

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 Texaco EXHIBIT NO. D
 CASE NO. 3073

EXHIBIT "D"

Economics of Development
 And Production
 Tocito Dome Area
 San Juan County, New Mexico

	<u>80-Acre</u>	<u>160-Acre</u>
<u>Estimated Production</u>		
Oil, Barrels	72,000	144,000
Gas, MMCF	270	540
Estimated Productive Life, Years	6	8
Present Worth Working Interest Income	\$162,000	\$310,000
Less Development and Operating Costs	\$142,000	\$167,000
Net Income	\$20,000	\$143,000

Handwritten notes:
 160 acre
 300 year
 70000
 100000

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 TEXACO EXHIBIT NO. E
 CASE NO. 3073

EXHIBIT "E"

Tabulation of Initial Bottom Hole Pressures
Tocito Dome Area
San Juan County, New Mexico

<u>WELL</u>	<u>RECORDED PRESSURE</u>	<u>DATUM</u>	<u>PRESSURE CORRECTED TO 525 FEET SUBSEA</u>
Pan American Navajo "N" No. 1	3199 psi	-495'	3207 psi
Pan American Navajo "P" No. 1	3215	-525'	3215
TEXACO Inc. Navajo "AL" No. 1	3167	-386	3206

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Texaco EXHIBIT NO. <u>F</u>
CASE NO. <u>3073</u>

EXHIBIT "F"

Proposed Special Rules and Regulations
for the Tocito Dome-Pennsylvanian Pool
San Juan County, New Mexico

RULE 1.

Each well completed or recompleted in the Pennsylvanian formation within the boundary of the Tocito Dome-Pennsylvanian Pool or within one mile thereof, and not nearer to nor within the boundaries of another designated Penn. pool, shall be drilled, spaced, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2.

(a) Each gas well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a tract consisting of approximately 640 acres which may reasonably be presumed to be productive of gas from said Pool, and which shall comprise a single governmental section of the United States Public Lands Survey. For purposes of these Rules, a unit consisting of between 632 and 645 surface contiguous acres shall be considered a standard gas unit. Nothing contained herein shall be construed as prohibiting the drilling of a gas well on each quarter section in the 640-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ Wells may be drilled on non-standard spacing units as exceptions to Rule 2(a) after notice and hearing and where the following provisions are complied with:

- (1) The non-standard unit consists of contiguous quarter-quarter sections or lots.
- (2) The entire non-standard unit may reasonably be presumed to be productive of gas from said pool.
- (3) The applicant presents proof of the fact that all offset operators, and all operators owning interests in the section in which any part of the non-standard unit is situated and which acreage is not included in the non-standard unit were notified by registered mail of his intent to form a non-standard gas unit.
- (4) The allowable assigned to any such non-standard gas proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 640 acres.

RULE 3.

(a) Each oil well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a unit containing approximately 160 acres, which may reasonably be presumed to be productive of oil from said pool, and which consists of a single governmental quarter section. For purposes of these Rules, a unit consisting of between 158 and 162 surface contiguous acres shall be considered a standard unit. Nothing contained herein shall be construed as prohibiting the drilling of an oil well on each of the Quarter-quarter sections in the 160-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ Wells may be drilled on the following non-standard spacing units as exceptions to Rule 3 (a) after notice and hearing and where the following provisions are complied with:

- (1) On non-standard 120-acre unit comprising three governmental quarter-quarter sections lying within a governmental quarter section and contiguous by common bordering sides; or
- (2) On a non-standard 80-acre unit comprising two governmental quarter-quarter sections lying within a governmental quarter section and contiguous by a common bordering side, or
- (3) On a non-standard 40-acre unit comprising a single governmental quarter-quarter section.
- (4) The entire non-standard unit may reasonably be presumed to be productive of oil from said pool.
- (5) The applicant will furnish proof of the fact that all of the offset operators were notified by registered mail of his intent to form such non-standard unit.

(c) A standard proration unit shall be assigned a 160-acre proportional factor of 4.77 for allowable purposes.

(d) The allowable assigned to any such non-standard oil proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 160 acres.

(e) In order to make interference tests the District Supervisor shall have authority to approve, without notice and hearing and without administrative approval by the Secretary-Director, application by operators to shut in one of the wells completed in said pool and to transfer its allowable to any other completed well or wells on the same basic lease, or on leases with identical ownership; which are producing from said pool. Provided, however, that such allowable transfer shall be limited to a period not to exceed six (6) months.

RULE 4.

(a) Each well, oil or gas, completed or recompleted in the Tocito Dome-Penn. Pool shall be located no closer than 510 feet to any quarter section line and each such well shall be located within 150 feet of the center of ~~the NW $\frac{1}{4}$ or SE $\frac{1}{4}$~~ of any quarter section. Any well drilled and producing from the Tocito Dome-Penn. Pool prior to the effective date of this Order at a location conforming to the well location requirements in effect at the time the well was drilled shall be considered to be located in conformance with this Rule.

(b) The Secretary-Director shall have authority to grant an exception to Rule 4 (a) without notice and hearing when the application has been filed in due form and the Secretary-Director determines that good cause exists for granting such exception. However, such an unorthodox location, if approved, may necessitate an allowable adjustment.

Applicant shall furnish all offset operators a copy of the application to the Commission, and the applicant shall include with his application a list of the names and addresses of all such operators together with a stipulation that proper notice has been given said operators at the addresses listed. The Secretary-Director of the Commission shall wait at least 20 days before approving any such unorthodox location, and only in the absence of objection from an offset operator may such application be approved.

RULE 5.

A well in the Tocito Dome-Penn. Oil Pool shall be classified as a gas well if it has a gas-liquid ratio of 20,000 cubic feet of gas per barrel of liquid hydrocarbons, or more. A well in said pool shall be classified as an oil well if it has a gas-liquid ratio of less than 20,000 cubic feet of gas per barrel of liquid hydrocarbons. The simultaneous dedication of any acreage to both an oil well and a gas well is strictly prohibited.

RULE 6.

The gas-liquid ratio limitation for the Tocito Dome-Penn. Oil Pool shall be 4,000 cubic feet of gas per barrel of liquid hydrocarbons produced.

RULE 7.

Any oil well in the Tocito Dome-Penn. Oil Pool which has 160 acres dedicated to it shall be permitted to produce an amount of gas determined by multiplying the top unit oil allowable for said pool by the limiting gas-liquid ratio for the pool (4,000). In the event there is more than one oil well on a 160-acre oil proration unit, the operator may produce the allowable assigned to the 160-acre unit from said wells in any proportion.

Any gas well in the Tocito Dome-Penn. Oil Pool shall be permitted to produce that amount of gas obtained by multiplying the top unit oil allowable for the pool by 4,000 by a fraction, the numerator of which is the number of acres dedicated to the particular gas well and the denominator of which is 160. In the event there is more than one gas well on a 640-acre gas proration unit, the operator may produce the

amount of gas assigned to the unit from said wells in any proportion.

RULE 8.

