

CASE 3391: Application of ATLANTIC
for three waterflood projects,
Eddy County, New Mexico.

ASE No.

3391

Application,

Transcripts,

All Exhibits

ETC.

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
~~Santa Fe, New Mexico~~
Hobbs, New Mexico
April 13, 1966

REGULAR HEARING

IN THE MATTER OF:

Application of the Atlantic Refining Company
for three waterflood projects, Eddy County,
New Mexico.

Case No. 3391

BEFORE:

Mac Easely, Lt. Governor
Guyton B. Hayes, Land Commissioner
A. L. (Pete) Porter, Secretary-Director

TRANSCRIPT OF HEARING

MR. PORTER: Call Case 3391.

(Whereupon, Applicant's
Exhibits 1 through 11
marked for identification.)

MR. PORTER: Are there any appearances in this
Case?

MR. HINKLE: Charles Hinkle, Roswell, appearing
on behalf of Atlantic Refining Company.

MR. PORTER: Any other appearances? You may
proceed.

MR. HINKLE: We have one witness, Mr. Bob
Baker, and 11 exhibits, and we've had the reporter mark
these from 1 to 11.

(Witness sworn.)

B O B B A K E R, a witness, having been first duly
sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q Your name is Bob Baker?

A Yes, sir.

Q You're employed by Atlantic Refining Company?

A Yes, sir.

Q What is your position?

A I'm an analytical engineer.

Q Have you previously testified before the

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Commission?

A No, sir.

Q Are you a graduate petroleum engineer?

A Yes, sir.

Q What school?

A From the University of Oklahoma in 1957.

Q Since your graduation have you practiced your profession?

A Yes, sir, I came under the employ of the Atlantic Refining Company in June of 1957 and have been continuously employed by them until present.

Q Where have you been located during your term of employment with Atlantic?

A Since employment, at least since August of 1957 I have been located in Roswell, New Mexico.

Q You are familiar with Atlantic's operations in the Southeastern New Mexico?

A Yes, sir.

Q Are you familiar with the Shugart, Queen, Yates Pool in Eddy County?

A Yes, sir, I am.

Q Have you made a study of the wells in that pool?

A Yes, sir.

Q And examined the logs of the wells?

A Yes, sir, I have.

Q Are you familiar with the application which has been made by Atlantic in this case?

A Yes, sir, I am.

Q What is the purpose of Atlantic's application?

A Atlantic is requesting permission to instigate basically three pilot waterfloods in a portion of the Southeastern portion of the Shugart, Yates, 7 Rivers, Queen Grayburg Pool. We are also requesting that administrative procedures be established if necessary, and as desired, to have administrative procedures set up to place other wells other than those we proposed, under injection at some future date.

Q Does your application include three separate waterflood projects?

A Basically it does. I think as advertised it just said that we requested to inject water into a portion of the Shugart Pool, however we do have three separate projects that we desire to inject water into, they're all contiguous.

Q Refer to Exhibit 1 and explain to the Commission what this shows?

A Exhibit Number 1 is a plat of the general area in the Shugart Pool. It shows all wells within a two-mile

radius of Sections 34 and 35, Township 18 South, Range 31 East, shows the completions what they're producing from. It also shows the three project areas as cross-hatched areas.

Q Projects "A", "B" and "C"?

A Yes, sir, Project areas "A", "B" and "C" as shown by designations in the legend. It also shows the 5 injection wells that we propose to inject water into in these three different project areas, and I have added in red pencil, a cross section trace which will come up in later exhibits.

Q That's an index to another exhibit?

A Yes, sir, it is.

Q Does this also show the ownership of the oil and gas leases in this area?

A Yes, sir, to my knowledge this is part of a takeoff of a land map, and is as up to date as I know. I would like to apologize that in the South half of the Southeast Quarter of Section 34 it's not very legible, and that should be Cities Service.

Q Does this also show the characteristics of the land, that is whether it is Federal land or State land?

A Yes, sir, it does. All these lands that we are proposing to inject water into at the present time are Federal lands.

Q Is Atlantic a lease owner of the three project areas shown on Exhibit "A"?

A Yes, sir, we are.

Q Now, refer to Exhibit 2 and explain what that is?

A This is a letter to -- from the Atlantic Refining Company to the United States Geological Survey requesting permission to inject water into the three project areas. It shows that we submitted to them a plat showing the proposed project area with locations of the wells, zones of completion, ownership, and the location of the proposed injection wells, a table showing the U.S.G.S. Royalty Scale, and table of initial potential tests, current production, and North, South, East, West cross section.

Q Is there a difference in the overriding royalty ownership in connection with these three leases that are designated as projects "A", "B" and "C"?

A Yes, sir.

Q Refer to Atlantic's Exhibit 3 and explain what that is?

A Atlantic's Exhibit 3 is a letter from Mr. James A. Knauf of the U.S.G.S., granting Atlantic permission, or not objecting at any rate, to the injection of water into this project area. It also -- with this permission they establish certain requirements, one of which this will

be operated in compliance with the New Mexico Oil Conservation Commission Regulations concerning waterflood operations; and 2, that duplicate copies of a monthly progress report showing the volume of water injected and average pressure for each injection well. It does not preclude as item 3 of their requirement, this approval does not preclude the necessity for further approval when the project is expanded, to include other wells and leases or the necessity to submit the usual notices and reports on wells involved. When this project is expanded to involve other operators and interests, the correlative rights of all concerned should be protected.

Q Mr. Baker, have all of the wells in the Shugart Pool, as shown on Exhibit 1, reached the advanced stage of depletion?

A Yes, sir, they have.

Q That is from primary production?

A Yes, sir, they have.

Q What is the average production of the wells in the area?

A On these -- for these combined, three producing, the average production is 5.6 barrels of oil per day per well, based on February 1966 production figures. For the individual projects it differs slightly, and Project "A", as

shown on Exhibit 1, the average production is 5.7 barrels of oil per day per well; and Project area "B", the average production is 3.8 barrels of oil per day per well; and in Project area "C", the average production is 8.4 barrels of oil per day per well.

MR. PORTER: Mr. Baker, at this point may I ask when did this development take place, mostly the drilling in the area?

A The original development started in about 1938. The predominate portion of it came about in about 1957, '58 and '59, and there was small amounts of development as the years passed. I think that in the Mask Lease, which is to the Southeast of the project area, there was 1 well completed early last year or the year before that.

MR. PORTER: Thank you.

Q (By Mr. Hinkle) I believe you have testified that there are three proposed injection wells on Project "A", and two on "B"?

A No, sir, there are three on "A", one on "B", and one on "C".

Q Have you prepared schematic sketches or diagrammatic sketches of each of these injection wells?

A Yes, sir, I have.

Q Refer to Exhibits 4 through 8 and explain what

these exhibits are?

