

CASE 3518: Application of PAN AM.
for an unorthodox location and
possible directional drilling.

CASE NO.
3518

Application,
TRANSCRIPTS,
SMALL Exhibits
ETC.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

February 1, 1967


Mr. Lewis C. Ross
Pan American Petroleum Corporation
Security Life Building
Denver, Colorado
80202

Re: Case No. 3518
Order No. R-3186
Applicant:
Pan American Petroleum Corp.

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

ALP/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. 3518
Order No. R-3186

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR AN UNORTHODOX LOCATION
AND POSSIBLE DIRECTIONAL DRILLING, SAN
JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 25, 1967, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 1st day of February, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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, Pan American Petroleum Corporation, seeks an exception to the Special Rules and Regulations for the Tocito Dome-Pennsylvanian "D" Pool to drill its Navajo Tribal "E" Well No. 9 at an unorthodox location 600 feet from the North line and 1200 feet from the West line of Section 20, Township 26 North, Range 18 West, NMPM, San Juan County, New Mexico, in order to be able to encounter the Pennsylvanian "D" producing section below the gas-oil contact and above the oil-water contact.

(3) That a well drilled at the proposed location is more likely to encounter the Pennsylvanian "D" producing section below the gas-oil contact and above the oil-water contact than a well drilled at a standard location for said pool and should, therefore, result in greater ultimate recovery of oil.

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CASE No. 3518

Order No. R-3186

(4) That the applicant also seeks permission to intentionally deviate said well, if necessary, in such direction and to such extent as necessary to encounter the Pennsylvanian "D" producing section below the gas-oil contact and above the oil-water contact.

(5) That the directional drilling of the subject well will not impair correlative rights and may be necessary to enable the operator to encounter the Pennsylvanian "D" producing section in the desired relation.

(6) That the applicant should be permitted to directionally drill, if necessary, provided the subject well is bottomed no nearer than 100 feet to the outer boundary of the 160-acre proration unit to which it is dedicated.

(7) That approval of the subject application will afford the applicant the opportunity to produce its just and equitable share of the oil in the Tocito Dome-Pennsylvanian "D" Pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby granted an exception to the well location requirements of the Special Rules and Regulations governing the Tocito Dome-Pennsylvanian "D" Pool and is hereby authorized to drill its Navajo Tribal "N" Well No. 9 at an unorthodox location 600 feet from the North line and 1200 feet from the West line of Section 20, Township 26 North, Range 18 West, NMPM, San Juan County, New Mexico.

(2) That the applicant, Pan American Petroleum Corporation, is hereby authorized to set a whipstock at approximately 5500 feet in said Navajo Tribal "N" Well No. 9 and directionally drill said well, if necessary, in such direction and to such extent as necessary to encounter the Pennsylvanian "D" producing section below the gas-oil contact and above the water-oil contact;

PROVIDED HOWEVER, that said well shall be bottomed no nearer than 100 feet to the outer boundary of the 160-acre proration unit to which it is dedicated;

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CASE No. 3518

Order No. R-3186

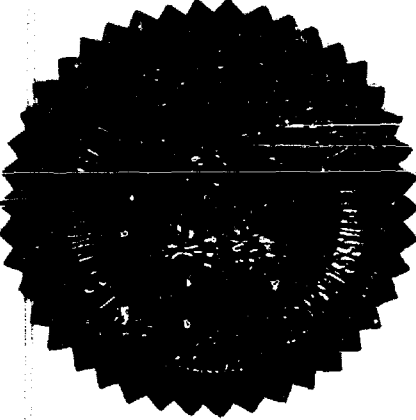
PROVIDED FURTHER, that a continuous multi-shot directional survey shall be made of the entire well bore with shot points not more than 100 feet apart; that the operator shall cause the surveying company to forward a copy of the survey report to the Santa Fe Office of the Commission, Box 2088, Santa Fe, New Mexico; that the operator shall notify the Commission's Aztec District Office of the date and time said survey is to commence.

