

Case Number.

4198

Application

Transcripts.

Small Exhibits

ETC.



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

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 27, 1969

EXAMINER HEARING

IN THE MATTER OF:)

Application of Continental Oil)
Company for amendment of Order No. R-)
3487, Lea County, New Mexico)

) Case No. 4198
)
)
)
)

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 4198.

MR. HATCH: Application of Continental Oil Company for amendment of Order No. R-3487, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin appearing for the Applicant. We have as our witness Mr. V. T. Lyon. May the record show that he has previously been sworn and is under oath.

MR. UTZ: The record will so show.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1 through 7 were marked for identification.)

V. T. LYON

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A Victor T. Lyon.

Q Are you the same Mr. Lyon who testified in Cases 4195 and 4197?

A Yes, sir.

Q Mr. Lyon, are you familiar with the application

of Continental Oil Company in Case 4198?

A Yes, sir. Case 4198 is the application of Continental Oil Company for amendment of Order No. R-3487 to authorize a pressure maintenance project rather than salt water disposal in Scarborough Yates-Seven Rivers Pool and to permit injection of water into both the Yates and Seven Rivers formations in its Eaves A No. 10 located in Unit P. of Section 19, Township 26 South, Range 37 East, Lea County, New Mexico.

Q Now, referring to what has been marked as Applicant's Exhibit No. 1, will you discuss that exhibit?

A Yes, sir. Exhibit No. 1 is a location plat showing the proposed injection well or the present injection well Eaves A No. 10 located in Unit P. of Section 19, the ownership and location of wells in the immediately surrounding area for a radius of at least two miles in all directions down to the state line.

The injection well is circled in red. The lease on which it is located, the Eaves A Lease is shown outlined in red.

This lease consists of the south half of Section 19, south half of the northwest quarter, northwest quarter of the northwest quarter, all in Section 19, and the north

half of the north half of Section 30. The Eaves B Lease is shown outlined in green and consist of the northeast quarter and the northeast quarter of the northwest quarter of Section 19, the south half and north -- excuse me, the south half and the south half of the north half of Section 30; the northeast quarter of the northwest quarter, the northwest quarter of the northeast quarter and Lots 1, 2 and 3 in Section 31.

Now, the McAlister A Lease is shown outlined in blue and consist of the east half, the east half of the west half of Section 24, the north half of the northeast quarter, the northeast quarter of the northwest quarter and the southeast quarter of the northeast quarter of Section 25.

All of these leases produce from the Scarborough Yate-Seven Rivers Pool.

Q Is this same exhibit that was introduced by Continental Oil Company in Case 3842 resulting in Order R-3487?

A Yes, sir, this is the same exhibit except that it has been updated to show the additional wells which have been drilled on the west flank of the pool.

Q Now, referring to what has been marked as the Applicant's Exhibit No. 2, would you describe what is shown

on this exhibit?

A Exhibit No. 2 is a copy of Form C-108 for the proposed injection well and it shows on it the -- this is the same exhibit that we introduced before except that we have changed the location of the packer to be set at 3080 feet.

It shows the injection intervals to be changed to perforations 3107 to 3251 and open hole 3255 to 3410.

Q Would you continue with your discussion of Exhibit No. 2? I think I asked you how the perforations shown on this exhibit differ from those that were approved by the previous order.

A Our original exhibit which we introduced in the earlier application showed the perforations to be from 3208 to 3255.

Q That would be in the Seven-Rivers formation?

A Yes, sir.

Q Now, you propose to inject also into the Yates formation?

A That is correct.

Q Now, referring to what has been marked as Exhibit No. 3, would you identify that exhibit?

A Exhibit No. 3 is the schematic diagram showing

the manner in which the well has been completed and showing the revised perforated intervals and the open hole section in the well.

It also shows the revised packer setting depth.

Q Referring to what has been marked as Exhibit No. 4, would you identify that exhibit?

A Exhibit No. 4 is a copy of the radioactivity log on the well.

This is the same log which was introduced earlier because the open hole interval which was drilled out since our last hearing was not logged. Consequently, we don't have a log of that section.

Q Now, going back to your Exhibit No. 3, what changes were made in connection with the completion of this well as compared to those presented in Case 3842, other than what you have already discussed?

A The perforations 3208 to 3251 were made and the well was equipped for injection and immediately we found that the formation did not have the capacity to receive the water which was being produced in the area.

Consequently, we drilled out below the casing to a depth of 3410 and put the well on injection. Since that time we have had indications that the squeeze job on

the perforations in the Yates may not have been adequate and so we should like to move the packer above these perforations to contain the water into the perforated interval.

Q Will you reperforate this zone?

A We are currently considering this. This well is still under study and we probably will be reperforating this section.

Q Now, have you found that it requires some pressure in order to get water injected into the present perforations?

A Yes, sir. We have encountered the necessity to pump this water in under pressure.

It isn't continual, but there are times when it does require pressure to inject the required water.

Q You mean you get varying conditions in the well, is that correct?

A Yes, sir.

Q If the application of Continental Oil Company is approved in this case, what maximum pressure will you anticipate would be required for injection purposes?

A The injection pump is presently capable of injecting at approximately 800 pounds per square inch and

we believe that this will be adequate for the foreseeable future.

Q Now, referring to what has been marked as Exhibit No. 5, would you identify that exhibit?

A Yes, sir. Exhibit No. 5 is a structure map of the southern portion of the Scarborough Pool lying in New Mexico.

The pool does extend on into Texas. The injection well is shown circled in red. This contour plat shows the structural configurations at the top of the Yates formation and the contour intervals is fifty feet.

The structural high is a ridge reflecting and underlying Seven Rivers reef which occurs along the western edge of the central basin platform.

To the west of this feature the Yates formation plunges into the Delaware basin. To the east of the feature the Yates slopes into a trough between this ridge and the main body of the central basin platform.