A Exhibits 4 through 8 are diagrammatic sketches of the proposed injection wells. They show the present and proposed perforations; the casing strings; casing setting points; the number of sacks of cement used to set these casing strings; the proposed injection equipment. As shown on Exhibit Number 4 we plan in this well, because of the small size of the oil string, to inject into the casing tubing annulus and through the tubing itself to separate the injected water into two separate zones. On the Exhibits 5 through 8 the equipment is very similar. All of these exhibits also show proposed packer points, the total depth of the wells.

Q You have tried to show a portrayal of the information which is required by the Rules of the Oil Conservation Commission?

A Yes, sir, I have.

MR. HINKLE: If the Commission please, in this connection, just as I arrived this morning I had a phone call from my office stating that we had received a letter from the State Engineer which my secretary read to me over the telephone, and in checking with your secretary I find that you have not received a copy of the letter as yet. And I made a brief notation of what the letter contained, which I

would like to indicate to the Commission.

MR. PORTER: We would like to have that.

MR. HINKLE: The State Engineer stated that they had no objection to injection wells "A3", "A12", and "B5". Now, with respect to the injection well "A8", it's stated that the diagrammatic sketch, which was submitted, did not show cement behind the 7" O.D. casing from 815 feet to 3,183 feet. Now, as to well "A13", it says, "The sketch does not give the top for the 200 sacks of cement placed at 4,117 feet behind the 7" O.D. casing". Furthermore, that no top and bottom limit is indicated for the squeeze job on the 7" casing, which was made at 2,794 feet. The letter further stated that there was no basis for the calculation on the top of the cement, which is listed at 2,067 feet behind the 7" O.D. casing. He said, "Because of these matters mentioned", that in his opinion it does not appear to provide adequate protection in these two particular wells. I would like for Mr. Baker to explain these matters which the engineer has brought out.

MR. PORTER: That will be fine.

A Will you please refer to our Exhibit Number 5 which is a diagrammatic sketch of the Atlantic Refining Company Hinkle "A" Number 8 Well; I calculated, personally calculated and prepared these diagrams and found that the



cement top was not adequate to protect zones, especially in the Yates, which is at about twenty-seven to twenty-nine hundred feet. The Atlantic Refining Company, in our plans for this project, propose to squeeze cement behind the 7" O.D. casing to protect this formation and to provide insurance that the water will go where we wish it to.

Q In your opinion that will comply to the State Engineer on this injection well?

A Yes, sir. Will you please refer to Exhibit Number 8 which is a diagrammatic sketch of the Hinkle "A" Number 13 Well. This well was originally drilled and completed in the Queen at a later date, I believe it was about 1961. The operator at that time, it was Koehane and Saunders, perforated the Yates Zone and found that the cement job was not adequate so they squeezed through perforations at 2794 with 75 sacks of cement. They returned to the Yates, perforated it for production and treated it with a rather high sand-oil fracture job. Since the well was perforated, squeezed, reperforated and treated in this Yates Zone, there has been no appearance of any trouble with the well. No water has come in with the oil and because of the pressures involved I believe that this well is adequately protected behind the casing string because of this squeeze job.

Now, part of the objection of the State Engineer was

there was no top and bottom to indicate top or bottom to this squeeze job. There was really no way that I know of other than a temperature survey to determine that. However, the producing performance of this well had indicated that it has been adequate and I believe it will be adequate for the waterflood as an injection well because of this.

Q If it should develop that it appears that it is not adequate or water is lost or something else happens, what would you propose to do with the well?

A I would recommend as an engineer that we go in and squeeze the well and make sure that there was adequate protection behind the pipe. Our prime interest is to make the water go where we want it to go and nowhere else, it's cheaper that way.

Q Now, Mr. Baker, refer again to Exhibit 1 which indicates the cross sections that you have prepared. Now, refer to Exhibit 9, which I believe is a North and South cross section, and explain to the Commission what that shows.

A Exhibit 9 -- pardon me, is a West to East cross section, and it is shown on the trace in red on Exhibit Number 1. This cross section shows the different wells entirely across the project area from West to East. It also shows present perforations in the wells; it shows continuous sand bodies from each. There has been production someplace



in the area at sometime. The zones that we plan through this application to flood are the Yates. If you will please refer to the well directly in the middle of the Exhibit 9, which is an Atlantic Hinkle "A" Number 8, we plan to inject water into the Yates from about 2820 to 2840 feet, or any other place in the Yates that the shows of oil have been evident.

We also plan to inject water into the Queen Zone from about 3430 to 3480. This particular well is one of the injection wells.

Q Now, refer to Exhibit Number 10 and explain that please?

A Exhibit Number 10 is a North South cross section across these project areas. The trace of this cross section is shown in red on our Exhibit Number 1. The information on this North South cross section is the same as that basically was on our Exhibit Number 9.

Q Do these two exhibits, 9 and 10, show a continuity of the formation through this area?

A Yes, sir, they do.

Q And the section is easily identifiable on the electrical log on these exhibits?

A Yes, sir.

Q Do you have any further comments with respect to these exhibits?

A The only comment I have is that in the Yates Section near the top there is an identifiable stringer that it shows a continuity across the area. However, there are also through close examination of this cross section, you can see that there are some sand lenses. Now, I have examined the old cable tool driller's logs and found there are shows of oil in some of these other sand lense bodies and we intend to go after it through perforating and flooding those. They are not necessarily continuous over the entire area, however.

Q Do you have any information as to the cumulative production from each of these project areas?

A Yes, sir, I do. The project area "A" has a cumulative production as of March 1, 1966, 664,795 barrels of oil; the cumulative production for project area "B" as of March 1, 1966 is 178,259 barrels of oil; and for project area "C" the cumulative production as of March 1, 1966 is 100,072 barrels of oil.

Q Have you made a reservoir study and tried to determine approximately the amount of oil which will be recovered through this secondary recovery operation?

A Yes, sir, I have.

Q What figures have you arrived at?

A I, through my studies, have found that we expect to get at least a 1 to 1 secondary to primary ratio. Now,

the figures I have given as of cumulative primary production are not the figures that we expect to recover because there is a small amount of remaining primary in each project area. If you take a decline curve down to 53 barrels a day economic limit, there is still a small amount of primary remaining in the project area "A". We expect to obtain at least 766,000 barrels of secondary oil, which is my prediction of ultimate economic primary.

In project area "B" we expect to obtain at least 187,000 barrels of secondary oil, and in project area "C" we expect to obtain at least 145,000 barrels of secondary oil.

Q At what rate do you intend to inject water in connection with each of these projects?

A We intend to inject 400 barrels of water per day into each injection well. This water will be divided, 200 barrels a day into the Yates and 200 barrels a day into the upper Queen Section.

Q Where do you intend to obtain the water for injection purposes?

A We have commitments from the Double Eagle Corporation to deliver fresh water to this project.

Q Where does that water come from there, a pipeline?

A I believe their source is on the Caprock, and

their pipeline is delivering to the "A" Atlantic Project, about three miles North of this proposed project.