(3) That Form C-105 shall be filed in accordance with Commission Rule 1105 and the operator shall indicate thereon true vertical depths in addition to measured depths.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



David F. Cargo
DAVID F. CARGO, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

esr/

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
PAN AMERICAN PETROLEUM CORPORATION
FOR AN ORDER PERMITTING THE DRILLING
OF ONE ADDITIONAL WELL IN THE
PENNSYLVANIAN "D" FORMATION, AS AN
EXCEPTION TO THE SPACING PROVISIONS
OF THE POOL RULES, AND ALLOW INTEN-
TIONAL DEVIATION IF NECESSARY, TOCITO DOME
PENNSYLVANIAN "D" POOL, SAN JUAN COUNTY,
NEW MEXICO.

Case
3518

APPLICATION

COMES NOW Pan American Petroleum Corporation and respectfully presents this Application to the Oil and Gas Conservation Commission of the State of New Mexico for an order permitting the drilling of one (i) additional well in the Pennsylvanian "D" formation, Tocito Dome Penn "D" Pool, San Juan County, New Mexico. In support of this Application, Pan American Petroleum Corporation states:

1. That the Applicant, Pan American Petroleum Corporation (hereinafter called Pan American or Applicant) is a Delaware Corporation and is duly authorized to transact business in, and is transacting business in the State of New Mexico.
2. That Pan American is Operator and sole Working Interest Owner of the Navajo Tribal "N" Lease which lies within the Tocito Dome Pennsylvanian "D" Pool limits as specified in Order R-2758, on which the proposed well is located.
3. That the Oil and Gas Conservation Commission of the State of New Mexico has adopted Pool Rules, Order No. R-2758, which in part established 160-acre drilling and spacing units for all oil wells. That each standard drilling and spacing unit under said order consists of a governmental quarter section comprising 160 acres or of a non-standard unit consisting of less than 160 acres comprising a governmental quarter-quarter section or lot, or governmental quarter-quarter sections or lots contiguous by common bordering sides and lying within a governmental quarter section, with the permitted well located as near the center of a governmental quarter-quarter section as possible with a tolerance of 150 feet in any direction from the center location.
4. That Applicant proposes that a well be drilled as an exception to the Commission's Tocito Dome Pennsylvanian "D" Pool Rule at the following surface location:

Navajo Tribal "N" No. 9
600 FNL and 1200 FWL
Section 20, T26N-R18W

Applicant states that a well drilled at the above-described location will be more than 150 feet from the center of a governmental quarter-quarter section, and that an exception to Order No. R-2758 is therefore necessary before it may be drilled.

5. That an engineering and geological investigation in the Pennsylvanian "D" reservoir in the Tocito Dome Pennsylvanian "D" Pool indicates the producing mechanism is an active water drive and gas cap expansion. That because of the well density which exists in the reservoir, certain portions of the reservoir are not being completely drained and a considerable amount of oil remains unrecoverable through the present wells.

6. That if the additional producing well is drilled at the above-described location, said well will be productive of oil in paying quantities, will increase the ultimate recovery from the said pool, and will recover oil from said pool which cannot be recovered by any other producing well in the field.

7. That it is imperative that the Pennsylvanian "D" producing section be encountered above the oil-water contact and below the gas-oil contact. That based on our present interpretation of the structure using available control, the proposed location will encounter the Pennsylvanian "D" producing section at a datum which will be commercially productive. That the well control in this under-developed area is, however, interpretive and not definite. That if the Pennsylvanian "D" producing section is found above the gas-oil contact or below the oil-water contact, the well should be intentionally deviated in the direction necessary to encounter the producing section on the drilling and spacing unit at the desired datum to obtain a commercial well.

8. That Pan American is the sole owner and operator of all direct and diagonally offsetting 160-acre pattern locations, that these tracts all have identical royalty ownership, and that no person other than Pan American and the royalty owner under these lands will be affected by the granting of this application.

9. That consent on behalf of the royalty owner under the lease on which the well will be drilled has been obtained to the drilling thereof at the location, and in the manner herein set out.