The western slope from the ridge is referred to generally as the four reef and the eastern slope is referred to as the back reef. As shown, the Eaves A No. 10 is located in the back reef section.

Generally, the nature of the formation changes

quite drastically from the four reef to the back reef position. This is particularly true in the Seven Rivers formation which changes the reef section. The four reef section is generally quite permeable and often exhibits a strong water drive.

The back reef section is generally tighter and usually the oil production from this section exhibits solution gas drive or very limited water drive characteristics.

The differences between the two areas are so great that there is often considerable doubt that the two are in pressure communication. These generalities do not appear to be so pronounced in the Scarborough Pool.

The wells along the east side of the pool in the back reef section have encountered water problems almost to the same extent as those in the four reef section.

Q Now, referring to what has been marked as the Applicant's Exhibit No. 6, would you identify that exhibit?

A Exhibit No. 6 is a typical radiation log in the Scarborough Pool.

This was taken from a study of the area and it shows the designations which we use in studying this area. It shows the top of the Yates and immediately under the top

a sand body which is designated as 1-Y and these sand bodies are numbered down through the section; in the Yates formation through 9-Y; then, the top zone in the Seven Rivers is designated zone 10-R and on down to Zone 14-R, which 14-R is the lowest producing interval in the Seven Rivers to our knowledge.

To a certain extent, each of these zones acts as a separate reservoir, but they are in communication within the well bore and may be in communication through fracturing in the formation and possibly through common aquifer.

This area has been under study for a number of years and although it appears to be quite simple, it's quite a complex area and every time we feel that we have everything figured out and start a development program based on our then knowledge, we drill a well or two and it changes our interpretation.

Most recently, the Yates formation is being developed on the flanks of the structure. The earlier development was confined primarily to the Seven Rivers formation along the crest of the structure.

Q Practically every well in the area has more than one zone open, isn't that correct?

A Yes. That is true, and this fact has made it impossible to make a zone by zone study of this area.

Q Now, as I understand your testimony, then, the study of the area is not complete, is that correct?

A That is correct.

Q Would you discuss the aspects of the different formations?

A Well, the Seven Rivers formation is primarily dolomite and is highly fractured and exhibits considerable vuggy porosity and generally it exhibits a strong water drive.

The Yates formation is primarily sandy in nature separated by dolomite stringers, some of which are quite tight, some of which have indicated permeability and porosity. These are general statements and it is possible that there are zones in the Seven Rivers which are not affected by the water drive.

There are also possibly lenticular zones in there because the permeability barriers may be shielded from the water drive. The Yates formation does not indicate a great deal of water drive.

The Basal-Yates members may have limited water drive but as you go successively higher in the section the

indication of any water drive at all become less. Now, this is true from zone 9-Y up through zone 2-Y. We have not found any indication that zone 1-Y is productive.

Q Well, the Basal-Yates members you refer to as having a strong water drive, which ones would those be on your log?

A These are zones 8 and 9-Y and perhaps a strong water drive is not the best way to describe it. We have indications of perhaps a limited water drive there.

MR. UTZ: Where was that?

THE WITNESS: In zones 8 and 9-Y.

Q (By Mr. Kellahin) What is the situation as to 7-Y up to 2-Y?

A From 7-Y up to 2-Y the indications are less and less of any water drive at all. Most of the Yates members above 8-Y indicate more of a depletion, depletion-type drive.

Q It tends to decrease as you come higher in the section, is that correct?

A That's true.

Q Into what zones are you currently injecting water?

A We are currently -- the interval proposed in

our original application was zone 11-R and when we deepened the well we opened zones 12, 13 and 14-R, so that we are now injecting into zones 11-R through 14-R.

Q Now, referring to what has been marked as Exhibit No. 7, would you identify that exhibit?

A Exhibit No. 7 is a tabulation of water injected into the injection well since injection was begun in February.

In the center column it shows the volume injected each month and on the right-hand side it shows the cumulative water injected. Through June of this year, we have injected three hundred one thousand four hundred sixty-six barrels.

MR. UTZ: Approximately the same, I presume?

THE WITNESS: No. There's an increase. Now, these are tentative figures, but the information supplied me just before I left the office was that we injected 89,559 barrels in July, which brings the cumulative total to 391,025 barrels.

Q (By Mr. Kellahin) Now, since the hearing in Case No. 3842, have you changed the injection interval and found it necessary to apply pressure to inject water into the area?

A Yes, we have.

Q Have these facts and other information which have come to your attention since the last hearing changed your thinking as to the effect of injecting water into this well?

A Yes, sir. As we have given additional study to this, considering the differences in behavior in the four reef and back reef sections, we believe that the injection of water into the Seven Rivers very possibly will have some effect toward increasing oil recovery.

If you consider the fact that water is being produced throughout the area, both in the four reef and in the back reef and in the Yates formation to a certain extent and all this water is being injected into the back reef section, then I think that certainly we will be supplementing what water drive there is there so that the less water drive in the back reef section will be supplemented and make it perform approximately as the four reef section is.

Q In other words, you have a lesser water drive in the back reef section than you do in the four reef section?

A This is our interpretation.

Q And all the water that you were injecting is being injected into the back reef section?

A Yes, sir.

Q So the ultimate effect is that the injection in the back reef section in your opinion would tend to equalize the water drive in the four reef section?

A Yes.

Q And that would result in a pressure maintenance, is that correct?

A That is correct. I might mention also that we have indications that zones 8-Y, 9-Y and 6-Y, which were previously perforated and have been squeezed, may be receiving some water being injected and, of course, since these zones have limited or no water drive, then the injection of water into those zones will certainly begin moving some oil toward producing wells.

Q Now, the Yates formation is not depleted in this area, is it?

A No.

Q In other words, you are not saying this is a secondary recovery project?