The operator of each newly completed well in the Tocito Dome-Penn. Oil Pool shall cause a gas-liquid ratio test to be taken on said well upon recovery of all load oil from the well, provided, however, that in no event shall the test be commenced * sooner than 20 days nor later than 30 days from the date of first production. Provided further, that any well which is shut in shall be exempted from the aforesaid gas-liquid ratio test requirement so long as it remains shut in. The initial gas-liquid ratio test shall be taken in the manner prescribed by Rule 9. If the gas-liquid ratio is 20,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, the operator shall not produce the well until beneficial use can be made of the gas.

RULE 9.

Gas-liquid ratio tests shall be taken on all wells in the Tocito Dome-Penn. Oil Pool, and on all wells producing from the Penn. formation within one mile of the boundaries of the Tocito Dome-Penn. Oil Pool which are not within another designated Penn. oil pool, during the months of January and July of each year. The initial gas-liquid ratio test shall suffice as the first semiannual test. Tests shall be 24-hour tests being the final 24 hours of a 72-hour period during which the well shall be produced at a constant normal rate of production. Results of such tests shall be filed on Commission Form C-116 on or before the 10th day of the following month. At least 72 hours prior to commencement of any such gas-liquid ratio tests, each operator shall file with the Aztec office of the Commission a test schedule for its wells, specifying the time each of its wells is to be tested. Copies of the test schedule shall also be furnished to all offset operators.

Special tests shall also be taken at the request of the Secretary-Director and may also be taken at the option of the operator. Such special tests shall be taken in accordance with the procedures outlined hereinabove, including notification to the Commission and offset operators.

RULE 10.

An initial shut-in pressure test shall be taken on each gas well and shall be reported to the Commission on Form C-125.

RULE 11.

Any well completed in the Tocito Dome-Penn. after the effective date of this Order shall receive an allowable only upon receipt by the Commission's Aztec Office of Commission Forms C-104, C-110, and C-116, all properly executed. The District Supervisor of the Commission's Aztec Office is hereby authorized to assign a temporary gas allowable to wells connected to a gas transportation facility during the recovery of load oil, which allowable shall not exceed the number of cubic feet of gas obtained by multiplying the daily top unit allowable for the Tocito Dome-Penn. Oil Pool by 4,000.

RULE 12.

The initial gas proration period shall be from 7 o'clock a.m. on August 1, 1964 to 7 o'clock a.m. on February 1, 1965. Subsequently, the dates 7 o'clock a.m. February the first and 7 o'clock a.m. August the first shall be known as balancing dates, and the periods of time bounded by these dates shall be known as the gas proration periods for the Tocito Dome-Penn. Oil Pool.

RULE 13.

Any gas well which has an underproduced status as of the end of a gas proration period shall be allowed to carry such underproduction forward into the next gas proration period and may produce such underproduction in addition to the allowable assigned during such succeeding period. Any allowable carried forward into a gas proration period and remaining unproduced at the end of such gas proration period shall be cancelled.

RULE 14.

Production during any one month of a gas proration period in excess of the allowable assigned to a well for such month shall be applied against the underproduction carried into such period in determining the amount of allowable, if any, to be cancelled.

RULE 15.

Any well which has an overproduced status as of the end of a gas proration period shall carry such overproduction forward into the next gas proration period, provided that such overproduction shall be compensated for during such succeeding period. Any well which has not compensated for the overproduction carried into a gas proration period by the end of such proration period shall be shut in until such overproduction is compensated for. If, at any time, a well is overproduced an amount equalling three times its current monthly allowable, it shall be shut in during that month and each succeeding month until the well is overproduced less than three times its current monthly allowable.

RULE 16.

The allowable assigned to a well during any one month of a gas proration period in excess of the production for the same month shall be applied against the overproduction carried into such period in determining the amount of overproduction, if any, which has not been compensated for.

RULE 17.

The Commission may allow overproduction to be compensated for at a lesser rate than would be the case if the well were completely shut in upon a showing after notice and hearing that complete shut in of the well would result in material damage to the well and/or reservoir.

RULE 18.

Each purchaser or taker of gas shall submit a report to the Commission on or before the 15th day of the month next succeeding the month in which the gas was purchased or taken. Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the oil proration schedule.

RULE 19.

Failure to comply with any provision of this Order or the Rules contained herein shall result in the immediate cancellation of allowable assigned to the affected well. No further allowable shall be assigned until all Rules and Regulations have been complied with. The District Supervisor shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

RULE 20.

All transporters or users of gas shall file gas well-connection notices with the Commission as soon as possible after the date of connection.

RULE 21.

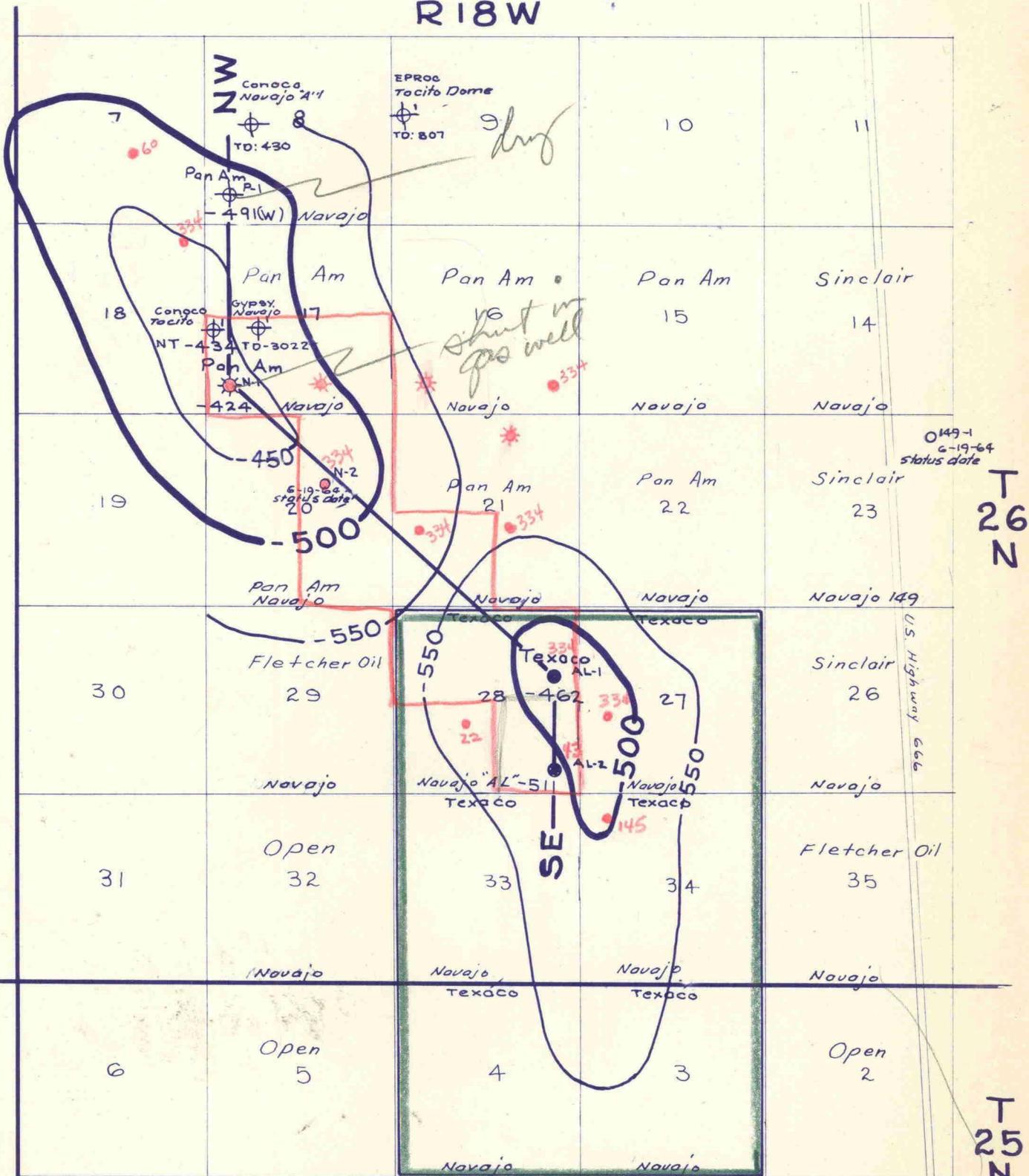
Allowables to wells whose classification has changed from oil to gas or from gas to oil as the result of a gas-liquid ratio test shall commence on the first day of the month following the month in which such test was reported, provided that a plat (Form C-128) showing the acreage dedicated to the well and the location of all wells on the dedicated acreage have been filed.