Wherefore, Pan American respectfully requests that it be granted an exception from Order No. R-2758, Tocito Dome Pennsylvanian Pool Rules, which will permit the drilling of a well at the location above set out, and that it be granted an exception to Rule 111 for permission to intentionally deviate the hole, if in the drilling of the well it finds that such deviation is necessary in order to encounter the producing formation at the optimum location within the drilling unit. Since Applicant

and its royalty owner are the only parties who would be affected by the granting of the Application, Applicant requests that a hearing on this matter be waived and that this Application be granted upon the basis of the evidence contained in this verified Application. If the Commission is of the opinion that this Application cannot be granted without a hearing, Applicant requests that this matter be set for hearing, notice thereof given as required by law, and that the hearing be held at the earliest convenient time.

Respectfully submitted,

PAN AMERICAN PETROLEUM CORPORATION

By J. B. Richards

STATE OF COLORADO)
) SS
COUNTY OF DENVER)

S. B. RICHARDS, of lawful age, being first duly sworn on oath, deposes and says: That he is Division Joint Interest Superintendent of PAN AMERICAN PETROLEUM CORPORATION. That he has read the foregoing Application and knows the contents thereof, and states that the matters therein set forth are true and correct to the best of his information, knowledge, and belief.

J. B. Richards

Subscribed and sworn before me this 20th day of December, 1966.

Kathleen L. Allison

My Commission expires 7/26/70.

No. 591846

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>McLeod Co</i>		POSTMARK OR DATE MIDLAND, TX OCT 26 1966 USPO
STREET AND NO. <i>Box 633</i>		
P. O., STATE, AND ZIP CODE <i>City</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input checked="" type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee
POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL (See other side)		

No. 591844

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>Shelton Co</i>		POSTMARK OR DATE MIDLAND, TX OCT 26 1966 USPO
STREET AND NO. <i>Box 1509</i>		
P. O., STATE, AND ZIP CODE <i>City</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee
POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL (See other side)		

No. 591845

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>Shelton Co</i>		POSTMARK OR DATE MIDLAND, TX OCT 26 1966 USPO
STREET AND NO. <i>Box 1938</i>		
P. O., STATE, AND ZIP CODE <i>Terrell, TX</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input checked="" type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee
POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL (See other side)		

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Leard 1-25-67

Res. 1-25-67

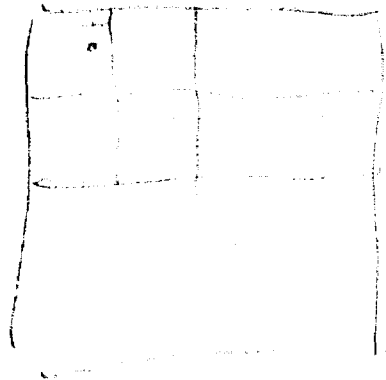
Grant Perm. a new well location
for their Navajo Tribal 'N' # 9, 600'/N
and 1200'/W lines of sec. 20 26N-18W.

Also grant permission to ~~intentionally~~
deviate the well in the event it is
necessary in order to penetrate the
oil zone rather than the Gas zone.

The Pool is the Torito Dome - Pennsylvanian
ian 'D' ~~is~~ associated pool.

The ~~well~~ deviated hole (if drilled)
shall bottom closer than 100' from
the ^{160'} ~~provision~~ ^{provision} unit outside boundary.

Thos. R.



DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 25, 1967

9 A. M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3516: Application of Texas Pacific Oil Company for several non-standard gas proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the rededication of certain acreage and the establishment of the following non-standard gas proration units in Township 23 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico:

A 200-acre non-standard unit comprising the SE/4 of Section 20 and the NW/4 SW/4 of Section 21, dedicated to its State "A" A/c-1 Well No. 2 located 2260 feet from the South line and 330 feet from the West line of said Section 21;

A 160-acre non-standard unit comprising the E/2 SW/4, SW/4 SW/4, and SW/4 SE/4 of Section 21 dedicated to its State "A" A/c-1 Well No. 8 located 660 feet from the South line and 1980 feet from the East line of said Section 21;

