CASE 4756: Application of BLACK-ROCK OIL COMPANY FOR CREATION OF A NEW GAS POOL, LEA COUNTY.

Case Number

4756

Application

Trascripts

Small Exhibits

ETC.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

August 8, 1972

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: Case No. 4756
Order No. R-4359
Applicant:
Blackrock Oil Company

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.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other Mr. Sumner Buell

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. 4756
Order No. R-4359

APPLICATION OF BLACKROCK OIL
COMPANY FOR THE CREATION OF A
NEW GAS POOL, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 12, 1972, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 7th day of August, 1972, 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, Blackrock Oil Company, seeks the creation of a new pool for the production of gas from the Delaware formation for its Jennings Federal Well No. 1, located in Unit O of Section 33, Township 25 South, Range 32 East, NMPM, Lea County, New Mexico.

(3) That said well is currently classified as a gas well in the Jennings-Delaware Oil Pool.

(4) That the evidence presently available establishes that the subject well is a gas-cap well in the Jennings-Delaware Pool.

(5) That the evidence presently available further establishes that the Jennings-Delaware Pool should be reclassified as an associated pool and that Special Rules and Regulations should be promulgated therefor.

(6) That the reservoir characteristics of the subject pool indicate that the gas area can be efficiently and economically drained and developed on 160-acre spacing, and that the oil area can be efficiently and economically drained and developed on 40-acre spacing.

(7) That the reservoir characteristics of the subject pool presently available justify the definition of a gas well as a well producing with a gas-liquid ratio of 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons.

(8) That the reservoir characteristics of the subject pool presently available justify the establishment of a gas-liquid ratio limitation of 2000 cubic feet of gas per barrel of liquid hydrocarbons.

(9) That special rules and regulations providing for 160-acre gas well spacing and 40-acre oil well spacing should be promulgated for the subject pool in order to 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, prevent reduced recovery which might result from the drilling of too few wells, and otherwise prevent waste and protect correlative rights.

(10) That the special rules and regulations should provide for the classification of a gas well as a well producing with a gas-liquid ratio of 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons and should provide for a gas-liquid ratio of 2000 cubic feet of gas per barrel of liquid hydrocarbons in order to afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil or gas, or both, and for this purpose to use his just and equitable share of the reservoir energy.

(11) That the special rules and regulations should establish proration rules for gas wells in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That effective August 1, 1972, the Jennings-Delaware Pool, as previously defined and described, is hereby reclassified as the Jennings-Delaware Associated Pool, Lea County, New Mexico.

(2) That, effective August 1, 1972, Special Rules and Regulations for the Jennings-Delaware Associated Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
JENNINGS DELAWARE ASSOCIATED POOL

RULE 1. Each well completed or recompleted in the Jennings Delaware Pool or in the Delaware formation within one mile thereof, and not nearer to or within the limits of another designated Delaware pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. (a) Each gas well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

(b) Each oil well shall be located on a standard unit containing 40 acres, more or less, consisting of a governmental quarter-quarter section.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 (a) without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the United States Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a governmental quarter section and contains less acreage than a standard unit.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well, oil or gas, shall be located no nearer than 330 feet to any quarter-quarter section line, except that any well drilled in a known gas productive area shall be located within 150 feet of the center of a quarter-quarter section.

RULE 5. A well shall be classified as a gas well if it has a gas-liquid ratio of 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons. A well shall be classified as an oil well if it has a gas-liquid ratio of less than 100,000 cubic

feet or gas per barrel of liquid hydrocarbons. The simultaneous dedication of any acreage to an oil well and a gas well is prohibited.

RULE 6. That the limiting gas-oil ratio shall be 2000 cubic feet of gas for each barrel of oil produced.

RULE 7. An oil well which has 40 acres dedicated to it shall be permitted to produce only that amount of gas determined by multiplying the top unit oil allowable for the pool by the limiting gas-liquid ratio for the pool. In the event there is more than one oil well on a 40-acre oil proration unit, the operator may produce the allowable assigned to the 40-acre unit from the wells on the unit in any proportion.

A gas well shall be permitted to produce that amount of gas obtained by multiplying the top unit oil allowable for the pool by the limiting gas-liquid ratio for the pool and by a fraction, the numerator of which is the number of acres dedicated to the particular gas well and the denominator of which is 40. In the event there is more than one gas well on a 160-acre gas proration unit, the operator may produce the amount of gas assigned to the unit from the wells on the unit in any proportion.

RULE 8. The operator of each newly completed well shall cause a gas-liquid ratio test to be taken on the well upon recovery of all load oil from the well, provided however, that in no event shall the test be commenced later than 30 days from the date of first production unless the well is connected to a gas-gathering facility and is producing under a temporary gas allowable assigned in accordance with Rule 11. Any well which is shut in shall be exempted from the 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 100,000 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 during the month of November of each year. The initial gas-liquid ratio test shall suffice as the first annual 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 appropriate district 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. Commission District supervisors may grant exceptions to the above test requirements where it is demonstrated that wells produce no liquids.

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 after the effective date of these rules shall receive an allowable only upon receipt by the appropriate Commission district office of Commission Forms C-104 and C-116, properly executed. The District Supervisor of the Commission's district 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 pool by the limiting gas-liquid ratio for the pool.

RULE 12. That the initial gas proration period shall be from 7:00 a.m. August 1, 1972, to 7:00 a.m. January 1, 1974. Subsequently, the date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period.

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 or reservoir.

RULE 18. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 24th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the produced gas.

RULE 19. Each purchaser or taker of gas shall submit a report to the Commission so as to reach 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 Form C-111 with the wells being listed in the same order as they are listed on the appropriate proration schedule.

RULE 20. Failure to comply with any provision of these rules 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 Secretary-Director shall notify the operator of the well and purchaser in writing of the date of allowable cancellation and the reason therefor.

RULE 21. 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 22. 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-102) showing the acreage dedicated to the well and the location of all wells on the dedicated acreage has been filed.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Jennings-Delaware Associated Pool or in

the Delaware formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the appropriate district office of the Commission in writing of the name and location of the well on or before August 15, 1972.

(2) That all operators shall, prior to August 15, 1972, file with the Commission Form C-102 for each well showing the acreage dedicated to the well.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

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

S E A L

dr/

DOCKET NO. 15-72

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 12, 1972

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

The following cases will be heard before Richard L. Stamets, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 4753: Application of Roger C. Hanks for a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre non-standard oil proration unit in the East Shoe Bar-Devonian Pool comprising the NW/4 SW/4 and the SW/4 NW/4 of Section 29, Township 16 South, Range 36 East, Lea County, New Mexico, to be dedicated to a well to be drilled 1980 feet from the South line and 660 feet from the West line of said Section 29.

CASE 4754: Application of Texaco Inc. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to complete its C. H. Lockhart (NCT-1) Well No. 3 located in Unit O of Section 18, Township 22 South, Range 38 East, Lea County, New Mexico, in such a manner as to produce oil from the Paddock and Blinebry Pools through one string of tubing and the Tubb Pool through a parallel string of tubing.

CASE 4755: Application of Texaco Inc. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks as an exception to Rule 303 of the Commission Rules and Regulations, authority to commingle production from the Skaggs-Drinkard, Skaggs-Glorieta, and East Weir-Blinebry Pools in the wellbore of its C. H. Weir "B" Well No. 5 located in Unit G of Section 11, Township 20 South, Range 37 East, Lea County, New Mexico.

CASE 4756: Application of Blackrock Oil Company for the creation of a new gas pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new pool for the production of gas from the Delaware formation for its Jennings Federal Well No. 1 located in Unit O of Section 33, Township 25 South, Range 32 East, Lea County, New Mexico. The Commission will also consider whether or not an associated pool should be created for the above-described well.

CASE 4757: Application of Beard Oil Company for a unit agreement, Sierra County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Jornada Del Muerto Unit Area comprising 115,180 acres, more or less, of Federal, State, and Fee lands in Townships 13, 14, and 15 South, Ranges 1 East and 1 West, Sierra County, New Mexico.

CASE 4758: Application of Amoco Production Company for allowable transfer, San Juan County, New Mexico. Applicant, in the above-styled cause, proposes to conduct 90-day shut-in and pressure build-up tests on its Gallegos Canyon Unit Com "H" Well No. 160 and its Unit Com "E" Well No. 161 located, respectively, in Unit J of Section 28, Township 29 North, Range 12 West, and Unit O of Section 23, Township 29 North, Range 13 West, Basin-Dakota Pool, San Juan County, New Mexico. Applicant seeks authority to transfer the allowable from the two wells during said period to its Unit Well No. 202 located in Unit B of Section 33, Township 29 North, Range 12 West, during said test period or to some other well or wells suitable to the Commission.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

June 19, 1972

Blackrock Oil Company
1000 V & J Tower
Midland, Texas 79701

Case 4756

Attention: Mr. O. Doyle Butler

DOCKET MAILED
Date

Re: Request of June 13, 1972, for the assignment of a temporary gas well allowable for the Blackrock Oil Company's Jennings Federal Well No. 1, located in Unit O, Section 33, Township 25 South, Range 32 East, Lea County, New Mexico

Gentlemen:

As the above-described well is located within the horizontal limits of a pool that is presently designated as an oil pool and that prior to the hearing to be conducted on July 12, 1972, it cannot be determined that the well is producing from a new gas pool, I believe it would be improper to assign the well a temporary gas well allowable.

Very truly yours,

S/ A. L. Porter

A. L. PORTER, Jr.
Secretary-Director

ALP/GMH/dr

Blackrock Oil Company

1000 V & J TOWER – MIDLAND, TEXAS 79701 – 915 683-5691

O. DOYLE BUTLER
President

PEGGY L. HOLDEN
Office Manager

July 25, 1972

Mr. R. L. Stamets
NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Stamets:

Please be advised that on our Reservoir Pressure Report, Form C-124, filed July 16, 1972 as requested in our recent hearing for gas pool rules on the Jennings Federal Well No. 1, Lea County, New Mexico, the decimal was dropped in the wrong place on the pressure and it should read 1906. psi rather than 190.6 psi.

Should any further information be requested, please advise.

Yours very truly,

BLACKROCK OIL COMPANY

O. Doyle Butler

ODB:jh
cc: John West Engineering Company
412 North Dal Paso
Hobbs, New Mexico 88240

REPORT – (X)	
Initial C n	X
Special	
General Survey	

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-124
Revised 1-1-65

RESERVOIR PRESSURE REPORT

Operator	Pool	County	Date
Black Rock Oil Co.		Lea	7-16-72
Address 000 V & J Tower, Midland, Texas 79701	Producing Formation	Oil Gradient psi/ft.	Water Gradient psi/ft.	Gas Gravity	Datum Plane -1292

LEASE	WELL NO.	LOCATION U	S	T	R	ELEV.	OIL (O) OR GAS (G)	DATE TESTED	SHUT-IN HOURS	SHUT-IN TBG. PRESS.	BOMB TEST DATA: TEST DEPTH	B.H. TEMP. °F	OBSERVED PRESS.	SONIC INSTRUMENT TEST DATA*: PROD. TEST (BBLS./DAY)	LIQUID LEVEL	LIQUID GRAD. PSI/FT.	WT. OF LIQUID PSI	WT. OF GAS PSI	CSG.	PRESS. AT DATUM
Jennings Federal	1	0	33	25S	32E	3340	G	7-15-72	48	1647	4000		1871							~~190.6~~ 1906

All depths plus or minus sea level; all pressures psi; Bomb shall be calibrated frequently enough against a dead weight tester to ensure an accuracy of one per cent; gas gravity shall be determined by analysis; liquid level shall be feet above datum plane. SEE RULE 302.

* Well shall be produced at least 24 hours prior to shutting in for sonic test.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

John W. West
(Signature)

Engineer
(Title)

7-16-72
(Date)

PORT - ()

I...	&
Sp...	
General Survey	

NEW ME... OIL CONSERVATION COMMISSION

Form C-124
Revised 1-1-65

RESERVOIR PRESSURE REPORT

Operator	Pool	County	Date
Black Rock Oil Co.		Lea	7-16-72

Address	Producing Formation	Oil Gradient	Water Gradient	Gas Gravity	Datum Plane
1000 V & J Tower Midland, Texas 79701		0.377 psi/ft.	.433 psi/ft.	0.70	-1270

LEASE	WELL NO.	LOCATION U	S	T	R	ELEV.	OIL (O) GAS (G)	DATE TESTED	BOMB TEST DATA: SHUT-IN HOURS	SHUT-IN TBG. PRESS.	TEST DEPTH	TEMP. °F	OBSERVED PRESS.	SONIC INSTRUMENT TEST DATA*: PROD. TEST (BBLS./DAY) OIL	WATER	LIQUID LEVEL	LIQUID GRADIENT PSI/FT.	WT. OF LIQUID COL. PSI	WT. OF GAS COL. PSI	CSG. PRESS.	PRESS. AT DATUM
Union Federal	2	B	4	26S	32E	3322	O	7-15-72	48	231						3720	.396	345	53	231	629

All depths plus or minus sea level; all pressures psi; Bomb shall be calibrated frequently enough against a dead weight tester to ensure an accuracy of one per cent; gas gravity shall be determined by analysis; liquid level shall be feet above datum plane. SEE RULE 302.

* Well shall be produced at least 24 hours prior to shutting in for sonic test.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

John W. West
(Signature)

Engineer
(Title)

7-16-72
(Date)

TYPE OF REPORT – (X)	
Completion	X
Special	
General Survey	

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-124
Revised 1-1-65

RESERVOIR PRESSURE REPORT

Operator	Pool	County	Date
Black Rock Oil Co.		Lea	7-16-72
Address 1000 V & J Tower, Midland, Texas 79701	Producing Formation	Oil Gradient 0.377 psi/ft.	Water Gradient .433 psi/ft.
		Gas Gravity 0.70	Datum Plane -1270

LEASE	WELL NO.	LOCATION U	S	T	R	ELEV.	OIL (O) OR GAS (G)	DATE TESTED	SHUT-IN HOURS	SHUT-IN TBG. PRESS.	BOMB TEST DATA: TEST DEPTH	B.H. TEMP. °F	OBSERVED PRESS.	SONIC INSTRUMENT TEST DATA*: PROD. TEST (BBLS./DAY) OIL	WATER	LIQUID LEVEL	LIQUID GRADIENT PSI/FT.	WT. OF LIQUID COL. PSI	WT. OF GAS COL. PSI	CSG. PRESS.	PRESS. AT DATUM
Union Federal	2	B	4	26S	32E	3322	O	7-15-72	48	231						3720	.396	345	53	231	620

All depths plus or minus sea level; all pressures psi; Bomb shall be calibrated frequently enough against a dead weight tester to ensure an accuracy of one per cent; gas gravity shall be determined by analysis; liquid level shall be feet above datum plane. SEE RULE 302.

* Well shall be produced at least 24 hours prior to shutting in for sonic test.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

John W. West — (Signature)

Engineer — (Title)

7-16-72 — (Date)

TYPE OF REPORT - (X)	
Completion	X
Special	
General Survey	

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-124
Revised 1-1-65

RESERVOIR PRESSURE REPORT

Operator	Pool	County	Date
Black Rock Oil Co.		Lea	
Address: 1000 V & J Tower, Midland, Texas 79701	Producing Formation	Oil Gradient psi/ft.	Water Gradient psi/ft.
		Gas Gravity	Datum Pt. -1

LEASE	WELL NO.	LOCATION U	S	T	R	ELEV.	OIL (O) OR GAS (G)	DATE TESTED	SHUT-IN HOURS	SHUT-IN TBG. PRESS.	BOMB TEST DATA TEST DEPTH	TEMP. °F	SERVED PRESS.	SONIC INSTRUMENT TEST DATA (BBLS./DAY) OIL	WATER	LIQUID LEVEL	GRADIENT PSI/FT.	LIQUID COL. PSI	CSG. PRESS.	PRESS. AT DATUM
Jennings Federal	1	O	33	25S	32E	3340	G	7-15-72	48	1647	4000		1871							1906

All depths plus or minus sea level; all pressures psi; Bomb shall be calibrated frequently enough against a dead weight tester to ensure an accuracy of one per cent; gas gravity shall be determined by analysis; liquid level shall be feet above datum plane. SEE RULE 302.

* Well shall be produced at least 24 hours prior to shutting in for sonic test.

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

John W. West
(Signature)

Engineer
(Title)

7-16-72
(Date)

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE HALL, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
July 12, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Blackrock Oil Company for the creation of a new gas pool, Lea County, New Mexico.

CASE NO. 4756

BEFORE: Richard L. Stamets
Examiner

TRANSCRIPT OF HEARING

MR. STAMETS: Case No. 4756.

MR. HATCH: Case 4756: Application of Blackrock Oil Company for the creation of a new gas pool, Lea County, New Mexico.

MR. KELLAHIN: Jason Kellahin of Kellahin & Fox, Santa Fe, appearing on behalf of the Applicant and we have two witnesses.