A Well, the primary production is not down to the point that we would consider this a waterflood, but as the pressure declines in the Yates and having both Yates and Seven Rivers open in the injection well, then the proportion of water going into the Yates will increase so that as that formation pressure declines this injection project will have the effect of maintaining pressure in there.

Q Do you have any plans for converting other wells in this area for water injection?

A Our plans at this time are very tentative because we have a large scale study going on at this time.

Our tentative plans are to select a well on the west flank in the four reef section for injection into the Yates, but the particular well has not been selected. We should like to have authority under the order to convert additional wells as the need arises upon proper justification to the secretary-director.

Q That was included in Continental's application in this case, is that correct?

A I'm not sure it was. I hope it was inferred.

MR. UTZ: That is into either formation?

THE WITNESS: Yes, sir.

Q (By Mr. Kellahin) Now, do you have any statement as to the amount of additional oil that will be recovered by pressure maintenance operations in this area?

A Well, this is a very difficult question because, as I say, our study is not complete; but, as of January 1, 1969, there have been 6,734,042 barrels of oil produced from these three leases. A very substantial amount of this oil was produced from the Seven Rivers with a strong water drive and we just are not able to determine how much of it was produced from the Yates, because many wells have both formations open; but, we are certain that a considerable portion has been produced from the Yates and that this production represents a considerable amount of oil that we can duplicate by waterflooding or by injecting water.

Q Now, since this area is under study and your plans are incomplete, would you consider your application as premature in this case?

A Well, if you look at just these facts it might appear that this application is premature. However, if you consider the effect of Order No. R-3221, which prohibits disposing of produced water in surface pits, it changes the picture a little bit.

This has caused us to inject this water into the formation and we are attempting as best we can to dovetail the necessity to inject the water below the ground with our knowledge of the area to -- so that we have both salt water disposal and pressure maintenance aspect of the thing. As we learn more about the area, of course, this will enable us to provide a logical pattern and procedure for doing our pressure maintenance.

Q Now, I take it then that in your opinion approval of this application will result in the prevention of waste?

A Yes, sir, in my opinion a very substantial volume of oil can be recovered by instituting pressure maintenance procedures in the area.

Q In your opinion, will there be any impairment of correlative rights as a result of injecting water as proposed in this application?

A All of the offset wells are located on the Eaves A Lease and as soon as our study is complete in this area, we are proposing to unitize so that there should not be any question of impairment of correlative rights.

Q Now, I think you have already stated that you are asking the Commission to provide an administrative procedure for approving conversion of future injection wells?

A Yes, sir, we would like very much to have this authority.

Q Is there anything else that you would like to add, Mr. Lyon?

A I don't believe so.

Q Were Exhibits 1 through 7 prepared by you or under your supervision?

A Yes, sir, they were.

MR. KELLAHIN: At this time, I would like to offer in evidence Exhibits 1 through 7, inclusive.

MR. UTZ: Exhibits 1 through 7 will be entered into the record of this case.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Lyon, is it your intention to leave the open hole section open in this well and inject into it?

A Yes, sir.

Q So you inject through perforations and open hole?

A That is correct.

Q Now, how much water is available for injection at this time?

A We are injecting all of the water produced from

these three leases and I believe that we are getting water from E. A. Henson to the east, and I believe that's all; but, all of the water that is shown on Exhibit No. 7 --

Q That would be in the neighborhood of 9,000 barrels a month at the present time?

A Yes, sir.

MR. UTZ: Other questions? The witness may be excused.

Statements? The case will be taken under advisement.

We will adjourn until one-thirty.

I N D E X

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E X H I B I T S

<u>NUMBER</u>	<u>MARKED</u>
Applicant's 1 through 7	2

STATE OF NEW MEXICO)
)
 COUNTY OF BERNALILLO)

I, GLENDA BURKS, Court 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.

Glenda Burks
 NOTARY PUBLIC

My Commission Expires:

March 12, 1973

I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the Examiner hearing of Case No. 4125
 heard by me on Aug 27, 1969.
Glenda Burks
 New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

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

September 8, 1969

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

Re: Case No. 4198
Order No. R-3487-A
Applicant:
Continental 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.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC

Other State Engineer Office

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. 4198
Order No. R-3487-A

APPLICATION OF CONTINENTAL OIL COMPANY
FOR AMENDMENT OF ORDER NO. R-3487, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 27, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 8th day of September, 1969, 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 by Order No. R-3487, dated September 9, 1968, the
Commission authorized the applicant, Continental Oil Company, to
utilize its Eaves "A" Well No. 10, located in Unit P of Section
19, Township 26 South, Range 37 East, NMPM, Scarborough Yates-
Seven Rivers Pool, Lea County, New Mexico, to dispose of produced
salt water into the Seven Rivers formation, injection to be
accomplished through 3 1/2-inch tubing installed in a packer set
at approximately 3195 feet, with injection into the perforated
interval from approximately 3208 feet to 3255 feet.

(3) That the applicant now seeks the reclassification of
the aforesaid Eaves "A" Well No. 10 to a pressure maintenance
project injection well for the injection of produced salt water

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CASE No. 4198

Order No. R-3487-A

into the Yates and Seven Rivers formations in the perforated and open-hole interval from approximately 3107 feet to 3410 feet.

(4) That the subject well should be reclassified as a pressure maintenance project injection well.

(5) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(7) That Order No. R-3487 should be superseded.

IT IS THEREFORE ORDERED:

(1) That the applicant, Continental Oil Company, is hereby authorized to institute a pressure maintenance project in the Scarborough Yates-Seven Rivers Pool, Lea County, New Mexico, by the injection of produced salt water into the Yates and Seven Rivers formations through its Eaves "A" Well No. 10, located in Unit P of Section 19, Township 26 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That said injection shall be accomplished through 3 1/2-inch tubing installed in a packer set at approximately 3080 feet, and into the perforated and open-hole interval from approximately 3107 feet to 3410 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the tubing, casing, or packer.