A 160-acre non-standard unit comprising the SW/4 of Section 4, dedicated to its State "A" A/c-1 Well No. 18 located 660 feet from the South and West lines of said Section 4;

An 80-acre non-standard unit comprising the S/2 NW/4 of Section 4 dedicated to its State "A" A/c-1 Well No. 15 located 1980 feet from the North and West lines of said Section 4;

A 120-acre non-standard unit comprising the N/2 NW/4 and NW/4 NE/4 of Section 4, dedicated to its State "A" A/c-1 Well No. 23 located 660 feet from the North line and 2310 feet from the East line of said Section 4;

A 160-acre non-standard unit comprising the W/2 SW/4, SE/4 SW/4, and SW/4 SE/4 of Section 9 dedicated to its State "A" A/c-1 Well No. 12 located 660 feet from the South line and 1980 feet from the East line of said Section 9.

CASE 3517: Application of Pan American Petroleum Corporation for a vapor recovery system, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to install, at its central tank battery for the Navajo Tribal P, N, and U Leases in the Tocito-Dome Pennsylvanian "D" Pool, San Juan County, New Mexico, a vapor recovery system including facilities for extracting the liquids from said vapor, with a provision that said liquids would not be chargeable to the oil allowable for said leases.

- CASE 3518: Application of Pan American Petroleum Corporation for an unorthodox location and possible directional drilling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the Tocito Dome-Pennsylvanian "D" Pool rules as promulgated by Order No. R-2758 to permit the drilling of its Navajo Tribal "N" Well No. 9 at an unorthodox location 600 feet from the North line and 1200 feet from the West line of Section 20, Township 26 North, Range 18 West, Tocito Dome-Pennsylvanian "D" Pool, San Juan County, New Mexico. Applicant further seeks authorization, if the Pennsylvanian "D" producing section is found above the gas-oil contact or below the oil-water contact, to intentionally deviate said well in such direction and to such extent as necessary to obtain a commercial well, provided that said well would not be bottomed any nearer than 100 feet to the outer boundary of the 160-acre proration unit.
- CASE 3519: Application of Robert N. Enfield for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Chaveroo-San Andres Pool underlying the NW/4 NW/4 of Section 11, Township 8 South, Range 33 East, Chaves County, New Mexico.
- CASE 3520: Application of Southern Natural Gas Company for the creation of a new pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new pool for Wolfcamp production for its State "C" Well No. 1 located in Unit C of Section 11, Township 11 South, Range 33 East, Lea County, New Mexico, and for the promulgation of special rules therefor, including a provision for 80-acre proration units.
- CASE 3521: Application of Sinclair Oil & Gas Company for three waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute three waterflood projects in the Grayburg-Jackson Pool by the injection of water into the Grayburg-San Andres formations through two wells on its Russell Lease, eight wells on its Turner "A" lease, and nine wells on its Turner "B" lease in Sections 17, 18, 19 and 20, Township 17 South, Range 31 East, Eddy County, New Mexico.
- CASE 3522: Application of Texaco Inc. for suspension of cancellation of underproduction and extension of deliverability test deadline, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order suspending the scheduled cancellation of the underproduction attributable on July 31, 1966, to its H. J. Loe Federal B Wells Nos. 2 and 3, located in Section 23, Township 29 North, Range 12 West, Basin-Dakota Gas Pool, San Juan County, New Mexico, said underproduction not having been made-up during the 6 months period ending January 31, 1967, due to said wells having been shut-in November 10, 1966,

Docket No. 3-67

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(Case 3522 continued)

upon the transfer of the connecting pipeline from an intra-state status to an interstate status and delay in obtaining FPC approval for the sale of gas from said wells in interstate commerce. Applicant further seeks an extension of time in which to conduct the 1966 deliverability test of the Loe Well No. 3 until after FPC approval for gas sales has been received, and the well restored to production.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF PAN AMERICAN PETROLEUM COR-)
PORATION FOR AN UNORTHODOX LOCA-) No. 3518
TION AND POSSIBLE DIRECTIONAL DRILL-)
ING, SAN JUAN COUNTY, NEW MEXICO.)

