

Case - Number

3619

Application  
Transcripts.

Small Exhibits

ETC.

GOVERNOR  
DAVID F. CARGO  
CHAIRMAN

State of New Mexico  
**Oil Conservation Commission**



LAND COMMISSIONER  
GUYTON B. HAYS  
MEMBER

P. O. BOX 2088  
SANTA FE

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

September 12, 1967

Mr. Clarence Hinkle  
Hinkle, Bondurant & Christy  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico

Re: Case No. 3619  
Order No. R-3317  
Applicant: \_\_\_\_\_

ATLANTIC RICHFIELD 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

Carbon copy of order also sent to:

Hobbs OCC x

Artesia OCC \_\_\_\_\_

Aztec OCC \_\_\_\_\_

Other \_\_\_\_\_

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 3619  
Order No. R-3317

APPLICATION OF ATLANTIC RICHFIELD  
COMPANY FOR SPECIAL POOL RULES,  
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 19, 1967, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 12th day of September, 1967, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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 on July 19, 1967, the Commission heard Case No. 3619, the application of Atlantic Richfield Company seeking promulgation of special rules and regulations for the Quail-Queen Pool, Lea County, New Mexico.

(3) That subsequent to the hearing of Case No. 3619, the applicant, Atlantic Richfield Company, requested Case No. 3619 be dismissed without prejudice to the right of the applicant to again seek promulgation of special rules and regulations for the aforesaid Quail-Queen Pool.

(4) That the aforesaid request of the applicant for dismissal of Case No. 3619 should be granted.

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CASE No. 3619  
Order No. R-3317

IT IS THEREFORE ORDERED:

(1) That Case No. 3619 is hereby dismissed without prejudice to the right of the applicant to again seek promulgation of special rules and regulations for the Quail-Queen Pool, Lea County, New Mexico.


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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
DAVID F. CARGO, Chairman

  
CLAYTON B. HAYS, Member

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

esx/

DOCKET: REGULAR HEARING - WEDNESDAY - JULY 19, 1967

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

- ALLOWABLE: (1) Consideration of the oil allowable for August, 1967;
- (2) Consideration of the allowable production of gas for August, 1967, from thirteen prorated pools in Lea, Eddy and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for August, 1967.

CASE 3617: Southeastern New Mexico nomenclature case calling for an order for the creation of two pools and the assignment of oil discovery allowables therein, and for the creation, extension and abolishment of certain other pools in Lea, Eddy and Chaves Counties, New Mexico.

- (a) Create a new pool in Lea County, New Mexico, classified as an oil pool for Delaware Sand production and designated the Duncan-Delaware Pool comprising the following described acreage:

TOWNSHIP 25 SOUTH, RANGE 32 EAST, NMPM  
SECTION 14: SE/4 SE/4

Further, for the assignment of approximately 24,255 barrels of oil discovery allowable to the discovery well, J. I. O'Neill, Jr.'s Federal "O" Well No. 1 located in Unit P of said Section 14.

- (b) Create a new pool in Lea County, New Mexico, classified as an oil pool for Queen production and designated the Quail-Queen Pool comprising the following described acreage:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM  
SECTION 13: W/2  
SECTION 14: E/2

Further, for the assignment of approximately 25,630 barrels of oil discovery allowable to the discovery well, Atlantic Richfield's State "BG" Well No. 1 located in Unit H of said Section 14.

- (c) Create a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated the Golden Lane-Strawn Gas Pool comprising the following described acreage:

TOWNSHIP 21 SOUTH, RANGE 29 EAST, NMPM  
SECTION 4: Lots 1 through 8

- (d) Create a new pool in Lea County, New Mexico classified as an oil pool for Blinebry production and designated the Teague-Blinebry Pool comprising the following described acreage:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM  
SECTION 16: SE/4  
SECTION 21: E/2  
SECTION 27: S/2  
SECTION 28: E/2

- (e) Abolish the West Bagley Pennsylvanian Pool in Lea County, New Mexico, described as:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM  
SECTION 29: NE/4

- (f) Extend the North Bagley Lower Pennsylvanian Pool to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM  
SECTION 29: NE/4

- (g) Abolish the Empire-Queen Pool in Eddy County, New Mexico described as:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM  
SECTION 36: SW/4 SW/4

- (h) Abolish the Red Lake Queen Gas Pool in Eddy County, described as:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM  
SECTION 26: E/2, SW/4 and W/2 SE/4

- (i) Extend the vertical limits of the Red Lake Grayburg-San Andres Pool in Eddy County to include the Queen formation and re-designate said pool as the Red Lake Queen-Grayburg- San Andres Pool.