MR. STAMETS: Are there other appearances in this Case?

MR. BUELL: Sumner Buell of Montgomery, Federici, Andrews, Hannahs & Morris, appearing on behalf of Union Oil Company in opposition to the Application.

MR. STAMETS: Would you have any witnesses, Mr. Buell?

MR. BUELL: Yes, one witness.

MR. STAMETS: You may proceed, Mr. Kellahin.

* * * * *

DOYLE BUTLER,

was called as a witness and, after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Doyle Butler.

Q By whom are you employed?

A I am President of Blackrock Oil Company.

Q Have you testified before the Oil Conservation Commission and made your qualifications as a petroleum engineer a matter of record?

A Yes, I have.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q (By Mr. Kellahin) Are you familiar with the Application of Blackrock Oil Company in Case 4756?

A I am.

Q What is proposed by the Applicant in this Case?

A A separate field and gas pool rules for the Jennings Federal Well Number 1 separating it from the Jennings-Delaware oil field.

Q Referring you to Exhibit Number 1, consisting of several pages, would you discuss the information shown by that?

A It is the general completion record on the Jennings Federal Number 1 which is a completed gas well. The well was completed October 6, 1971, however, it did not go into production until April, 1972. This delay was due to the laying of approximately four miles of pipeline and negotiating a gas contract. This well was completed in the Delaware zone to 4,571 feet. It was

stimulated with 500 gallons of acid and very high permeability was established. The total treating of this well was 500 gallons of acid.

The third page shows the back pressure test on the well. This well made a small amount of liquid at the time it was tested, however, after it went on the line it is making no liquid whatsoever.

The third flow rate would be some indication of the deliverability of the well. It shows a flowing tube pressure of 1680 pounds with a corresponding production rate of 1,472,000 cubic feet. At this rate, the well is making no hydrocarbons and only one to two barrels of water per day. The other calculations relate to the back pressure curve and the back pressure curve is from the previous open flow test and indicates an absolute open flow of 3.605 million. It can be seen on this curve that the slope of the line was drawn at the very optimum point and if it had been drawn at a lower angle to the horizontal curve, the calculated open flow test could have gone as high as five million.

The open flow test shown is considered to be conservative.

The last sheet in Exhibit 1 is a gas analysis from the Phillips Petroleum Company. They tested the well immediately after we completed it, or while we were

running our open flow test. We did sign a contract with El Paso Natural Gas Company and not with Phillips to buy the gas, however, Phillips did test both of our wells for us.

I would like to hold this sheet back for just one minute (indicating) and go on to the Union Federal Number 2.

Q Referring to what has been marked as Exhibit 2, would you discuss that Exhibit?

A Exhibit 2 shows the Blackrock Oil Company Union Federal Number 2 which is the south offset to the previous gas well located 1320 feet directly south of the Jennings Federal Well Number 1.

When we filed this permit to drill the well, it was anticipated it would be a gas well similar to the one we had completed. However, the logs were different and the production characteristics were different and consequently we have wound up with a producing oil well and very little gas.

It was completed on January 25th and went on production in March of 1972. So both of these wells have been on production for approximately the same time.

The completion interval is 4,565 to 4,573. This again, is in the high permeable Delaware zone. It was treated with 500 pounds of acid and is currently flowing

forty barrels of oil and fifty-one barrels of water per day with a GOR of 1,398.

Most of the Exhibits attached to this packet are normal completion records that were filed. I would like to go to the next to last sheet in the packet. This again is a test performed by Phillips Petroleum Company on this well. We were trying to negotiate a casinghead gas contract with Phillips Petroleum Company and they tested the well and the gas volume at that time was not sufficient to justify them laying approximately four miles of line to the well. You can see the GOR is approximately 1,398 or 51,000 cubic feet of gas per day. You can compare this rate with the Jennings Federal Number 1 and see that the Jennings Federal Number 1 will deliver better than one million MCF a day at 1,400 pounds of pressure, surface pressure.

I think the comparisons and analyses of the wells show quite evidently that there is quite a difference, not a large difference, but they do indicate some difference.

Q Based on the analyses of the two wells, in your opinion, are these two wells completed as separate, common sources of supply?

A Yes, sir.

Q In your opinion, is there any communication indicated

between wells?

A No, sir.

Q Would producing the Jennings Federal Well Number 1 in any way damage production from the Union Number 2?

A No, sir.

Q Are you pumping the Union Number 2?

A Yes, sir. It did not flow initially and had to be on pump.

Q Is that further indication, in your opinion, that there is separation?

A That and the amount of water being produced from the Union Federal Number 2 indicates we have some type of water drive in the bottom part of the formation and we do not have that water problem in the Jennings Federal Well Number 1. Also, both wells are exactly flat structurally.

Q Were Exhibits 1 and 2 records that were taken from the files kept by the Blackrock Oil Company and filed with the Commission?

A Yes, sir.

MR. KELLAHIN: I would like, at this time, to offer Exhibits 1 and 2 in evidence.

MR. STAMETS: Are there objections to these Exhibits?

(No response.)

MR. STAMETS: They will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 and 2 were admitted in evidence.)

Q (By Mr. Kellahin) Do you have anything further to add?

A No.

MR. KELLAHIN: That completes our examination of the witness.

MR. STAMETS: Are there any questions of this witness?

(No response.)

* * * * *

CROSS EXAMINATION

BY MR. STAMETS:

Q What is the current gas rate of production?

A The well is shut-in now, but when we were first producing, it averaged between 900 and 1,200 MCF per day.

Q Is that effective capacity at the current line pressure?

A Definitely not.

Q Did you indicate that there were some liquid hydrocarbons in the Number 1 well?

A On our initial four test we did get some out, how much the guy did not report, he only reported the ratio. I

am not real sure whether it indicated the amount of fluid the well would make at that time. When we did put it on production, we put separators in because we anticipated fluid, but since we have gone on production, we haven't gotten any hydrocarbons whatsoever.

Q Did any representative of Blackrock see these liquids?

A Not at the time of the four point test. We did have some prior to completing the well.

Q So you do know the well made some liquid initially?

A Yes.

Q What is the gravity of the liquid from the Number 2 well?

A I believe Exhibit 2 shows 40.6. We run from 40.5 to 40.8.

Q So there is substantial drive between the gravity of the liquids?

A Yes, sir, there are, however, we are not producing any substantial amount.

Q Is another witness going to talk about pressures?

A I could cover that. We do have bottomhole pressure in the Jennings Federal Number 1, but we do not have pressure on the Union Federal. We ran a drill stem test, but there was a communication between the packers and the final shut-in. There is an explanation on the drill stem test analyses found in Exhibit 2 indicating

hydrostatic pressure. So, basically, we do not have the bottomhole pressure on the Union Federal Number 2.

Q Would it be a big problem to furnish us with pressure on the Number 2 well?

A No, sir.

MR. STAMETS: I believe that's all the questions I have. Are there any other questions?

(No response.)

MR. STAMETS: If not, the witness may be excused.

(Witness excused.)

* * * * *

WARREN SHAFER,

was called as a witness and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Warren Shafer.

Q What business are you engaged in?

A I am a petroleum engineer with the Mid-Texas Oil Corporation.

Q In connection with Mid-Texas, have you done any work on the case before the Commission, the Application of Blackrock Oil Company?

A Yes, sir.

Q Have you ever testified before the Oil Commission or one of its Examiners?

A No.

Q For the benefit of the Examiner, would you outline your education and experience as a petroleum engineer?

A I have a degree from the School of Mines of West Virginia University and have approximately eighteen years of experience in petroleum production evaluation work.

Q How long have you worked in the West Texas and New Mexico area?

A Off and on for about four years.

Q Has this been in the capacity of an independent consultant mostly?

A No, I have been with Mid-Texas Oil Corporation.

Q Does Mid-Texas operate in New Mexico?

A Yes, sir. As a matter of fact, we own these wells we are talking about.

Q And Blackrock is the operator, is that correct?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. STAMETS: I missed his degree. What School of Mines?

THE WITNESS: West Virginia University School of

Mines.

MR. STAMETS: And you have worked as a petroleum engineer since you graduated?

THE WITNESS: Yes, sir.

MR. STAMETS: They are accepted, yes.

Q (By Mr. Kellahin) Mr. Shafer, I direct your attention to what has been marked as Applicant's Exhibit 3, would you identify that Exhibit, please?

A Exhibit 3 is just a plat showing the location of the wells and the acreage involved, the two producing wells we are talking about, the Jennings Federal Number 1, which is in the Southwest Quarter of the Southeast Quarter of Section 33, the well being completed as a gas well and assigned 160 acres; and the Union Federal Number 2, which is in the Northwest Quarter of the Northwest Quarter of Section 4, and which was completed as an oil well.

Q Which well was completed first?

A The Jennings Federal Well Number 1.

Q And then the Union Federal Number 2 was projected as a second gas well?

A We anticipated a gas well, but that wasn't what we got.

Q Would you discuss the other wells on the Exhibit?

A Everything else in the vicinity of the producers were dry holes because they were too far downdip structurally

or simply because the sand was too tight to produce.

Q Where are they located?

A Immediately to the west of the Jennings Federal Number 1 is the Meeker Hill well which is in the Southwest Quarter or the Southwest Quarter of Section 33. Apparently the sand is too tight to be productive throughout the entire Delaware section.

The well in the Southeast Quarter of the Northwest Quarter of Section 3 is once again, a Meeker Hill well which ran structurally low and the sand appeared to be fairly tight there too.

This would also apply to the well in the Northeast Quarter of the Northeast Quarter of Section 33 and the two wells in the Northwest Quarter of Section 34. These were also low structurally and tight. The well in the Northwest Quarter of the Northwest Quarter of Section 3 that we drilled was too tight to be productive.

Then there were two wells drilled in the Southeast Quarter of the Northwest Quarter of Section 4 and although there apparently was some low oil obtained from those wells, they were also tight according to the drill stem test and the core analysis and the result obtained on the completion.

Q Now, in your opinion, is the production area, whether it

be one or two pools, substantially defined in the area?

A Oh, yes, I think we pretty much point out where the limits of production are.

Q Would you have a location for one more well?

A Well, it is possible and I don't know for sure. We wouldn't know what we would get, whether we would get oil or gas or anything.

Q In what area might this well be drilled?

A I think any further drilling would be done in the Northeast of the Northwest of Section 4, that would be the most logical place to go from here.

Q Which is owned by Union Oil Company?

A Yes.

Q Do you have a farm-out from Union Oil Company?

A Yes, we have an agreement to continue production on this acreage if we want.

Q Would you identify Exhibit Number 4?

A Exhibit 4 is a structure map drawn to the top of the Delaware lime. The lime is overlying the Delaware sand and for all practical purposes, it would reflect production to the top of the Delaware sand.

Q That would indicate that these two wells are structurally the same?

A Right.

Q In your opinion are they the same?
A Well, the top of the Delaware sands in those two wells are flat, however, the producing intervals are not; what I mean is the top of the structural position. Each well is producing structurally flat, however, I think there are different zones of porosity.

I do think the structure does indicate how accumulation occurred and the only accumulation is right along the apex of the little structure, if you go down structure you do not find it, and this is what caused the accumulation there in that immediate vicinity.

Q Now, turning to what has been marked Exhibit 5, that is the cross-section which is shown on the two preceding Exhibits?
A Yes, sir.
Q Would you discuss the difference that you found between the two wells?
A I think that if you look at the various logs and core analyses of the wells in the vicinity, you can see four different layers of sand. I think it is illustrated here by looking at the Union Federal Number 2 well. The top upper ten feet in this particular well are tight with low permeable sand which isn't productive.

The second ten feet are good, permeable sections of sand --

MR. STAMETS: Would you identify that ten feet, please?

THE WITNESS: Yes, sir. The first one would be 4560 to 4570 and then from 4570 to 4581 and then from 4581 to 4594 and then from 4594 on down.

A (Continuing) I think you can go through and most of these wells in this immediate vicinity where you actually have section logs, you can actually identify these four little subsections in the upper Delaware sand.

If we go to the Jennings Federal Number 1 Well, which is a gas well, we can see the same thing except there is lateral change in the sand characteristics between one well and the next whereas in the Union Federal Number 1, the upper ten feet is tight sand which is not productive and this is confined to the upper three feet in the Jennings Federal Well Number 1.

If you will notice, there is a profound change in oil saturation at this point (indicating). That well was drilled in about 1955 and the operators tested it for 1.7 million cubic feet of gas. The operator actually tried to make an oil well completion at that time so it was perforated to the lower section of sand in an attempt to make an oil well. The well records reflect that it flowed thirty-four barrels of oil per

day and at that time had 1398 barrels of accumulated production. So I think, in this upper section of sand at the top of the structure, which is the location of the Jennings Federal Number 1, we have gas production and as we go down structure to the northwest, we run into a thin column of oil at approximately 4621 feet.

As you go further on down structure to the northeast, you will encounter water on the south side.

Our producing interval is the second interval of sand running from approximately 4571 to -- rather 4560 to 4571. This is good quality sand and we are producing currently forty barrels of oil and about fifty-one barrels of water per day.

When we move over to the Jennings Federal Number 1 Well on this log, the section of sand occurs from approximately 4585 to 4596 feet and here we find this interval is shaled out and is tight and has low permeable sand. The next interval, in the Union Federal, is good, but when you move over to the Jennings Federal Number 1, we find it is tight, shaley sand also. So I think we just have two different reservoirs there.

Q Vertically, is the gas coming from the lower zone and then the oil from the Union Federal Number 2 coming vertically without regard to sand?

A I'm not sure I understand you.
Q Do you have all the zones open on the Jennings Federal Number 1?
A No, just the upper.
Q All zones open on the Union Number 2?
A No, our second interval sand is open there.
Q In your opinion, these are completed in two separate reservoirs, is that correct?
A Yes, sir.
Q Would the production of one well, the gas well, cause any damage to the oil well, in your opinion?
A No, sir.
Q Would it cause any damage to any other producing zones in the vicinity, say to the south or to the west?
A No.
Q In your opinion is there any possibility this could be a zone reservoir?
A I don't think it is.
Q Should it be prorated as such?
A I think we should produce one as a gas well and the other one as an oil well because that's what they are.
Q Were Exhibits 3, 4 and 5 prepared by you or under your supervision?
A Yes, sir.
MR. KELLAHIN: At this time I would like to offer

in evidence Exhibits 3, 4 and 5.

MR. STAMETS: Are there any objections to the introduction of these Exhibits?

(No response.)

MR. STAMETS: They will be admitted.

(Whereupon, Applicant's Exhibits 3, 4 and 5 were admitted in evidence.)

Q (By Mr. Kellahin) Do you have anything further, Mr. Shafer?

A I believe this Union Federal Number 2 does have natural water drive which should assist in the recovery of oil, that is, if it doesn't completely take over the well. We have had an increase in water production from nothing to about fifty barrels of water per day since we put it into production, so I don't know where it is going to stabilize, but I do believe that if it doesn't get too high, the natural water situation will aid the ultimate recovery in the Union Federal Number 2 location.

MR. KELLAHIN: That's all the Direct Testimony we have.

MR. STAMETS: Are there any questions of this witness?

(No response.)

* * * * *

CROSS-EXAMINATION

BY MR. STAMETS:

Q Do you know if there were tests below the gas producing horizon in the Jennings Federal Number 1? It would appear from looking at your Exhibit that those perforations are all above the oil perforation of the Union Federal Number 2.

A No, sir, there was never any testing of any kind below that section of sand.

Q I believe there is a core that would cover at least part of that same zone showing that the residual oil is fairly low down in the neighborhood of ten to twelve percent, is that right?

A That's right.

Q Was any attempt ever made to complete the well in this particular zone?

A No. The reason was that because of the well to the northeast that was an attempted completion, the West State Jennings Number 1 Well located in the Northeast Quarter of the Northeast Quarter of Section 33, there was an attempted completion up there and although we do not know everything that happened in the well, we understood that it eventually went to water.

So, in this particular sand section, I think we have gas and we have a thin oil column down structure and

immediately down structure you run into water so we never made any attempt to test any deeper in the section because of the result of the West State Jennings Number 1 Well. This well was a failure in the lower part of the sand.

Q Is it your opinion that the Union Federal Number 2 and the Jennings Federal Number 1 are separated laterally by a permeability barrier or a porosity barrier?

A Actually, I think they are different sand sections.

Q So they would be separated vertically and not necessarily horizontally?

A Yes, sir. I think that the gas well is actually in the upper section of permeable sand and the oil production comes from this lower section of permeable sand, but you don't find these permeable sands common in both locations.

Q Would it be possible if another well was drilled that you might get both zones producing?

A I don't think you would. If you went between the two wells and drilled on a line you might get both zones, but I don't think you would at any other location.

Q The wells that you mentioned on Exhibit 3, I presume they all penetrated the producing horizons that we are talking about in this case?

A Would you repeat that question?