RULE 22.

The vertical limits of the Tocito Dome-Penn. Oil Pool shall be the Penn. formation.

Red wells & allowables
 Drawn from July 1965 sketch

R18W



0149-1
 6-19-64
 status date

T 26 N

T 25 N

LEGEND

- ⊕ Dry hole
- ★ Gas Well, Paradox-Penn.
- Oil Well, Paradox-Penn.
- Outline of spaced area
- Location
- NT Not Tested
- 434 Top of Barker Creek
- 491(W) Tested water

TEXACO INC.
 DENVER COLORADO

**TOCITO DOME PENNSYLVANIAN FIELD
 CONTOURED ON TOP OF BARKER CREEK ZONE**

C.I. = 50'

SCALE: 1"=4000'

EXHIBIT "A"

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

May 22, 1964

RESERVOIR FLUID DIVISION

Texaco Inc.
P. O. Box 810
Farmington, New Mexico

Attention: Mr. A. G. Walsh

Subject: Reservoir Fluid Study
Navajo "AL" No. 1 Well
Undesignated (Tocito Dome) Field
San Juan County, New Mexico

Gentlemen:

Samples of separator liquid and vapor were collected from the subject well on May 6, 1964. These samples, together with a sample of stock tank liquid, were shipped to our Dallas laboratory for studies. The results of these studies are presented to you in this report.

The producing gas-liquid ratio measured in the field and after correction for the factors shown on page one of the report was 3290 cubic feet of separator gas at 14.7 psia and 60° F. per barrel of stock tank liquid at 60° F. In the laboratory this ratio was found to be equivalent to 3238 standard cubic feet of separator gas per barrel of separator liquid. The separator products were then physically recombined in this ratio and examined in a visual cell at the reservoir temperature of 159° F. The mixture exhibited a bubble point pressure of 5320 psig. This value is considerably above the reservoir pressure. When viewed at the reservoir pressure of approximately 3200 psig the system was found to be in two phases. Approximately 42 per cent of the system volume was liquid.

These results have been previously transmitted by telephone. The composition of the separator products and the stock tank liquids are presented on the following pages with the calculated composition of the producing

Exhibit C
Page 1

Texaco Inc.
Navajo "AL" No. 1 Well

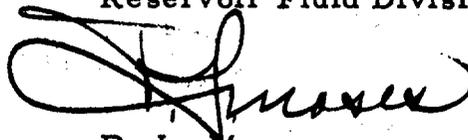
Page Two

well stream at the time the well was tested.

It was a pleasure to perform these tests for you. Should you have any questions, please do not hesitate to contact us.

Very truly yours,

Core Laboratories, Inc.
Reservoir Fluid Division

A handwritten signature in black ink, appearing to read "P. L. Moses", written over a horizontal line.

P. L. Moses
Operations Supervisor

PLM:jr

Exhibit C
Page 2

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Company Texaco Inc. Date Sampled May 6, 1964
 Well Navajo "AL" No. 1 County San Juan
 Field Undesignated (Tocito Dome) State New Mexico

FORMATION CHARACTERISTICS

Formation Name Pennsylvanian-Barber Creek
 Date First Well Completed May 3, 1964
 Original Reservoir Pressure 3214 PSIG @ 6285 Ft.
 Original Produced Gas-Liquid Ratio 2911 SCF/Bbl
 Production Rate _____ Bbls/Day
 Separator Pressure and Temperature _____ PSIG _____ ° F.
 Liquid Gravity at 60° F. _____ ° API
 Datum _____ Ft. Subsea

WELL CHARACTERISTICS

Elevation 5763 DF Ft.
 Total Depth 6910 Ft.
 Producing Interval 6275-6302 Ft.
 Tubing Size and Depth 2 - 3/8 In. to 6189 Ft.
 Open Flow Potential _____ MMSCF/Day
 Last Reservoir Pressure 3206 PSIG @ 6288 Ft.
 Date May 6, 1964
 Reservoir Temperature 157 ° F. @ 6150 Ft.
 Status of Well _____
 Pressure Gauge _____

SAMPLING CONDITIONS

Flowing Tubing Pressure 1892 PSIA
 Flowing Bottom Hole Pressure 2778 @ 6288 Ft. PSIA
 Primary Separator Pressure 55 PSIG
 Primary Separator Temperature 43 ° F.
 Secondary Separator Pressure _____ PSIG
 Secondary Separator Temperature _____ ° F.
 Field Stock Tank Liquid Gravity _____ ° API @ 60° F.
 Primary Separator Gas Production Rate 962.1 MSCF/Day
 Pressure Base 14.7 PSIA
 Temperature Base 60 ° F.
 Compressibility Factor (F_{pv}) 1.012
 Gas Gravity (Laboratory) 0.724
 Gas Gravity Factor (F_g) 1.1753
 Stock Tank Liquid Production Rate @ 60° F. 292.5 Bbls/Day
 Primary Separator Gas/ Stock Tank Liquid Ratio 3290 SCF/Bbl
 or 304.0 Bbls/MMSCF

Core Laboratories, Inc., Engineer

REMARKS:

Exhibit "C"
Page 3

EXHIBIT "D"

Economics of Development
And Production
Tocito Dome Area
San Juan County, New Mexico

	<u>80-Acre</u>	<u>160-Acre</u>
<u>Estimated Production</u>		
Oil, Barrels	72,000	144,000
Gas, MMCF	270	540
 Estimated Productive Life, Years	 6	 8
 Present Worth Working Interest Income	 \$162,000	 \$310,000
 Less Development and Operating Costs	 \$142,000	 \$167,000
 Net Income	 \$20,000	 \$143,000

EXHIBIT "E"

Tabulation of Initial Bottom Hole Pressures
Tocito Dome Area
San Juan County, New Mexico

<u>WELL</u>	<u>RECORDED PRESSURE</u>	<u>DATUM</u>	<u>PRESSURE CORRECTED TO 525 FEET SUBSEA</u>
Pan American Navajo "N" No. 1	3199 psi	-495'	3207 psi
Pan American Navajo "P" No. 1	3215	-525'	3215
TEXACO Inc. Navajo "AL" No. 1	3167	-386	3206

EXHIBIT "F"

Proposed Special Rules and Regulations
for the Tocito Dome-Pennsylvanian Pool
San Juan County, New Mexico

RULE 1.