(3) That the subject pressure maintenance project is hereby designated the Continental Scarborough Eaves Pressure Maintenance Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(4) That monthly progress reports of the pressure maintenance project herein authorized shall be submitted to the Commission in

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CASE No. 4198
Order No. R-3487-A

accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(5) That Order No. R-3487, dated September 9, 1968, is hereby superseded.

(6) 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



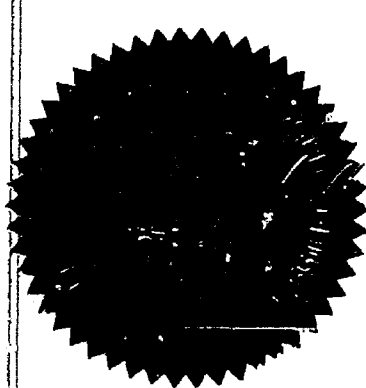
DAVID F. CARGO, Chairman



ALEX J. ARMILLO, Member



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



esr/

Case 4198

Heard 8-27-69

Rec. 9-2-69

Grant Cont's request for an amendment to R-3487 which would classify the injection of water into the Eared 'A' #10, P 19-265-37E1 Scarborough & Yates SR. as ~~see~~ pressure maintenance rather than an S & D well. Injection to be in Yates S.R. thru 3 1/2" O.D. tubing, under a packer, and thru Perfor. from 3109 to 3251.

Thus A. J. J.

CASE 4194 - Continued from Page 1 -

seeks authority to inject gas through two additional wells located in Unit L of Section 34, Township 17 South, Range 35 East and Unit B of Section 4, Township 18 South, Range 35 East and to expand said project area to include the SE/4 NE/4 of Section 33 and the NW/4, N/2 SE/4, and SW/4 SE/4 of Section 34 Township 17 South, Range 35 East. Applicant further seeks authority to dually complete all gas injection wells in the project in such a manner as to permit the production of oil from the lower section of the Abo Reef through tubing and the injection of gas into the upper section of the Abo Reef through the casing-tubing annulus.

CASE 4195: Application of Continental Oil Company for eight non-standard gas proration units and a non-standard gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the rededication of acreage to establish the eight following non-standard gas proration units in Township 20 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico:

A 120-acre non-standard unit comprising the SE/4 NE/4 and E/2 SE/4 of Section 14, to be dedicated to the "SEMU" Well No. 46, located in Unit T of said Section 14;

A 240-acre non-standard unit comprising the NE/4 and E/2 SE/4 of Section 26, to be dedicated to the "SEMU" Well No. 64, located in Unit G of said Section 26;

A 560-acre non-standard unit comprising the W/2 and W/2 SE/4 of Section 26 and the E/2 E/2 of Section 27, to be dedicated to the "SEMU" Well No. 65, located in Unit L of said Section 26;

A 640-acre non-standard unit comprising the W/2 and the W/2 E/2 of Section 14 and E/2 E/2 of Section 15, to be dedicated to the "SEMU" Well No. 66, located in Unit L of said Section 14;

DOCKET No. 24-69

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 27, 1969

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

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

CASE 4191: Application of Gulf Oil Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4408 feet to 4415 feet in its Roosevelt "AN" State Well No. 3 located in the NW/4 SE/4 of Section 32, Township 7 South, Range 36 East, adjacent to the Todd-Lower San Andres Pool, Roosevelt County, New Mexico.

CASE 4192: Application of Southwest Production Corporation for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its Buffalo Valley "Com" Well No. 2 at an unorthodox location 1650 feet from the North line and 990 feet from the East line of Section 35, Township 14 South, Range 27 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, in exception to the provisions of Rule 2 of the special rules for said pool.

CASE 4193: Application of Humble Oil & Refining Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Bowers "A" Federal Com 33 Well No. 33 located in Unit D of Section 29, Township 18 South, Range 30 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Hobbs (Grayburg-San Andres) Pool and the Hobbs-Blinbry Pool through parallel strings of tubing.

CASE 4194: Application of Phillips Petroleum Company for an amendment of Order No. R-3181 and dual completions, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3181, which order established special rules regulating the operation of the Phillips Petroleum Company Vacuum Abo Pressure Maintenance Project. Vacuum-Abo Reef Pool, Lea County, New Mexico. Applicant

CASE 4197 - Continued from Page 3 -

Applicant now seeks authority to locate said well at an unorthodox location 1980 feet from the North line and 1450 feet from the West line of said Section 35 in the Forest (San Andres) Pool.

CASE 4198: Application of Continental Oil Company for amendment of Order No. R-3487, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3487 which authorized the applicant to utilize its Eaves "A" Well No. 10, located in Unit P of Section 19, Township 26 South, Range 37 East, Scarborough Yates-Seven Rivers Pool, to dispose of salt water into the Seven Rivers formation in the interval from 3208 feet to 3255 feet. Applicant now seeks authority to inject produced salt water into the Yates and Seven Rivers formations in the perforated and open-hole interval from approximately 3107 feet to 3410 feet in said well and the reclassification of said salt water disposal well to a pressure maintenance injection well.

CASE 4199: Application of Burleson & Huff for compulsory pooling and a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Jalmat Gas Pool underlying the SE/4 of Section 28, Township 25 South, Range 37 East, Lea County, New Mexico. Said 160-acre non-standard gas proration unit to be dedicated to the Burleson & Huff "Cook" Well No. 2, a recompleted well, located 660 feet from the South and East lines of said Section 28. Also to be considered will be the costs of drilling and/or recompleting said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4200: Application of Burleson & Huff for compulsory pooling and a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Jalmat Gas Pool underlying the NE/4 of Section 29, Township 25 South, Range 37 East, Lea County, New Mexico. Said 160-acre non-standard gas proration unit to be dedicated to a well.