Q You mentioned a number of wells on Exhibit 3 and you called

them low and tight and apparently one or two of them had a show of oil, and, as I said, I presume all of these penetrated the producing horizon we are talking about here?

A All wells in the vicinity went deep enough to evaluate these sections. Most of them went through, clear through the entire separation. I don't remember which ones offhand, nor how deep the different wells went, but they all went deep enough to evaluate this upper interval we are interested in.

MR. STAMETS: Are there any other questions of this witness?

(No response.)

MR. STAMETS: Mr. Kellahin, I would like to see the comparison of pressures.

MR. KELLAHIN: I imagine you will find them with the same penetrated interval.

MR. STAMETS: Can you supply the Commission with that information?

MR. KELLAHIN: No problem.

MR. STAMETS: That's all the questions I have. The witness may be excused.

(Witness excused.)

MR. KELLAHIN: That's all we have.

MR. STAMETS: You may proceed, Mr. Buell.

COYLE SINGLETARY,

was called as a witness and, after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BUELL:

Q Would you state your name, please?

A Coyle C. Singletary.

Q By whom are you employed and in what capacity?

A Area geologist for Union Oil Company of California.

Q Could you spell your last name, please?

A S-i-n-g-l-e-t-a-r-y.

Q Have you previously testified before the Commission or one of its Examiners?

A No, sir.

Q Would you give the Examiner a brief rundown of your educational background and your work experience?

A I received my Bachelors of Science Degree from the University of Texas in 1948. This was a Bachelor of Science Degree in geology. I received my Master of Arts Degree from the same school in 1952. That was for a major in geography and a minor in geology. In 1953 I went to work with the Union Oil Company of California and have been employed as a geologist since that time.

Q Where have you worked during that period of time, Mr. Singletary?

A West Texas, Oklahoma, and then in New Mexico. I worked in New Mexico and was stationed in Roswell from 1956 to 1960 from July, 1970, until the present time.

MR. BUELL: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q (By Mr. Buell) Mr. Singletary, would you briefly outline for the Examiner why Union Oil Company is opposed to the granting of this Application?

A It is our belief that the wells under consideration are all in the same reservoir and this reservoir extends south to the acreage under lease by our company. We believe that a large production of gas from this gas cap would deplete the reservoir energy and cause migration of oil from leases to the south toward the Jennings Federal Well.

Q Referring you now to what has been marked as opponent's Exhibit 1, would you briefly state what that shows?

A This is a lease-ownership map of which I have colored in yellow the Union Oil Company of California leases. The red outline is the acreage on which the farm-out option was granted to Blackrock Oil Company for the Blackrock Number 1 Jennings Federal, the gas well which is just to the north of the central part of the red outlined area. The Blackrock Number 2 Union Federal

is near the center of the outlined red area.

Q Referring you now to what has been marked as Exhibit 2, would you please explain what this Exhibit shows?

A This is a map contoured to the top of the porous sand. In the case of the three wells which have produced -- the two wells which have produced, I used the top of the perforation and in the other cases, the bold-faced heavy markings represent the top of the porous sand.

Beyond the limits of the porous sand, I used an equivalent point to give form to the contours, and these are the numbers that are marked lightly (indicating).

Q What are the perforations or the depths of the perforations in the Jennings Federal Well Number 1 shown on the Exhibit?

A I have minus -- the top of the perforation is minus 1,247 and the bottom of the perforation would be minus 1,250.

Q What is the top of the perforation on the Jennings Union Number 2?

A Minus 1,251.

Q So the Jennings Number 2 is lower, actually, than the Number 1; is that correct?

A Yes, sir. The topmost perforation of the Blackrock Union Federal is one foot lower than -- or lesser than the perforation of the gas well.

Q Referring to what has been marked as Exhibit 2, would you briefly state what this shows -- Exhibit Number 3, I'm sorry.

A Exhibit 3 is a log comparison section of the lines shown on Exhibit 2. The well on the left is the Blackrock Number 2. The Union Federal log in the center hasn't been brought out yet. The Blackrock Number 1 Jennings Federal is a reentry of an old hole that was drilled in 1957 as the West State Number 1 Jennings and it was the discovery well of the Jennings field. The log shown on this Exhibit is the log on the old well, the West State log of the same hole.

The right log, the right-hand log, is the West State Number 1 Jennings which was, as I stated, the discovery well in the Jennings field. It was completed from the Delaware and produced a total of 1398 barrels of oil and was abandoned.

The central well, which is the log in the center of the section, is the log of the reentered Blackrock well and it was abandoned.

Q Have you marked on this Exhibit the perforations of these three wells?

A Yes, they are marked in red with red bars with the appropriate depth.

Q Where were the perforations placed in the structures?

A Do you mean the structural relationship of the three wells?

Q Yes.

A I believe this section seems to indicate -- I'm not sure of your question.

Q Do the logs reflect common structural characteristics in the same wells?

A Yes, sir.

Q Would you go into that a little bit, please?

A I would like to call your attention to something very interesting in these three logs. I lined them up edge to edge without regard to any sub-C datum to show the very remarkable uniformity of the vertical uniformity of this section in this area. The topmost horizontal line is the top of the Delaware lime zone, the second horizontal line is the top of the very shaley Delaware sand. The third line is the top of the relatively clean sand and there is a marker which you can follow across there. If you do that, you will notice -- the left curve on each of these logs is a gammaray curve which shows that the sand -- the top of the shaley sand in the left-hand well and the top of the clean sand in the left-hand well is at 4,570 which is below the middle of the perforated interval and the top of the shaley sand in the Jennings Number 1 well, the West State Number

1, the Jennings Blackrock Number 1. The Jennings Number 1 is 4,560 and the top of the reservoir sand, the clean sand in the West State Number 1 Jennings, is at 4,670.

Q Referring you to Exhibit 4, would you please explain to the Examiner what this Exhibit shows?

A This is an isopach map of the sand body which we believe to be producing in the Jennings field to the north. It is the Paduca field which occurs at approximately the same place in the section and the sand may or may not be connected. There certainly is no proof of communication with the Paduca field.

The thicknesses of the sands, these are net thicknesses, are indicated with the thickest sand at the Hill and Meeker Number 1 Sun Federal. This is very near the center of the plat in Section 4 and the Blackrock Union Federal has sand which is still a very nice clean sand body when it turns to the north and it has fifteen feet of net sand in the middle shale section within the sand body to the river and then continues to thin northward. The Union leases, the leases we retained after our farm-out, are over a substantial part of this sand body and the portions to the east of the water bed in the western portion, we believe to cover the sand body and we hope there will be oil within our

leases which we plan to drill.

From this plat, looking at the gross sand bodies, there is certainly no reason to suppose any porosity separation between the two sands.

The large production of gas from the northern end of this sand body would deplete the reservoir energy over the entire sand body and would cause migration of oil northward from the Union leases where it probably could be expected to be recovered by the Blackrock Number 2 Federal.

Q Do you have any drill stem test information on it when it was -- when the Number 1 well was the West State Jennings Federal Number 1?

A Yes, sir. A drill stem test was run from 4,555 to 4,585.

Q When was it run?

A 1957.

Q Go ahead.

A This test was open for two hours and in two minutes recovered an estimated 3.39 hundred MCF of gas and they had mud to the surface -- that was 3.9 million after two minutes and they had mud to the surface in thirty-eight minutes and oil and water in one hour fourty-five minutes and the test tool recovered five feet of oil and two feet of salt water.

Q Does this indicate anything to you as far as relationship

between the gas and the oil in the well?

A It seems to further bear out that we are dealing with a gas cap over an oil reservoir in the Blackrock Number 1 Jennings.

Q Were you present here when Mr. Butler testified as to the gas analysis that was made on this well?

A Yes.

Q As compared to the Number 2 Well?

A Yes.

Q Would you like to comment on that?

A The analysis shows a greater percentage of nitrogen and a lighter constituent of gas. The oil well had a larger percentage of heavier hydrocarbons and this would be consistent with the comparison of gas cap gas with solution gas from the oil reservoir. So it is my belief that the gas analysis shows oil well gas to be solution gas from an oil well and the gas well analysis of the Blackrock Number 1 Jennings is gas cap gas which again, would be higher in lighter hydrocarbons.

Q Do you feel that the granting of this Application would tend to prevent waste and protect correlative rights?

A No, the production of a large volume of gas from this sand would deplete the reservoir energy and would make it less likely that oil would flow into the wellbore of the well which we intend to drill on our portion of

the lease. It would also, by reducing the pressure portion of the reservoir, cause the oil to flow toward the gas well and thus be lost to the Union lease.

Q Were Exhibits 1 through 4 prepared by you or under your supervision?

A Yes, sir.

MR. BUELL: I move for the introduction of Exhibits 1 through 4.

MR. STAMETS: Are there any objections to the introduction of these Exhibits?

(No response.)

MR. STAMETS: They will be admitted in evidence.

(Whereupon, Opponent's Exhibits 1 through 4 were admitted in evidence.)

MR. STAMETS: Does anyone have any questions of this witness?

MR. KELLAHIN: Yes.

* * * * *

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Singletary, on your Exhibit, I don't have the number, but it concerns the isopach of the porous Delaware sand; is that based on net pay or is it based on gross sand interval?

A The net pay sand based on my judgment and experience.

If you will notice the logs there, there is quite a large variety of log types and there would be a great deal of judgment involved in formalizing these logs.

I used the judgment factor on the logs and counted the thickness and what I thought would be the porosity, based on the thickness. If you used any reasonable engineering technique, you might come out with a different interpretation, but with the same shape of the sand body. A possible exception would be the east side where I have fifty-four feet of tight sand and twenty-two feet of tight sand, but in any case, this is a water well and would not be pertinent.

Q Do you say this is too tight on the east side there for production?

A Yes, on the west, the sand extends to shale.

Q That would be over here in Section 5?

A Yes.

Q So you would say then that a sand interval of say, forty feet, should be productive, is that correct?

A Of oil, gas, or water, yes. This is an isopach without regard to structure.

Q Is your structure the controlling factor in these fields?

A To some degree. The structure map is on the top of the reservoir, that is, on top of the porosity except in

the three wells which have produced, where I used the top of the perforation.

I believe -- I think that apparently this is downdip to the east and your wells which tested sand will recover water to the west with the break-over line being approximately where the Union Number 1 Federal is. Going west from there, I believe you will get oil and gas depending on the relationship between the pinch out of the sand body and the structural latitude.

Q Now, structurally your Union Number 1 Federal and the Blackrock Union Federal Number 1 -- or Number 2, are structurally about the same?

A Yes.

Q And the isopach is also the same?

A Yes.

Q What were the results on those two wells? What happened to them?

A Let's start with the Hill and Meeker Sun Federal. It was drill stem tested and recovered oil, gas and water, and it was unable to be completed. We moved west, I don't remember the exact dimensions, but they were about 100 or 200 feet, and we felt this would put us slightly updip and it turned out that the Union Number 1 Federal was not high to the Hill and Meeker well due to some local variations in the structure which I think were

very localized. This well was drilled, but the logs did not cover the sand and I am unable to give you an exact comparison between the Hill and Meeker and the Union Federal because of the fact the log in the Union well terminated at the Delaware line.

Q But you did attempt to make a completion in the Delaware?

A Yes, it was drilled in and intermittently tested and I do not have the story on that well.

Q They were unable to complete it, is that correct?

A That's right.

Q They did not produce from the Delaware, did they?

A No, and I do not know for sure what the attitude would be regarding porosity.

Q But you say that there is a possibility of production to the south of the Blackrock well?

A Yes, to the south and to the west. I think there is very definitely a probability of production to the south and west.

Q Are you familiar with the farm-out agreement with Blackrock?

A In general terms, yes.

Q Blackrock can earn that acreage by drilling it, can it not?

A Only the acreage outlined in the west. They have the west offset to their Number 2 Union Federal.

Q And that would only give them a forty acre unit to the west, is that right?

A Yes.

Q Now, Mr. Singletary, you heard the testimony in regard to the producing characteristics of the gas well, did you not?

A Yes.

Q With a gas well that is producing with a flowing tubing pressure of 1,500 pounds, let's say, if that is the same reservoir with the oil well, wouldn't the oil well be a flowing well?

A Not necessarily. If you will look at the cross-section I presented, you will notice that the gammaray log on the Blackrock Number 1 gas well is deflected far to the left, which indicates that that is very clean sand. You will also notice the right-hand curve of the neutron log which is -- I wouldn't say it measures porosity, but it is related to porosity and it reflects and shows porosity. It goes far to the left which would indicate that the Jennings Federal is very porous sand in this zone. Now, if you will look at the density log which is designed specifically to measure porosity most of the perforation in the Blackrock Number 2 Unit Federal is above 4,570 feet. There are three feet of perforation in the Blackrock Number 2 which seemed to be

in the porous sand, but if you will look at the left density curve instead of angling in very abruptly as would happen in a gas well, it comes in at a slope to the Blackrock Number 2 Union Federal and is at a less permeable portion of the sand than the gas well.

Q Aren't you saying there is a shaley zone separating the two?

A No, I am saying that the sand zone producing in the Jennings Federal gas well is less shaley than the same zone producing in the oil well. To put it another way, there are other things that reduce porosity besides shale. I am saying that there is better porosity in the upper portion of the reservoir, in the gas well than in the oil well.

MR. KELLAHIN: Thank you, very much, Mr. Singletary. That is all I have, Mr. Examiner.

* * * * *

CROSS-EXAMINATION

BY MR. STAMETS:

Q Mr. Singletary, is gas in the Delaware zone a common occurrence or an uncommon occurrence?

A It occurs in scattered wells in and adjacent to the oil wells. It is not common, but it is not uncommon. There is one gas well downdip on the edge of the Paduca field that I know of, and there are several Delaware

fields in Texas where the gas wells are not necessarily high or low to the oil wells, but adjacent to them.

Q Your cross-section, I believe you said, was drawn on the top of the porous sand and the top of the perforation in the three producing wells. Now, does this represent, in your opinion, the same time-line or is this your opinion, the same time-line, or is this the time-line that moves up and down in the section?

A The sand body time-lines become a little bit uncertain. The fact that the limestone bed in the Delaware lime is uniform to the uppermost Delaware sand which is very shaley sand and maintains not a constant thickness, but a near constant thickness, then there is the ten feet of less shaley sand just above the reservoir that seems to maintain a fairly common thickness and there is a good chance these are reasonably close in time. My use of the top of the perforation on the three wells is synonymous to the top of the porosity. I wish now that I used the top of the porous sand in the Union Number 2 Federal because it is considerably, -- nearly ten feet -- several feet lower than the top of the porous sand.

Q In other words, if you used the top of the porous sand, it would have accentuated the difference between one and two?

A Yes, that is what I'm trying to say.

Q In looking at your Exhibit Number 2, the vertical difference between the Jennings Federal Number 1 and the Union Federal Number 2 is only about four feet?

A Yes.

Q Do you feel -- that does not seem to be much of a difference and yet one well makes all gas and the other well makes all oil?

A When you consider where the oil is actually coming from, where the vertical difference is, it is somewhat different.

Q I would appreciate it if you could clarify that point for me just a little bit.

A Well, I would say the top of the porous sand in the Blackrock Number 2 is at 4,570 or 4,571.

Q You consider that to be the top of the porosity?

A Yes, although, as you can see from the density log, the porosity increases with depth so it is not a positive point. I am looking at the shaliness as well as the porosity and I do not think the shaley portion of that sand will produce at all. It becomes a matter of judgment and where the slope is shown on the right-hand curve, it would indicate porosity that would produce, but at about 4,570 feet. Then the top porosity instead of being minus 1,251, would have been a minus 1,256.

Q This appears to be basically the same zone that is

productive of gas in the Jennings Number 1 by just looking at the logs and the way you have them laid-out on Exhibit 3?

A Yes, it would appear to be.

Q Yet, there does not seem to be much vertical difference between the two wells?

A Yes, but I don't know how much vertical difference is required.

Q Now, you mentioned that if this Application were approved it could injure Union Oil Company because you have plans to drill, can you say where and when?

A Well, we have granted a farm-out, an option type farm-out, to Blackrock which gives them the acreage outlined in red on these Exhibits. They have a continuous drilling obligation and I think they have started their next well. We will wait and see what they get before we start our well and this will reduce our risk and we will take advantage of that.

Q Any well Union would drill at that time would be outside of the red area on the Exhibits?

A Yes. I regard them as having the choice location for the next well and we will try to develop ours in an orderly fashion. We have tentative plans to drill test and to continue the development in this field, but we will finalize our plans when we have the data from

Blackrock's next well.

Q Do you feel there is any significance to the difference in the liquid gravity between the two wells?

A The differences are not large and I believe the differences are the difference between gas cap and solution gas from producing oil.

Q I believe you said that the Union Federal Number 1 ran somewhat low to the Hill and Meeker Number 1 Sun Federal Well?

A I recall it being one foot on the top of the Delaware line, I do not know how it ran with regard to the other sand zones.