Q That is fresh water?

A Yes, sir, we have taken coupons on the Swaringer Project and there have been little or no corrosion indicated.

Q You have furnished the State Engineer with copies of the application of all of the exhibits in this case?

A Yes, sir, we have.

Q How long do you estimate it will be before you get a response from the injection of water in these five injection wells?

A We believe that it will probably take at least a year to obtain a significant response; a significant oil response, at any rate.

Q During that period of time is it your intention to make an effort to unitize this area, these three leases that are involved in Projects "A", "B" and "C", and other lands and areas?

A Yes, it is.

Q Do you anticipate any particular difficulty in unitizing this area?

A No, sir, we don't. The basic royalty for most of it is Federal Royalty. There are various small overriding royalty interests. We don't really expect to obtain any

objection if we can find an equitable basis to unitize on.

Q What was the object of going ahead with this application at this time to start injection of water in these three leases without waiting for unitization?

A About a year ago at this time, Atlantic Refining Company purchased the Coehane and Saunders Hinkle "A" and Hinkle "B" Leases with the object of waterflooding. Part of the terms of this agreement were that the Hinkle "A" and "B" Leases would be under flood by June 1st, 1966. This left us just a year to get everything together, make a full-fledged reservoir study, contact the operators and unitize, if possible. However, we have found that it's been impossible to progress with our plans as fast as we would wish. As a result we are requesting permission to inject waters into these project areas to satisfy the conditions of the purchase.

Q Have you progressed with the unitization far enough to know at this time about whether or not the leases can be included?

A Yes, sir, I believe we have a pretty good idea of the people that would be willing to go along and join in this unit. A close examination of Exhibit 1 shows that there would be the Cities Service Tract, which is the South half of the Southeast Quarter of this Section 34, and they have indicated an interest in joining the flooding if their interests can be protected,

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and get what they consider their fare share. The Texaco Oil Company is flood-minded. They normally will go along. There are other leases here that Atlantic has purchased which includes the Northeast Quarter of Section 35, the West Half of the Southeast Quarter of Section 35, and the South half of the Southwest Quarter of 35, the Southeast Quarter of the Southeast Quarter of Section 27, all in Township 18 South, Range 31 East, and in addition to this we have purchased what was the Koehane and Saunders McFadden Lease which is the West half of the Northeast Quarter, and the East half of the Northwest Quarter of Section 3 in Township 18 South -- pardon me, Township 19 South, Range 31 East, in Eddy County.

Q You feel that there will be considerable additional acreage that can be added under these projects?

A Yes, sir, there have been at least two operators that have indicated orally that they don't wish to join, and these are Mr. Boyd, which has the property to the North end of Section 26 and Section 25; and one of the working interest owners in the John Mask Lease in Section 2 has indicated that he doesn't wish to go along with the project. However, we have not received any oral objection at this time for these other surrounding leases.

Q You spoke of the Cities Service being interested in

the project?

A Yes, sir.

Q Refer to Exhibit 11 and state what that shows?

A Exhibit 11 is a copy of a letter from the Atlantic Refining Company to the Cities Service Oil Company in regard to injecting water into these project areas, specifically into Atlantic's Hinkle "A" Number 3 Well, which offsets the Cities Service Hinkle "A" property in Section 34. This letter indicates our injection rates and where we are obtaining the water, and it is signed in concurrence by Mr. J. E. Embry, which indicates no objection.

Q Would it be helpful if a procedure could be set up whereby the Commission could approve additional injection wells on these leases?

A Yes, sir.

Q Would it be helpful if the Commission could approve, administratively, additions or expansions of these project areas before they're actually unitized, if you thought it was necessary?

A Yes, sir.

Q State whether or not, in your opinion, these three proposed waterflood projects are in the interest of conservation and the prevention of waste?

A Yes, sir. If we do not inject water into these, or

some secondary method, there will be a considerable amount of oil left in the ground. It will ultimately take a full extent of waterflood under a unitized project to obtain these reserves. However, as I previously testified, we hope to get these projects started in order to save these leases or satisfy the term of our purchase.

Q By the location of the injection wells on the three project areas, locating them as you have, state whether or not, in your opinion, Correlative Rights will be protected until such time as the area is unitized?

A Yes, sir, I believe -- I know they will be protected. If you will please refer to our Exhibit Number 1, the project area "B", which is located in the West half of Section 34, has one injection well on it. This base lease is not the entire amount of the lease, which the entire lease also includes the West half of the Southeast Quarter of Section 35, which you can see is offset by an injection well on project area "A". As a result, you're producing in one case and injecting in another. In project area "C" there is one injection well, and this project area "C" is part of the same base lease which includes the South half of the Southwest Quarter of Section 35. Also in this case, as in the first case, there is protection where you have one injection well pushing oil off your lease and an injection well on an adjoining project pushing

water onto your lease. Of course, this is all -- all of these project areas are tied in together, so the overriding royalty and working interests are adequately protected.

Q Did you prepare or was there prepared under your direction, the diagrams which are included in the exhibits, other than the letters?

A Yes, sir.

MR. HINKLE: We would like to offer in evidence Atlantic's Exhibits 1 through 11.

(Whereupon, Applicant's Exhibits 1 through 11 offered into evidence.)

MR. PORTER: If there are no objections the exhibits will be admitted to the record.

(Whereupon, Applicant's Exhibits 1 through 11 admitted into evidence.)

MR. PORTER: Anyone have a question of the witness?

CROSS-EXAMINATION

BY MR. NUTTER:

Q What is the expected recovery of the "A" project?

A 766,000 barrels of oil.

Q Thank you. Now, as I understood Mr. Hinkle's statements regarding the telephone call and the letter from the State Engineer, his objection to the Well Number 8 was that there was no cement from opposite the Yates perforations or



above, is that correct?

MR. HINKLE: No cement behind the 7" O.D. from 915 to 3181.

Q (By Mr. Nutter) You propose to perforate opposite the Yates and squeeze?

A Yes, sir.

Q How many sacks will that be, do you have any idea?

A No, sir. Normally with our squeeze jobs, say with a high pressure squeeze job, we squeeze it in stages until we obtain an adequate pressure to where no further cement will go in.

Q Your proposal on the squeeze will go into the annulus above and below your proposed Yates perforated interval?

A Yes, sir.

Q 3183 is a calculated top based on a hundred sacks on the 7" which will set at 4,000?

A Yes, sir.

Q On your 13, his objection there was that it had been squeezed but he didn't know what the top or bottom of the squeeze job was?

A Yes, sir.

Q Now, the calculated top of the 7" had been 2067?

A Yes, sir.

Q Which I presume was based on the 200 sack job at 7" on 4117?

A Yes, sir.

Q Why was it necessary to squeeze?

A I believe Mr. Koehane and Saunders tried to complete in the Yates perforations or were going to try to treat this zone. They found that the cement was not adequate, they found it was spongy or something like that, and they had to squeeze it to make the treatment go where they wished it to.