CASE 4195 - Continued from Page 2 -

A 320-acre non-standard unit comprising the SE/4, S/2 NE/4, and E/2 SW/4 of Section 24, to be dedicated to the "SEMU" Well No. 67, located in Unit K of said Section 24;

A 640-acre non-standard unit comprising the E/2 and E/2 W/2 of Section 23 and W/2 W/2 of Section 24, to be dedicated to the "SEMU" Well No. 58, located in Unit J of said Section 23;

An 80-acre non-standard unit comprising the E/2 NW/4 of Section 24, to be dedicated to the "SEMU" Well No. 69, located in Unit F of said Section 24;

A 320-acre non-standard unit comprising the E/2 E/2 of Section 22 and the W/2 W/2 of Section 23, to be dedicated to the "SEMU" Well No. 90, to be completed at a non-standard location 660 feet from the South and East lines of said Section 22.

CASE 4196: Application of Continental Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the consolidation of three existing non-standard gas proration units into one 360-acre non-standard unit comprising the W/2 and the NW/4 NE/4 of Section 18, Township 23 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to its Stevens "B" Wells Nos. 15 and 16, located in Units F and K, respectively, of said Section 18. Applicant further seeks authority to produce the allowable assigned to said unit from either of the aforesaid wells in any proportion.

CASE 4197: Application of Continental Oil Company for an amendment to Order No. R-37, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3755 which authorized, among other things, the drilling of a water injection well in the Forest Donahue Waterflood Project area at a location 1980 feet from the North line and 1650 feet from the West line of Section 35, Township 16 South, Range 29 East, Eddy County, New Mexico

CASE 4204 - Continued from Page 5 -

and unorthodox locations in Sections 3 and 4, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby additional injection wells at orthodox and unorthodox locations may be approved for said project administratively.

CASE 4205: Application of Tesoro Petroleum Corporation for four unorthodox injection well locations and amendment of Order No. R-2807, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject water into the Hospah Upper Sand Oil Pool in its Hospah Unit Waterflood Project Area through four additional injection wells at unorthodox locations in Section 36, Township 18 North, Range 9 West, McKinley County, New Mexico, said wells to be located as follows:

Well No. 62 located 1900 feet from the South line and 1140 feet from the West line;

Well No. 63 located 1980 feet from the North line and 2310 feet from the West line;

A well to be drilled 1430 feet from the South line and 2625 feet from the East line;

A well to be drilled 30 feet from the South line and 2350 feet from the East line.

Applicant further seeks the amendment of Order No. R-2807, which order authorized the aforesaid waterflood project, to establish a procedure whereby additional injection wells at unorthodox locations, as may be necessary to complete an efficient injection pattern, may be approved administratively.

CASE 4206: Application of Shell Oil Company for an unorthodox oil well location and amendment to Order No. R-2538, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a producing oil well at an unorthodox location 1315 feet from the North line and 2625 feet from the West line of Section 34, Township 19

CASE 4200 - Continued from Page 4 -

to be recompleted, located 660 feet from the East line and 1930 feet from the North line of said Section 29. Also to be considered will be the costs of drilling and/or recompleting said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4201: Application of Mobil Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Langlie-Mattix Queen Unit Area comprising 1120 acres, more or less, of federal and fee lands in Sections 10, 11, 14, 15, 22, and 23, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 4202: Application of Mobil Oil Corporation for a waterflood project and unorthodox injection well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Langlie-Mattix Queen Unit Area by the injection of water into the Queen sand through 17 wells at orthodox and unorthodox locations in Sections 10, 11, 14, 15, 22, and 23, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby additional injection wells at orthodox and unorthodox locations may be approved for said project administratively.

CASE 4203: Application of Mobil Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Humphrey Queen Unit Area comprising 761 acres, more or less, of federal and fee lands in Sections 3 and 4, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 4204: Application of Mobil Oil Corporation for a waterflood project and unorthodox injection well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Humphrey Queen Unit Area by the injection of water into the Queen sand through 11 wells at orthodox

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EXAMINER HEARING - August 27, 1969

DOCKET No. 24-69

CASE 4208 - Continued from Page 7 -

several waterflood projects by the injection of water into the Seven Rivers formation through his Mary Lou Well No. 1 located in Unit H of Section 29 and his Caroline Well No. 4 located in Unit E of Section 28, both in Township 19 South, Range 28 East, East Millman-Seven Rivers Pool, Eddy County, New Mexico.

CASE 4209: Application of Harvey E. Yates Company of Artesia for several pressure maintenance projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute several pressure maintenance projects by the injection of water into the Seven Rivers and Queen formations, McMillan (Seven Rivers-Queen) Pool, Eddy County, New Mexico, through the following-described wells in Township 20 South, Range 27 East:

Page & Yates Well No. 8 - Unit M - Section 5
Page & Yates Well No. 6 - Unit I - Section 6
Page & Yates Well No. 7 - Unit J - Section 6
Lillie Yates Well No. 2 - Unit B - Section 7

CASE 4206 - Continued from Page 6 -

South, Range 35 East, as an infill well in its East Pearl-Queen Unit Waterflood Project area, East Pearl-Queen Pool, Lea County, New Mexico. Applicant further seeks the amendment of Order No. R-2538, which order authorized the aforesaid waterflood project, to establish a procedure whereby additional producing wells at unorthodox infill locations in the aforesaid project area, as may be necessary to complete an efficient producing pattern, may be approved administratively.

CASE 4207: Application of C. W. Trainer and DEL-LEA, Inc., for an unorthodox gas well location, Lea County, New Mexico. Applicants, in the above-styled cause, seek an exception to Rule 104 C II to permit the drilling of a well at an unorthodox gas well location 330 feet from the North line and 660 feet from the West line of Section 35, Township 12 South, Range 34 East, West Ranger Lake-Devonian Gas Pool, Lea County, New Mexico. The N/2 of said Section 35 to be dedicated to the well.