Each well completed or recompleted in the Pennsylvanian formation within the boundary of the Tocito Dome-Pennsylvanian Pool or within one mile thereof, and not nearer to nor within the boundaries of another designated Penn. pool, shall be drilled, spaced, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2.

(a) Each gas well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a tract consisting of approximately 640 acres which may reasonably be presumed to be productive of gas from said Pool, and which shall comprise a single governmental section of the United States Public Lands Survey. For purposes of these Rules, a unit consisting of between 632 and 645 surface contiguous acres shall be considered a standard gas unit. Nothing contained herein shall be construed as prohibiting the drilling of a gas well on each quarter section in the 640-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ Wells may be drilled on non-standard spacing units as exceptions to Rule 2(a) after notice and hearing and where the following provisions are complied with:

- (1) The non-standard unit consists of contiguous quarter-quarter sections or lots.
- (2) The entire non-standard unit may reasonably be presumed to be productive of gas from said pool.
- (3) The applicant presents proof of the fact that all offset operators, and all operators owning interests in the section in which any part of the non-standard unit is situated and which acreage is not included in the non-standard unit were notified by registered mail of his intent to form a non-standard gas unit.
- (4) The allowable assigned to any such non-standard gas proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 640 acres.

RULE 3.

(a) Each oil well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a unit containing approximately 160 acres, which may reasonably be presumed to be productive of oil from said pool, and which consists of a single governmental quarter section. For purposes of these Rules, a unit consisting of between 158 and 162 surface contiguous acres shall be considered a standard unit. Nothing contained herein shall be construed as prohibiting the drilling of an oil well on each of the Quarter-quarter sections in the 160-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ wells may be drilled on the following non-standard spacing units as exceptions to Rule 3 (a) after notice and hearing and where the following provisions are complied with:

- (1) On non-standard 120-acre unit comprising three governmental quarter-quarter sections lying within a governmental quarter section and contiguous by common bordering sides; or
- (2) On a non-standard 80-acre unit comprising two governmental quarter-quarter sections lying within a governmental quarter section and contiguous by a common bordering side, or
- (3) On a non-standard 40-acre unit comprising a single governmental quarter-quarter section.
- (4) The entire non-standard unit may reasonably be presumed to be productive of oil from said pool.
- (5) The applicant will furnish proof of the fact that all of the offset operators were notified by registered mail of his intent to form such non-standard unit.

(c) A standard proration unit shall be assigned a 160-acre proportional factor of 4.77 for allowable purposes.

(d) The allowable assigned to any such non-standard oil proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 160 acres.

(e) In order to make interference tests the District Supervisor shall have authority to approve, without notice and hearing and without administrative approval by the Secretary-Director, application by operators to shut in one of the wells completed in said pool and to transfer its allowable to any other completed well or wells on the same basic lease, or on leases with identical ownership; which are producing from said pool. Provided, however, that such allowable transfer shall be limited to a period not to exceed six (6) months.

RULE 4.

(a) Each well, oil or gas, completed or recompleted in the Tocito Dome-Penn. Pool shall be located no closer than 510 feet to any quarter section line and each such well shall be located within 150 feet of the center of ~~the well or well~~ of any quarter section. Any well drilled and producing from the Tocito Dome-Penn. Pool prior to the effective date of this Order at a location conforming to the well location requirements in effect at the time the well was drilled shall be considered to be located in conformance with this Rule.

(b) The Secretary-Director shall have authority to grant an exception to Rule 4 (a) without notice and hearing when the application has been filed in due form and the Secretary-Director determines that good cause exists for granting such exception. However, such an unorthodox location, if approved, may necessitate an allowable adjustment.

Applicant shall furnish all offset operators a copy of the application to the Commission, and the applicant shall include with his application a list of the names and addresses of all such operators together with a stipulation that proper notice has been given said operators at the addresses listed. The Secretary-Director of the Commission shall wait at least 20 days before approving any such unorthodox location, and only in the absence of objection from an offset operator may such application be approved.

RULE 5.

A well in the Tocito Dome-Penn. Oil Pool shall be classified as a gas well if it has a gas-liquid ratio of 20,000 cubic feet of gas per barrel of liquid hydrocarbons, or more. A well in said pool shall be classified as an oil well if it has a gas-liquid ratio of less than 20,000 cubic feet of gas per barrel of liquid hydrocarbons. The simultaneous dedication of any acreage to both an oil well and a gas well is strictly prohibited.

RULE 6.

The gas-liquid ratio limitation for the Tocito Dome-Penn. Oil Pool shall be 4,000 cubic feet of gas per barrel of liquid hydrocarbons produced.

RULE 7.

Any oil well in the Tocito Dome-Penn. Oil Pool which has 160 acres dedicated to it shall be permitted to produce an amount of gas determined by multiplying the top unit oil allowable for said pool by the limiting gas-liquid ratio for the pool (4,000). In the event there is more than one oil well on a 160-acre oil proration unit, the operator may produce the allowable assigned to the 160-acre unit from said wells in any proportion.

Any gas well in the Tocito Dome-Penn. Oil Pool shall be permitted to produce that amount of gas obtained by multiplying the top unit oil allowable for the pool by 4,000 by a fraction, the numerator of which is the number of acres dedicated to the particular gas well and the denominator of which is 160. In the event there is more than one gas well on a 640-acre gas proration unit, the operator may produce the

amount of gas assigned to the unit from said wells in any proportion.

RULE 8.

The operator of each newly completed well in the Tocito Dome-Penn. Oil Pool shall cause a gas-liquid ratio test to be taken on said well upon recovery of all load oil from the well, provided, however, that in no event shall the test be commenced * sooner than 20 days nor later than 30 days from the date of first production. Provided further, that any well which is shut in shall be exempted from the aforesaid gas-liquid ratio test requirement so long as it remains shut in. The initial gas-liquid ratio test shall be taken in the manner prescribed by Rule 9. If the gas-liquid ratio is 20,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, the operator shall not produce the well until beneficial use can be made of the gas.

RULE 9.

Gas-liquid ratio tests shall be taken on all wells in the Tocito Dome-Penn. Oil Pool, and on all wells producing from the Penn. formation within one mile of the boundaries of the Tocito Dome-Penn. Oil Pool which are not within another designated Penn. oil pool, during the months of January and July of each year. The initial gas-liquid ratio test shall suffice as the first semiannual test. Tests shall be 24-hour tests being the final 24 hours of a 72-hour period during which the well shall be produced at a constant normal rate of production. Results of such tests shall be filed on Commission Form C-116 on or before the 10th day of the following month. At least 72 hours prior to commencement of any such gas-liquid ratio tests, each operator shall file with the Aztec office of the Commission a test schedule for its wells, specifying the time each of its wells is to be tested. Copies of the test schedule shall also be furnished to all offset operators.