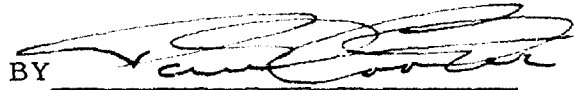
ENTRY OF APPEARANCE

The undersigned, Atwood & Malone, of Roswell, New Mexico,
a firm of attorneys whose members are duly licensed to practice law
in the State of New Mexico, hereby enters its appearance in this cause
as New Mexico counsel for Pan American Petroleum Corporation.

DATED at Roswell, New Mexico, this 16th day of January, 1967.

ATWOOD & MALONE

BY


Attorneys for Pan American
Petroleum Corporation
Post Office Drawer 700
Roswell, New Mexico



dearley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMAS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 25, 1967

APPLICATION OF PAN AMERICAN
PETROLEUM CORPORATION FOR
AN UNORTHODOX LOCATION AND
POSSIBLE DIRECTIONAL DRILLING,
SAN JUAN COUNTY, NEW MEXICO.

Case 3518

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3518.

MR. HATCH: Case 3518, application of Pan American Petroleum Corporation for an unorthodox location and possible directional drilling, San Juan County, New Mexico.

MR. ROSS: If it please the Commission, I am Lovis C. Ross with the law department of the Denver Division of the Pan American Petroleum Corporation, Denver, Colorado, and I believe this is true, Mr. Hatch, hasn't Atwood entered their appearance in this Case also?

MR. HATCH: Yes, sir.

MR. ROSS: Let the record so show, if you please. We have one witness in this case. It seems to be Tocito Dome's day for us, Mr. George Eaton.

* * * *

GEORGE EATON, called as a witness on behalf of the applicant, having previously been sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROSS:

Q Mr. Eaton, you realize that you are still under oath, do you not?

A Yes.

MR. UTZ: Let the record so show.

Q (By Mr. Ross) Have you ever testified before this Commission except just recently?

A Yes, sir, I have.

MR. ROSS: Are the qualifications of the witness satisfactory to the Commission?

MR. UTZ: Yes.

(Whereupon Applicant's Exhibits One through Three were marked for identification.)

MR. ROSS: Very well.

Q (By Mr. Ross) Mr. Eaton, you have an Exhibit One, I see, which shows the reservoir of the Tocito Dome Field. I wish you would explain Exhibit One to the Commission and, insofar as it is significant, in this case.

A Exhibit Number One is a map of a portion of the Tocito Dome, Pennsylvanian "D" Pool in San Juan County, New Mexico. The contour lines shown on Exhibit Number One are on the top of the Pennsylvanian "D" porosity zone. The contour interval is ten feet. You will notice that there are several different colors exhibited on this exhibit. These colors identify that portion of the reservoir which is above the gas-oil contact and that is colored in a light pink; that portion colored in green is the interval between the gas-oil contact and the water-oil contact or the oil column. That portion which is tinted lightly in blue, is that portion which lies below the water-oil contact as shown on Exhibit One. The approximate location of the original gas-oil contact was at

minus 510 feet subsea. The approximate location of the original water-oil contact is at approximately minus 550 subsea. I believe the Exhibit shows it to be minus 552.

Also shown on Exhibit One is a trace -- identified with the orange line and labeled, moving from west to east, AA prime, and from north to south as AB. This is the trace of a cross section which is depicted on Pan American's Exhibit Two in this case, identified with the bright orange arrow pointing to an orange spot or dot on this map as the location which is the subject of this application. This is the location for Pan American's proposed well, the Navajo Tribal N. Number Nine, which is to be located 600 feet from the north line and 1200 feet from the west line of Section 20, Township 26, north Range 18 west. In this portion of the Tooto Dome-Pennsylvanian "D" pool, which is shown on Exhibit One, all of the leases are Navajo Tribal Leases and all of the working interests in these leases is owned by Pan American with the exception of the leases owned by Mobil in Section 9 and 10 in this Exhibit.