CASE 4186: (Readvertised)


Application of Tenneco Oil Company for compulsory pooling and an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Dakota Gas Pool underlying the North half of Section 11, Township 29 North, Range 13 West, San Juan County, New Mexico. Said acreage to be dedicated to a well to be drilled at an unorthodox gas well location 2250 feet from the North line and 600 feet from the East line of said Section 11. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well. In the absence of a valid objection an order will be issued upon the record entered in the subject case August 6, 1969.

CASE 4208: Application of John A. Yates of Artesia for several waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Continental Oil Company		ADDRESS Box 460 Hobbs, New Mexico	
LEASE NAME Eaves "A"	WELL NO. 10	FIELD Scarborough	COUNTY Lea
LOCATION UNIT LETTER P WELL IS LOCATED 660 FEET FROM THE South LINE AND 990 FEET FROM THE LINE, SECTION 19 TOWNSHIP 26S RANGE 37E NMPM.			
CASING AND TUBING DATA			
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT
SURFACE CASING	8 5/8	379'	300
INTERMEDIATE	-	-	
LONG STRING	5 1/2	3255	935
TUBING	3 1/2	3080	NAME, MODEL AND DEPTH OF TUBING PACKER Baker Tension Model AD or equivalent @ 3080'
NAME OF PROPOSED INJECTION FORMATION Seven Rivers		TOP OF FORMATION 3183	BOTTOM OF FORMATION approx. 3610
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? tubing		PERFORATIONS OR OPEN HOLES perfs & open hole	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? no		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? producing oil well	
HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? no			
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH			
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.)	MINIMUM 2000	MAXIMUM 6000	OPEN OR CLOSED TYPE SYSTEM closed
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -		IS INJECTION TO BE BY GRAVITY OR PRESSURE? pressure	
WATER TO BE DISPOSED OF no		APPROX. PRESSURE (PSI) 800	
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Tom & Evelyn Linebery, Box 1536, Midland, Texas 79701		IS INJECTION TO BE BY GRAVITY OR PRESSURE? pressure	
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL El Paso Natural Gas Company, Jal, New Mexico Wolfson Oil Company, 311 Midland National Bank Bldg. Midland, Texas			
<div style="border: 1px solid black; padding: 5px; text-align: center;"> BEFORE EXAMINER UTZ OIL CONSERVATION COMMISSION EXHIBIT NO. 2 CASE NO. 4198 </div>			
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER no	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL no	THE NEW MEXICO STATE ENGINEER no
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)?	PLAT OF AREA yes	ELECTRICAL LOG no	DIAGRAMMATIC SKETCH OF WELL no

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


(Signature)

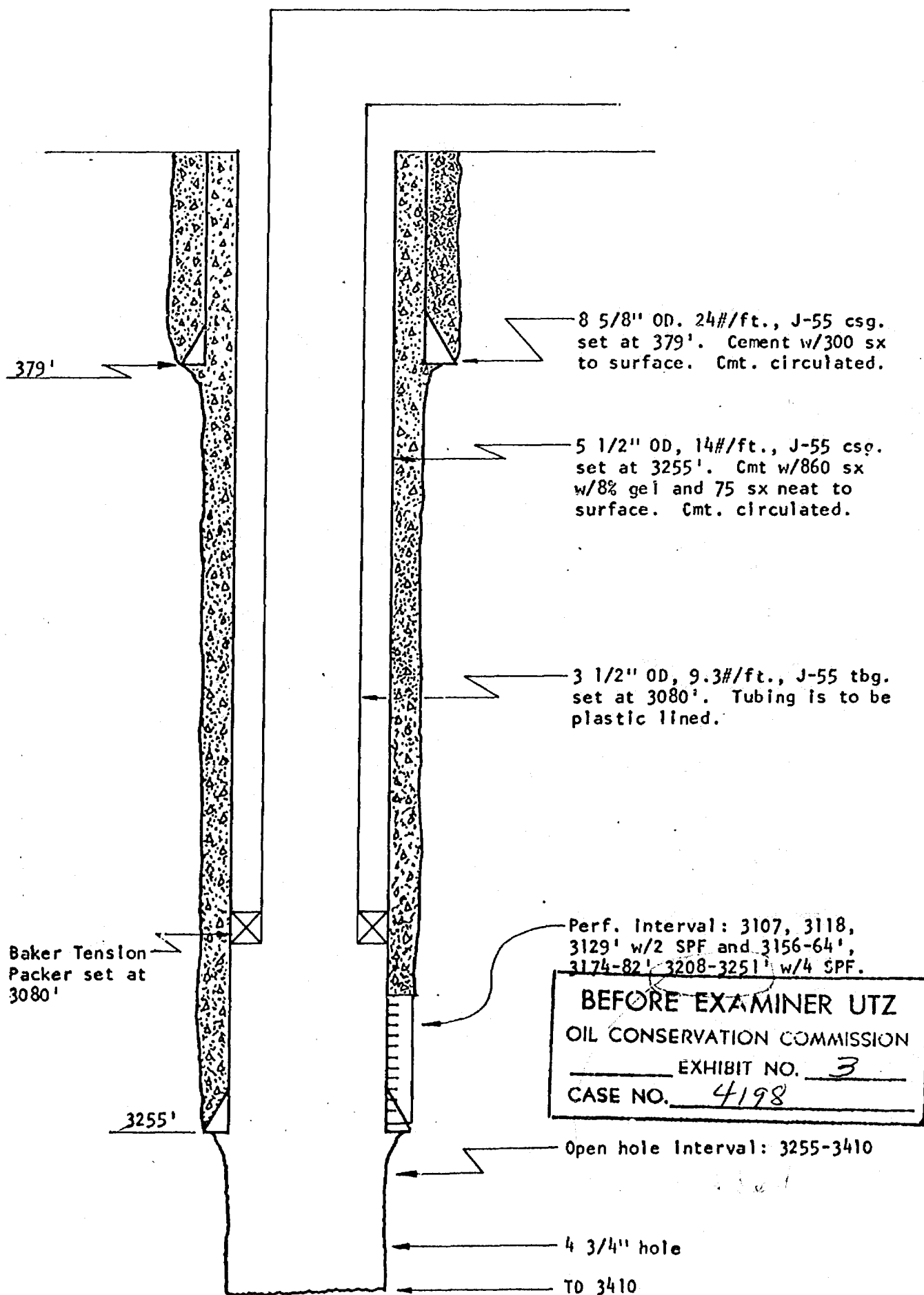
Assistant Division Manager
(Title)

