakota string, the stage collar located at 4713, and the Mesaverde was cemented with 225 sacks regular, mixed with 225 cubic feet of Stratocrete, followed with 50 sacks regular. Pictured Cliffs formation was cemented through a stage collar in the 4 and 1/2-inch Gallup string, the stage collar located at 2458. Pictured Cliffs cemented with 125 sacks regular cement mixed with 125 cubic feet Stratocrete, followed with 50 sacks of regular.

Following cementing the Dakota formation was perforated from 6,726 to 6,748, and 6,754 to 6,784 with four shots a foot with regular perforating equipment. In the Greenhorn formation it was perforated -- this is in the 2 and 7/8-inch string -- 6,522 to 6,594, ~~two shots per foot using nuclear orientation equipment. The 4 and~~



1/2-inch Gallup string was perforated opposite the lower Gallup, from 5,815 to 5,760 with two shots per foot, with nuclear orientation perforating equipment.

Q What sort of stimulation did you use in the well?

A Dakota formation was water-fraced and the Greenhorn and Gallup were both oil-fraced.

Q Did you substantially comply with Order Number R-1735 of the Conservation Commission relating to the cementing and the use of centralizers and turbilizers?

A Yes, we did, with one exception. The Order provides for cement minimum of 200 feet above the top of each producing formation. This temperature survey was run in the Greenhorn string following the cementing program, and the cement tops as determined from the temperature survey are as follows: Above the Greenhorn, first cement top is at 6,100; the cement top above the Gallup was at 5,400. The cement top above the Mesaverde is at 3,750, and Pictured Cliffs is 1,710, so, in the case of the Mesaverde formation we have only 113 feet above the geological top of the Mesaverde. However, the productive interval in the Mesaverde is in the Point Lookout section of the Mesaverde, 4,380. Therefore, we have approximately 500 feet of cement above our top perforation.

Q You feel this 113 of cement in the Mesaverde will adequately isolate that section?

A Yes, I do.

Q What is the present status of the well?

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A At present we are producing only from the Gallup formation. It is completed as an oil well. The Dakota is entirely gas, and is presently shut in pending a gas sales contract. The Greenhorn formation is oil productive, also shut in pending approval of the Commission.

Q What do you anticipate the Mesaverde will produce?

A Based on DST data of the Point Lookout, we anticipate it to be entirely gas.

Q Could you elaborate on the production we have in the Gallup formation?

A We initialled the Gallup formation at 25 barrels of 42.3 gravity crude with a GOR of 620, and .004 water.

Q The original order of the Commission granted permission for Continental to produce the Dakota, Gallup and Mesaverde. Why are we now asking to produce through the Greenhorn?

A Well, based on DST of the Greenhorn formation while drilling we recovered free oil on that DST. Therefore, we ran the long string of 2 7/8 through the Greenhorn formation.

(Applicant's Exhibits Nos. 1 and 2 Marked for Identification.)

Q I show you what has been marked as Exhibit 1, and ask you if this was prepared by you or under your supervision?

A Yes, sir, it was.

Q What does Exhibit 1 show?

A Exhibit 1 is a DST data on the lower Mesaverde or Point



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Lookout formation, DST for the Greenhorn, and geological description of the Greenhorn.

Q A copy of Exhibit 1 was included in the application. I now show you what has been marked Exhibit 2 and ask you if this was prepared by you or under your supervision?

A Yes, it was.

Q What does Exhibit 2 show?

A Exhibit 2 is a schematic diagram of the proposed quadruple completion, showing the formation tops and casing program.

Q Are there any corrections on Exhibit 2 which should be made?

A Yes. The actual formation top of the Pictured Cliffs should read 2,378 rather than 2,320, the actual top of the Mesa-verde formation is at 3,863, and it is now for a quadruple completion rather than a triple completion.

Q What additional work is needed to complete this well as a quadruple completion?