The numbers which appear beside the individual wells on Exhibit One show the, or recent test information obtained from the well. The oil rate on this test is identified by underscoring in green, the water rate by underscoring in blue, the gas rate by underscoring in red, and the gas-oil ratio by underscoring in brown. These numbers are posted to this Exhibit to

show that in nearly every case, the oil wells, or those wells which appear with the blue dot and in the area colored green, either have a high gas-oil ratio or they produce water, or they have both a high gas-oil ratio and produce water. For this reason, it is essential that a new well location be spotted so as to intersect the oil column at approximately the mid point.

There are no wells, neither gas nor oil, in the northwest quarter of Section 20, the location for the proposed Navajo Tribal "N" Number Nine well. The nearest oil well is the Navajo Tribal "N" Number Two to the southeast, approximately 2600 feet. The nearest oil well to the northwest is the Navajo Tribal "N" Number Four, at approximately 5600 feet to the northwest. With this great a distance between producing wells, it is felt that a well is needed in the southwestern portion of the Pool, preferably in the northwest section of Section 20, to provide drainage of the reservoir in this particular area. I believe this is all I had on the Exhibit One, Mr. Ross.

MR. ROSS: Very good. Now, Mr. Commissioner, I will introduce all these at the end, after they are explained.

Q (By Mr. Ross) Would you please explain Exhibit Two and its significance with regard to your application?

A Exhibit Two is a cross section which I described as appearing on Exhibit One. It is drawn in such a manner to show the structural relationship that exists in the southwestern portion of the pool and more particularly the area that we propose to drill, in which we propose to drill the Navajo Tribal "N" Number Nine.

The most westerly well that is shown on the cross section is the Navajo Tribal "N" Number Seven, a dry hole; not because it had no porosity development, but because the porosity development occurred below the oil-water contact, progressing up-dip to the Navajo Tribal "N" Number One. This porosity development can be traced between these two wells, but in that distance, the porosity has climbed in an upward direction to the extent that that well is a gas well. It lies entirely above the gas-oil contact.

Likewise, the right-hand portion of the cross section shows how the formation dips to the south and grades from a gas column to an oil column and down to a water column as depicted by the dry hole on the extreme right-hand portion of the cross section which shows that well. In that well, the porosity occurred entirely below the oil-water contact. I skipped across the heavy green line between the first and second wells on the left-hand side of the cross section. This line identifies the approximate location that we hope Navajo

Tribal "N" Number Nine will occur in, as it penetrates this Pennsylvanian "D" porosity zone. As indicated, this well will penetrate the top of that porosity zone at minus 525 or at approximately the mid point between the original of the gas-oil contact and the water-oil contact.

We feel that it is most necessary that this well penetrate this porosity interval at approximately this elevation. This is because of a condition that I described where nearly all of the wells, either have high gas-oil ratios or they produce water or they do both, have high ratios and they produce water. So, to achieve maximum recovery, the well needs to penetrate this zone at approximately a midway point between the gas-oil contact and the water-oil contact so to prolong this water free and gas-oil ratio performance as long as possible.

This is the basis on which we are requesting the unorthodox location under the Tocito Dome-Pennsylvanian "D" Pool Rules, "A" standard locations which are a hundred and fifty feet of the center of any quarter quarter section in a quarter section. That means that a well, to be located in the northeast quarter of the northwest quarter of Section 20, would have to be located between 1730 feet and 2130 feet from the west line and 510 feet to 810 feet from the north line of Section 20.

Using these distances as a criteria, the location is actually orthodox with respect to its distance from the north line of Section 20. It is only unorthodox because it does not fall in the proper distance with respect to the west line of Section 20. Our application actually is in two parts, the part that I have described so far has to do with the unorthodox location, the second part of the application has to do with possible intentionally, deviating the hole so to achieve the result in case our approximation and our map doesn't accurately and exactly reflect the condition in the reservoir when we get the well drilled.

We feel that it is so necessary, for this well to achieve maximum recovery, it should penetrate the Pennsylvanian "D" porosity zone at approximately the mid-point between the gas-oil contact and the water-oil contact; that the second part of our application provides a method in which to achieve this end, in case our present interpretation of construction in this particular area doesn't prove out when we get the well started.