- (j) Extend the Acme-San Andres Pool in Chaves County to include therein:

TOWNSHIP 8 SOUTH, RANGE 27 EAST, NMPM  
SECTION 4: N/2 SW/4

- (k) Extend the North Bagley-Middle Pennsylvanian Pool to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM  
SECTION 16: NW/4  
SECTION 17: SW/4  
SECTION 18: S/2

- (l) Extend the Northeast Bagley-Wolfcamp Pool in Lea County to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM  
SECTION 2: SW/4

Regular Hearing July 19, 1967

Docket No. 21-67

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- (m) Extend the Cato-San Andres Pool to include therein:

TOWNSHIP 8 SOUTH, RANGE 30 EAST, NMPM  
SECTION 2: SE/4  
SECTION 15: SE/4  
SECTION 22: NE/4  
SECTION 23: NE/4

- (n) Extend the South Corbin-Morrow Gas Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM  
SECTION 27: NE/4

- (o) Extend the Justis-Blinebry Pool to include therein:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM  
SECTION 12: SW/4

- (p) Extend the Justis Tubb-Drinkard Pool to include therein:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM  
SECTION 12: SW/4

- (q) Extend the Lazy J-Pennsylvanian Pool to include therein:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM  
SECTION 1: NW/4

- (r) Extend the Pearl-Seven Rivers Pool to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM  
SECTION 35: NE/4

- (s) Extend the Twin Lakes-San Andres Pool to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM  
SECTION 36: S/2 SW/4

- (t) Extend the North Vacuum-Abo Pool to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 24: NW/4

- (u) Extend the Vacuum-Wolfcamp Pool to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
SECTION 24: NW/4

Regular Hearing - July 19, 1967  
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Docket No. 21-67

CASE 3618:

Northwestern New Mexico nomenclature case calling for an order for the creation, extension, and contraction of certain pools in San Juan, Rio Arriba, Sandoval and McKinley Counties, New Mexico:

(a) Create a new pool in San Juan County classified as an oil pool for Dakota production, designated as the North Hogback-Dakota Oil Pool and described as:

TOWNSHIP 29 NORTH, RANGE 16 WEST, NMPM  
SECTION 6: SW/4  
SECTION 7: NW/4

TOWNSHIP 29 NORTH, RANGE 17 WEST, NMPM  
SECTION 1: SE/4  
SECTION 12: NE/4

(b) Create a new pool in San Juan County classified as a gas pool for Mississippian production, designated as the Table Mesa-Mississippian Gas Pool and described as:

TOWNSHIP 27 NORTH, RANGE 17 WEST, NMPM  
SECTION 9: NE/4

(c) Extend the Pinon-Fruitland Pool boundary to include therein:

TOWNSHIP 28 NORTH, RANGE 11 WEST, NMPM  
SECTION 18: S/2

(d) Extend the Ballard-Pictured Cliffs Pool boundary to include therein:

TOWNSHIP 23 NORTH, RANGE 3 WEST, NMPM  
SECTION 35: NW/4

(e) Extend the Fulcher Kutz-Pictured Cliffs Pool boundary to include therein:

TOWNSHIP 29 NORTH, RANGE 11 WEST, NMPM  
SECTION 7: SE/4  
SECTION 8: SW/4  
SECTION 18: NE/4

(f) Extend the South Blanco-Pictured Cliffs Pool boundary to include therein:

TOWNSHIP 25 NORTH, RANGE 3 WEST, NMPM  
SECTION 7: NW/4

TOWNSHIP 25 NORTH, RANGE 6 WEST, NMPM  
SECTION 25: SE/4



(g) Extend the Lybrook-Gallup Oil Pool boundary to include therein:

TOWNSHIP 23 NORTH, RANGE 7 WEST, NMPM  
SECTION 4: W/2 SE/4

(h) Contract the South Blanco-Tocito Oil Pool boundary by deletion therefrom:

TOWNSHIP 26 NORTH, RANGE 6 WEST, NMPM  
SECTION 13: N/2

(i) Extend the South Hospah-Lower Sand Oil Pool boundary to include therein:

TOWNSHIP 17 NORTH, RANGE 9 WEST, NMPM  
SECTION 1: SW/4 SE/4, NE/4 SE/4

(j) Extend the Tapacito-Gallup Associated Pool boundary to include therein:

TOWNSHIP 26 NORTH, RANGE 6 WEST, NMPM  
SECTION 13: NE/4

(k) Extend the Table Mesa-Pennsylvanian "C" Pool boundary to include therein:

TOWNSHIP 27 NORTH, RANGE 17 WEST, NMPM  
SECTION 9: NE/4

(l) Extend the Tocito Dome-Pennsylvanian "D" Pool boundary to include therein:

TOWNSHIP 26 NORTH, RANGE 18 WEST, NMPM  
SECTION 8: SE/4

CASE 3619:

Application of Atlantic Richfield Company for special pool rules, Lea County, New Mexico, Applicant, in the above-styled cause, seeks the promulgation of temporary special pool rules for the Quail-Queen Pool, including a provision for 80-acre proration units and fixed well locations.

CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
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OF COUNSEL: HIRAN M. DOW

June 21, 1967

TELEPHONE (505) 622-5510  
POST OFFICE BOX 10

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

*Case 3619*

MAIN OFFICE 001

'67 JUN 22 PM 1 13

Dear Mr. Porter:

We enclose herewith application of Atlantic Richfield Company for an oil discovery allowable which is filed pursuant to Rule 509 of the Commission. We also enclose copy of our letter of transmittal of 2 copies of the application to your Mr. Ramey of the Hobbs office.