Q Do you have a copy of Applicant's Exhibit 4, it being a structure contour map to the top of the Delaware?

A Yes.

Q If one accepted this interpretation of the structure in the area, would that tend to explain the slight elevation difference?

A I don't quite get the point of your question.

Q Well, referring to your Exhibit Number 2, which is a structure contour map of the Federal Well, would it appear to be somewhat shallower than the Hill and Meeker well?

A Yes.

Q On Applicant's Exhibit 4, a structure contour map, it

would appear that the Union Well would be somewhat low to the Hill and Meeker Well?

A Yes. As I said, I do not know the characteristics of the sand, but it is one foot low on the top of the Delaware line.

Q Do you feel that this well running low might tend to confirm the Applicant's interpretation of the structure in the area?

A I would not pull the same line that he pulled from the south, I would certainly not pull it nearly as deeply as he has shown it. I feel that it is unlikely that there is any pulling from the northwest of Section 4, at best I would say it pulled east-west across the south part of the pool.

Q If the Commission should decide that this first well is actually drilled in a gas cap, do you have any recommendation as to any special pool rules to permit the well to produce more gas than it normally would on a forty acre basis?

A Our management feels that production should be restricted, but probably not to forty acres. I think that we are perfectly agreeable to eighty acre spacing.

Q Then the gas allowable for the Jennings Federal would be the oil allowable times the gas-oil ratio?

A That is the feeling of our company.

Q I have one more question. You mentioned earlier the drill stem test on the Jennings Federal Number 1?

A Yes.

Q Would you briefly run over that as far as the pressure that was covered is concerned?

A I don't think I read the pressures. In 1957, the drill stem test from 4,555 to 4,585 was open for two hours and gas flowed in two minutes at an estimated rate of 3.39 hundred MCF per day. There was mud to the surface in thirty-eight minutes and oil and water to the surface in one hour forty-five minutes.

We pulled the test tool and recovered five feet of oil and two feet of salt water. The flowing in pressure was 185 to 785 in thirty minutes and the shut-in pressure was 2,020.

Q Do you feel the current shut-in pressure on these two wells would demonstrate whether or not the reservoir was, indeed, the same reservoir?

A Not the initial pressure because they are so near the same depth it would be anticipated that they would have nearly the same pressure. They would be so near to each other that our interpretation would not be adequate to distinguish whether or not this is an associated reservoir?

MR. STAMETS: Are there any other questions of this

MR. KELLAHIN: Yes.

* * * * *

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q What well were you discussing the drill stem test on?

A The West State Number 1 Jennings Federal which was later completed as the Blackrock Number 1 Jennings.

Q This is the subject well of this Application?

MR. KELLAHIN: That's all I have.

MR. STAMETS: Any other questions of this witness?

(No response.)

MR. STAMETS: If not, the witness may be excused.

(Witness excused.)

MR. STAMETS: Mr. Kellahin, do you have additional testimony?

MR. KELLAHIN: I would like to recall Mr. Shafer, if I may.

* * * * *

WARREN SHAFER,

was recalled as a witness, and having been already duly sworn, testified as follows:

MR. STAMETS: Mr. Shafer, you are still under oath.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Shafer, referring you back to Exhibit Number 3, would you discuss the completion of the Union Federal Number 2 Well and what occurred in connection with that well?

A This well has actually the thickest clean sand section of any well in the vicinity and when we drilled it, we tested it to the top portion, about the top ten feet of the sand, and then we went ahead and drilled the well to the depth of the log and found that we had a much cleaner and better sand section than any other well in the vicinity. We wondered where the oil-water zone might be and whether we could pin it down and we couldn't with the information we had. So we went in and perforated it initially at 4,589 to 4,594 which is the bottom part of the Delaware section. We got a slight show of oil out of that and a little gas flow and eight barrels of water per hour. We concluded that the Delaware sand section was not productive at that location and at that depth in the section so we set a plug and when back up and perforated frm 4,565 to 4,573 and I think the important point is that this well here has continually increased its oil production since it was put on production to the point that the assumption

that this reservoir is downdip would be very speculative. For that reason we still don't know how much of the upper sand section -- we don't know how many feet of productive oil sand we have. We know we have a thin column of oil there because of the water production that well has always made and we think for that reason that oil production any farther south would be very speculative. As far as this well here being affected, it will be affected by the water drive of the well to the north and nothing more than gas expansion and I don't think they are related.

Q Is that well being pumped?

A Yes.

Q Did it ever flow?

A It flowed at first like a dollar shotgun going off, real quick.

MR. KELLAHIN: That's all I have

* * * * *

CROSS EXAMINATION

BY MR. STAMETS:

Q If the Commission should decide this is an associated reservoir, does the Applicant have any recommendation as to special pool rules to permit the Jennings Federal Number 1 Well to produce more than an oil well on forty acres?

A Well, we would just like to produce as a gas well up there, we would like whatever allowable we could get for gas. Actually, we planned to regulate the well to take approximately one million cubic feet of gas per day, that's what we did on our initial test and we haven't even had a show of oil on that well since it was completed, all we have had is a little bit of salt water, that's all the condensate we have had, one and a half to two barrels of salt water a day.

MR. STAMETS: That's all the questions I have.

(Witness excused.)

MR. STAMETS: Is there any additional testimony in this Case?

(No response.)

MR. STAMETS: Are there any statements?

(No response.)

MR. STAMETS: The Case will be taken under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, RICHARD E. McCORMICK, a Certified Shorthand Reporter, 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.

Richard E. McCormick
CERTIFIED SHORTHAND REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4754, heard by me on July 12, 1972.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

I N D E X

WITNESS:	PAGE
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Direct Examination by Mr. Kellahin	3
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E X H I B I T S

APPLICANT'S	OFFERED	ADMITTED
Blackrock Oil Company		
Exhibit Number 1	4	9
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OPPONENT'S	OFFERED	ADMITTED
Union Oil Company		
Exhibit Number 1	24	32
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COTTON DRAW UNIT

TEXACO, INC. (Unit oper.)

PADUCA

JENNINGS

EAST MASON

BATTLEAXE

T 25 S

T 26 S

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
CASE NO. 4782 Exhibit No. 1
Submitted by Union Oil
Hearing Date March 17, 1977

UNION OIL COMPANY OF CALIFORNIA
Roswell, N. M. District

JENNINGS FIELD
Lea Co., New Mexico

LEASE OWNERSHIP MAP
by
MIDLAND MAP COMPANY

Scale 1" to 4,000'

EXHIBIT # 1

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: NM-0359295-A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---
7. UNIT AGREEMENT NAME: ---
8. FARM OR LEASE NAME: Jennings Federal
9. WELL NO.: 1
10. FIELD AND POOL, OR WILDCAT: [illegible]
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Section 33, T-25-S, R-32-E

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ---

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other Re-Entry

2. NAME OF OPERATOR: BLACKROCK OIL COMPANY

3. ADDRESS OF OPERATOR: 1000 V & J Tower, Midland, Tx 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
[illegible] 660 FSL & 1980 FEL
At top prod. interval reported below - same
At total depth - same

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
		Lea	New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
9-14-71	9-17-71	10-6-71	3340 G.L.	3338

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
4632	4579	---	→	0-4632	

24. PRODUCING INTERVAL(S) OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
Top 4575
Bottom 4589
Delaware Sand

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: Gamma Ray - Neutron

27. WAS WELL CORED: When Originally Drilled

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8	24	885	12-1/4	Cement Circulated	None
4-1/2	9.5	4632	7-7/8	125 sx.	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
	NONE			

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8	4535	4555

31. PERFORATION RECORD (Interval, size and number)
4577 - 4580, 4 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4577-4581	500 gal. acid.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
	Form C-122 Attached	

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Shut in, negotiating gas contract

TEST WITNESSED BY: Phillips Petroleum Company

35. LIST OF ATTACHMENTS
C-122 w/attachments, C-123, logs and core descriptions

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Original Signed By O. D. BUTLER O.D.Butler TITLE President DATE November 4, 1971

*(See Instructions and Spaces for Additional Data on Reverse Side)

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
BLACKROCK OIL COMPANY	JENNINGS FEDERAL	1

Unit Letter	Section	Township	Range	County
O	33	25 SOUTH	32 EAST	LEA

Actual Footage Location of Well:
660 feet from the SOUTH line and 1983 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3340	Delaware	Jennings Delaware Gas	160 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

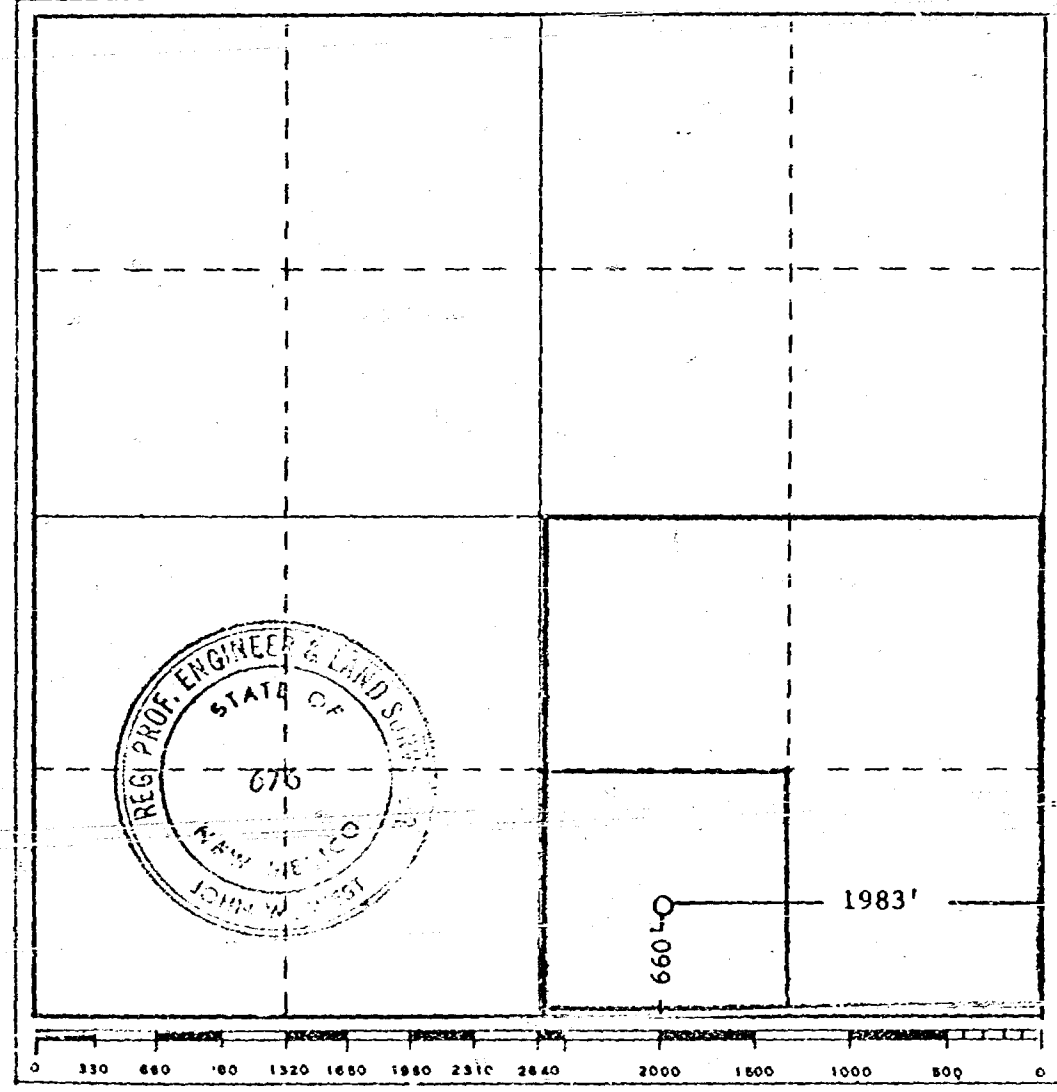
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: O.D. Butler

Position: President

Company: BLACKROCK OIL COMPANY

Date: April 19, 1972

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: SEPT. 12, 1971

Registered Professional Engineer and/or Land Surveyor: John W. West

Certificate No. 676

NEW EXICO OIL CONSERVATION COMMSS I

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date: 10-28-71	
Company: BLACKROCK OIL COMPANY			Connection: TO AIR		
Pool: Jennings Delaware			Formation: DELAWARE		Unit: O
Completion Date: 10-6-71	Total Depth: 4632		Plug Back TD: 4602	Elevation: 3340 G.L.	Farm or Lease Name: JENNINGS FEDERAL
Csg. Size: 4-1/2" / Wt.: 9.5# / d: 4.09 / Set At: 4632			Perforations: From 4577 To 4580		Well No.: 1
Tbg. Size: 2-3/8" / Wt.: 4.6# / d: 1.995 / Set At: 4584			Perforations: From OPEN To ENDED		Unit: O / Sec.: 33 / Twp.: 25S / Rge.: 32E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: SINGLE			Packer Set At: 4549		County: LEA
Producing Thru: TUBING	Reservoir Temp. °F: 96 @ 4540		Mean Annual Temp. °F: 75	Baro. Press. – P_a: 13.2	State: NEW MEXICO

L	H	Gg	% CO_2	% N_2	% H_2S	XXXXXX	Meter Run	Taps
4584	4584	.745	0.00	24.60	0.00	4" OWT		

	FLOW DATA					TUBING DATA		CASING DATA		
NO.	XXXXXX Line Size	X Orifice Size	Press. XXXXXX	Diff. h_w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI			(Mercury)			1781.0		CHOKE		16 DAYS
1.	4" OWT	1.50"	13.0		88	1571.0	84	10/64"		0.75 HRS
2.	4" OWT	1.50"	20.0		86	1526.0	84	11/64"		0.50 HRS
3.	4" OWT	1.50"	30.0		83	1448.0	83	13/64"		0.50 HRS
4.	4" OWT	1.50"	44.0		78	1340.0	80	15/64"		0.75 HRS
5.										

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	VOLUMES OBTAINED FROM GOR MANUAL-PAGES 22/23 AND						711.3
2	CORRECTED FOR TEMPERATURE						913.5
3							1172
4							1510
5							

NO.	P_t	Temp. °R	T_r	Z
1				
2				
3				
4				
5				

Gas Liquid Hydrocarbon Ratio 754 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 54.9 Deg.
Specific Gravity Separator Gas 0.745 XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure 626 P.S.I.A. P.S.I.A.
Critical Temperature 339 R R

P_c 1794.2 P_c^2 3219.2

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1	2509.7		2518.4	700.8
2	2369.1		2383.6	835.6
3	2135.1		2159.0	1060.2
4	1831.2		1870.7	1348.5
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.387$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 2.387$

$AOF = Q\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 3605$

Absolute Open Flow 3605 Mcfd @ 15.025 | Angle of Slope θ 45.0 | Slope, n 1.00 LIMITED

Remarks:

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	John West Engineering		

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY BLACKROCK OIL COMPANY LEASE JENNINGS FEDERAL WELL NO. 1 DATE 10-28-71

LOCATION: Unit SW SE "O" Section 33 Township 25-S Range 32-E

L 4584 H 4584 L/H 1.00 G 0.745 % CO_2 0.00 % N_2 24.60 % H_2S 0.00

d 1.995 F_t .018231 GH 3415 P_{cf} 626 (TABLE IX & X) T_{cf} 339 (TABLE IX & X)

	FIRST RATE		SECOND RATE		THIRD RATE		FOURTH RATE			
LINE	TRIAL 1	TRIAL 2	TRIAL 1	TRIAL 2	TRIAL 1	TRIAL 2	TRIAL 1	TRIAL 2		
1 Q_m	.7113	.7113	.9135	.9135	1.172	1.172	1.510	1.510		
2 T_w (W.H. °R)	544	544	546	546	543	543	538	538		
3 T_s (B.H. °R)	556	556	556	556	556	556	556	556		
4 $T = (\frac{T_w + T_s}{2})$	550	550	551	551	550	550	547	547		
5 Z (Est.)	.850	.841	.835	.846	.850	.847	.849	.850		
6 TZ	467.5	462.6	460.1	466.1	467.5	465.9	464.4	465.0		
7 GH/TZ	7.305	7.382	7.422	7.327	7.305	7.330	7.354	7.344		
8 e^s (Table XIV)	1.316	1.319	1.321	1.316	1.315	1.316	1.318	1.317		
9 $1-e^{-s}$ (Table XIV)	.240	.242	.243	.240	.240	.240	.241	.241		
10 P_t	1584.2	1548.2	1539.2	1539.2	1461.2	1461.2	1353.2	1353.2		
11 $P_t^2/1000$	2509.7	2509.7	2369.1	2369.1	2135.2	2135.2	1831.2	1831.2		
12 F_i (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231	.018231	.018231		
13 $F_c = F_t$ TZ	8.522	8.434	8.388	8.497	8.523	8.494	8.466	8.477		
14 $F_c Q_m$	6.062	5.999	7.662	7.762	9.989	9.955	12.78	12.80		
15 $L/H (F_c Q_m)^2$	36.75	35.99	58.71	60.25	99.78	99.10	163.3	163.8		
16 $F_w = L/H(F_c Q_m)^2(1-e^{-s})$	8.820	8.710	14.27	14.46	23.95	23.78	39.36	39.48		
17 $P_w^2 = P_t^2 + F_w$	2518.5	2518.4	2383.4	2383.6	2159.1	2159.0	1870.6	1870.7		
18 $P_s^2 = e^s P_w^2$	3314.3	3321.7	3148.4	3136.8	2839.2	2841.2	2465.5	2463.7		
19 P_s	1820.5	1822.6	1774.4	1771.2	1684.9	1685.5	1570.2	1569.6		
20 $P = (\frac{P_t + P_s}{2})$	1702.3	1703.4	1656.8	1655.2	1573.1	1573.4	1461.7	1461.4		
21 $P_I = (P/P_{cf})$	2.72	2.72	2.65	2.64	2.51	2.51	2.33	2.33		
22 $T_I = (T/T_{cf})$	1.62	1.62	1.63	1.63	1.62	1.62	1.61	1.61		
23 Z (Table XI)	.841	.841	.846	.846	.847	.847	.850	.850		