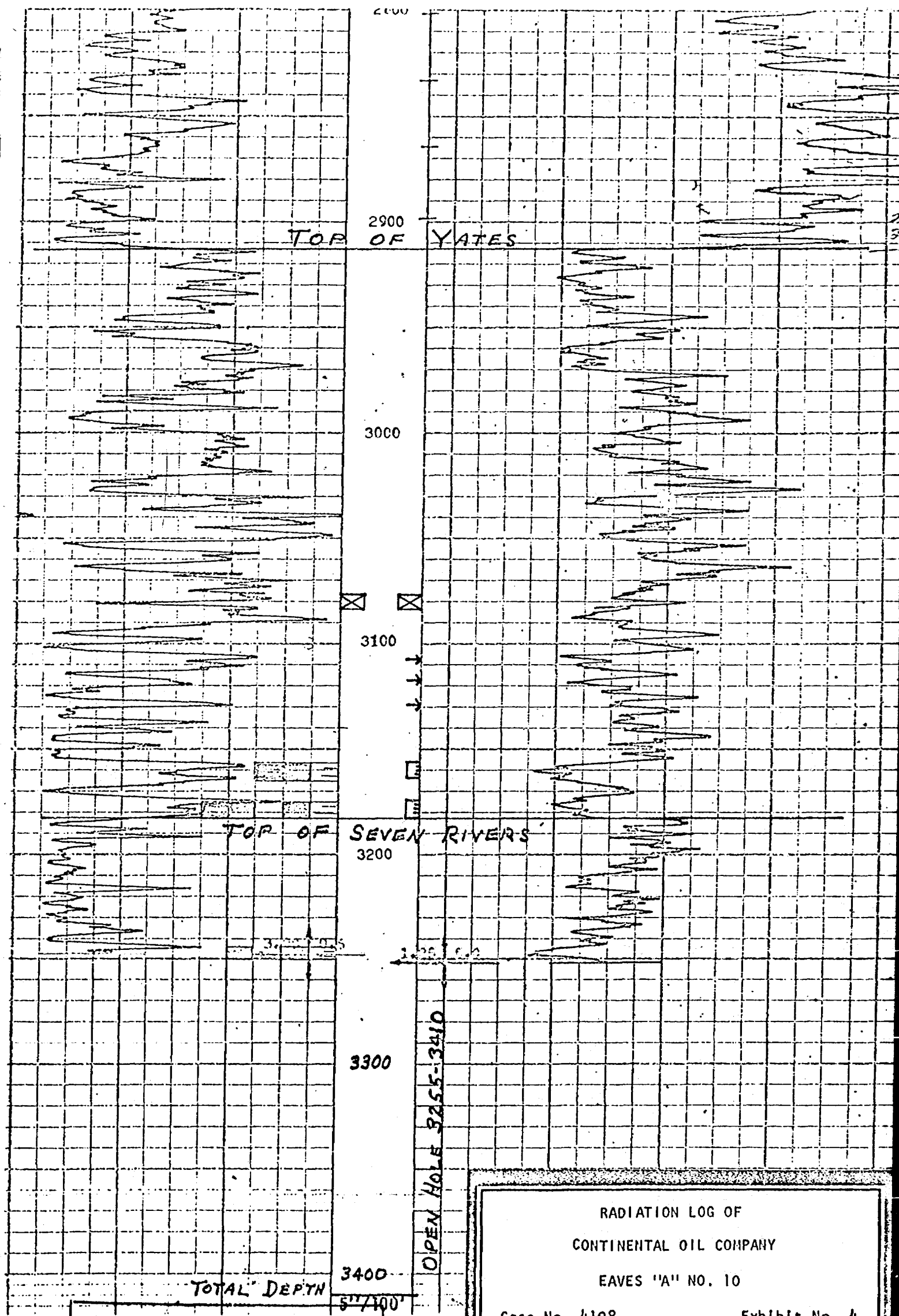
8-14-69
(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

EXHIBIT NO. 2

EAVES "A" NO. 10
990' FEL & 660' FSL, Section 19, T26S, R37E
Elev. 2948' '0" pt. 10' above LF





BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4198

RADIATION LOG OF
CONTINENTAL OIL COMPANY
EAVES "A" NO. 10
Case No. 4198 Exhibit No. 4

SCARBOROUGH WATER INJECTION PROJECT

TABULATION OF WATER INJECTED

<u>Month</u>	<u>Water Injected</u>	<u>Cumulative</u>
February, 1969	55,716	55,716
March	58,792	114,508
April	67,085	181,593
May	64,380	245,973
June	55,493	301,466 ✓

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. ~~7~~
CASE NO. ~~7~~ 4198

Case No. 4198

EXHIBIT NO. 7



CONTINENTAL OIL COMPANY

P. O. Box 460

HOBBS, NEW MEXICO 88240

PRODUCTION DEPARTMENT

HOBBS DIVISION

L. P. THOMPSON

Division Manager

G. C. JAMIESON

Assistant Division Manager

1001 NORTH TURNER
TELEPHONE 393-4141

July 30, 1969

✓ New Mexico Oil Conservation Commission

P. O. Box 2088

Santa Fe, New Mexico

Attention of Mr. A. L. Porter, Jr.,
Secretary-Director

Re: Applications for Hearing -
August 27, 1969 Docket

Gentlemen:

Forwarded herewith in triplicate are the following applications.