There is also enclosed herewith in triplicate application of Atlantic Richfield for the establishment of the East Ridge Pool to consist of the W $\frac{1}{2}$  Section 13 and E $\frac{1}{2}$  Section 14, Township 19 South, Range 34 East, Lea County, New Mexico, in which the discovery well referred to in the above application for oil discovery allowable is located. The enclosed application is also for the adoption of temporary special field rules for said pool, including 80 acre well spacing and proration units.

We would like to have both of these matters set down for hearing at the regular hearing of the Commission on July 19.

Yours very truly,

HINKLE, BONDURANT & CHRISTY

By 

CEH:cs  
Enc.

cc: W. P. Tomlinson  
cc: Atlantic Richfield - Dallas office

DOCKET MAILED

Date 7/7/67

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

*Case 3619*

Application of Atlantic Richfield Company for establishment of the East Ridge Pool to consist of the W $\frac{1}{2}$  Section 13 and E $\frac{1}{2}$  Section 14, Township 19 South, Range 34 East, Lea County, New Mexico and for the adoption of temporary special field rules for said pool, including 80 acre well spacing and proration units.

MAIN OFFICE OCC

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Oil Conservation Commission  
Box 2088  
Santa Fe, New Mexico

Comes Atlantic Richfield Company, a corporation with offices at Roswell, New Mexico and hereby makes application for the establishment of the East Ridge Pool, Lea County, New Mexico and for the promulgation of temporary special rules and regulations for said pool and with respect thereto respectfully shows:

1. That applicant has heretofore completed a well located in Unit H of Section 14, Township 19 South, Range 34 East, N.M.P.M. Lea County, New Mexico, said well being located 1980 feet from the North line and 660 feet from the East line of said Section 14. Said well was completed on May 26, 1967 and is producing through perforations from 5126 feet to 5336 feet and was tested on completion with a potential of 194 barrels of oil per day and 240 barrels of water. That said well is producing from the Queen zone or formation and is a new discovery which is separate and distinct from pools heretofore designated in the area producing from the Queen formation. It is believed from the geological and geophysical information available at this time that said well reasonably proves to be productive all of the W $\frac{1}{2}$  Section 13 and E $\frac{1}{2}$  Section 14, Township 19 South, Range 34 East, N.M.P.M., which applicant requests be designated as constituting the East Ridge Pool.

2. That applicant owns or controls all except 80 acres of the acreage referred to above which it is requesting be included in the designation of the East Ridge Pool. Applicant contemplates the drilling

of additional wells, the same to be located so as to effect 80 acre spacing consisting of the N $\frac{1}{2}$ , S $\frac{1}{2}$ , E $\frac{1}{2}$  or W $\frac{1}{2}$  of governmental quarter sections and so that each well will be located in approximately the center with a tolerance of 150 feet of the SE $\frac{1}{4}$  and NW $\frac{1}{4}$  of each governmental quarter section. From information presently available and the producing characteristics of said well, it is believed that one well will effectively and efficiently drain 80 acres, and applicant seeks a temporary order providing for special field rules including 80 acre spacing and by such temporary order it is believed that the economic loss caused by the drilling of unnecessary wells will be prevented and that such spacing will be in the interest of prevention of waste and the protection of correlative rights.

3. Applicant requests that this matter be heard at the regular hearing of the Commission on July 19.

Respectfully submitted,

ATLANTIC RICHFIELD COMPANY

By W. F. Tomlinson

HINNE, BONDURANT & CHRISTY

By David H. Hinkle  
Attorneys for Applicant  
Box 10  
Roswell, New Mexico

COPY

HINKLE, BONDURANT & CHRISTY

June 21, 1967

MAIN OFFICE

'67 JUN 22 PM 1

Mr. J. D. Ramey  
Supervisor and Oil and Gas Inspector  
New Mexico Oil Conservation Commission  
Box 1980  
Hobbs, New Mexico

Dear Mr. Ramey:

Our client, Atlantic Richfield Company, is making application to the New Mexico Oil Conservation Commission for an oil discovery allowable in connection with its State "BG" No. 1 well located 1980 feet from the North line and 660 feet from the East line of Section 14, Township 19 South, Range 34 East Lea County. In accordance with Rule 509 there is enclosed herewith 2 copies of Form C-109 together with letter of W. P. Tomlinson, District Engineer for Atlantic Richfield, transmitting the same to the Santa Fe office of the Oil Conservation Commission. You will find attached to Form C-109 the exhibits referred to in Mr. Tomlinson's letter.

We are filing a copy of the application and above mentioned documents with the Oil Conservation Commission in Santa Fe and requesting that this matter be placed on the regular hearing docket for July 19.