A We propose to seat a Model D-A Baker packer in the long string of 4 and 1/2, through the Dakota, and perforate the Mesa-verde formation, the Point Lookout section of the Mesaverde, and complete the Dakota formation through the 2 and 3/8-inch tubing, and complete the Mesaverde formation through the tubing casing annulus.

Q Will this manner of completion prevent commingling from the four formations?



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A Yes, it will.

Q Will this well be completed and operated in accordance with the applicable provision of Section 112-A of the Rules and Regulations of the New Mexico Conservation Commission?

A Yes.

Q Will the correlative rights of all parties be protected by the proposed completion of this well?

A Yes.

Q I would like to move that Exhibits 1 and 2 be accepted in evidence.

MR. UTZ: Without objection Exhibits 1 and 2 will be accepted in the record.

MR. GRIFFITH: Does the Commission have any questions of the witness?

BY MR. NUTTER:

Q I missed your perforations there on the Dakota. What were they again, please?

A 6,726 to 6,748.

Q And that was four shots per foot, or two?

A Four shots per foot; also 6,754 to 6,784. I have the proposed for the Mesaverde: 4,382, 4,438, 4,462, 4,490, 4,526 to 4,564 and 4,584, 4,628.

Q Now, as I understand it you cemented through the Dakota string, which is set at 6,958, with T.D. being 6,966; you cemented that with 80 sacks of regular and then some Stratocrete followed by





DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

140 sacks of regular, and the top of the cement is at 6,100?

A Yes.

Q So one cement job was used for the Dakota and the Greenhorn?

A For the Dakota and the Greenhorn. There was no cement placed through the 2 and 7/8 tubing. All cementing was done through the two strings of 4 and 1/2, either through the shoes or stage collars in these two strings.

Q You have an interval from the uppermost perforation in the Dakota, which is at 6,726 to the lowermost perforation in the Greenhorn, which is 6,594. You have an interval there of some 132 feet, is that correct?

A Yes, sir.

Q Then the lowermost perforation in the Gallup is at 5,815, and the uppermost in the Greenhorn is 6,500, so there are several hundred feet between the perforations in those two formations?

A Yes, sir.

Q Where do you expect the base of the cement which was used on the Gallup would fall?

A Base of the cement for the Gallup, approximately 5,956.

Q Was that cemented through the shoe or cemented through perforations?

A Cemented through the shoe in the Gallup string.

Q Through that 4 and 1/2-inch string length?

A Yes, sir.



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PHONE CH 3-6691

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Q Later you will run a 2 and 3/8-inch string of tubing through that?

A We now have a 2 and 3/8 in the Gallup.

Q Everything is going to be produced through 2 and 3/8-inch tubing with the exception of the Mesaverde, is that correct, and that will be produced through the annulus of the 4 and 1/2-inch casing and the 2 and 3/8-inch tubing to the Dakota?

A That's correct.

Q Does the Mesaverde in this area produce a relatively dry gas, or is it a wet gas, or what is the nature of the gas in this area?

A Relatively dry gas, very dry.

Q You don't anticipate any problem in producing that through the annulus?

A No, sir.

MR. NUTTER: I believe that is all I have. Thank you.

BY MR. UTZ:

Q What was the cementing on the Mesaverde; is that from 4,713 to 3,750?

A 4,713 to 3,750, yes, sir.

Q And the top of the Mesaverde is 3,863. That is a little over a hundred feet?

A 113 feet.

Q Is the top of the Mesaverde barren?

A ~~We had a DST at the very top on that one application, the~~



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ALBUQUERQUE, NEW MEXICO

DST No. 1, I believe, Cliffhouse.

Q 4,496 to 4,615?

A From 3,855 through 3,925. We had a fair blow, no gas to surface; recovered 360 feet of drilling mud and water.

BY MR. NUTTER:

Q You didn't perforate anything except Point Lookout?

A We have not perforated any of the Mesaverde; it will only be Point Lookout.

Q The base of the cement on the Pictured Cliff is from 2,458 to 1,710, is that correct?

A 2,458 to 1,710, yes, sir.