To illustrate the intention of that portion of the application, I would like to have you look at what has been identified as Pan American's Exhibit Number Three. This Exhibit is a portion of the Schlumberger J. induction electrical log on Navajo Tribal "N" Number Two, which is the oil well

in the same section as the proposed Navajo Tribal "N" Nine. On Exhibit Three there have been identified eleven zones so marked with a heavy blue line and labeled Zone One through Zone Eleven. Actually, these things are marker beds and they appear to be good markers with respect to once these beds are found in a well, they can be used to project downward to this Pennsylvanian "D" zone.

So, in words of one syllable, what we plan to do is to drill the well down to a depth of approximately 2500 feet. This will penetrate zones six through eleven marker zones. At that point we will run an electric log, and using these zones as marker horizons, project downward without knowing the elevation of the well, and see whether or not this well is actually going to penetrate the Pennsylvanian "D" porosity zone at approximately a minus 525 feet. If it appears that it will penetrate the zone at a substantially higher elevation, we would then want to intentionally deviate the well in a direction which would place the well bore at the location that it penetrates the Pennsylvanian "D" porosity in a down-dip direction, and according to Exhibit Number One, this would be to the southwest of the surface location.

If it appears that the map is drawn optimistically and that when we get down to 2500 feet, we are going to penetrate down here below minus 550 or even close to minus 550,

then we would want to intentionally deviate the well in a direction which would permit it to intersect the Pennsylvanian "D" porosity at a higher level. That would be in a northerly direction as indicated by the map shown on Exhibit One. In no case is there any intention of deviating the well closer than a hundred feet from the unit boundary.

I believe that's all I had on these, Mr. Ross.

Q Would you give the Commission your opinion as to how this would aid a conservation measure?

A This well is expected to increase recovery about 130,000 barrels of oil.

MR. ROSS: I believe that's all we have, gentlemen.

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

CROSS EXAMINATION

BY MR. UTZ:

Q Pan American owns all the acreage within a mile of this well, does it not?

A I don't know. Let me think. I don't know about -- Do we own the acreage south of this Section 20?

MR. ROSS: I don't think it shows on that map.

A Yes. Pan American does not own acreage in Section 29, which actually is within a mile of the location.

MR. ROSS: That section is outside the known reservoir, isn't it?

THE WITNESS: Yes, it is.

Q (By Mr. Utz) Mr. Eaton, does Pan American own all the offset drill tracts to this location?

A Yes, they do.

MR. UTZ: That's all. Any other questions?

MR. ROSS: I believe that concludes our case.

MR. UTZ: The witness may be excused.

(Witness excused.)

MR. UTZ: Statements?

MR. ROSS: I really have no statement in this case except to say it was a much simpler case to present than the last one. We beg your favorable attention to our application. I would like to offer into evidence our Exhibits One, Two and Three which the Commission has.

MR. UTZ: Without objection, Exhibits One, Two and Three will be admitted into evidence

(Whereupon, Exhibits 1, 2 and 3 were admitted in evidence.)

MR. ROSS: That concludes our case.

MR. UTZ: The case will be taken under advisement.

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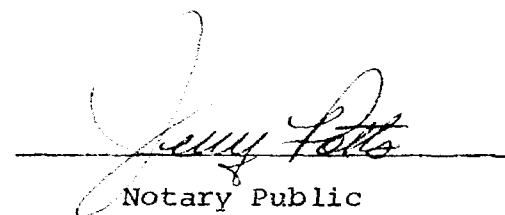
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STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

I, Jerry Potts, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

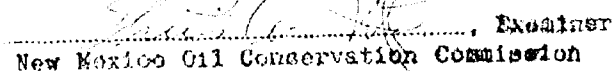
Witness my Hand and Seal this 10th day of April, 1967


Notary Public

My Commission expires:

July 16, 1970

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 33246, heard by us on April 25, 1967.


Examiner
New Mexico Oil Conservation Commission