Special tests shall also be taken at the request of the Secretary-Director and may also be taken at the option of the operator. Such special tests shall be taken in accordance with the procedures outlined hereinabove, including notification to the Commission and offset operators.

RULE 10.

An initial shut-in pressure test shall be taken on each gas well and shall be reported to the Commission on Form C-125.

RULE 11.

Any well completed in the Tocito Dome-Penn. after the effective date of this Order shall receive an allowable only upon receipt by the Commission's Aztec Office of Commission Forms C-104, C-110, and C-116, all properly executed. The District Supervisor of the Commission's Aztec Office is hereby authorized to assign a temporary gas allowable to wells connected to a gas transportation facility during the recovery of load oil, which allowable shall not exceed the number of cubic feet of gas obtained by multiplying the daily top unit allowable for the Tocito Dome-Penn. Oil Pool by 4,000.

RULE 12.

The initial gas proration period shall be from 7 o'clock a.m. on August 1, 1964 to 7 o'clock a.m. on February 1, 1965. Subsequently, the dates 7 o'clock a.m. February the first and 7 o'clock a.m. August the first shall be known as balancing dates, and the periods of time bounded by these dates shall be known as the gas proration periods for the Tocito Dome-Penn. Oil Pool.

RULE 13.

Any gas well which has an underproduced status as of the end of a gas proration period shall be allowed to carry such underproduction forward into the next gas proration period and may produce such underproduction in addition to the allowable assigned during such succeeding period. Any allowable carried forward into a gas proration period and remaining unproduced at the end of such gas proration period shall be cancelled.

RULE 14.

Production during any one month of a gas proration period in excess of the allowable assigned to a well for such month shall be applied against the underproduction carried into such period in determining the amount of allowable, if any, to be cancelled.

RULE 15.

Any well which has an overproduced status as of the end of a gas proration period shall carry such overproduction forward into the next gas proration period, provided that such overproduction shall be compensated for during such succeeding period. Any well which has not compensated for the overproduction carried into a gas proration period by the end of such proration period shall be shut in until such overproduction is compensated for. If, at any time, a well is overproduced an amount equalling three times its current monthly allowable, it shall be shut in during that month and each succeeding month until the well is overproduced less than three times its current monthly allowable.

RULE 16.

The allowable assigned to a well during any one month of a gas proration period in excess of the production for the same month shall be applied against the overproduction carried into such period in determining the amount of overproduction, if any, which has not been compensated for.

RULE 17.

The Commission may allow overproduction to be compensated for at a lesser rate than would be the case if the well were completely shut in upon a showing after notice and hearing that complete shut in of the well would result in material damage to the well and/or reservoir.

RULE 18.

Each purchaser or taker of gas shall submit a report to the Commission on or before the 15th day of the month next succeeding the month in which the gas was purchased or taken. Such report shall be filed on either Form C-111 or Form C-114 (whichever is applicable) with the wells being listed in approximately the same order as they are listed on the oil proration schedule.

RULE 19.

Failure to comply with any provision of this Order or the Rules contained herein shall result in the immediate cancellation of allowable assigned to the affected well. No further allowable shall be assigned until all Rules and Regulations have been complied with. The District Supervisor shall notify the operator of the well and the purchaser in writing of the date of allowable cancellation and the reason therefor.

RULE 20.

All transporters or users of gas shall file gas well-connection notices with the Commission as soon as possible after the date of connection.

RULE 21.

Allowables to wells whose classification has changed from oil to gas or from gas to oil as the result of a gas-liquid ratio test shall commence on the first day of the month following the month in which such test was reported, provided that a plat (Form C-128) showing the acreage dedicated to the well and the location of all wells on the dedicated acreage have been filed.

RULE 22.

The vertical limits of the Tocito Dome-Penn. Oil Pool shall be the Penn. formation.

TOGITO DOME PENNSYLVANIAN "D" POOL
 SAN JUAN COUNTY, NEW MEXICO
 BASIC RESERVOIR DATA

Porosity	9.2%
Permeability	148 Md
Water Saturation	25%
Oil Gravity, API	46
Gas Gravity	0.72
Condensate Gravity, °API	64
Bottom Hole Temperature, °F.	158
Bottom Hole Pressure, Original	3215 psia
Bottom Hole Pressure, 6-1-65	3005 psia
Cumulative Production, 6-1-65	
Barrels Oil	343,455
MCF Gas (Casinghead)	443,169
MCF Gas (Gas Well)	400,219
Number of Wells	
Oil	11
Gas	5
Current Production	
Oil, BOPD	2608
Gas Well Gas, MCFD	5344

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
Per Am's EXHIBIT NO. 3
 CASE NO. 3073

R-11-15

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

May 22, 1964

RESERVOIR FLUID DIVISION

Texaco Inc.
P. O. Box 810
Farmington, New Mexico

Attention: Mr. A. G. Walsh

Subject: Reservoir Fluid Study
Navajo "AL" No. 1 Well
Undesignated (Tocito Dome) Field
San Juan County, New Mexico

Gentlemen:

Samples of separator liquid and vapor were collected from the subject well on May 6, 1964. These samples, together with a sample of stock tank liquid, were shipped to our Dallas laboratory for studies. The results of these studies are presented to you in this report.

The producing gas-liquid ratio measured in the field and after correction for the factors shown on page one of the report was 3290 cubic feet of separator gas at 14.7 psia and 60° F. per barrel of stock tank liquid at 60° F. In the laboratory this ratio was found to be equivalent to 3238 standard cubic feet of separator gas per barrel of separator liquid. The separator products were then physically recombined in this ratio and examined in a visual cell at the reservoir temperature of 159° F. The mixture exhibited a bubble point pressure of 5320 psig. This value is considerably above the reservoir pressure. When viewed at the reservoir pressure of approximately 3200 psig the system was found to be in two phases. Approximately 42 per cent of the system volume was liquid.

These results have been previously transmitted by telephone. The composition of the separator products and the stock tank liquids are presented on the following pages with the calculated composition of the producing

Exhibit C
Page 1

Texaco Inc.
Navajo "AL" No. 1 Well

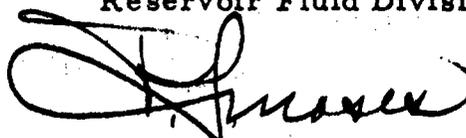
Page Two

well stream at the time the well was tested.

It was a pleasure to perform these tests for you. Should you have any questions, please do not hesitate to contact us.

Very truly yours,

Core Laboratories, Inc.
Reservoir Fluid Division

A handwritten signature in black ink, appearing to read "P. L. Moses", written over a faint rectangular stamp.