One copy to be filed in District Office (Xerox copy acceptable)

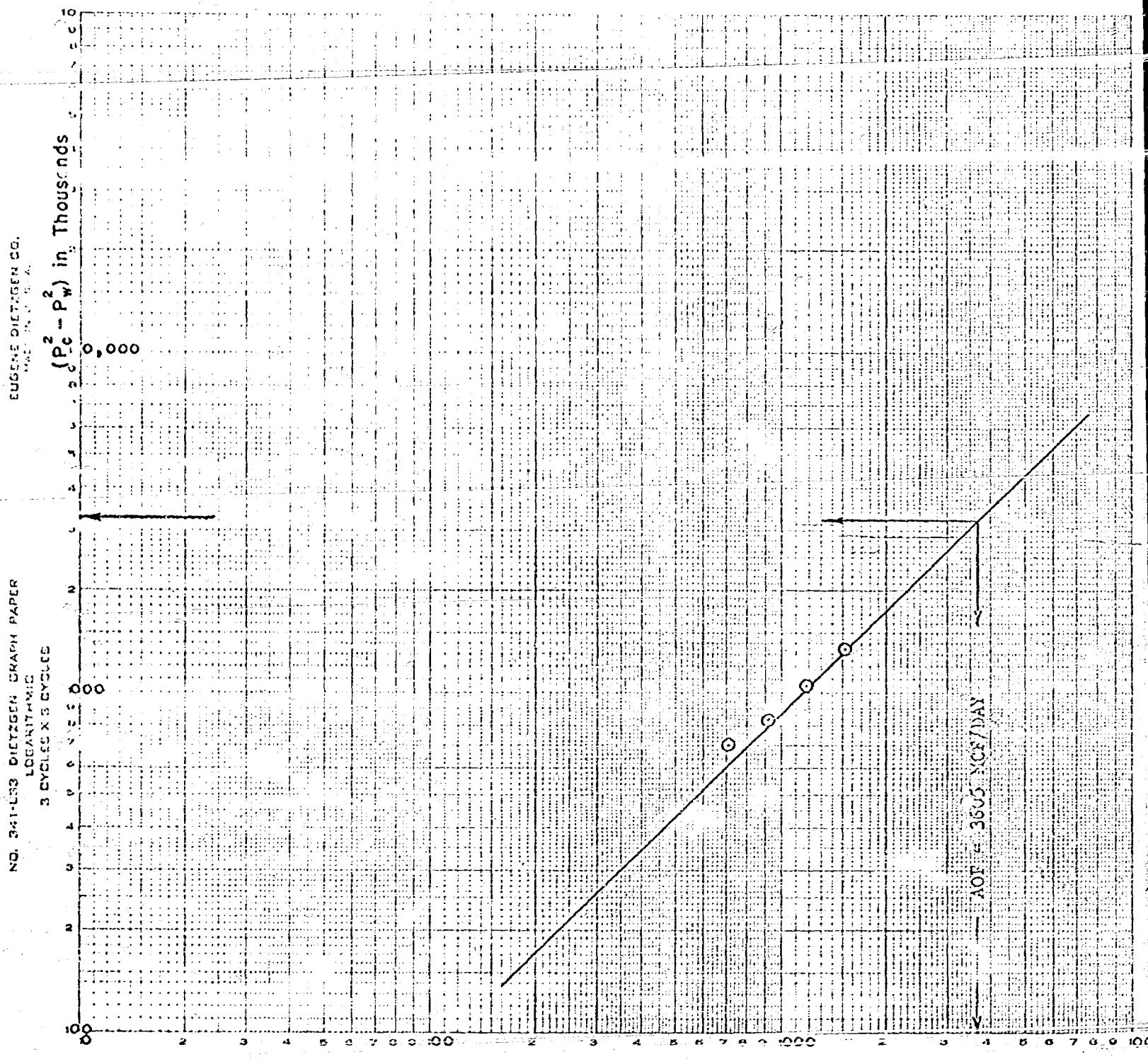
BACK PRESSURE CURVE

Operator BLACKROCK OIL COMPANY Lease JENNINGS FEDERAL Well No. 1

County LEA Field DELAWARE Location 33-25S-32E

Date of Test 10-28-71 Slope "n" _____ W. H. 1.00 * Abs.

Calc. W. H. Potential _____ MCF/D Calc. Abs. Potential 3605 MCF/



Form 208 11-63

PHILLIPS PETROLEUM COMPANY

Analysis Results Summary

Location Odessa, Texas

SS No. 839
Run No. 839
Date Run 10-24-72
Date Secured 10-18-72
Time
Sampler's Ident.

A Sample of: Gas Well Gas, Jennings Delaware Gas, Delaware Gas Formation, Hanchrock Oil Co.

Secured from Well #1 Jennings Federal

Location 660' S & 1983' E 33-25-32 County Lea State New Mexico

Purpose Survey Secured by George

Sampling Conditions: Atmos. Temp. 72 °F; Pressure on Bomb lbs./sq. in.; Bbls oil/day

Volume/day 1,015 Mcf ; Weather conditions at time of sampling

Field Gas Pressure PSIG; Line Pressure PSIG.

Chromo Analysis 14.65 PSI at 60°F

	Mol. %	Liq. %	
Carbon Dioxide			
Oxygen			
Nitrogen	24.60		
Hydrogen Sulfide			
Methane	64.03		
Ethane	6.13		
Propane	3.15		
Iso-Butane	.35		
Nor-Butane	.82		
Iso-Pentane	.18		
Nor-Pentane	.19		
Hexanes	.13		
Heptanes Plus	.12		
Total	100.00	100.00	

Propane	Calc. G.P.M.	.662
Iso-Butane	Calc. G.P.M.	.111
Nor-Butane	Calc. G.P.M.	.257
Pentane+	Calc. G.P.M.	.243
Propane +	Calc. G.P.M.	1.475
Test Car (Date		
B.T.U./	cu. ft. W.B.	636
Calc. Specific Gravity		.758
Calc. A.P.I. @ 60°F		
Observed A.P.I. Av.		
$H_2S + CO_2$ by orsat		Negative
H_2S grains/100 cu. ft.		Negative
Mercaptans gr/100 cu. ft.		
Calc. Vap. Press. #/sq. in.		
Reid Vap. Press. #/sq. in.		
Cu. Ft. gas/Gal. Liq.		
Calc. Gasoline Factors		
26-70 Gasoline		0.
Excess Butane		0.
Excess Propane		0.
Excess Ethane & Lighter		0.
		1.0000

Run by McGee Calculated by

Checked by Approved by

Additional Data and Remarks: Conventional Test Trap Pressure 270#
Line Heater Temp. 93°
Gas Temp. 71°
Choke 16/64"
Flowing Tubing Pressure 1277#
Shut-in Tubing Pressure 2100#

Distribution:

EXHIBIT #2

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR
BLACKROCK OIL COMPANY

3. ADDRESS OF OPERATOR
1000 V & J Tower, Midland, Tx 79701

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface Unit B, 660 FNL & 1980 FEL
At top prod. interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.
NM-0392082-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
N/A

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME
Union Federal

9. WELL NO.
2

10. FIELD AND POOL, OR WILDCAT
Jennings Delaware

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
Sec. 4, T-26-S, R-32-E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
---	---	Lea	New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
12-30-71	1-8-72	1-25-72	3322' G.L.	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
4620	4603	--	→	0-4620'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)
4565-4573

Prod Mar 72 Current 40 BO 51 BW 1398 GOR

25. WAS DIRECTIONAL SURVEY MADE
NO

26. TYPE ELECTRIC AND OTHER LOGS RUN
Guard - Density

27. WAS WELL CORED
NO

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8"	24#	901'	11"	500 sx	None
4-1/2	9.5#	4620'	7-7/8"	125 sx	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		NONE		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	4451'	4451'

31. PERFORATION RECORD (*Interval, size and number*)
4589'-4594 - 5 holes
4565'-4573' - 5 holes

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
4589'-4594'	250 gal. Acid
4584'	Baker Model N Bridge Pl
4565'-4573'	500 gal. Acid

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
2-2-72	Flowing	SI, waiting on tank btry.

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
2-3-72	24 hrs.	20/64"		100	125	0	1250

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
750#	950#		100	125	0	41°

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)
Vented

TEST WITNESSED BY
Leon Toombs

35. LIST OF ATTACHMENTS
C-123, C-104, Deviation Survey, DST, Logs

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Leon Toombs TITLE Production Supt. DATE Feb. 22, 1972

*(See Instructions and Spaces for Additional Data on Reverse Side)

WF

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
BLACKROCK OIL COMPANY	UNION FEDERAL	2

Unit Letter	Section	Township	Range	County
B	4	26 SOUTH	32 EAST	LEA

Actual Footage Location of Well:
1980 feet from the EAST line and 660 feet from the NORTH line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3322	DELAWARE SANDS	JENNINGS DELAWARE	160 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

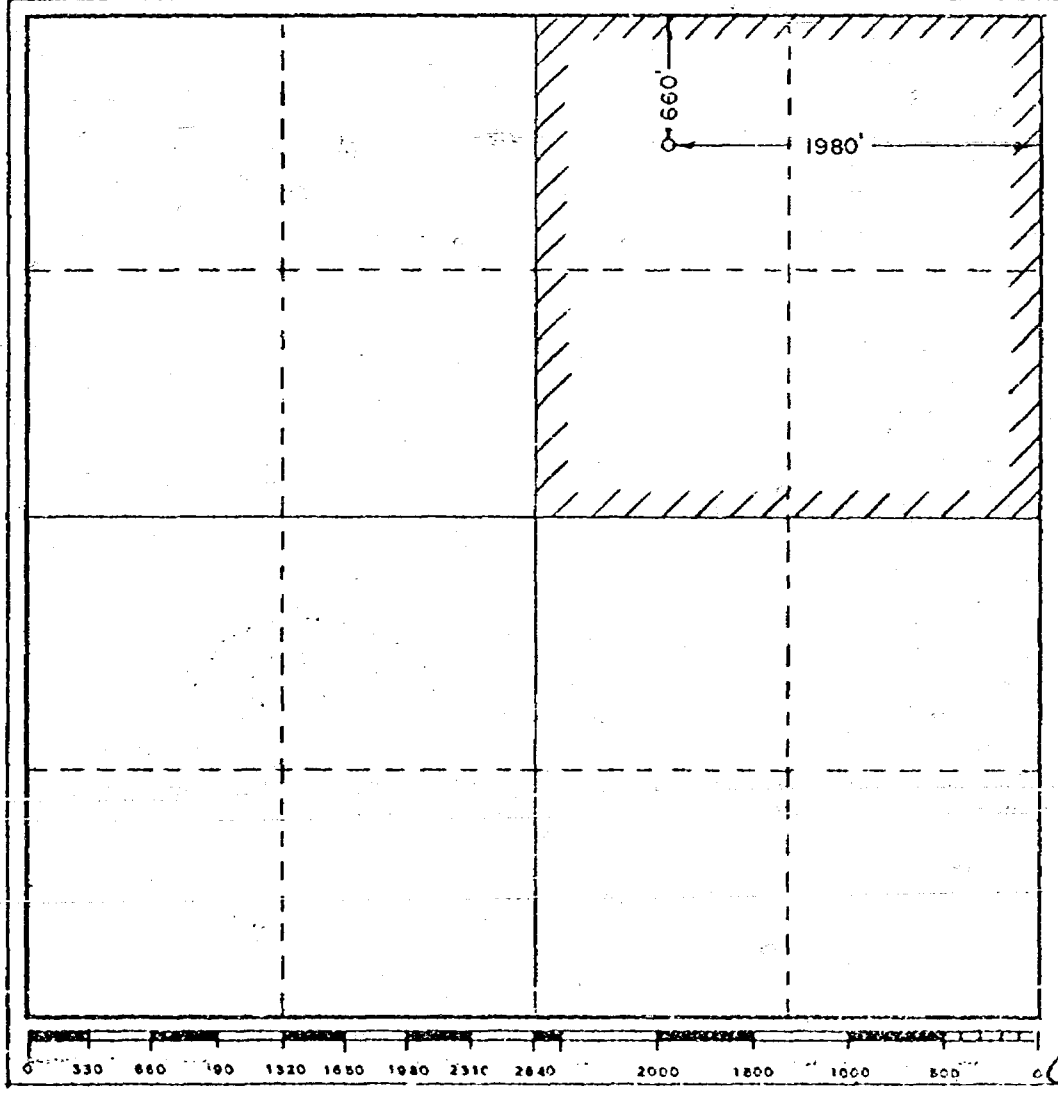
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: PRODUCTION SUPERINTENDENT

Position:

Company: BLACKROCK OIL COMPANY

Date: 12-4-1971

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: 12-4-1971

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No. 676

RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION

Form W-12
(1-1-71)

INCLINATION REPORT
(One Copy Must Be Filed With Each Completion Report.)

1. FIELD NAME (as per RRC Records or Wildcat)

2. LEASE NAME: Union Federal

3. OPERATOR: Blackrock Oil Company

4. ADDRESS: 1000 V & J Tower Midland, Texas 79701

5. LOCATION (Section, Block, and Survey): NE/4 Sec. 4; T-26-S; R-32-E

6. RRC District

7. RRC Lease Number (Oil completions only)

8. Well Number: 2

9. RRC Identification Number (Gas completions only)

10. County: Lea, N.M.

RECORD OF INCLINATION

*11. Measured Depth (feet)	12. Course Length (Hundreds of feet)	*13. Angle of Inclination (Degrees)	14. Displacement per Hundred Feet (Sine of Angle X100)	15. Course Displacement (feet)	16. Accumulative Displacement (feet)
495	495	1/4	.44	2.18	2.18
650	155	1/4	.44	.68	2.86
925	275	1/2	.87	2.39	5.25
1406	481	3/4	1.31	6.30	11.55
1915	509	3/4	1.31	6.67	18.22
2410	495	1 -	1.75	8.66	26.88
2900	490	3/4	1.31	6.42	33.30
3800	900	1 1/2	2.62	23.58	56.88
4620	820	2 -	3.49	28.62	85.50

If additional space is needed, use the reverse side of this form.

17. Is any information shown on the reverse side of this form? ☐ yes ☒ no

18. Accumulative total displacement of well bore at total depth of 4620 feet = 85.50 feet.

*19. Inclination measurements were made in – ☐ Tubing ☐ Casing ☐ Open hole ☒ Drill Pipe

20. Distance from surface location of well to the nearest lease line _____ feet.

21. Minimum distance to lease line as prescribed by field rules _____ feet.

22. Was the subject well at any time intentionally deviated from the vertical in any manner whatsoever? No

(If the answer to the above question is "yes", attach written explanation of the circumstances.)

INCLINATION DATA CERTIFICATION

I declare under penalties prescribed in Article 6036c, R.C.S., that I am authorized to make this certification, that I have personal knowledge of the inclination data and facts placed on both sides of this form and that such data and facts are true, correct, and complete to the best of my knowledge. This certification covers all data as indicated by asterisks (*) by the item numbers on this form.

Signature of Authorized Representative

Marvin L. Smith - VicePresident
Name of Person and Title (type or print)

Capitan Drilling Company, Inc.
Name of Company

Telephone: 915 (Area Code) 362-2323

OPERATOR CERTIFICATION

I declare under penalties prescribed in Article 6036c, R.C.S., that I am authorized to make this certification, that I have personal knowledge of all information presented in this report, and that all data presented on both sides of this form are true, correct, and complete to the best of my knowledge. This certification covers all data and information presented herein except inclination data as indicated by asterisks (*) by the item numbers on this form.