Q Is it a possibility that some of these other calculated tops may not be allowable?

A Yes, sir. I have applied a 75 percent efficiency factor to these.

Q I believe only one of the injection wells presently has Yates perforations or maybe none of them have Yates perforations. Would it be unreasonable to squeeze opposite the Yates in each and every case before injection is made?

A I believe it would be unreasonable to assume that all require it. Now, if they do require it, Atlantic, as I said before, desires this water to go where they wish it to and they will squeeze these wells to make it go.

Q You won't know until you have perforated?

A That's right, sir.

Q If it fails to maintain a proper pressure you will



squeeze?

A Yes, sir.

Q On Exhibit 1 I notice that some of the wells are shown as having Yates perforations, some are shown as being Queen, and some are Yates and Queen both. Is it your proposal to open up all of these proposing wells in both zones?

A Yes, sir.

Q So you'll have a Yates and a Queen waterflood for all of the entire area, then?

A Yes, sir.

Q In both zones?

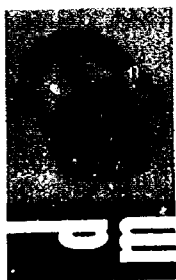
A At such time that we feel that the wells will be responding we'll perforate them so we can produce the oil.

Q Have you made any computations as to what the allowable would be for each of the three projects or how many wells you have in each project?

A In the project area "A" there are 11 wells, however according to the rules established, Rule 701, there are only 10 forty acre tracts in project area "A" and one extra which would be a third, so it would be 420 plus a third.

Q That's what I had counted on this. This project "B", I believe you have three wells?

A Actually, there are three producing wells, however



according to the Commission's Rules, that Southeast Quarter Southwest Quarter would not legitimately receive it.

Q This project area would have 3 forties and 3 wells?

A Yes, sir.

Q And project "C" has 3 forties and 2 wells?

A Yes, sir.

MR. NUTTER: That's all I have.

CROSS EXAMINATION

BY MR. BOYD:

Q Tom Boyd, and I would like to ask Mr. Baker a question I didn't understand. Did he made the statement that I did object to joining this unit? Would you please state that again?

A Mr. Rick Trimble of our office has been in contact with you, I believe, and from talking to Mr. Trimble myself, he indicated that you probably would not be able to because of some desire of your working interest owners, would not be able to join a unit in the future. However, we are going to offer to all people in the area, equal opportunity to join the unit.

Q I just wanted you to state that over. I didn't get it whether you said I did object or did you say that I objected, had objection to going in the unit?

A Not objection, probably that you would not, it was



my understanding, sir.

Q That I probably would not?

A Yes, sir.

Q Did you state that I objected?

A If I did it was a wrong word.

MR. BOYD: I want it to be known to the Commission that I have no objections for going into this unit and there is negotiations in process at this time with Atlantic, and being so many different working interest owners in this area that I operate for, I have been unable to get all these people in a meeting and get some kind of a commitment out of them whereby we might join in this unit. I just wanted the Commissioners to know that I have no objections going into the unit if it can be worked out.

THE WITNESS: We are proposing to offer the equal opportunity to join it. If they are now unable to, that's their internal problems.

MR. PORTER: I appreciate your clarifying that point.

MR. HINKLE: That's all we have.

MR. PORTER: Anyone else have a question of the witness? He may be excused. Anyone have anything further to offer in this case? The Commission will take the case under advisement and proceed to Case 3392.

I N D E X

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

Witness my Hand and Seal this 5th day of May, 1966.

Bobby J. Davis
NOTARY PUBLIC

My Commission Expires:

March 13, 1969.

Atlantic Richfield Company North American Producing Division
New Mexico-Arizona District
Post Office Box 1978
Roswell, New Mexico 88201
Telephone 505 622 4041

W. P. Tomlinson
District Engineer



February 27, 1967

New Mexico Oil Conservation Commission
P. O. Box 2038
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter ✓

Dear Sir:

Reference is made to your letter dated May 5, 1966, concerning the Shugart "A", "B" and "C" Waterflood Projects, all in the Shugart Pool, Eddy County, New Mexico. Atlantic Richfield Company requests an ammendment to that letter to allow for a single packer completion of the Hinkle "A" No. 13 well. This well was completed as a water injection well on May 24, 1966, with one string of tubing and one packer set above the Yates formation as shown on the attached Exhibit. The single packer completion is desirable from the standpoint of being more economical and to afford an opportunity to observe the relative injectivity of the Yates and Queen intervals. This completion is presently operating to our satisfaction and if you approve we plan no changes in the near future. This does not represent a change in the flood interval as presented in our application but is merely a different packer arrangement or separation of water injection over the flood interval.

The perforated interval, 3324-30' in the Hinkle "A" No. 13, is being flooded in this project. This interval was covered on the original application and referred to as Upper Queen. However, this is sometimes interpreted to be Seven Rivers formation.

If any additional information is needed please advise.