P. L. Moses
Operations Supervisor

PLM:jr

Exhibit C
Page 2

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Company Texaco Inc. Date Sampled May 6, 1964
 Well Navajo "AL" No. 1 County San Juan
 Field Undesignated (Tocito Dome) State New Mexico

FORMATION CHARACTERISTICS

Formation Name Pennsylvanian-Barber Creek
 Date First Well Completed May 3, 1964
 Original Reservoir Pressure 3214 PSIG @ 6285 Ft.
 Original Produced Gas-Liquid Ratio 2911 SCF/Bbl
 Production Rate _____ Bbls/Day
 Separator Pressure and Temperature _____ PSIG _____ ° F.
 Liquid Gravity at 60° F. _____ ° API
 Datum _____ Ft. Subsea

WELL CHARACTERISTICS

Elevation 5763 DF Ft.
 Total Depth 6910 Ft.
 Producing Interval 6275-6302 Ft.
 Tubing Size and Depth 2 - 3/8 In. to 6189 Ft.
 Open Flow Potential _____ MMSCF/Day
 Last Reservoir Pressure 3206 PSIG @ 6288 Ft.
 Date May 6, 1964
 Reservoir Temperature 157 ° F. @ 6150 Ft.
 Status of Well _____
 Pressure Gauge _____

SAMPLING CONDITIONS

Flowing Tubing Pressure 1892 PSIA
 Flowing Bottom Hole Pressure 2778 @ 6288 Ft. PSIA
 Primary Separator Pressure 55 PSIG
 Primary Separator Temperature 43 ° F.
 Secondary Separator Pressure _____ PSIG
 Secondary Separator Temperature _____ ° F.
 Field Stock Tank Liquid Gravity _____ ° API @ 60° F.
 Primary Separator Gas Production Rate 962.1 MSCF/Day
 Pressure Base 14.7 PSIA
 Temperature Base 60 ° F.
 Compressibility Factor (F_{pv}) 1.012
 Gas Gravity (Laboratory) 0.724
 Gas Gravity Factor (F_g) 1.1753
 Stock Tank Liquid Production Rate @ 60° F. 292.5 Bbls/Day
 Primary Separator Gas/ Stock Tank Liquid Ratio 3290 SCF/Bbl
 or 304.0 Bbls/MMSCF

Core Laboratories, Inc., Engineer

REMARKS:

Exhibit "C"
Page 3

EXHIBIT "D"

Economics of Development
And Production
Tocito Dome Area
San Juan County, New Mexico

	<u>80-Acre</u>	<u>160-Acre</u>
<u>Estimated Production</u>		
Oil, Barrels	72,000	144,000
Gas, MMCF	270	540
Estimated Productive Life, Years	6	8
Present Worth		
Working Interest Income	\$162,000	\$310,000
Less Development and Operating Costs	\$142,000	\$167,000
Net Income	\$20,000	\$143,000

EXHIBIT "E"

Tabulation of Initial Bottom Hole Pressures
Tocito Dome Area
San Juan County, New Mexico

<u>WELL</u>	<u>RECORDED PRESSURE</u>	<u>DATUM</u>	<u>PRESSURE CORRECTED TO 525 FEET SUBSEA</u>
Pan American Navajo "N" No. 1	3199 psi ✓	-495'	3207 psi
Pan American Navajo "P" No. 1	3215	-525'	3215
TEXACO Inc. Navajo "AL" No. 1	3167	-386	3206

EXHIBIT "F"

Proposed Special Rules and Regulations
for the Tocito Dome-Pennsylvanian Pool
San Juan County, New Mexico

RULE 1.

Each well completed or recompleted in the Pennsylvanian formation within the boundary of the Tocito Dome-Pennsylvanian Pool or within one mile thereof, and not nearer to nor within the boundaries of another designated Penn. pool, shall be drilled, spaced, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2.

(a) Each gas well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a tract consisting of approximately 640 acres which may reasonably be presumed to be productive of gas from said Pool, and which shall comprise a single governmental section of the United States Public Lands Survey. For purposes of these Rules, a unit consisting of between 632 and 645 surface contiguous acres shall be considered a standard gas unit. Nothing contained herein shall be construed as prohibiting the drilling of a gas well on each quarter section in the 640-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ wells may be drilled on non-standard spacing units as exceptions to Rule 2(a) after notice and hearing and where the following provisions are complied with:

- (1) The non-standard unit consists of contiguous quarter-quarter sections or lots.
- (2) The entire non-standard unit may reasonably be presumed to be productive of gas from said pool.
- (3) The applicant presents proof of the fact that all offset operators, and all operators owning interests in the section in which any part of the non-standard unit is situated and which acreage is not included in the non-standard unit were notified by registered mail of his intent to form a non-standard gas unit.
- (4) The allowable assigned to any such non-standard gas proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 640 acres.

RULE 3.

(a) Each oil well completed or recompleted in the Tocito Dome-Penn. Oil Pool shall be located on a unit containing approximately 160 acres, which may reasonably be presumed to be productive of oil from said pool, and which consists of a single governmental quarter section. For purposes of these Rules, a unit consisting of between 158 and 162 surface contiguous acres shall be considered a standard unit. Nothing contained herein shall be construed as prohibiting the drilling of an oil well on each of the Quarter-quarter sections in the 160-acre unit.

(b) ~~In order to facilitate the leasing of odd lot acreage by the Navajo Tribe,~~ wells may be drilled on the following non-standard spacing units as exceptions to Rule 3 (a) after notice and hearing and where the following provisions are complied with:

- (1) On non-standard 120-acre unit comprising three governmental quarter-quarter sections lying within a governmental quarter section and contiguous by common bordering sides; or
- (2) On a non-standard 80-acre unit comprising two governmental quarter-quarter sections lying within a governmental quarter section and contiguous by a common bordering side, or
- (3) On a non-standard 40-acre unit comprising a single governmental quarter-quarter section.
- (4) The entire non-standard unit may reasonably be presumed to be productive of oil from said pool.
- (5) The applicant will furnish proof of the fact that all of the offset operators were notified by registered mail of his intent to form such non-standard unit.

(c) A standard proration unit shall be assigned a 160-acre proportional factor of 4.77 for allowable purposes.

(d) The allowable assigned to any such non-standard oil proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 160 acres.

(e) In order to make interference tests the District Supervisor shall have authority to approve, without notice and hearing and without administrative approval by the Secretary-Director, application by operators to shut in one of the wells completed in said pool and to transfer its allowable to any other completed well or wells on the same basic lease, or on leases with identical ownership; which are producing from said pool. Provided, however, that such allowable transfer shall be limited to a period not to exceed six (6) months.

RULE 4.

(a) Each well, oil or gas, completed or recompleted in the Tocito Dome-Penn. Pool shall be located no closer than 510 feet to any quarter section line and each such well shall be located within 150 feet of the center of the NW $\frac{1}{4}$ or SE $\frac{1}{4}$ of any quarter section. Any well drilled and producing from the Tocito Dome-Penn. Pool prior to the effective date of this Order at a location conforming to the well location requirements in effect at the time the well was drilled shall be considered to be located in conformance with this Rule.

(b) The Secretary-Director shall have authority to grant an exception to Rule 4 (a) without notice and hearing when the application has been filed in due form and the Secretary-Director determines that good cause exists for granting such exception. However, such an unorthodox location, if approved, may necessitate an allowable adjustment.