BY MR. UTZ:

Q I don't believe you gave the cement above the Pictured Cliffs. What is your cementing program from 1,710 up to the surface?

A We have no cement from 1,710 up until the surface pipe, 220 feet.

Q Are there any potable waters in this area, 220 to 1,710?

A We have no knowledge of any, sir.

Q No gas zone?

A No, sir.

Q In your opinion, is the Greenhorn completely separated from the Dakota pay?

A Yes, sir. I believe it is. We recovered, on a three-hour test of the Dakota, 920 MCF and about 20 barrels of condensate and 500 pounds of back pressure, and on the Greenhorn we recovered



11 barrels of crude oil, and it is a lower gravity, 38.8, not the crude oil we recovered from the Dakota in the Jicarilla area.

Q What is the gravity on the Dakota fluid?

A I do not have a gravity on the gas.

Q I mean on the fluid; you said you recovered some distillate?

A On the condensate, I do not have it.

Q Would it be substantially higher than 38.8?

A Yes, sir, considerably higher.

MR. UTZ: Are there any other questions of the witness?

BY MR. PAYNE:

Q You did use turbilizers and centralizers in completing this well, did you?

A Yes, sir.

MR. PAYNE: Thank you.

BY MR. UTZ:

Q You have not yet perforated the well, have you?

A We have perforated in all but the Mesaverde section.

Q These perforations were successful?

A Yes, with the orientation.

MR. UTZ: Any other questions? Witness may be excused.

Any statements in this case?

MR. GRIFFITH: No, sir. That is all we have.

MR. UTZ: Case will be taken under advisement.

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ALBUQUERQUE, NEW MEXICO

PHONE CH 3-6691



STATE OF NEW MEXICO )  
COUNTY OF BERNALILLO ) ss

I, JUNE PAIGE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 31st day of January, 1961.

*June Paige*  
Notary Public - Court Reporter

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



PHONE CN 3-6691  
DEARNLEY-MEIER REPORTING SERVICE, Inc.  
ALBUQUERQUE, NEW MEXICO

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EXHIBITS

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	DST Data Sheet	6	8	8
Ex.#2	Schematic Diagram	6	8	8

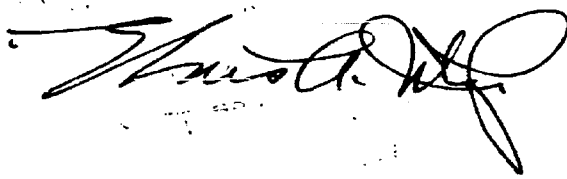
I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner Hearing of Case No. 2160.  
heard by me *[Signature]* 1961.  
*[Signature]* Examiner  
New Mexico Oil Conservation Commission



Case. 2160  
Heard 1-25-60  
2-2-61

1. Grant Cont. request for a slim hole quadruple completion in the Blanco Mesquite, Undesignated - Gallup, Undesignated Greenhorn and Basin - Diablos. To be produced thru the  $4\frac{1}{2} \times 2\frac{3}{8}$  annulus,  $4\frac{1}{2}$  tubing,  $2\frac{3}{8}$  tubing and  $2\frac{3}{8}$  tubing, respectively.
2. All the  $2\frac{3}{8}$  tubing and the  $2\frac{3}{8}$  string to be cemented in a common wellbore.
3. Centralizers shall be used to a point at least 100 ft. above each producing zone.
4. Well shall be cemented from 6950 to 6100, 5950 to 5400, 4713 to 3750 and from 2450 to 1710. The  $13\frac{3}{8}$  surface casing shall be cemented from at least 200 ft. below the surface.
5. Usual well order otherwise.

I hereby certify that on the  
..... day of .....,  
19....., a copy of the fore-  
going pleading was mailed to  
opposing counsel of record.  
.....