Signature of Authorized Representative

Name of Person and Title (type or print)

Operator

Telephone: (Area Code)

Railroad Commission Use Only:

Approved By: _____ Title: _____ Date: _____

* Designates items certified by company that conducted the inclination surveys.

FOSTER TESTERS, INC.

ODESSA, TEXAS

TEST TICKET NO. 2834

ORDER NO.

DATE JANUARY 3, 1972

COMPANY BLACKROCK OIL COMPANY LEASE UNION FEDERAL WELL NO. 2

FIELD WILDCAT COUNTY LEA STATE NEW MEXICO TEST NO. 1

MAIL CHARTS TO AS DIRECTED

MAIL INVOICE TO BLACKROCK OIL COMPANY, 1000 W. [illegible] TOWER, MIDLAND, TEXAS 79701

FORMATION TESTED DELAWARE TOTAL DEPTH 4570' MAIN HOLE 7 7/8 RAT HOLE -

INTERVAL TESTED FROM 4530' TO 4570' PACKER TYPE BT SIZE 6 5/8 NUMBER 2

DRILL PIPE SIZE 4" F.H. I.D. 3.340 DRILL COLLAR SIZE 4" H 90 I.D. 2.25

TIME PACKER SET 4:15 A.M. P.M. PACKER SET 4 HRS. 15 MIN. PRE FLO TIME 15 MINS.

INITIAL FLOW - MINS. 2ND FLOW - MINS. FINAL FLOW 60 MINS.

INITIAL SHUT-IN 60 MINS. 2ND SHUT-IN - MINS. FINAL SHUT-IN 120 MINS.

RECORDER TYPE AK-1 CAPACITY 5550#, 6600# NUMBER: TOP 2347 BOTTOM 2755

TOP RECORDER DEPTH 4565' BOTTOM RECORDER DEPTH 4570'

MAX. TEMP. 95° TEMP. DEPTH 4566' CHOKE SIZE: TOP 1" ADJ. BOTTOM 5/8

MUD TYPE BRINE MUD WEIGHT 10.0 VISCOSITY 34 FILTER CAKE 2/32 WTR. LOSS 10.0

FLUID CUSHION TYPE - AMOUNT - REVERSED OUT YES NO X

CONVENTIONAL TEST YES STRADDLE TEST - CASING TEST - MISS RUN -

SECOND ASSEMBLY YES ROTARY JAR YES SAFETY JOINT YES

SAMPLER YES NO X FFE FLOW TOOL YES NO X CIRC. SUB YES NO X

SURFACE ACTION: OPENED TOOL WITH WEAK BLOW INCREASING TO STRONG BLOW OF AIR. REOPEN TOOL WITH WEAK INCREASING TO STRON BLOW. OPENED CHOKE TO 1/4" TEST ON 1/4" FOR 45 MINUTES, GAS TO SURFACE IN 45 MINUTES TO SMALL TO MEASURE.

RECOVERY: GAS IN DRILL PIPE, 60' FREE OIL 41 GRAVITY @ 50°., 52' OIL AND WATER GAS CUT, 480' WATER OIL AND GAS CUT DRILLING MUD. 592' TOTAL FLUID.

PIT SAMPLE= CHLORIDES 190,000 P.P.M., RESISTIVITY .05 @ 60°.
TEST CHLORIDES= 177,000 P.P.M., REC, .08 @ 60°.

REMARKS: 15 MINUTES PRE FLOW TIME.
533' TOTAL DRILL COLLAR LENGTH.
10' PERFORATION LENGTH.

TESTER C. E. MCCORMICK TEST APPROVED BY ZACK MONROE

	RECORDER NO. 2755		RECORDER NO.		RECORDER NO.	
A INITIAL HYDROSTATIC PRESSURE	2362	P.S.I.		P.S.I.		P.S.I.
B INITIAL SHUT IN PRESSURE	2369	P.S.I.	B-1	P.S.I.		P.S.I.
C INITIAL FLOW PRESSURE	168	P.S.I.	C-1	P.S.I.		P.S.I.
D FINAL FLOW PRESSURE	265	P.S.I.	D-1	P.S.I.		P.S.I.
E FINAL SHUT IN PRESSURE	2359	P.S.I.		P.S.I.		P.S.I.
F FINAL HYDROSTATIC PRESSURE	2382	P.S.I.		P.S.I.		P.S.I.

FOSTER TESTERS, INC. DI STEM TEST PRESSURE BREAKDOWN RE 'S
Odessa, Texas

TEST DATE 1-8-72 RECORDER NO 2755 CAPACITY 6600# CLOCK NO. TICKET NO. 2834

TYPE RECORDER AK-1 TOP OR BOTTOM RECORDER BOTTOM RECORDER DEPTH 4570' OTHER 4565'

Initial Flow time, to: 15 min. ISIP time: 60 min. Flow Period Time, tc: 60 min. FSIP time: 120 min. Packer Set 255 min.

INITIAL SHUT IN			FLOW PERIOD		FINAL SHUT IN		
Press. Point Δ t, min.	tc + Δ t / Δ t	Pressure PSIG	Press. Point min.	Pressure PSIG	Press. Point Δ t, min.	tc + Δ t / Δ t	Pressure PSIG
0	-	174			0	-	265
6	3.50	561			12	6.00	1344
12	2.25	1093			24	3.50	1862
18	1.83	1876			36	2.67	1959
24	1.63	2362			48	2.25	2033
30	1.50	2364			60	2.00	2256
36	1.42	2365			72	1.83	2349
42	1.36	2366			84	1.72	2357
48	1.31	2368			96	1.63	2358
54	1.28	2369			108	1.56	2359
60	1.25	2369			120	1.50	2359

PRESSURE — PSIG @ 4570

Drill Stem Test No. 1
FOSTER TESTERS, INC.
PRESSURE BUILDUP PLOTS
(Horner Method)

COMPANY BLACKROCK OIL COMPANY
LEASE UNION FEDERAL
WELL 2 DATE 1-8-72
FIELD WILDCAT
COUNTY LEA STATE NEW MEXICO

2350
2300
2250
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750
1700

FSIP CURVE

ISIP CURVE

1 2 3 4 5 6 7 8 9 10 15 20 30 40 50 60 70

$\frac{t + \Delta t}{\Delta t}$

FOSTER TESTERS, INC., Odessa, Texas

DRILL STEM TEST CALCULATIONS AND ANALYSIS

OIL RESERVOIR

COMPANY BLACKROCK OIL COMPANY COUNTY LEA STATE NEW MEXICO

LEASE UNION FEDERAL WELL 2 TEST NO. 1

TEST DEPTHS	PRESSURE DATA	RECOVERY AND FLUID DATA
FORMATION DELEWARE	INITIAL HYDROSTATIC PRESS. IHP 2362 psig	DC SIZE 4 in
ELEVATION ft	FINAL HYDROSTATIC PRESS. FHP 2382 psig	DC LENGTH 533 ft.
TOTAL DEPTH 4570 ft.	INITIAL SHUT IN PRESS. ISIP 2369 psig	DP SIZE 4 in
INTERVAL 4530-70 ft.	INITIAL FLOWING PRESS. IFP 168 psig	SURFACE OIL PROD. bbls.
DATUM DEPTH ft.	FINAL FLOWING PRESS. FFP 265 psig	OIL RECOVERY ft.
RECORDER NO. 2755	FINAL SHUT IN PRESS. FSIP 2359 psig	GAS RECOVERY
		WATER RECOVERY ft
		OIL GRAV. 41 °API @ 50 °F
		TEMP. 95 °F @ ft
		MUD WT. 10.0 # /gal.
		OIL VISC EST. 1.6 cp
		GOR bo EST 1/0 v/v.

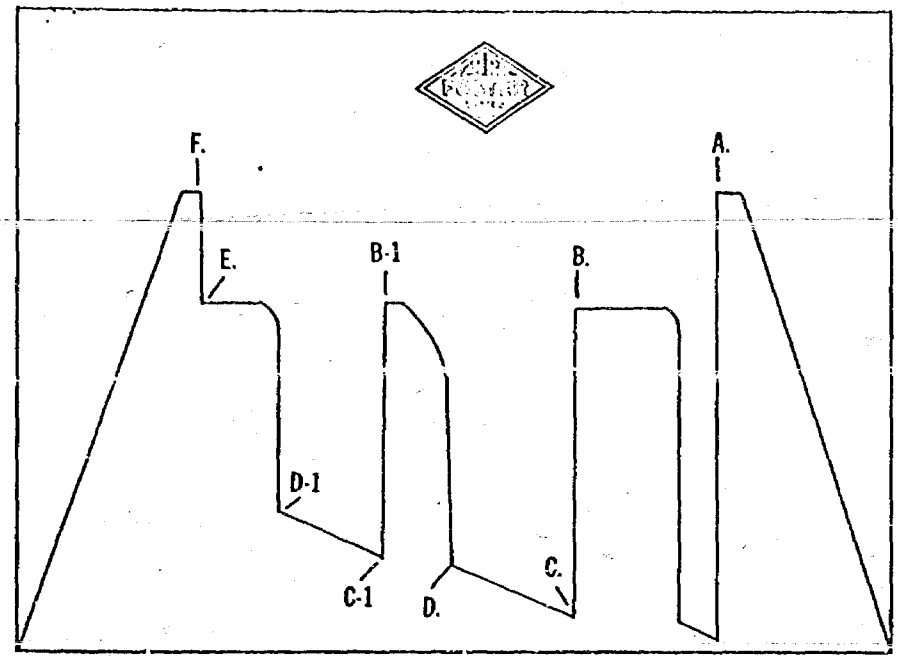
CALCULATIONS AND ANALYSIS

CALCULATIONS	FORMULA	RESULTS
1. EXTRAPOLATED STATIC PRESSURE — Initial	P_{oi}	psig
Final	P_{oi}	2175 psig
2. RESERVOIR PRESSURE GRADIENT	$G = \frac{P_{oi}}{l}$	0.475 psi/ft.
3. CALCULATED HYDROSTATIC PRESSURE	$CHP = l \frac{MW}{8.33}(.433)$	2378 psig
4. PRESSURE ELEMENT ACCURACY	$E = \frac{IHP\,(100)}{CHP}$	99.6 %
5. SLOPE OF FSIP (Horner Plot)	M	470 psi/cycle
6. OIL PRODUCTION RATE	$Q_o = 24 \frac{Rec.}{T}$	62.7 bopd
7. TRANSMISSABILITY	$\frac{Koh}{\mu} = \frac{162.6\ Q_o\ B_o}{M}$	23.8 md-ft./cp
8. PERMEABILITY CAPACITY	$Koh = \frac{Koh}{\mu_o}\mu_o$	38.2 md-ft.
9. EFFECTIVE OIL PERMEABILITY	$K_o = \frac{Koh}{h}$, $h =$ 40'	0.955 md.
10. DAMAGE RATIO	$DR = .183 \frac{P_{oi} - P_f}{M}$	0.74
11. PRODUCTIVITY INDEX	$PI = \frac{Q_o}{P_{oi} - P_f}$	0.033 bopd/psi
12. PRODUCTION WITH DAMAGE REMOVED	$Q_{o'} = Q_o\ DR$	62.7 bopd
13. APPROX. RADIUS OF INVESTIGATION	$a \cong \sqrt{KoT}$	3.5 ft.

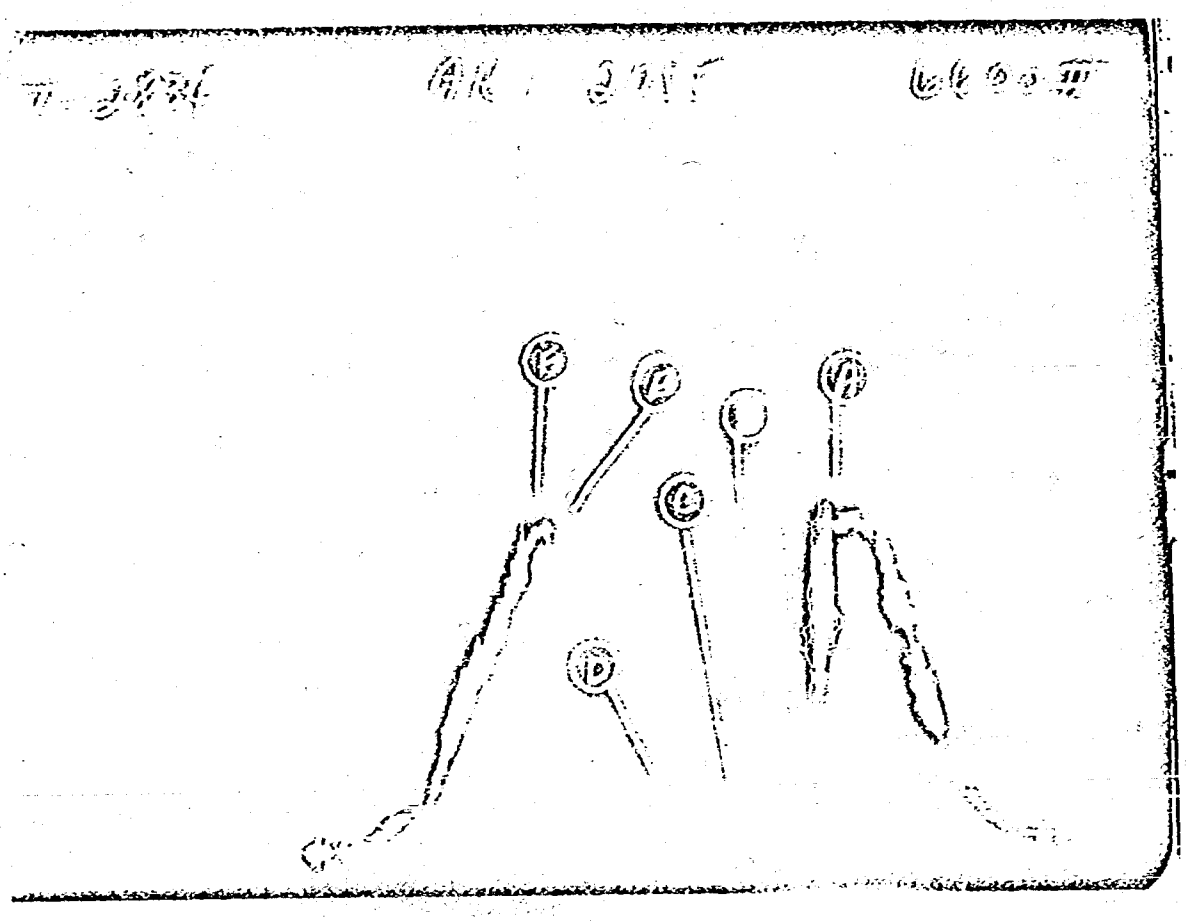
REMARKS:

THIS IS A TEST OF AN OIL BEARING ZONE WITH FAIR PERMEABILITY. NO WELL BORE DAMAGE, AS CALCULATED FROM TEST DATA, WAS SHOWN TO HAVE EXISTED DURING THIS TEST. IT IS BELIEVED THAT DUE TO HOLE CONDITIONS, (eg fillup) SHUT IN PRESSURES REFLECTED HUDROSTATIC PRESSURES AT THE END OF EACH PERIOD, AS A RESULT OF BY PASSING THE PACKERS. THE FINAL SHUT IN CURVE SHOWS A NORMAL BUILDUP DURING THE EARLY PORTION OF THE CURVE. RESULTS OBTAINED FROM CALCULATIONS ARE APPROXIMATIONS, BUT CAN BE USED AS A GUIDE AND ARE BELIEVED TO BE REASONABLE. RECOVERY, PARTICULARLY OF THE DRILLING FLUID PORTION, IS PROBABLY HIGHER THAN WOULD NORMALLY BE RECOVERED FROM THIS ZONE. NO DEPLETION CHECK CAN BE MADE DUE TO THE NATURE OF THESE BUILDUPS.

IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



A. INITIAL HYD. FLUID
B. INITIAL SHUT IN
C. INITIAL FLOW
D. FINAL FLOW
E. FINAL SHUT IN
F. FINAL HYD. FLUID
B-1 SECOND SHUT IN
C-1 SECOND FLOW
D-1 FINAL FLOW



WF

PHILLIPS PETROLEUM COMPANY
Phillips Building, Room 711
Odessa, Texas 79760

Gas and Gas Liquids Department

April 28, 1972

Field Tests

File: W-1-O'Ne-20-72-G&GL

Blackrock Oil Company
1000 V & J Tower Building
Midland, Texas 79701

Attention: M. L. Toombs

Dear Sir:

Listed below are results of the gas test that we ran on your lease in the Jennings Delaware Field, Lea County, New Mexico.

Lease	Well	24-Hr. Oil Prod.	Daily Gas Vol. MCF	GPM	GOR	Lenght of Test
Union Federal	#2	36.48	51	1.60	1398	24 hrs.