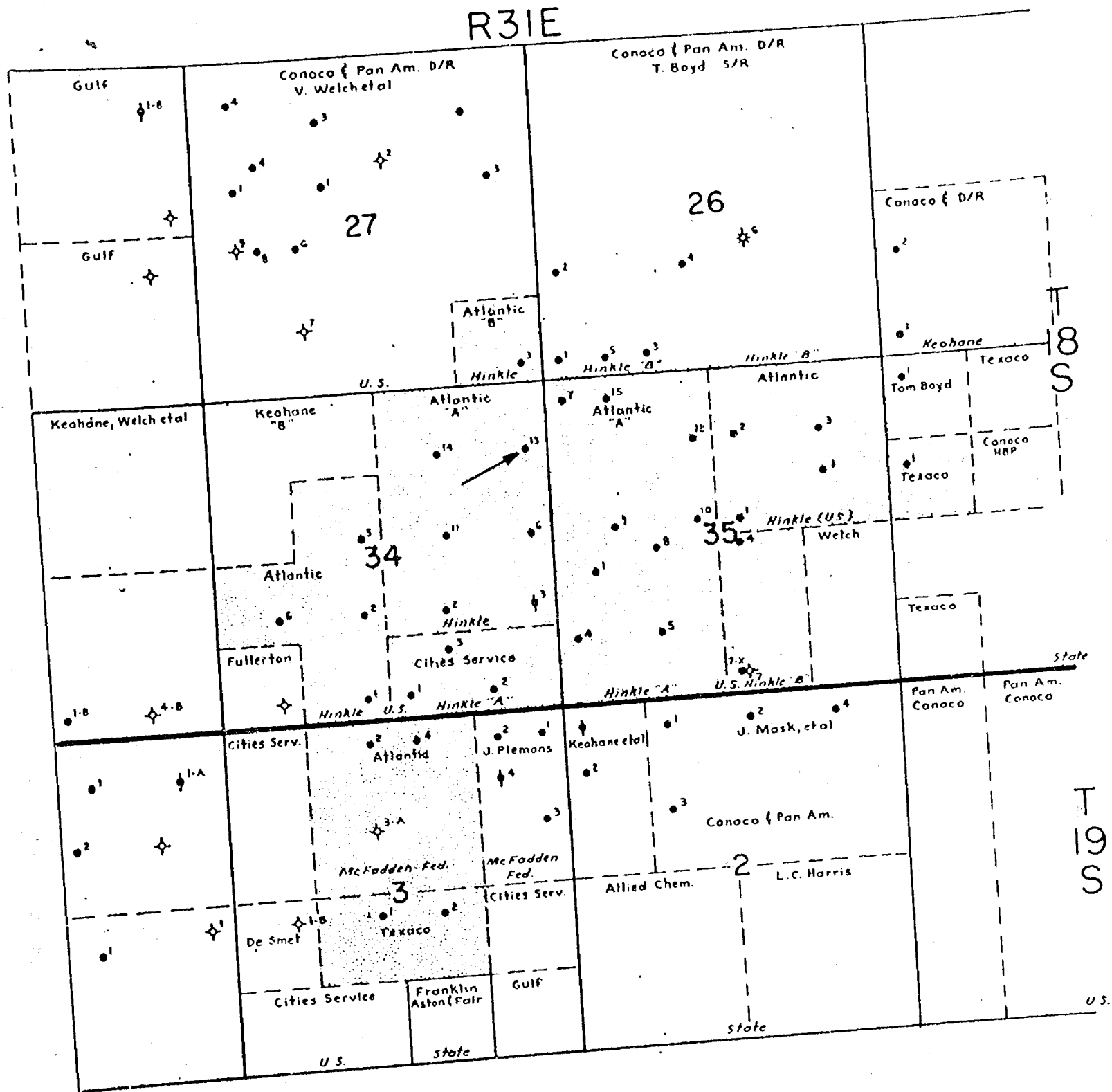
Yours very truly,

W. P. Tomlinson
W. P. Tomlinson

JLT:jcb

Attachments

R31E



HINKLE AREA
SHULART POOL
EDDY COUNTY, NEW MEXICO
ATLANTIC RICHFIELD COMPANY

EXHIBIT NO. 2

Retrievable Tension Packer set
at 2575'.

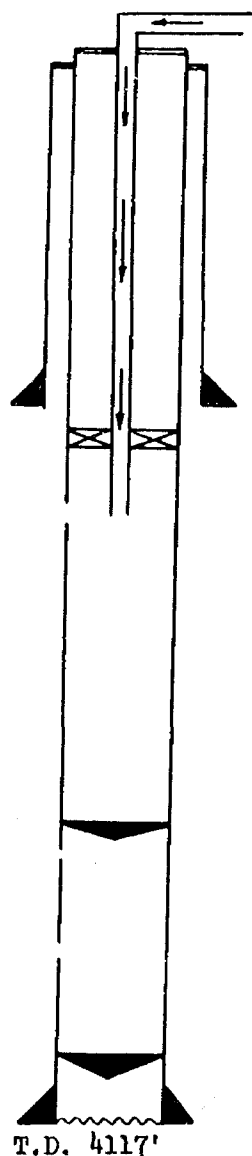
Yates Perforations @ 2632, 2640,
2662, 2670, 2680, 2692, 2699,
2709, 2722, 2726, 2730, 2735,
2804, 2807, 2813 and 2818'.

Upper Queen Perforations @ 3324,
3330 and 3402-40'.

Perforations 3686-96,
3699-3710 and 3716-24.

Perforations 3822-52,
3836-50 and 3880-90.

FBTD 3948'



2-3/8" O.D. Tubing

8-5/8" 24# Surface Casing set at 910'.
Cemented with 50 sacks.

Cement Top Behind 7" @ 2067' (Calculated)

7" Squeezed through Perforations @
2794' with 75 Sacks of Cement Prior
to Perforating for Production.

CIBP @ 3480'.

7" O.D., 20#, J-55 Casing set at
4117'. Cement with 200 Sacks.

ATLANTIC RICHFIELD COMPANY
SCHEMATIC DRAWING
HINKLE "A" NO. 13
SHUGART POOL
EDDY COUNTY, NEW MEXICO

EXHIBIT NO. I

OIL CONSERVATION COMMISSION

P. O. BOX 1084

SANTA FE, NEW MEXICO

July 18, 1966

C
O
P
Y
Mr. W. P. Tomlinson
District Engineer
Atlantic Richfield Company
P. O. Box 1978
Roswell, New Mexico 88201

Dear Mr. Tomlinson:

Reference is made to your letter of May 31, 1966, regarding our letter of May 5, 1966, concerning the maximum allowable to be assigned to your Shugart "A" Waterflood Project authorized by Order No. R-3059.

You are correct in stating that the maximum allowable for said project using an allowable factor of 42 barrels of oil per day should be 434 barrels per day rather than 462 as stated in our letter.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/esr

cc: Oil Conservation Commission
DRAWER DD
Artesia, New Mexico

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

Mr. J. A. Knauf
United States Geological Survey
DRAWER U
Artesia, New Mexico

ATLANTIC

ATLANTIC RICHFIELD COMPANY
FORMERLY

THE ATLANTIC REFINING COMPANY
INCORPORATED - 1870
PETROLEUM PRODUCTS

May 31, 1966

NORTH AMERICAN PRODUCING GROUP
NEW MEXICO - ARIZONA DISTRICT

S. L. SMITH, DISTRICT MANAGER
JACK BIARD, DISTRICT LANDMAN
E. R. DOUGLAS, DISTRICT GEOLOGIST
A. D. KLOXIN, DISTRICT DRG. & PROD. SUP'T.
M. D. ROBERTS, DISTRICT GEOPHYSICIST
W. P. TOMLINSON, DISTRICT ENGINEER
B. R. WARE, DISTRICT ADMINISTRATIVE SUP'V.

SECURITY NATIONAL BANK BLDG.

MAILING ADDRESS
P. O. BOX 1978
ROSWELL, NEW MEXICO 88201

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

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

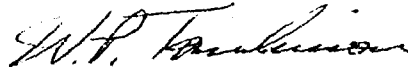
Re: Atlantic Richfield Company
Hinkle-Shugart Waterflood Project
Order No. R-3059

Dear Sir:

The Atlantic Richfield Company commenced injection into its Hinkle Well Nos. "A" No. 3, "A" No. 12 and "A" No. 13 on May 25, 1966. Injection commenced in the Hinkle "A" No. 8 Well on May 27, 1966. This notice of commencement is in compliance with Statewide Rule 703 (a). When additional wells are placed on injection we will let you know.

Your letter of May 5, 1966 to Mr. Clarence Hinkle of Hinkle, Bondurant & Christy, Attorneys at Law, specified maximum project allowables for the three projects. I believe the maximum allowable assigned for the Shugart "A" Project, 462 BPD to be in error. Although there are eleven wells in the Shugart "A" Project two of the wells, the Hinkle "A" No. 7 and the Hinkle "A" No. 15 are on a common 40-acre tract. Therefore the maximum allowable should be 434 BPD.