Applicant shall furnish all offset operators a copy of the application to the Commission, and the applicant shall include with his application a list of the names and addresses of all such operators together with a stipulation that proper notice has been given said operators at the addresses listed. The Secretary-Director of the Commission shall wait at least 20 days before approving any such unorthodox location, and only in the absence of objection from an offset operator may such application be approved.

RULE 5.

A well in the Tocito Dome-Penn. Oil Pool shall be classified as a gas well if it has a gas-liquid ratio of ~~20,000~~ cubic feet of gas per barrel of liquid hydrocarbons, or more. A well in said pool shall be classified as an oil well if it has a gas-liquid ratio of less than 20,000 cubic feet of gas per barrel of liquid hydrocarbons. The simultaneous dedication of any acreage to both an oil well and a gas well is strictly prohibited.

RULE 6.

The gas-liquid ratio limitation for the Tocito Dome-Penn. Oil Pool shall be 4,000 cubic feet of gas per barrel of liquid hydrocarbons produced.

RULE 7.

Any oil well in the Tocito Dome-Penn. Oil Pool which has 160 acres dedicated to it shall be permitted to produce an amount of gas determined by multiplying the top unit oil allowable for said pool by the limiting gas-liquid ratio for the pool (4,000). In the event there is more than one oil well on a 160-acre oil proration unit, the operator may produce the allowable assigned to the 160-acre unit from said wells in any proportion.

Any gas well in the Tocito Dome-Penn. Oil Pool shall be permitted to produce that amount of gas obtained by multiplying the top unit oil allowable for the pool by 4,000 by a fraction, the numerator of which is the number of acres dedicated to the particular gas well and the denominator of which is 160. In the event there is more than one gas well on a 640-acre gas proration unit, the operator may produce the

amount of gas assigned to the unit from said wells in any proportion.

RULE 8.

The operator of each newly completed well in the Tocito Dome-Penn. Oil Pool shall cause a gas-liquid ratio test to be taken on said well upon recovery of all load oil from the well, provided, however, that in no event shall the test be commenced * sooner than 20 days nor later than 30 days from the date of first production. Provided further, that any well which is shut in shall be exempted from the aforesaid gas-liquid ratio test requirement so long as it remains shut in. The initial gas-liquid ratio test shall be taken in the manner prescribed by Rule 9. If the gas-liquid ratio is 20,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, the operator shall not produce the well until beneficial use can be made of the gas.

RULE 9.

Gas-liquid ratio tests shall be taken on all wells in the Tocito Dome-Penn. Oil Pool, and on all wells producing from the Penn. formation within one mile of the boundaries of the Tocito Dome-Penn. Oil Pool which are not within another designated Penn. oil pool, during the months of January and July of each year. The initial gas-liquid ratio test shall suffice as the first semiannual test. Tests shall be 24-hour tests being the final 24 hours of a 72-hour period during which the well shall be produced at a constant normal rate of production. Results of such tests shall be filed on Commission Form C-116 on or before the 10th day of the following month. At least 72 hours prior to commencement of any such gas-liquid ratio tests, each operator shall file with the Aztec office of the Commission a test schedule for its wells, specifying the time each of its wells is to be tested. Copies of the test schedule shall also be furnished to all offset operators.

Special tests shall also be taken at the request of the Secretary-Director and may also be taken at the option of the operator. Such special tests shall be taken in accordance with the procedures outlined hereinabove, including notification to the Commission and offset operators.

RULE 10.

An initial shut-in pressure test shall be taken on each gas well and shall be reported to the Commission on Form C-125.

RULE 11.

Any well completed in the Tocito Dome-Penn. after the effective date of this Order shall receive an allowable only upon receipt by the Commission's Aztec Office of Commission Forms C-104, C-110, and C-116, all properly executed. The District Supervisor of the Commission's Aztec Office is hereby authorized to assign a temporary gas allowable to wells connected to a gas transportation facility during the recovery of load oil, which allowable shall not exceed the number of cubic feet of gas obtained by multiplying the daily top unit allowable for the Tocito Dome-Penn. Oil Pool by 4,000.

RULE 12.

The initial gas proration period shall be from 7 o'clock a.m. on August 1, 1964 to 7 o'clock a.m. on February 1, 1965. Subsequently, the dates 7 o'clock a.m. February the first and 7 o'clock a.m. August the first shall be known as balancing dates, and the periods of time bounded by these dates shall be known as the gas proration periods for the Tocito Dome-Penn. Oil Pool.

RULE 13.

Any gas well which has an underproduced status as of the end of a gas proration period shall be allowed to carry such underproduction forward into the next gas proration period and may produce such underproduction in addition to the allowable assigned during such succeeding period. Any allowable carried forward into a gas proration period and remaining unproduced at the end of such gas proration period shall be cancelled.

RULE 14.

Production during any one month of a gas proration period in excess of the allowable assigned to a well for such month shall be applied against the underproduction carried into such period in determining the amount of allowable, if any, to be cancelled.

RULE 15.

Any well which has an overproduced status as of the end of a gas proration period shall carry such overproduction forward into the next gas proration period, provided that such overproduction shall be compensated for during such succeeding period. Any well which has not compensated for the overproduction carried into a gas proration period by the end of such proration period shall be shut in until such overproduction is compensated for. If, at any time, a well is overproduced an amount equalling three times its current monthly allowable, it shall be shut in during that month and each succeeding month until the well is overproduced less than three times its current monthly allowable.

RULE 16.

The allowable assigned to a well during any one month of a gas proration period in excess of the production for the same month shall be applied against the overproduction carried into such period in determining the amount of overproduction, if any, which has not been compensated for.

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The Commission may allow overproduction to be compensated for at a lesser rate than would be the case if the well were completely shut in upon a showing after notice and hearing that complete shut in of the well would result in material damage to the well and/or reservoir.