We are also filing with the Commission application of Atlantic Richfield for the establishment of the East Ridge Pool to consist of the W $\frac{1}{2}$  Section 13 and E $\frac{1}{2}$  Section 14, Township 19 South, Range 34 East and also for the promulgation of temporary special rules and regulations for said pool, including 80 acre spacing. A copy of this application is also enclosed for your information and we are requesting that it also be set down for hearing on July 19.

Yours very truly,

CEH:cs  
Enc.

cc: W. P. Tomlinson  
cc: A. L. Porter, Jr.  
cc: Atlantic Richfield - Dallas

HINKLE, BONDURANT & CHRISTY

By



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1  
BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO  
July 19, 1967

REGULAR HEARING

IN THE MATTER OF: )

Application of Atlantic Richfield )  
Company for special pool rules, )  
Lea County, New Mexico. )

) Case No. 3619

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

TRANSCRIPT

(Whereupon, Exhibits Numbered 1 through 5, inclusive, were marked for identification.)

MR. PORTER: We'll take up Case 3619.

MR. HATCH: Case 3619, application of Atlantic Richfield Company for special pool rules, Lea County, New Mexico.

MR. HINKLE: Clarence E. Hinkle of Hinkle, Bondurant and Christy of Roswell, New Mexico, representing Atlantic Richfield.

We have one witness and five exhibits. I'd like to have the witness sworn.

MR. PORTER: The witness will please stand.

(Witness sworn.)

MR. PORTER: Would you have your witness sit up here, Mr. Hinkle?

MR. HINKLE: Yes. We're ready.

MR. PORTER: All right, Mr. Hinkle.

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E. M. PRINGLE, a witness, called by the Commission, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, by whom you are employed, and where you reside.

A My name is E. M. Pringle. I am employed by Atlantic Richfield Company in Roswell, New Mexico.

Q Are you a Petroleum Engineer?

A I am, sir. I am a Petroleum Engineer, and my present position is Senior Operations Engineer.

Q Have you previously testified before the New Mexico Oil Conservation Commission?

A I have not.

Q Would you state, briefly, your educational background and experience as a Petroleum Engineer.

A I completed the requirements for a B. S. Degree in Petroleum Engineering at the University of Southwestern Louisiana in 1957.

I was employed by Atlantic Refining Company at that time, in early 1958, in Lafayette, Louisiana. I worked there as a reservoir engineer until 1962 when I was transferred to Denver where my duties primarily consisted of New Mexico production. At Denver, I was an analytical engineer.

In 1965, I moved to Roswell as an analytical engineer, and since that time, have held positions as Senior



Analytical Engineer and, at the present time, Senior Operations Engineer.

Q Have you made a study of the Quail-Queen area in Lea County, New Mexico?

A I have, sir.

Q What does that study consist of?

A That study consists of spacing the areas that might be expected to be productive and recommended locations for future development of wells.

MR. HINKLE: Are the qualifications of the witness acceptable?

MR. PORTER: Yes, sir.

Q Are you familiar with the application of Atlantic Richfield Company in this case?

A I am, sir.

Q What does Atlantic Richfield seek to accomplish by this application?

A Atlantic requests and seeks approval of spacing of the west half of Section 13 and the east half of Section 14, Township 19 South, Range 34 East, to be 80-acres spacings, which would consist of the north, south, east or west halves of a quarter quarter section.

We also request well locations in the southeast and northwest quarter quarter sections, within a tolerance of 150

feet within the center of these quarter quarter sections.

Q Have you prepared, or has there been prepared under your direction, certain exhibits which were introduced in this case?

A I have.

Q Referring to Atlantic Richfield Exhibit Number 1, explain to the Commission what it is and what it shows.

A Exhibit Number 1 is a base map showing the ownership around the Quail-Queen field and the "BG" Number 1 discovery well.

This map shows the location of the "BG" discovery well and are presently drilling "BH" Number 1 in relation to other fields, such as the Scharb Bone Springs to the north-east and the Pearl Queen and West Pearl Queen fields to the south.

Also shown on this exhibit is a line marked "A. A. Prime," which refers to locations of wells which are shown on cross-section Exhibit Number 3.

Q Is there also shown the ownership of the leases in the area?

A It does.

Q How much acreage does Atlantic Richfield own surrounding the discovery well in Section 14?

A Atlantic holds the lease on all of Section 14 and

on the southwest quarter of Section 13 and is now earning the north half of the northwest quarter of Section 13 by the drilling of our "BH" Number 1.

Q In other words, Atlantic Richfield owns all of the acreage within the Quail-Queen area as delineated by the exhibit, except the 80 acres, is that right?

A That's right. Those 80 acres consisting of the south half of the northwest quarter of Section 13.

Q Now, refer to Atlantic Richfield Exhibit 2 and explain what that is and what it shows.

A Exhibit Number 2 is a subsea structure map contoured on top of the Quail-Queen formation using logs where available and incorporated seismic work. As shown on this exhibit, the discovery well, "BG" Number 1, is located on a monocline which dips to the south, forming a sinecline between Quail-Queen field and West Pearl Queen to the south.

This sinecline is substantiated by well logs and the seismic work which we referred to that was used primarily for configuration of between points of control.