Yours very truly,



W. P. Tomlinson

WPT:jcb

cc: U.S.G.S., Mr. J. A. Knauf
N.M.O.C.C., Mr. H. L. Armstrong
Mr. Clarence Hinkle

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. 3391
Order No. R-3059

APPLICATION OF THE ATLANTIC REFINING
COMPANY FOR THREE WATERFLOOD PROJECTS,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 13, 1966, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 18th day of April, 1966, 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 the applicant, The Atlantic Refining Company, seeks authority to institute a waterflood project on each of three separate contiguous leases, pending unitization, by the injection of water into the Yates and Upper Queen formations, Shugart Pool, through five wells located in Sections 34 and 35, Township 18 South, Range 31 East, NHPM, Eddy County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby the project areas could be consolidated or expanded to include other lands upon unitization and whereby additional injection wells could be approved.

-2-

CASE No. 3391
Order No. R-3059

(4) That the wells in each of the project areas are in an advanced state of depletion and should properly be classified as "stripper" wells.

(5) That the proposed waterflood projects should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

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

IT IS THEREFORE ORDERED:

(1) That the applicant, The Atlantic Refining Company, is hereby authorized to institute three waterflood projects in the Shugart Pool by the injection of water into the Yates and Queen formations through the following-described wells in Township 18 South, Range 31 East, NMPM, Eddy County, New Mexico:

Shugart "A" Waterflood Project

Injection wells:

Atlantic Hinkle "A" Well No. 3, Unit I, Section 34
Atlantic Hinkle "A" Well No. 8, Unit K, Section 35
Atlantic Hinkle "A" Well No. 12, Unit C, Section 35

Shugart "B" Waterflood Project

Injection well:

Atlantic Hinkle "B" Well No. 5, Unit F, Section 34

Shugart "C" Waterflood Project

Injection well:

Atlantic Hinkle "A" Well No. 13, Unit A, Section 34

(2) That the subject waterflood projects shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided however, that the Secretary-Director of the Commission may approve such other additional injection wells at such locations and at such time as may be

-3-

CASE No. 3391

Order No. R-3059

necessary to complete an efficient waterflood injection pattern, and may, upon unitization, approve the consolidation of the aforesaid projects or the expansion of said projects to include additional adjacent lands.

(3) That monthly progress reports of the waterflood projects herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


Jack M. Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

ear/

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

April 18, 1966

Re: Case No. 3391

Order No. R-3059

Applicant:

The Atlantic Refining Company

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

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A handwritten signature in cursive script, reading "A. L. Porter, Jr.", written in dark ink.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. Frank Irby

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

May 5, 1966

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

Dear Sir:

Reference is made to Commission Order No. R-3059, recently entered in Case No. 3391, approving The Atlantic Refining Company's Shugart "A" Waterflood Project, its Shugart "B" Waterflood Project, and its Shugart "C" Waterflood Project, all in the Shugart Pool, Eddy County, New Mexico.

Injection into the Yates and Queen formations of the Hinkle "A" Wells Nos. 8, 12, and 13, and into the Hinkle "B" Well No. 5 shall be through dual strings of tubing, with packers installed both above and below the Yates perforations. Injection into the Hinkle "A" Well No. 3 shall be down the casing-tubing annulus into the Yates formation and through tubing into the Queen. All wells shall be tested for a good cement job after perforating the Yates, and block squeezes shall be placed across the Yates on any well which does not appear to be adequately cemented.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which the Shugart "A" project will be eligible to receive under the provisions of Rule 701-E-3 is 462 barrels per day, the maximum allowable for the Shugart "B" project is 126 barrels per day, and the maximum for the Shugart "C" project is 84 barrels per day.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

-2-

Mr. Clarence Hinkle

May 5, 1966

C
O
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Y
Please report any error in these calculated maximum allowables immediately, both to the Santa Fe office of the commission and the appropriate district proration office.

In order that the allowable assigned to the projects may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project areas, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the commission so informed as to the status of the projects and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/ir

cc: Mr. Frank Irby
State Engineer Office
Santa Fe, New Mexico

Oil Conservation Commission
Artesia, New Mexico



APR 13 1966

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

April 11, 1966

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

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

Dear Mr. Porter:

Reference is made to the application of Atlantic Refining Company for approval of waterflood projects, Eddy County, New Mexico which involves 3 separate waterfloods in contiguous areas in the Shugart Pool. After reviewing the application and the exhibits submitted therewith, it appears that the Hinkle "A" No. 3 well, the Hinkle "A" No. 12 well and the Hinkle "B" No. 5 well should adequately protect the fresh waters in the area.

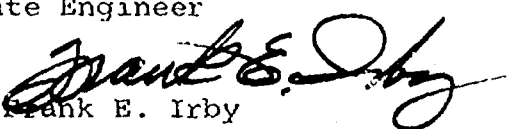
However, the Hinkle "A" No. 8 well has no cement behind the 7" OD casing from 915' to 3183' and because of the injection scheme proposed, it does not appear to provide adequate protection.

The Hinkle "A" No. 13 well gives no top for the 200 sacks of cement placed at 4117' on the 7" OD casing. No top and bottom limits are indicated for the squeeze job on the 7" casing at 2794'. No basis is given for the calculation of top of the cement (2067') behind the 7" casing. The schematic diagram for this well does not appear to provide adequate protection.

FEI/ma
cc-Hinkle, Bondurant & Christy (2)
F. H. Hennighausen

Yours truly,

S. E. Reynolds
State Engineer

By: 
Frank E. Irby
Chief
Water Rights Division

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

MAIN OFFICE

MAR 14 AM 7 52

IN THE MATTER OF THE APPLICATION OF
THE ATLANTIC REFINING COMPANY FOR
APPROVAL OF WATER FLOOD PROJECTS,
EDDY COUNTY, NEW MEXICO. APPLICANT
SEEKS AUTHORITY TO INSTITUTE THREE
SEPARATE WATER FLOOD PROJECTS COVERING
THREE SEPARATE CONTIGUOUS OIL AND GAS
LEASEHOLD INTERESTS OWNED BY APPLICANT
IN THE SHUGART POOL, EDDY COUNTY, NEW
MEXICO BY THE INJECTION OF WATER INTO
THE YATES FORMATION AND THE UPPER PORTION
OF THE QUEEN FORMATION THROUGH FIVE INJEC-
TION WELLS IN SECTIONS 34 and 35, TOWNSHIP
18 SOUTH, RANGE 31 EAST, N.M.P.M. APPLI-
CANT ALSO SEEKS THE ESTABLISHMENT OF AN
ADMINISTRATIVE PROCEDURE WHEREBY THE
PROJECT AREAS MAY BE EXPANDED OR INCLUDED
WITH OTHER LANDS IN A UNIT AGREEMENT AND
FOR APPROVAL OF ADDITIONAL INJECTION WELLS)

Case 3391

Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Comes The Atlantic Refining Company acting by and through the undersigned attorneys and hereby makes application for approval of three separate water flood projects covering three separate contiguous oil and gas leasehold interests owned by applicant in the Shugart pool, Eddy County, New Mexico in accordance with Rule 701 of the rules of the New Mexico Oil Conservation Commission, and in support thereof respectfully shows:

1. Applicant is the owner of three separate oil and gas leases covering the lands hereinafter described which are referred to as Project Areas "A", "B" and "C" respectively:

Project Area "A":

Oil and gas lease embracing the following Federal lands:

Township 18 South, Range 31 East, N.M.P.M.