GOVERNOR  
JOHN BURROUGHS  
CHAIRMAN

State of New Mexico  
Oil Conservation Commission

LAND COMMISSIONER  
MURRAY E. MORGAN  
MEMBER



STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY DIRECTOR

P. O. BOX 871  
SANTA FE

February 8, 1961

Mr. Jason Kellahin  
Kellahin & Fox  
Box 1713  
Santa Fe, New Mexico

Re: Case No. 2160  
Order No. B-1262  
Applicant:  
Continental Oil Co.

Dear Sir:

Enclosed herewith are two copies of the above-referenced  
Commission order recently entered in the subject case.

Very truly yours,

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

ir/

Carbon copy of order also sent to:

Hobbs OCC X  
Artesia OCC         
Aztec OCC X

Other



**BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO**

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:**

**CASE No. 2160  
Order No. R-1269**

**APPLICATION OF CONTINENTAL OIL  
COMPANY FOR A QUADRUPLE COMPLE-  
TION IN THE GREENHORN FORMATION,  
IN THE DAKOTA FORMATION, IN THE  
MESAVERT FORMATION, AND IN THE  
GALLUP FORMATION, RIO ARriba  
COUNTY, NEW MEXICO.**

**ORDER OF THE COMMISSION**

**BY THE COMMISSION:**

This cause came on for hearing at 9 o'clock a.m. on January 25, 1961, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 8th day of February, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

**FINDS:**

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Continental Oil Company, seeks an order authorizing the quadruple completion of its Northeast Haynes-Apache 9 Well No. 1, located in the NW/4 SW/4 of Section 9, Township 24 North, Range 5 West, NMPM, Rio Arriba County, New Mexico, in such a manner as to permit the production of hydrocarbons from the Greenhorn formation through a string of 2 7/8-inch casing, the production of hydrocarbons from the Dakota formation through 2 3/8-inch tubing installed within a string of 4 1/2-inch casing, the production of hydrocarbons from the Mesaverde formation through the 2 3/8 x 4 1/2-inch annulus of the latter casing string, and the production of hydrocarbons from the Gallup formation through 2 3/8-inch tubing installed within a second string of 4 1/2-inch casing, the three strings of casing to be cemented in a common well bore.
- (3) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

CASE No. 2160  
Order No. R-1869

(4) That approval of the subject application will neither cause waste nor impair correlative rights.

IT IS THEREFORE ORDERED:

That the applicant, Continental Oil Company, is hereby authorized to complete its Northeast Haynes-Apache 9 Well No. 1, located in the NW/4 SW/4 of Section 9, Township 24 North, Range 5 West, NMPN, Rio Arriba County, New Mexico, in such a manner as to permit the production of hydrocarbons from the Greenhorn formation through a string of 2 7/8-inch casing, the production of hydrocarbons from the Dakota formation through 2 3/8-inch tubing installed within a string of 4 1/2-inch casing, the production of hydrocarbons from the Mesaverde formation through the 2 3/8 x 4 1/2-inch annulus of the latter casing string, and the production of hydrocarbons from the Gallup formation through 2 3/8-inch tubing installed within a second string of 4 1/2-inch casing.

PROVIDED HOWEVER, That centralizers or turbolizers shall be installed at 30-foot intervals throughout and to a point at least 100 feet above each producing zone.

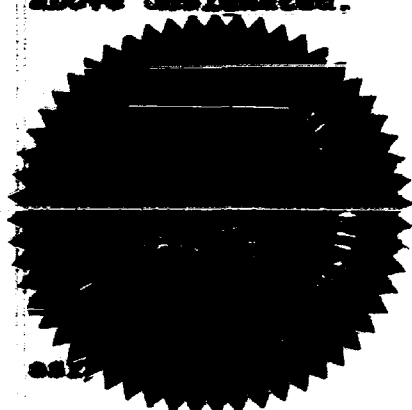
PROVIDED FURTHER, That the three strings of casing shall be cemented in a common well bore with cement extending from 6966 feet to 6100 feet, from 5950 feet to 5400 feet, from 4713 feet to 3750 feet, and from 2458 feet to 1710 feet.