We might state that the seismic work lines were run down each section line north, south and east, west, and the tops from seismic work checked to approximately ten feet to the tops of the Queen and all existing wells where logs were available.

Q In other words, you used all of the available data in preparation of this structural map, including geophysical survey maps?

A That's correct.

Q In your opinion, is the Quail-Queen field entirely a new discovery, new pooling?

A Yes, sir, it is. It appears that the Quail-Queen field accumulation is bounded on the west and east by dry holes and also on the north by dry holes, and the oil accumulation is bounded on the south by water contact of an unknown depth.

Q Now, you referred to Exhibit 3 as being a cross-section map. Would you refer to that and explain to the Commission what it shows?

A Exhibit Number 3 is a cross-section from north to south as shown on Exhibit Number 1, using Monsanto-Wagner State Number 1 Well located in Section 3, Township 19 South, Range 34 East; the discovery well, Atlantic Richfield State "BG" Number 1 in Section 14 of the same township and range; the St. Claire Superior Federal Number 2 in Section 25, same township and range; and the Union of California Lee Kay State Number 1 in Section 36 of the same township and range.

On this exhibit, we have imposed logs of these wells oriented to a datum of minus 1,000 feet below sea level.

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The horizontal scale is one inch equals 1,000 feet. The top of the Queen is marked on each well log and shows that the "BG" is located on, as far as we can tell, monocline dipping into a sinecline which separates the Queen field to the south from the Quail-Queen field.

This cross-section, when examined to us, showed that the Queen interval is continuous and the porous intervals within the Queen formation can also be correlated.

Q Do you have electrical logs of the discovery well?

A Yes, sir, I do.

Q Refer to that, which is Exhibit Number 4, and explain to the Commission, please.

A Exhibit Number 4 is a sonic gamma ray log of the State "BG" Number 1 Discovery Well. On this log, we have the tops marked of all the generally recognized formations along with the Queen perforations. We would like to state that the State "BG" Number 1 was planned to be a Bone Springs test. It was unsuccessfully drilled or completed in the Bone Springs.

Q What is the total depth of the well?

A The total depth of the well by log is 10,356 feet. The well was plugged back after unsuccessfully testing the Bone Springs and was completed in the Queen interval.

In doing this, as the Queen was not the primary objective, the log definition is rather poor in that this

interval was drilled with water, and there was a good amount of abrasion present. Consequently, the well was perforated in the Queen interval, in all of the porous intervals, with which any hydrocarbon saturation could be calculated.

Q Are those perforations shown on the electrical log, Exhibit Number 4?

A Yes, they are.

Q And they are from what depth on?

A The perforations start at 5,126 feet and extend to 5,336 feet, selectively perforated in this interval.

Q What was the potential of this well when it was completed?

A The well was potential for 194 barrels of oil per day, which was 33.5 gravity oil and 240 barrels of water a day. This test was on swab with the fluid level standing at 2,000 feet from the surface.

Q How do you account for such a large amount of water being produced from the well?

A Our experience with the Queen formation indicates that, generally, there are water bearing stringers or strata in the Queen formation which may be intermingling with the oil bearing stringers, rather than a water saturation situation as such.

In perforating the "BG" Number 1, we did perforate

every porous interval as this was a secondary objective. We feel like there are some intervals perforated in this well which are contributing water production, though the water saturation would not indicate this amount of water production from the oil bearing strata.

Q Does this indicate that this is a water drive pool?

A No, sir. We would not yet be able to say that this is a water drive pool. Our experience is that most of the Queen reservoirs are solution gas drive mechanisms and it would be necessary to gather additional information and to try to further define the hydrocarbon bearing stringers before the type of drive could be definitely ascertained.

Q In connection with the completion of the well, did you take some bottom hole pressure tests?

A Yes, we did. We might state, along with going into bottom hole pressures, the well is producing its allowable of, we might state, 60 barrels a day with 120 barrels of water a day on its own pump. The fluid level is still standing at 2,000 feet. The gasio ratio is 290 standard cubic feet per barrel.

In investigating this well from the log, we have determined that the porosity of sand is probably fourteen to fifteen percent; and on June 9th, we took a 48-hour static bottom hole pressure which gave a pressure of 1,500 and 42 PSI.

We have since, on June 30th, taken another extended buildup by means of sonolog, and this buildup substantiated the 48-hour bottom hole pressure point and, beside that, our sonolog buildup was substantially correct in magnitude. The reservoir pressure extract calculated from this buildup was found to be 750 PSI.

Q Is Atlantic Richfield drilling another well offsetting this well?

A Atlantic is drilling the "BH" Number 1 located in the northwest of the northwest of Section 13. The well is located 660 feet from the north and west corners of Section 13, and as of our last report, the well had been drilled to a depth of 4,858 feet.

Q What is the status of the well at the present time?

A At the present time, we are preparing to core the entire Queen formation. We plan to core about 150 feet of this formation. We have converted to a salt saturated mud in order to obtain what we believe will be definitive logs. We do plan to run a dual induction gamma ray and a sonolog along with the coring and then we plan to run a chlorine log to try to better detect the hydrocarbon bearing stringers in this well.