Attached is a copy of chromatographic results. Thank you for your assistance in making it possible for us to test your lease.

Very truly yours,

R. T. O'Neil cas

R. T. O'Neil

RTO'N:cas
Attachments

Form 206 11-63

PHILLIPS PETROLEUM COMPANY

SS No. 692
Run No. 692
Date Run 4-11-72
Date Secured 4-13-72
Time
Sampler's Ident.

Analysis Results Summary

Location Odessa, Texas

A Sample of: Casinghead Natural Gas, Jennings Delaware Field, Delaware Formation, Blackrock Oil Company

Secured from Well #2, Union Federal Lease

Location Nw NE 4-26-32 County Lea State New Mexico

Purpose Survey Secured by C. R. Ellictt

Sampling Conditions: Atmos. Temp. 84 °F; Pressure on Bomb lbs./sq. in.; Bbls oil/day

Volume/day 51 Mcf ; Weather conditions at time of sampling

Field Gas Pressure PSIG; Line Pressure PSIG.

Chromo Analysis 14.65 PSI at 60°F

	Mol. %	Liq. %	
Carbon Dioxide			
Oxygen			
Nitrogen	16.00		
Hydrogen Sulfide			
Methane	55.98		
Ethane	11.18		
Propane	9.54		
Iso-Butane	1.17		
Nor-Butane	3.21		
Iso-Pentane	.82		
Nor-Pentane	.90		
Hexanes	.63		
Heptanes Plus	.57		
Total	100.00	100.00	

Propone Calc. G.P.M.	2.611
Iso-Butane Calc. G.P.M.	.380
Nor-Butane Calc. G.P.M.	1.006
Pentane+ Calc. G.P.M.	1.142
Propane + Calc. G.P.M.	5.139
Test Cor (Date	
B.T.U./ cu. ft. W.S.	1250
Calc. Specific Gravity	.895
Calc. A.P.I. @ 60°F	
Observed A.P.I. Av.	
$H_2S + CO_2$ by orsat	Zero
H_2S grains/100 cu. ft.	Sweet to L.A.
Mercaptons gr/100 cu. ft.	
Calc. Vap. Press. #/sq. in.	
Reid Vap. Press. #/sq. in.	
Cu. Ft. gas/Gal. Liq.	
Calc. Gasoline Factors	
26-70 Gasoline	0.
Excess Butane	0.
Excess Propane	0.
Excess Ethane & Lighter	0.
	1.0000

Run by McGee Calculated by

Checked by McGee Approved by

Distribution:

Additional Data and Remarks: Conventional Trap Pressure 25#
Gas Temp. 85°
Well Pumps
Oil Production 36.48 BOPD, GOR 1398

EXHIBIT #3

R32E

PADUCA

JENNINGS

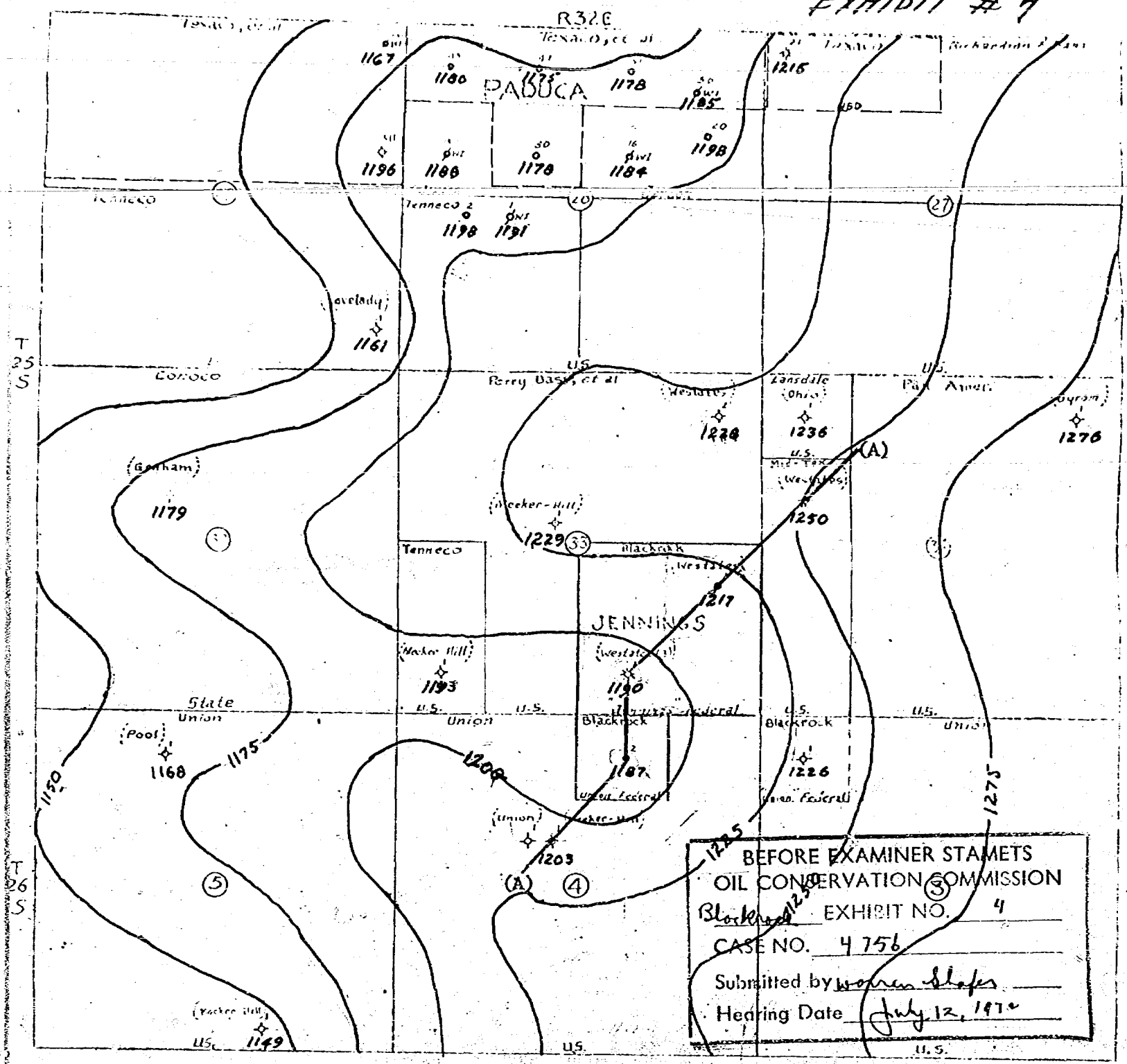
T 25 S

T 26 S

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Blackrock EXHIBIT NO. 3
CASE NO. 4756
Submitted by Warren Shafer
Hearing Date July 12, 1972

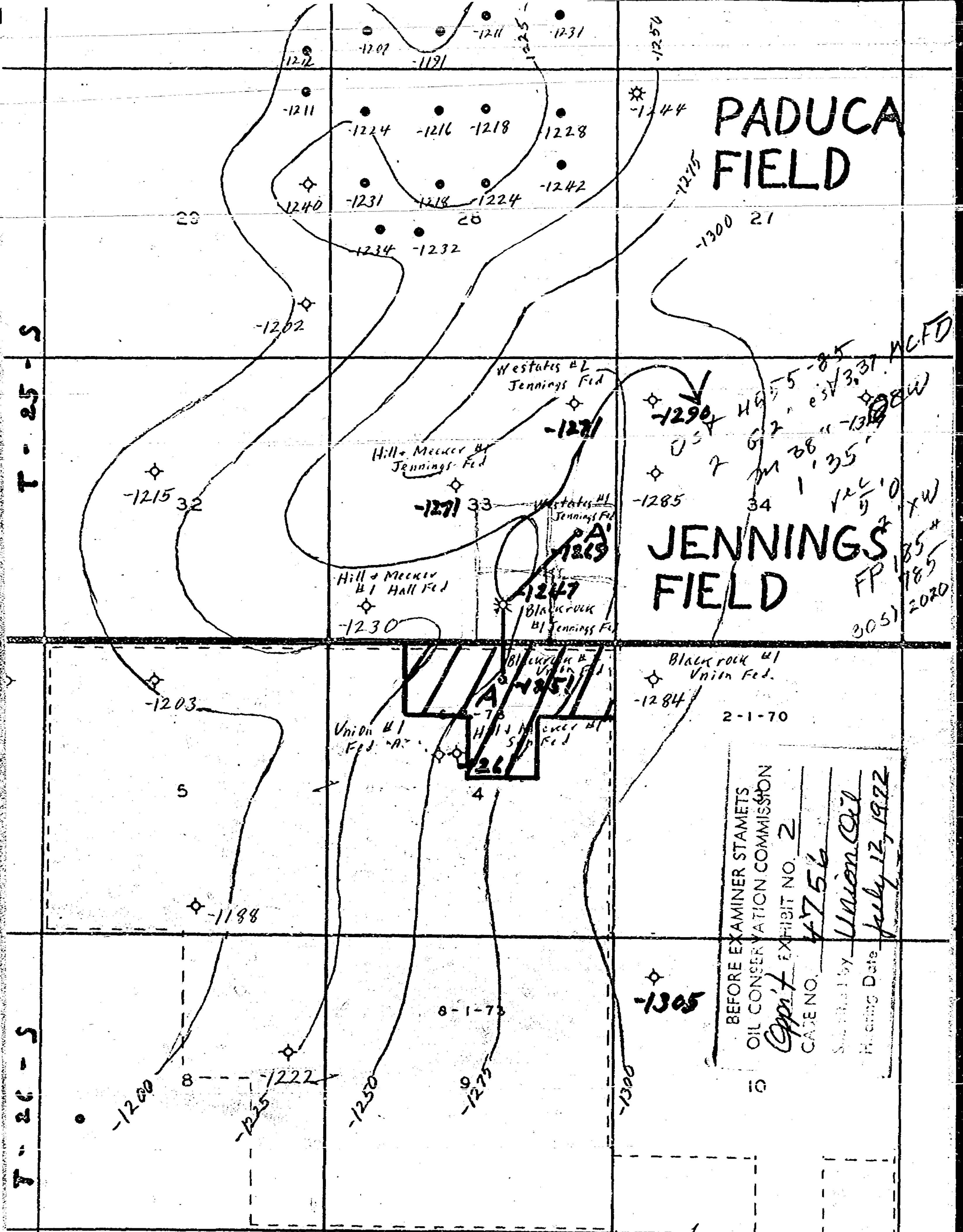
LEGEND	BLACKROCK OIL COMPANY	LOCATION PLAT
○ Producing Oil Well	Jennings Delaware Field	
☼ Producing Gas Well	Sec. 33-T25S-R32-E & Sec. 4-T26S-R32E	
↓ Dry Hole	Lea County, New Mexico	
ø☼ Abandoned Producer	Scale: 1" = 2000' 7-1-72	

EXHIBIT # 4



BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4756
Submitted by Warren Blakes
Hearing Date July 12, 1972

LEGEND	BLACKROCK OIL COMPANY	STRUCTURE MAP
Producing Oil Well Producing Gas Well Dry Hole Abandoned Producer	Jennings Delaware Field Sec. 33-T25S-R32-E & Sec. 4-T26S-R32E Lea County, New Mexico Scale: 1" = 2000' 7-1-72	Contoured on Top of the Delaware Lime C.I. - 25'



UNION OIL COMPANY OF CALIFORNIA
Roswell, N. M. District

N-S STRATIGRAPHIC CROSS SECTION
Across
JENNINGS FIELD
Lea Co., New Mexico

By: C.E. Singletary — July, 1972
Vertical Scale 1"=40' — Horizontal Scale-None

Union Oil Co. Lease

Lease Farmed Out to Blackrock Oil Co.

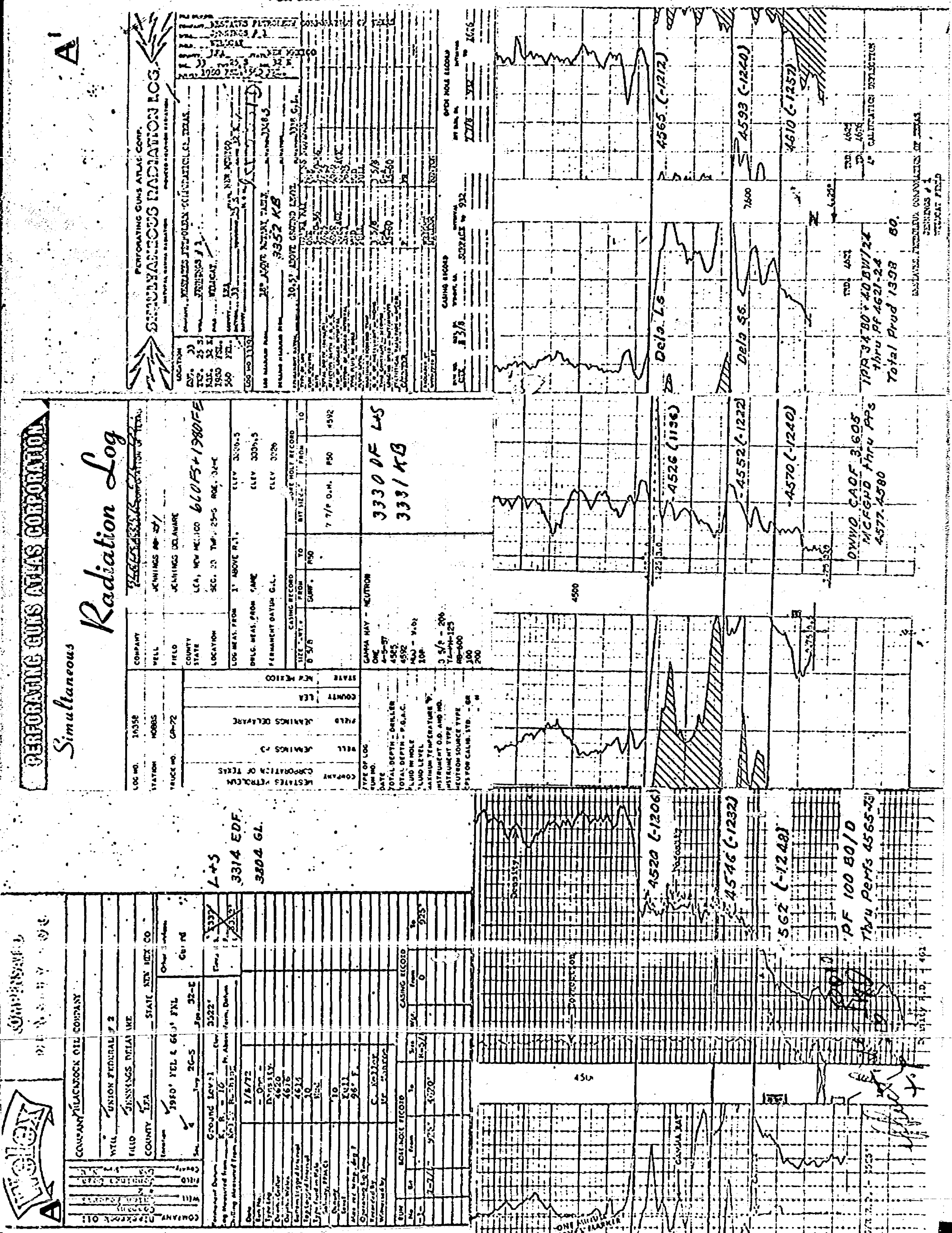
BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 3
CASE NO. 4756
Submitted by Union Oil
Date July 12, 1972