Section 34 - $S\frac{1}{2}NE\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$

Section 35 - $NW\frac{1}{4}$, $N\frac{1}{2}SW\frac{1}{4}$

containing 400 acres, more or less

Project Area "B":

Oil and gas lease embracing the following Federal lands:

Township 18 South, Range 31 East, N.M.P.M.

Section 34 - $SE\frac{1}{4}NW\frac{1}{4}$, $N\frac{1}{2}SW\frac{1}{4}$, $SE\frac{1}{4}SW\frac{1}{4}$

containing 160 acres, more or less

Project Area "C":

Oil and gas lease embracing the following Federal lands:

Township 18 South, Range 31 East, N.M.P.M.

Section 34 - $N\frac{1}{2}NE\frac{1}{4}$

containing 80 acres, more or less

2. That there is attached hereto, made a part hereof and for purposes of identification marked Exhibit "A", a plat showing the location of the respective project areas hereinabove described and the location of the proposed injection wells in connection with each project, three of which are located on Project Area "A" and one on each of the other project areas. Exhibit "A" also shows the location of all other wells within a radius of two miles from the respective project areas, as well as the formations from which said wells are producing or have produced and the ownership of the leasehold interests within said two mile radius.

3. There are also filed herewith electrical logs of each of the proposed injection wells as shown on Exhibit "A", which are identified as Exhibits "B", "C", "D", "E" and "F" respectively.

4. There are attached hereto as Exhibits "G", "H", "I", "J" and "K" diagrammatic sketches of the proposed injection wells showing the casing strings, including diameters and setting depths, perforated intervals, tubing strings, including diameters and setting depths and the type and location of packers.

5. It is proposed to inject water into the Yates and upper Queen formations of the Shugart pool in the injection wells shown on Exhibit "A" for the respective project areas. The wells within the project areas are currently producing an average of approximately 5 barrels of oil per day and are classed as stripper wells coming within the meaning of water flood projects as defined by the Commission rules. It is anticipated that approximately 400 barrels of water per day will be injected into each of the 5 wells. Water for injection purposes will be purchased from the Double Eagle Corporation of New Mexico and the water to be used will be fresh water. The United States Geological Survey has given its informal approval of the proposed project areas.

The injection of water in each of the injection wells on the respective project areas will serve as pilot operations and applicant intends to make an effort to unitize the lands within the respective project areas with other lands in the Shugart pool so as to cover a greater portion thereof, and for such purpose desires that an appropriate procedure be set up to permit the Oil Conservation Commission to administratively approve the expansion of each water flood project to include additional lands and to approve additional injection wells and to ultimately consolidate the project areas with other lands which may be included in the proposed unit area.

6. Applicant seeks the establishment of the usual allowable for each project area as provided by the rules of the Commission.

7. That a copy of this application with all exhibits has been mailed to the State Engineer of the State of New Mexico, Capitol Building, Santa Fe, New Mexico simultaneously with making this application to the Commission.

Applicant requests that this matter be set down for hearing at the earliest possible date.

Respectfully submitted,

THE ATLANTIC REFINING COMPANY

By 

Attorney

HINKLE, BONDURANT & CHRISTY

By 

Attorneys for Applicant

Box 10

Roswell, New Mexico

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
MICHAEL R. WALLER

LAW OFFICES
HINKLE, BONDURANT & CHRISTY
HINKLE BUILDING
ROSWELL, NEW MEXICO

OF COUNSEL: HIRSH M. DOW
TELEPHONE 622-6510
AREA CODE 505
POST OFFICE BOX 10

March 18, 1966

Oil Conservation Commission
Box 2088
Santa Fe, New Mexico

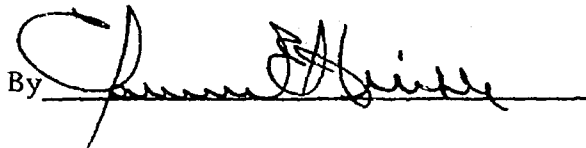
Gentlemen:

We have heretofore given to Mr. Dan Nutter information necessary for publication of notice in connection with the application of The Atlantic Refining Company for approval of 3 separate water flood projects embracing lands in the Shugart pool, Eddy County, New Mexico. You will find enclosed in triplicate formal application.

It is our understanding that this matter will probably be set down for hearing at the regular Oil Conservation Commission hearing in Hobbs on April 13, or at the first examiner's hearing if one is held before that time.

Yours very truly,

HINKLE, BONDURANT & CHRISTY

By 

CEH:cs


Enc.

cc: Dick Tremble

cc: State Engineer

DOCKET MAILED

Date

3-29-66


C O P Y

HINKLE, BONDURANT & CHRISTY
ROSWELL, NEW MEXICO

March 18, 1966

3391

S. E. Reynolds
State Engineer
State Capitol
Santa Fe, New Mexico

Dear Sir:

We enclose herewith copy of application with all exhibits of The Atlantic Refining Company to the New Mexico Oil Conservation Commission for approval of 3 separate water flood projects embracing 3 separate oil and gas leases located in the Shugart pool, Eddy County, New Mexico. You will note that it is proposed to inject water into the Yates and upper portion of the Queen formations and that water will be purchased from the Double Eagle Corporation of New Mexico and that fresh water will be used.

Yours very truly,

HINKLE, BONDURANT & CHRISTY

By Charles Hinkle

CEH:cs

Enc.

cc: Oil Conservation Commission

February 10, 1966

United States Geological Survey (2)
P. O. Drawer U
Artesia, New Mexico

Attention: Mr. J. A. Knaut

Re: Pilot waterflood, Shugart Pool
Sections 34 and 35
T-18-S, R-31-E
Eddy County, New Mexico

Gentlemen:

We request the approval of the United States Geological Survey to carry out a pilot waterflood on portions of Sections 34 and 35, Shugart Pool, Township 18 South, Range 31 East, Eddy County, New Mexico. The project area consists of 720 ± acres, the leases are Federal, and the working interest is owned 100% by Atlantic. We plan to attempt to expand the pilot to include other leases under a unitized operation as quickly as possible.