Q Your objective, then, completing in this manner during the coring, is to perforate only the oil bearing



stringers, rather than water bearing that you also perforated in the initial test well?

A That's correct. We hope to reduce the amount of water in this well relative to the "BG" Number 1. As a matter of interest, this well is approximately 40 feet higher on the top of the Queen from samples relative to the "BG" Number 1. We also hope to gain information that will substantiate our request for 80-acre spacings and give us better basic data with which to substantiate this request.

Q Can you state to the Commission, the Atlantic Richfield's reasons for wanting 80-acre spacings at this time?

A Yes, sir, I can. Using the basic data from the "BG" Number 1, which is about 22 feet of porous sand, fourteen to fifteen percent porosity, the pressure that we obtained off the buildup curve, we calculated permeability and the matrix to be approximately ten millidarcies from the buildup curve, using millidarcies and Hutchison method. After calculating this permeability, we assume that probably the prime mechanism for driving would be a solution gas drive, and we did run a solution gas drive case to indicate percentage recovery versus pressure for 40-acres spacing and 80-acres spacing. We found that going to an abandonment pressure, an abandonment rate of five barrels of oil a day, which we assume

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to be about the economic limit that we should expect on about 1% difference in recovery from two 40-acres as compared to one 80-acre well; the 40-acres spacing, of course, to recover the larger, which is about, as we find, 1% or moreover.

Q Have you made a study of the economics which might be involved in this case by the drilling of one well to each 40-acre as against one well to an 80-acre?

A Yes, we have. Our best information, as to the cost of the well in this area, is our estimate of expenditures on our "BH" Number 1. We estimate that we can complete this well through two producing equipment for \$90,000.00.

Therefore, should we be granted 80-acre spacing, we would realize a savings in investment of approximately \$90,000.00 on each 80-acre tract, as well as some risk involved in drilling the extra well to development on 40-acres.

The economic results, as far as profit to the operator by drilling on 80 acres, we find that our profit will be increased approximately 54%, as compared to two 40-acre tracts.

Q Is it Atlantic Richfield's request that you have staggered spacing on your 80-acres; that is to say, in the southeast and northwest of each quarter section?

A We do request that the wells be located in the northwest and southeast quarter quarter sections, probably in

the center with a tolerance of 150 feet.

Q Refer to Atlantic Richfield's Exhibit Number 1. Does this show the pattern which you would like to follow in development of this area?

A Exhibit Number 5 shows the area which we proposed to be governed by the rules, if adopted, which is the east half of Section 14 and the west half of Section 13. Also shown on this exhibit are the quarter quarter sections in which we would recommend that the wells be located. This exhibit also shows the location of the "BG" Number 1 and the presently drilling "BH" Number 1, which both wells do fall on the proposed spacing and location pattern.

Q Is Atlantic Richfield seeking a temporary order in this case for 80-acre spacing?

A Yes, sir. We would like to stress that our information, thus far, is based on what is available and it is rather scarce. Because this information does indicate that we can economically and efficiently drain with 80-acres, we would like to ask a temporary order so that we can gather information to substantiate 80-acre spacing. We believe that with the information we will gather on our "BH" Number 1 with subsequent pressures, with a little time to observe the performance of this reservoir, that we can repeat our calculations with a great deal more accuracy and better substantiate our position,

though what information we have now does indicate that this is a relatively prolific Queen reservoir, compared to anything that I have seen, and that the productivity of it will support in efficiently and economically draining 80-acres.

Q Do you know whether or not Atlantic Richfield plans to drill a number of wells during the coming year or within the year?

A I cannot state Atlantic's position, other than to say that I see no reason why subsequent wells could not be drilled as soon as wells being drilled are proven more productive.

Q There would be nothing to prevent you after a year and after you have had additional information, and if that should show that one well would not affect it efficiently draining 80 acres to go back and drill, fill in the other 40s, would it?

A That's correct. That's our position, that should we be granted a temporary time to gather information on this reservoir and should, during that time, development be as proposed, if it should prove that the optimum spacing would be 40 acres, we can infill with no additional expenditure then would have been involved should 40-acre spacing be adopted at the present time. We also believe that should this reservoir be a secondary recovery prospect -- and so far,

every Queen reservoir that I have been acquainted with has proven to be something that should be considered for secondary -- we believe that the locations requested will give us a better uniform pattern with which to carry out a secondary recovery project. We have found in some of the reservoirs that more tolerance does lead to a nonuniform pattern during secondary which results in early breakthrough and abnormal patterns, rather than five spots or other accepted type of development.

Q Is Atlantic Richfield seeking an 80-acre allowable in this case?

A Yes, sir, we are. We would request a factor of 2.33 which would indicate 80-acres spacing for this pool.

Q On account of the wells being 5,000 to 6,000 feet?

A Yes, sir.