Unorthodox location for Donohue No. 4, Forest Pool
Section 35, T16S, R29E, Eddy County, New Mexico

Amendment of Order No. R-3487 for Pressure Maintenance
Project, Scarborough Pool, Section 19, T26S, R37E,
Lea County, New Mexico

360-acre non-standard gas proration unit, Stevens
"B" Nos. 16 and 16, Jalmat Pool, Section 18, T23S,
R37E, Lea County, New Mexico

8 NSP Units in the Eumont Gas Pool for SEMU Wells
Nos. 46, 64, 65, 66, 67, 68, 69, and 90, T20S, R37E,
Lea County, New Mexico.

Please set these matters for hearing on your August 27, 1969,
Examiner docket.

Yours very truly, <

VTL-JS

RLA JJB JWK
Attach

DOCKET MAILED

Date 8-15-69

IN THE MATTER OF THE APPLICATION OF
CONTINENTAL OIL COMPANY FOR THE AMEND-
MENT OF ORDER NO. R-3487 TO AUTHORIZE
A PRESSURE MAINTENANCE PROJECT IN THE
SCARBOROUGH (YATES-SEVEN RIVERS) POOL
AND TO PERMIT INJECTION OF WATER INTO
SAID FORMATIONS IN ITS EAVES "A" NO. 10
WELL LOCATED IN SECTION 19, TOWNSHIP 26
SOUTH, RANGE 37 EAST, LEA COUNTY, NEW
MEXICO

Case 4198

A P P L I C A T I O N

COMES NOW APPLICANT, Continental Oil Company, and respectfully requests the Commission to amend Order No. R-3487 so as to establish a pressure maintenance project in the Scarborough (Yates-Seven Rivers) Pool and to authorize injection of water into the Yates-Seven Rivers formation in applicant's Eaves "A" No. 10 located in Unit P, Section 19, Township 26 South, Range 37 East, Lea County, New Mexico, and in support thereof would show:

1. Applicant is operator and co-owner of the Eaves "A" and "B" Leases in Sections 19, 30, and 31, T26S, R37E, Lea County, New Mexico, and the McCallister "A" Lease in Sections 24 and 25, T26S, R36E, Lea County, New Mexico.
2. Applicant has heretofore drilled and completed 14 wells on the Eaves "A" Lease, 15 wells on the Eaves "B" Lease, and three wells on the McCallister "A" Lease, all of which now produce or have produced from the Scarborough (Yates-Seven Rivers) Pool.
3. Applicant, in Case No. 3842, made application for a pressure maintenance project in the Scarborough Yates Seven Rivers Pool and conversion of Eaves "A" No. 10 for injection of water into the Seven Rivers formation.
4. Order No. R-3487 approved conversion of said well to water injection in the Seven Rivers formation but classified the project as a salt water disposal project.

5. Applicant proposes to inject water into both the Yates and Seven Rivers formation in said well and to conduct a pressure maintenance project.
6. The granting of this application will prevent waste and will not impair correlative rights.

WHEREFORE, APPLICANT respectfully prays that this matter be set for hearing before the Commission's duly appointed examiner and that upon hearing, an order be entered amending Order No. R-3487 to authorize a pressure maintenance project in the Scarborough (Yates-Seven Rivers) Pool and the injection of water into the Yates Seven Rivers formation in applicant's Eaves "A" No. 10 well as described above.

Respectfully submitted,


G. C. JAMIESON

VTL-JS

DRAFT

GMH/esr

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. 4198

Order No. R-3487-A

APPLICATION OF CONTINENTAL OIL COMPANY
FOR AMENDMENT OF ORDER NO. R-3487, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 27, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 28th day of Sept, 1969, 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 by Order No. R-3487, dated September 9, ¹⁹⁶⁸~~1969~~, the
Commission authorized the applicant, Continental Oil Company, to
utilize its Eaves "A" Well No. 10, located in Unit P of Section
19, Township 26 South, Range 37 East, NMPM, Scarborough Yates-
Seven Rivers Pool, Lea County, New Mexico, to dispose of produced
salt water into the Seven Rivers formation, injection to be
accomplished through 3 1/2-inch tubing installed in a packer set
at approximately 3195 feet, with injection into the perforated
interval from approximately 3208 feet to 3255 feet.

(3) That the applicant now seeks the reclassification of
the aforesaid Eaves "A" Well No. 10 to a pressure maintenance
project injection well for the injection of produced salt water

into the Yates and Seven Rivers formations in the perforated and open-hole interval from approximately 3107 feet to 3410 feet.

(4) That the subject well should be reclassified as a pressure maintenance project injection well.

(5) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(7) That Order No. R-3487 should be superseded.

IT IS THEREFORE ORDERED:

(1) That the applicant, Continental Oil Company, is hereby authorized to institute a pressure maintenance project in the Scarborough Yates-Seven Rivers Pool, Lea County, New Mexico, by the injection of produced salt water into the Yates and Seven Rivers formations through its Eaves "A" Well No. 10, located in Unit P of Section 19, Township 26 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That said injection shall be accomplished through 3 1/2-inch tubing installed in a packer at approximately 3080 feet, and into the perforated and open-hole interval from approximately 3107 feet to 3410 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the tubing, casing, or packer.

(3) That the subject pressure maintenance project is hereby designated the Continental Scarborough Eaves Pressure Maintenance

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CASE No. 4198

Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(4) That monthly progress reports of the pressure maintenance project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(5) That Order No. R-3487, dated September 9, 1968, is hereby superseded.

(6) 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.

CASE 4199: Appli. of BURLESON &
HUFF FOR COMPULSORY POOLING & A
NON-STANDARD GAS PRORATION UNIT.