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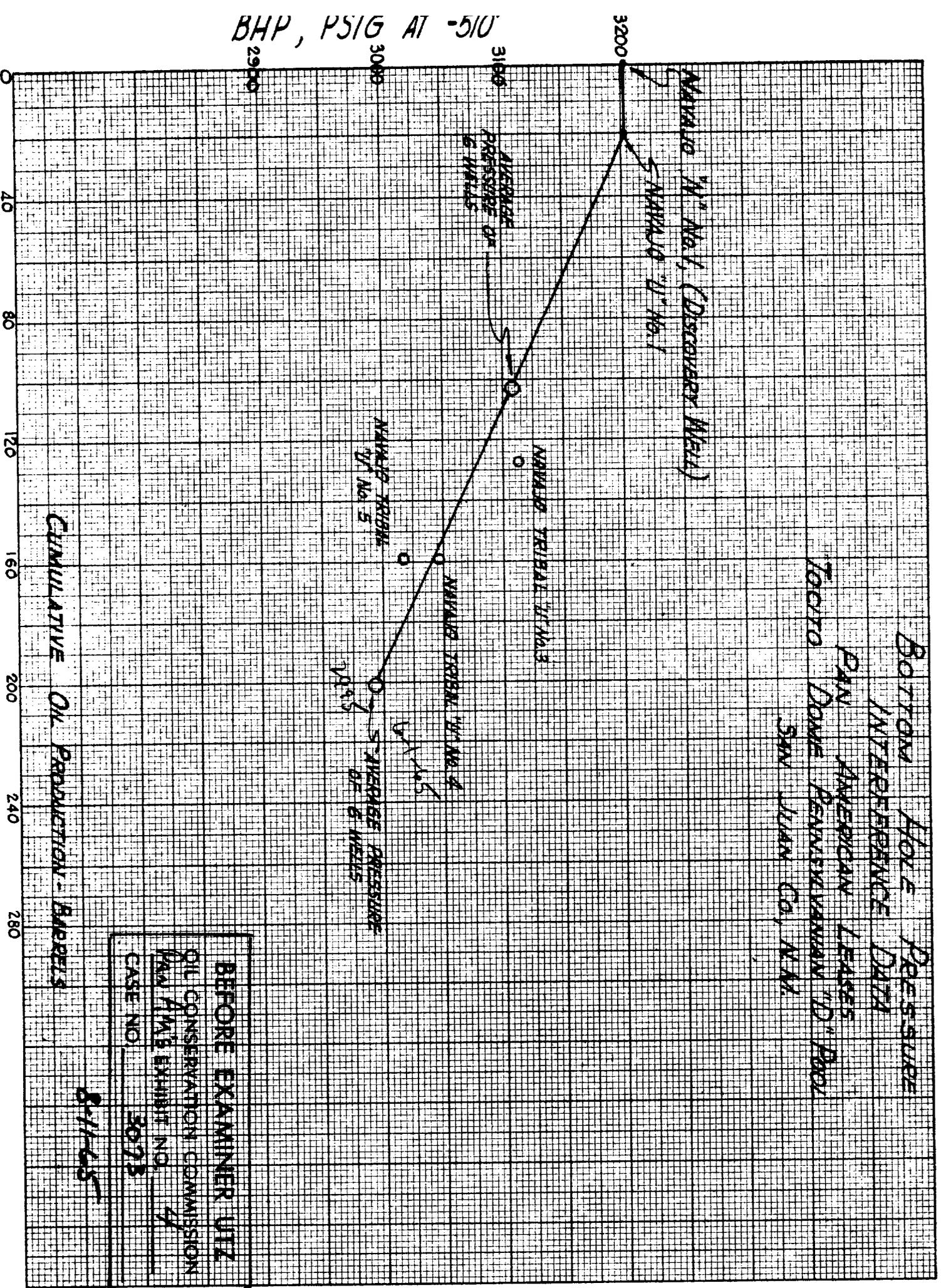
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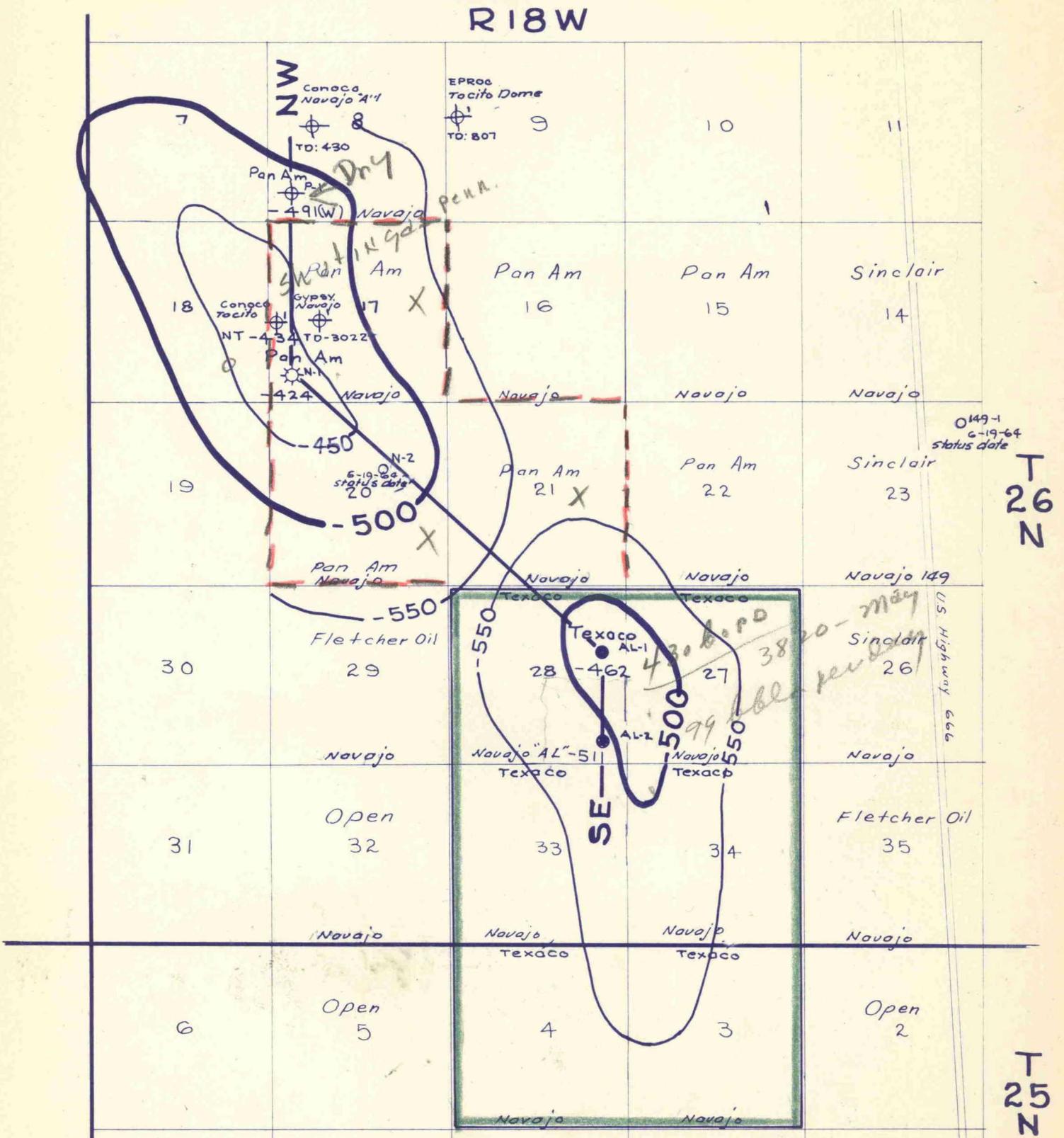
BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
PAN AM'S EXHIBIT NO. 4
CASE NO. 3073

8-11-65

CUMULATIVE OIL PRODUCTION - BARRELS

BHP, PSIG AT -510'

Case 3073



LEGEND

- ⊕ Dry hole
- ★ Gas Well, Paradox-Penn.
- Oil Well, Paradox-Penn.
- ▭ Outline of spaced area
- Location
- NT Not Tested
- 434 Top of Barker Creek
- 419(W) Tested water

TEXACO INC.
DENVER COLORADO

TOCITO DOME PENNSYLVANIAN FIELD
CONTOURED ON TOP OF BARKER CREEK ZONE

C.I. = 50'

SCALE: 1"=4000'

EXHIBIT "A"