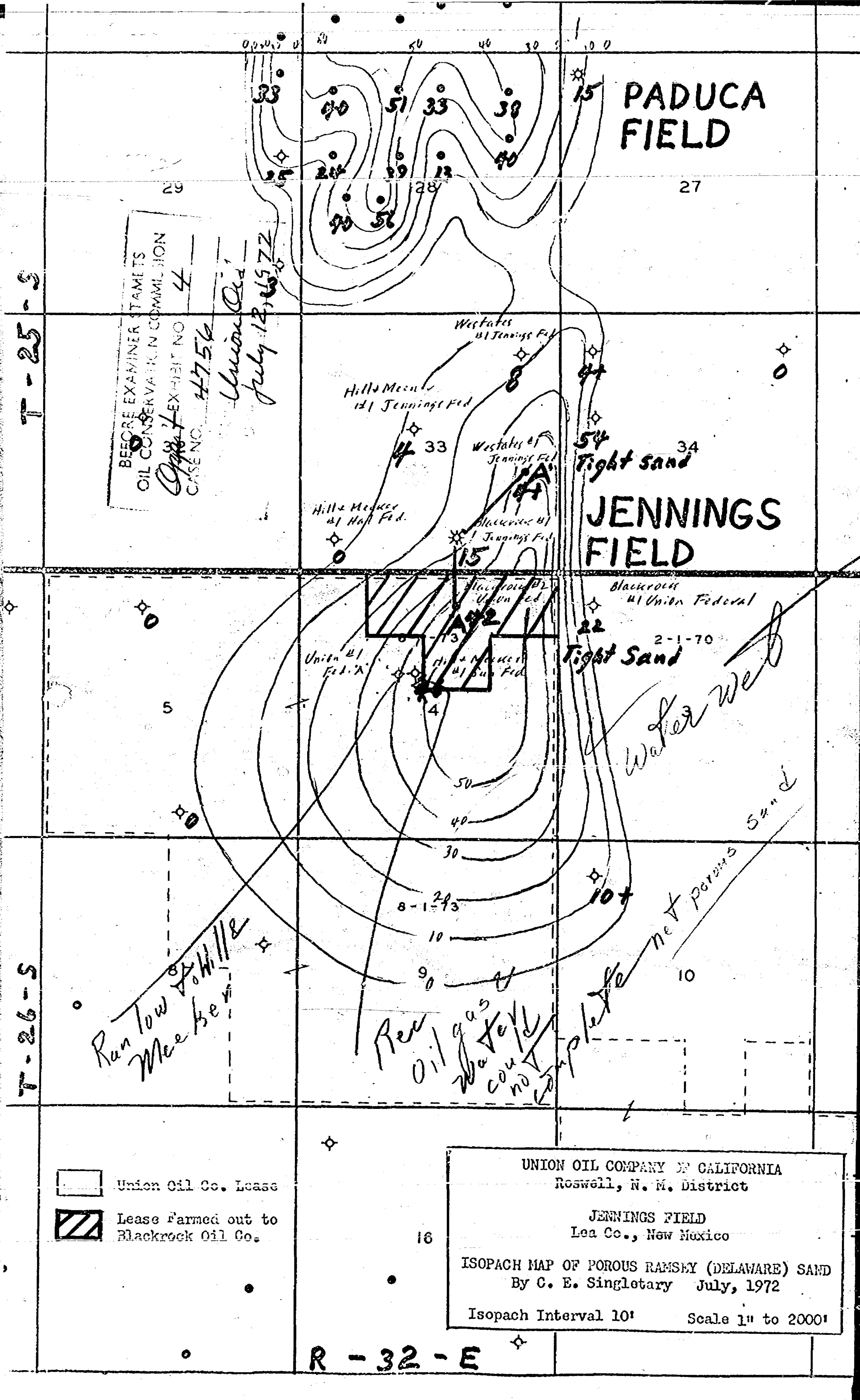
UNION OIL COMPANY OF CALIFORNIA
Roswell, N. M. District

N-S STRATIGRAPHIC CROSS SECTION
Across
JENNINGS FIELD
Lea Co., New Mexico

By: C.E. Singletary
Vertical Scale 1"=40'

July, 1972
Horizontal Scale-None




PADUCA FIELD
JENNINGS FIELD
T-25-S
T-26-S
R-32-E
29
28
27
33
34
5
4
3
8
9
10
16
Westates #1 Jennings Fed
Hill & Meeker #1 Jennings Fed
Westates #1 Jennings Fed
Hill & Meeker #1 Hall Fed.
Blackrock #1 Jennings Fed
Blackrock #2 Union Fed
Blackrock #1 Union Federal
Union #1 Fed. 'A'
Hill & Meeker #1 Bu Fed
Tight Sand
Tight Sand
2-1-70
8-1-73
Water well
Ran low to Hill & Meeker
Rec Oil gas water could not complete
5' not porous
BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Opp's EXHIBIT NO. 4
CASE NO. 4756
Union Oil
July 12, 1972
Union Oil Co. Lease
Lease Farmed out to Blackrock Oil Co.
UNION OIL COMPANY OF CALIFORNIA
Roswell, N. M. District
JENNINGS FIELD
Lea Co., New Mexico
ISOPACH MAP OF POROUS RAMSEY (DELAWARE) SAND
By C. E. Singletary July, 1972
Isopach Interval 10'
Scale 1" to 2000'

Blackrock Oil Company
1000 V & J TOWER – MIDLAND, TEXAS 79701 – 915 683-5691

O. DOYLE BUTLER
President

PEGGY L. HOLDEN
Office Manager

June 13, 1972

May want to advertise case as an associated pool
Case 4756

Mr. George M. Hatch, Attorney
OIL CONSERVATION COMMISSION
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: BLACKROCK OIL COMPANY
Jennings Federal No. 1
Unit O, Section 33, Township 25 South, Range 32 East,
Lea County, New Mexico

Dear Mr. Hatch:

Relative to your letter of June 8, 1972 advising that the Jennings Federal No. 1 can not be placed in a new pool administratively, it is respectfully requested that in view of the facts submitted in our previous letter and the fact that we will submit all pertinent facts at a hearing on July 12, 1972, it is requested that a temporary gas well allowable be granted this well retroactive from May 15th until the final decision of the hearing. We suggest several reasons for this temporary allowable, (1) current allowable has been produced and the well is shut-in, (2) we have a commitment to start another well in this area on or about July 11th, and we need all the production history possible to substantiate further drilling.

Should any further information be required, please advise.

Yours very truly,

BLACKROCK OIL COMPANY

O. Doyle Butler

ODB:jh
cc: Mid Tex Oil Corporation
Box 251
Mt. Carmel, Illinois 62863

DOCKET MAILED
Date 6-30-72

Petroleum Engineering, Land and Management Consultants

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

June 8, 1972

COPY

Blackrock Oil Company
1000 V & J Tower
Midland, Texas 79701

Attention: Mr. O. Doyle Butler

Re: Blackrock Oil Company
Jennings Federal No. 1
Unit O, Section 33, Township 25 South, Range 32 East,
Lea County, New Mexico

Gentlemen:

As the above-described well cannot be placed in a new pool administratively, we have set this for hearing before an examiner for July 12, 1972. A copy of the docket will be mailed to you at a later date.

Very truly yours,

GEORGE M. HATCH
Attorney

GMH/dr

Blackrock Oil Company

1000 V & J TOWER – MIDLAND, TEXAS 79701 – 915 683-5691

O. DOYLE BUTLER
President

PEGGY L. HOLDE
Office Manager

Case 4756

RECEIVED
JUN - 1 1972
OIL CONSERVATION COMM.
Santa Fe

June 6, 1972

Set for hearing July 12, 1972

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr.

Re: BLACKROCK OIL COMPANY
Jennings Federal No. 1
Unit O, Section 33,
T-25-S, R-32-E,
Lea County, New Mexico

Gentlemen:

In accordance with the attached Form C-123 that was filed April 26, 1972, it is respectfully requested that the Jennings Federal No. 1 be placed in a new pool created as the Jennings Delaware Gas Pool for gas wells only. It is requested this pool be 160 acre spacing, the standard guideline for gas fields, and that the gas allowable be made retroactive to May 15, 1972.

In support of this, we would like to call your attention to the Form C-122 indicating Absolute Open Flow in the Jennings Federal No. 1 as 3605 mcfd and a Gas liquid Hydrocarbon Ratio as 750,000. This is compared to our Union Federal No. 2 in the Jennings Delaware Oil Field which potentialed for 100 BO in 24 hours with GOR 1250.

Should it be necessary to support this request with geological and area cross-sectional mapping, this can be submitted; however, due to the foregoing, it is respectfully requested that a gas field be created as outlined on our Form C-123.

Yours very truly,

BLACKROCK OIL COMPANY

O. Doyle Butler

OB:jh
cc: Mid Tex Oil Corporation - Mt. Carmel, Illinois
El Paso Natural Gas Company - Midland, Texas

Petroleum Engineering, Land and Management Consultants

Case 4756

(Form C-123)
(Revised 7/1/52)

REQUEST FOR THE EXTENSION OF AN EXISTING POOL

OR

THE CREATION OF A NEW POOL

TO: The Oil Conservation Commission
State of New Mexico

Date April 26, 19 72

The BLACKROCK OIL COMPANY (Name of Operator) Jennings Federal (Name of Lease)

1 (Well No.) Located 660 feet from the South line and 1983 feet

from the East line of 33 (Section) 25-S (Township) 32-E (Range)

is outside the boundaries of any pool producing from the same formation. On the basis of the information submitted herewith on form C-105, we hereby request that the

pool be extended to include the following described area

~~or~~ that a new pool be created to include the following described area SE/4, Section 33, T-25-S, R-32-E

Suggested name: Jennings Delaware Gas

BLACKROCK OIL COMPANY
Operator

Name of Producing Formation:

Delaware Sand

Original Signed By
O. D. BUTLER
Representative

O. D. Butler
President

DRAFT

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. 4756

Order No. R-4359

APPLICATION OF BLACKROCK OIL COMPANY FOR THE CREATION OF A NEW GAS POOL, LEA COUNTY, NEW MEXICO.

7-31-72

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 12, 1972, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____ day of August, 1972, 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, Blackrock Oil Company, seeks the creation of a new pool for the production of gas from the Delaware formation for its Jennings Federal Well No. 1, located in Unit O of Section 33, Township 25 South, Range 32 East, NMPM, Lea County, New Mexico.

(3) That said well is currently classified as a gas well in the Jennings-Delaware Oil Pool.

(4) That the evidence presently available establishes that the subject well is a gas-cap well in the Jennings-Delaware Pool.

(5) That the evidence presently available further establishes that the Jennings-Delaware Pool should be reclassified as an associated pool and that Special Rules and Regulations should be promulgated therefor.

the adoption of special rules and regulations to provide for the classification of oil and gas wells, spacing and well location requirements for oil and gas wells, and an allocation formula for withdrawals from the gas wells and oil wells.

(5) That the evidence establishes that the Suble-Queen Gas Pool is not a separate common source of supply but is an extension of the Double L-Queen Pool.

(6) That while the said Double L-Queen Pool is presently classified as an oil pool, the evidence adduced indicates it is, in fact, an associated oil and gas reservoir.

(7) That the Double L-Queen (Oil) Pool and the Suble-Queen Gas Pool should be abolished.

(8) That a new pool in Chaves County, New Mexico, classified as an associated pool for the production of oil and gas from the Queen formation and designated the Double L-Queen Associated Pool should be created and Special Rules and Regulations should be promulgated therefor.

6 ~~(9)~~ That the reservoir characteristics of the subject pool indicate that the gas area can be efficiently and economically drained and developed on 160-acre spacing, and that the oil area can be efficiently and economically drained and developed on 40-acre spacing.

7 ~~(10)~~ That the reservoir characteristics of the subject pool presently available justify the definition of a gas well as a well producing with a gas-liquid ratio of ~~50,000~~ 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons.

8 ~~(11)~~ That the reservoir characterisitcs of the subject pool presently available justify the establishment of a gas-liquid ratio limitation of 2000 cubic feet of gas per barrel of liquid hydrocarbons.

9 ~~(12)~~ That special rules and regulations providing for 160-acre gas well spacing and 40-acre oil well spacing should be promulgated for the subject pool in order to 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, prevent reduced recovery which might result from the drilling of too few wells, and otherwise prevent waste and protect correlative rights.

10 (~~13~~) That the special rules and regulations should provide for the classification of a gas well as a well producing with a gas-liquid ratio of ~~50,000~~ 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons and should provide for a gas-liquid ratio of 2000 cubic feet of gas per barrel of liquid hydrocarbons in order to afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil or gas, or both, and for this purpose to use his just and equitable share of the reservoir energy.

11 (~~14~~) That the ~~temporary~~ special rules and regulations should establish proration rules for gas wells in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That effective August 1, 1972, ~~September 1, 1972~~, The Jennings-Delaware Pool, as previously defined and described, is hereby reclassified as The Jennings-Delaware Associated Pool, Lea County, New Mexico.

Section 31: S/2 NW/4 and S/2

TOWNSHIP 15 SOUTH, RANGE 29 EAST, NMPM
Section 1: E/2 E/2
Section 12: E/2 and SW/4
Section 13: NW/4

TOWNSHIP 15 SOUTH, RANGE 30 EAST, NMPM
Section 6: N/2 and SW/4
Section 7: W/2

(8) That, effective ~~September 1, 1971~~ August 1, 1972 Special Rules and Regulations for the ~~Double L Queen Associated~~ Jennings-Delaware Associated Pool, ~~Chaves~~ Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
Jennings Delaware ~~DOUBLE L QUEEN~~ ASSOCIATED POOL

RULE 1. Each well completed or recompleted in the ~~Double L~~ Jennings ~~Queen~~ Delaware Pool or in the ~~Queen~~ Delaware formation within one mile thereof, and not nearer to or within the limits of another designated ~~Queen~~ Delaware pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. (a) Each gas well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

(b) Each oil well shall be located on a standard unit containing 40 acres, more or less, consisting of a governmental quarter-quarter section.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 (a) without notice and hearing when an application has been filed for a non-standard unit and the unorthodox size or shape of the unit is necessitated by a variation in the legal subdivision of the United States Public Land Surveys, or the following facts exist and the following provisions are complied with:

(a) The non-standard unit consists of quarter-quarter sections or lots that are contiguous by a common bordering side.

(b) The non-standard unit lies wholly within a governmental quarter section and contains less acreage than a standard unit.

(c) The applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the quarter section in which the non-standard unit is situated and which acreage is not included in said non-standard unit.

(d) In lieu of paragraph (c) of this rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered or certified mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if no such operator has entered an objection to the formation of such non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well, oil or gas, shall be located no nearer than 330 feet to any quarter-quarter section line, except that any well drilled in a known gas productive area shall be located within 150 feet of the center of a quarter-quarter section.

RULE 5. A well shall be classified as a gas well if it has a gas-liquid ratio of ~~30,000~~ 100,000 or more cubic feet of gas per barrel of liquid hydrocarbons. A well shall be classified as an oil well if it has a gas-liquid ratio of less than ~~30,000~~ 100,000 cubic feet of gas per barrel of liquid hydrocarbons. The simultaneous dedication of any acreage to an oil well and a gas well is prohibited.

RULE 6. That the limiting gas-oil ratio shall be 2000 cubic feet of gas for each barrel of oil produced.

RULE 7. An oil well which has 40 acres dedicated to it shall be permitted to produce only that amount of gas determined by multiplying the top unit oil allowable for the pool by the limiting gas-liquid ratio for the pool. In the event there is more than one oil well on a 40-acre oil proration unit, the operator may produce the allowable assigned to the 40-acre unit from the wells on the unit in any proportion.

A gas well shall be permitted to produce that amount of gas obtained by multiplying the top unit oil allowable for the pool by the limiting gas-liquid ratio for the pool and by a fraction, the numerator of which is the number of acres dedicated to the particular gas well and the denominator of which is 40. In the event there is more than one gas well on a 160-acre gas proration unit, the operator may produce the amount of gas assigned to the unit from the wells on the unit in any proportion.

RULE 8. The operator of each newly completed well shall cause a gas-liquid ratio test to be taken on the well upon recovery of all load oil from the well, provided however, that in no event shall the test be commenced later than 30 days from the date of first production unless the well is connected to a gas-gathering facility and is producing under a temporary gas allowable assigned in accordance with Rule 11. Any well which is shut in shall be exempted from the 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 ~~50,000~~ 100,000 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 during the months of ~~March and September~~ November of each year. The initial gas-liquid ratio test shall suffice as the first [redacted] annual 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 appropriate district 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. Commission District supervisors may grant exceptions to the above test requirements where it is demonstrated that wells produce no liquids.

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 after the effective date of these rules shall receive an allowable only upon receipt by the appropriate Commission district office of Commission Forms C-104 and C-116, properly executed. The District Supervisor of the Commission's district 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 pool by the limiting gas-liquid ratio for the pool.

Rule 12. That the initial gas proration period shall be from 7:00 a.m. August 1, 1972, to 7:00 a.m. January 1, 1974. Subsequently, the date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period, (under)

~~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 or reservoir.

RULE 18. The monthly gas production from each gas well shall be metered separately and the gas production therefrom shall be reported to the Commission on Form C-115 so as to reach the Commission on or before the 24th day of the month next succeeding the month in which the gas was produced. The operator shall show on such report what disposition has been made of the produced gas.

RULE 19. Each purchaser or taker of gas shall submit a report to the Commission so as to reach 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 Form C-111 with the wells being listed in the same order as they are listed on the appropriate proration schedule.

RULE 20. Failure to comply with any provision of these rules 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 Secretary-Director shall notify the operator of the well and purchaser in writing of the date of allowable cancellation and the reason therefor.

RULE 21. 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 22. 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-102) showing the acreage dedicated to the well and the location of all wells on the dedicated acreage has been filed.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the ~~Double L Queen~~ Jennings-Delaware Associated Pool or in the ~~Queen~~ Delaware formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location

shall notify the appropriate district office of the Commission in writing of the name and location of the well on or before ~~September 1, 1971.~~ August 15, 1972

(2) That all operators shall, prior to ~~September 1, 1971,~~ August 15, 1972 file with the Commission Form C-102 for each well showing the acreage dedicated to the well.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

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

S E A L

dr/