Q In your opinion, would the adoption of a special field rules in this case, including 80-acres spacing on a temporary basis, for, say, a year, be in the interest of conservation, of the prevention of waste?

A It would, with the allowable as it is. With the spacings and the provision that wells could be infilled, drilled, such as has been necessary. We believe that this would economically and efficiently produce this reservoir while we're gathering additional information and would perhaps

result in a savings or, rather, prevent economic waste.

Q By the drilling of excessive wells?

A Yes, sir.

Q Do you believe also that the adoption of special field rules on a temporary basis would protect the correlative rights?

A Yes, sir, I do. The wells would be uniform in its spacing. The area involved and the ownership led me to believe that the protection of the correlative rights will be upheld.

MR. HINKLE: We would like to offer in evidence, Exhibits 1 through 5, inclusive.

MR. PORTER: Without objection, the exhibits will be admitted.

(Whereupon, Exhibits 1 through 5, inclusive, were admitted into evidence.)

MR. HINKLE: That's all of our testimony.

MR. PORTER: Mr. Pringle -- I believe that's right.

MR. PRINGLE: Yes, sir.

MR. PORTER: I believe you answered a question I was going to ask you concerning your plans for secondary recovery.

Now, you have recommended 80-acre allowables here which would be a factor of 2.33 and applied to allowable of 50 barrels, that would give you an allowable of about 117 barrels per day per well. Is there anything here that you

have observed, so far, that would indicate that this reservoir would be rate sensitive to the extent that this allowable, 117, might be damaging to the reservoir?

A No, sir. We have not observed anything to that effect. The reservoir is very prolific. We have calculated that we should be able to produce approximately 500 barrels of fluid per day, based on the "BG" Number 1 by pumping it down. We have to have pumping equipment which will be available at the end of this week to do that, should we be granted a higher allowable. We are, we believe, above the bubble point here, and we don't see any endangering effects by producing these wells at a higher rate.

MR. PORTER: Does anyone else have any questions?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Pringle, we have only got one well completed here, and probably since the Queen wasn't the target formation, as much testing and care wasn't taken with the formation as normally had been, had it been the target, but do you know of anything in this Queen's formation and this pool that is essentially different from the Queen and any other pool except that it makes more water?

A I have yet to calculate a permeability of a

productivity index, that is, as high as it is for this pool. We believe that we do have a productivity here that we have never seen in any Queen pool that I have ever been associated with. We found that the sands are well developed. Our geologists tell us that the only difference they can see here, compared to other Queen reservoirs, is that there is an absence of silt.

MR. PORTER: Do you think that as compared to other Queen pools, do you think that this has better drainage characteristics than the others that you have ever examined?

A Very definitely, yes, sir. Our geologists described this as a dolomitic sand and normally they describe it as carrying a good quantity of shale and silt or fines along with the sands. Now, the log characteristics showed this to be somewhat of a dirty reservoir, but our geologists did not find any silts or shales mixed in with the porous intervals as we normally find in the Queen.

Q (By Mr. Nutter) You don't have any corings from this formation?

A No, we just had cuttings. Now, we're coring our "BH" and we'll be coring our entire interval there.

Q You said this was drilled with water, but probably if you drilled with water and it was dirty, possibly you might have washed the dirt out with the cutting.



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A That is possible. I guess it could happen, yes, sir.

Q That other well was at 4800 this morning you say?

A Yesterday morning was the last official record. It was at 4858. I would suspect that the coring started during the night and approximately 4880.

Q Who will analyze the cores for Atlantic on this well?

A Core Lab will do the routine analyzing. We plan to have porosities and permeability and the normal saturations run, as well as gamma ray log runs, over the core so that we can correlate it. After that, we plan to package the core and send it to our Dallas Lab and we will run, as a normal procedure our residual oil to order a gas-oil run permeability curves from these corners.

Q Since the information that you have on this reservoir to date there is extremely scanty, do you think it would be unreasonable for the Commission to withhold the decision on this application until such time as you complete the coring on the second well and send a copy of the core lab reports to the Commission?

A Not at all. I think that would be very reasonable. We should have that core in a very short time, and I don't think that it would interfere with development in any way, and we would be very willing to supply that to you, should you

desire.

Q And then we can make comparison with the core here, other core that we have for the Queen formation.

A Yes, sir.

MR. NUTTER: Thank you.

MR. PORTER: Does anyone else have a question?

MR. PRINGLE: I would like to make one other statement, Mr. Porter, if I may.

MR. PORTER: All right, sir.

MR. PRINGLE: Again, I would like to stress that we have a scant amount of information here, but observing initial potentials on this well, versus, for instance, the area to the south, we feel that this well does exhibit a rather abnormally high productivity, fluid or oil wise. We believe that we can gather information to substantiate what the spacing should be and, really, what we are asking for is just something temporary to give us time to gather information, and we would not object in any way to a smaller spacing should the information show that the information is of the optimum.

We do believe that we can gather information which might uphold our present conclusions that the wells in this area, should they be like the "BG" Number 1, will efficiently and economically drain 80 acres.