PROVIDED FURTHER, That the applicant shall complete, operate, and produce said well in accordance with the provisions of Section V, Rule 112-A.

IT IS FURTHER ORDERED:

That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may seem necessary or convenient for the prevention of waste and/or the protection of correlative rights; upon failure of the applicant to comply with any requirement of this order, the Commission may terminate the authority herein granted and require the applicant or its successors and assigns to limit its activities to regular dual-zone or single-zone production in the interest of conservation.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*E. J. Mechem*  
EDWIN L. MECHEM, Chairman

*E. S. Walker*  
E. S. WALKER, Member

*A. L. Porter, Jr.*  
A. L. PORTER, JR., Member & Secretary

## NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

7-3-58

## APPLICATION FOR DUAL COMPLETION

Field Name <u>Alamo Del Norte</u>		County <u>San Juan</u>	Date <u>8-24-58</u>
Operator <u>Continental Oil Company</u>		Lease <u>Northwest corner Apache</u>	Well No. <u>10</u>
Location of Well	Unit <u>1</u>	Section <u>9</u>	Township <u>34N</u>
			Range <u>5E</u>

1. Has the New Mexico Oil Conservation Commission heretofore authorized the dual completion of a well in these same pools or in the same zones within one mile of the subject well? YES NO
2. If answer is yes, identify one such instance: Order No. \_\_\_\_\_; Operator, Lease, and Well No.: \_\_\_\_\_

3. The following facts are submitted:	Upper Zone	Upper Zone	Lower Zone	Lower Zone	Deepest Zone
a. Name of reservoir	<u>Mesa Verde</u>		<u>Gallop</u>		<u>Dakota</u>
b. Top and Bottom of Pay Section (Perforations)	<u>4526'-4526'</u> <u>4559'-4564'</u> <u>4593'-4599'</u> <u>4604'-4613'</u>		<u>5760'-5818'</u> (Present)		<u>6726'-6748'</u> <u>6754'-6784'</u> (Present)
c. Type of production (Oil or Gas)	<u>(Proposed) Gas</u>		<u>Oil</u>		<u>Gas</u>
d. Method of Production (Flowing or Artificial Lift)	<u>Flowing</u>		<u>Pumping</u>		<u>Flowing</u>

4. The following are attached. (Please mark YES or NO)

- Yes a. Diagrammatic Sketch of the Triple Dual Completion, showing all casing strings, including size and setting, top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
- \*No b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
- No c. Waivers consenting to such dual completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.\*
- No d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed, it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

- Gulf Oil Company - Petroleum Building, Roswell, New Mexico
- Southern Union Oil Company - Burt Building, Dallas, Texas
- Skelly Oil Company - P. O. Box 4083, Station A, Albuquerque, New Mexico
- El Paso Natural Gas Products Co. - P. O. Box 977, Farmington, New Mexico

\* Furnished with previous application dated 7-5-60.