MR. NUTTER: Mr. Pringle, isn't it true that the Penrose member of the Queen formation in the Eumont area was also very prolific, but that in any case, two operators had a well drilled on a 40-acre tract and had produced that well almost to depletion, and the operators went in and drilled a second hole on the same 40-acre tract and got top allowable wells?

MR. PRINGLE: I am not familiar with this area.

MR. NUTTER: That's all.

MR. PORTER: Does anyone else have a question?

The witness may be excused.

(Witness excused.)

MR. PORTER: Does anyone else have anything further to offer in the case? If you don't have anything further to state -- do you, Mr. Hinkle?

MR. HINKLE: No.

MR. PORTER: The Commission will take the case under advisement and the hearing is adjourned.

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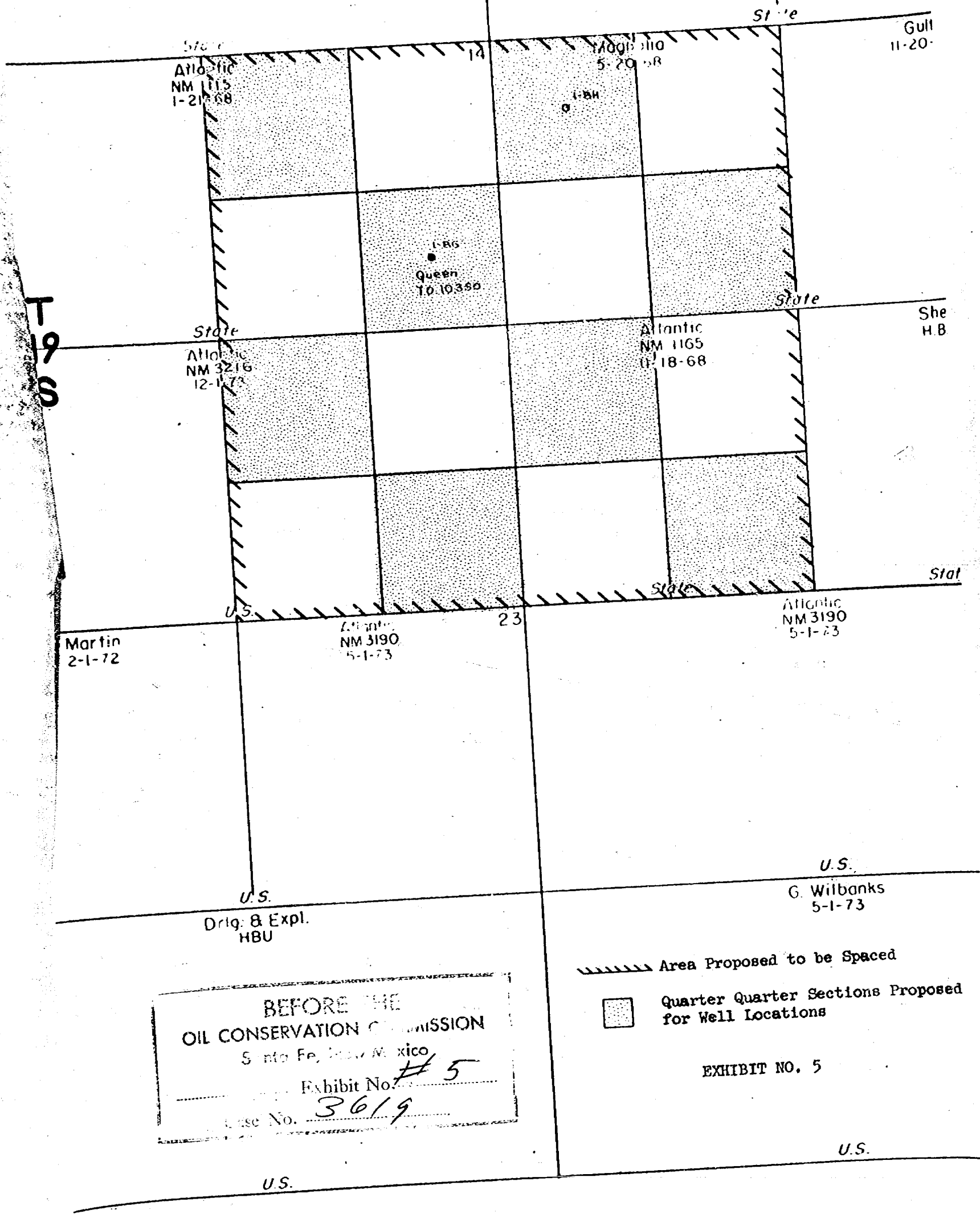
I, CHARLOTTE J. MACIAS, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, I have affixed my hand and notarial seal this 25th day of July, 1967.

*Charlotte J. Macias*  
Court Reporter and Notary Public

My Commission Expires:  
February 10, 1971.

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BEFORE THE  
OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Exhibit No. 7

Case No. \_\_\_\_\_

Area Proposed to be Spaced



Quarter Quarter Sections Proposed  
for Well Locations

EXHIBIT NO. 5

U.S.