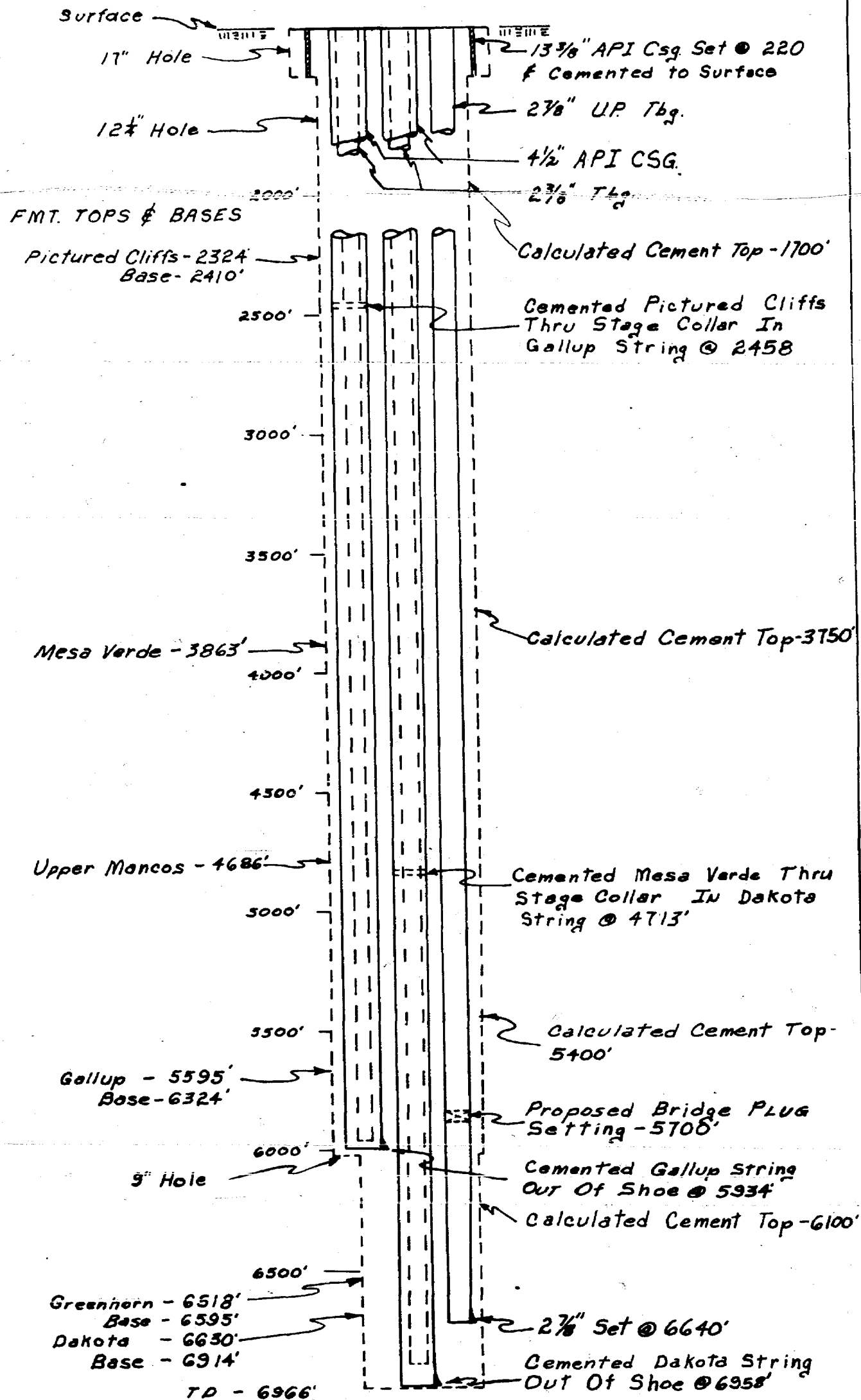
6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES NO. If answer is yes, give date of such notification August 24, 1958.

CERTIFICATE: I, the undersigned, state that I am the District Superintendent of the Continental Oil Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

*[Signature]*

Signature

- \* Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.
- NOTE: If the proposed dual completion will result in an unorthodox well location and/or a non-standard proration unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.



SCHEMATIC DIAGRAM  
CONTINENTAL OIL COMPANY  
TRIPLE COMPLETION  
MESA VERDE - GALLUP - DAKOTA  
NORTHEAST HAYNES WELL NO. 1  
NOT TO SCALE

DRAFT

RSM/esr  
February 3

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 2160  
Order No. R-2867

APPLICATION OF CONTINENTAL OIL  
COMPANY FOR A QUADRUPLE COMPLE-  
TION IN THE GREENHORN FORMATION,  
IN THE DAKOTA FORMATION, IN THE  
MESAVERDE FORMATION, AND IN THE  
GALLUP FORMATION, RIO ARriba  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

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Examiner duly appointed by the Oil Conservation Commission of New  
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the production of hydrocarbons from the Dakota formation through  
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the production of hydrocarbons from the Mesaverde formation  
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(3) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

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DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.