The following exhibits are attached for your use:

- (1) Plat showing proposed project area, location of wells, zones of completion, ownership, and location of proposed injection wells for pilot.
- (2) Plat showing U.S.C.S. royalty scale.
- (3) Table of initial potential tests and current production rates of wells within the project area.
- (4) North-South and East-West cross sections.

The project area consists of 720 ± acres with five injection wells. The area is classified by the New Mexico Oil Conservation Commission as the Shugart Pool - Yates, Seven Rivers, Cusen and Grayburg. Wells within the area produce from a number of zones from the Yates at approximately 2700' through the top of the Grayburg at approximately 4100'.

3/8/66. Talked by phone w/ Knaut. He advised that we could assume they will approve the project.

BEFORE THE	
OIL CONSERVATION COMMISSION	
Santa Fe, New Mexico	
EXHIBIT	Exhibit No. 2 ✓
Case No.	3391

The nineteen wells within the pilot project area have produced 1,033,850 barrels of oil to December 1, 1965. The discovery well, Atlantic's Binkle "A" No. 1 was completed on May 9, 1938. Several wells were completed in the mid 1940's but the majority of the development took place in 1957, 1958 and 1959. Production from all nineteen wells within the pilot project area during November, 1965 was 3,399 barrels of oil or an average of about 6 BOPD per well.

Our final unitized plan will be to waterflood most of the zones within the Shuart Pool interval. However, for this proposed pilot, we plan to flood only the Yates and the upper portion of the Queen. Injection into the five wells will be within an interval from 2,694' to 2,894' for the Yates and 3,320' to 3,446' for the upper Queen as correlated from the log of Atlantic's Binkle "A" No. 3 which is shown on one of the cross sections. The Binkle "A" No. 3 will be a dual with the Yates injection through the casing-tubing annulus and the upper Queen injection through the tubing below a packer. The other four injection wells will be two string tubing duals.

We have contacted Cities Service concerning their 80-acre Binkle "A" lease (S/2 SE/4 Section 34) which offsets one of our proposed injection wells, the Binkle "A" No. 3. They have advised us that they have no objection to our plan and will send us a letter waiving any objections.

Fresh water for injection will initially be purchased from the Double Eagle Corporation. Injection will be about 200 barrels of water per day per zone or 400 barrels per day per well for each of the five proposed injection wells.

We will be happy to furnish you with any further information you may need.

Yours very truly,

R. I. Trimble

RIT:jcb

Attachments

cc: Mr. S. L. Smith
Mr. Jack Biard
Mr. A. D. Kloxin
Mr. W. P. Tomlinson



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Drawer U
Artesia, New Mexico 88210

IN REPLY REFER TO:

RET

March 10, 1966

The Atlantic Refining Company
Post Office Box 1978
Roswell, New Mexico

Re: Shugart Pilot Waterflood
LC 029392(a) and (b)

Gentlemen:

Your letter of February 10, 1966, requests approval to institute a waterflood of the Yates and Upper Queen formations on those portions of the subject leases insofar as they cover the following lands:

T. 18 S., R. 31 E., Eddy County, New Mexico

Sec. 34: $N\frac{1}{2}$, $N\frac{1}{2}S\frac{1}{2}$, $SE\frac{1}{4}SW\frac{1}{4}$
Sec. 35: All

Your proposed plan for operating the above described pilot waterflood project is satisfactory to this office and hereby approved, subject to approval by the New Mexico Oil Conservation Commission and the following:

1. This project will be operated in compliance with the New Mexico Oil Conservation Commission regulations governing waterflood operations.
2. Duplicate copies of a monthly progress report are to be submitted showing the volume of water injected and average pressure for each injection well and monthly oil and water production for the producing wells in the project area.
3. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases, or the necessity to submit the usual notices and reports on wells involved. When this project is expanded to involve other operators and interests, the correlative rights of all concerned should be protected.

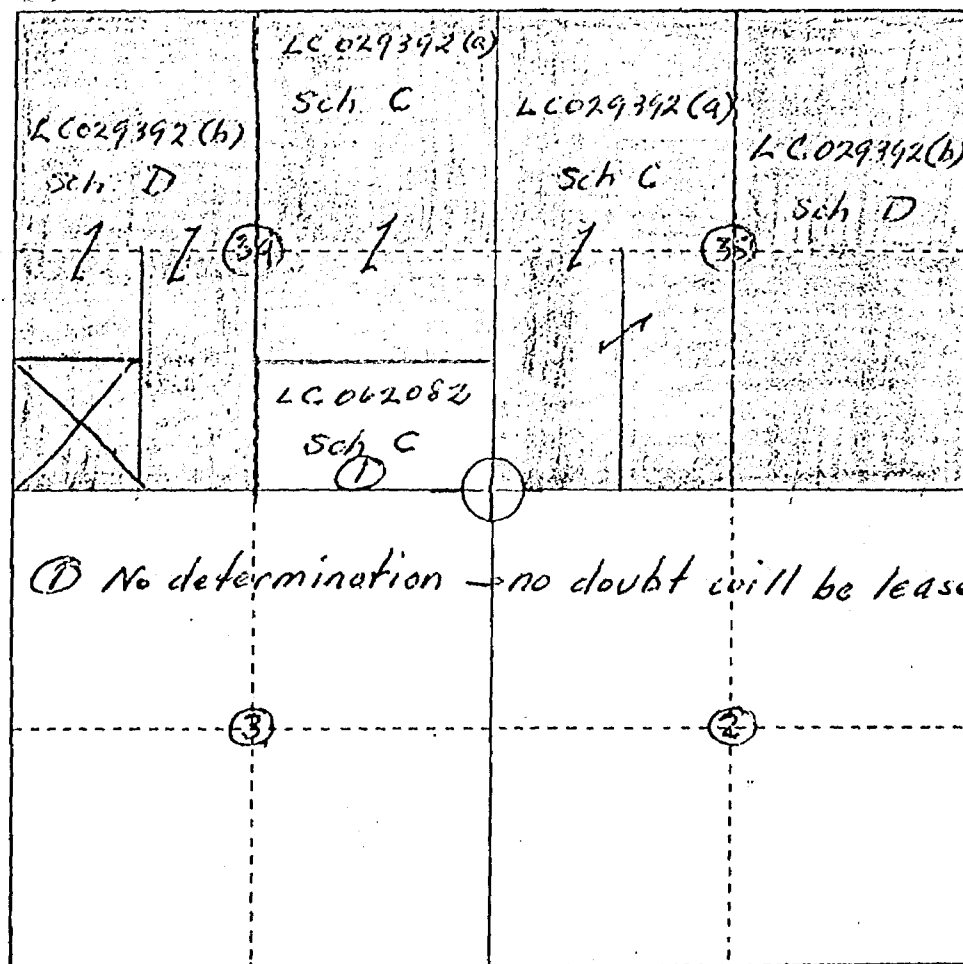
Sincerely yours,


James A. Knapp
District Engineer

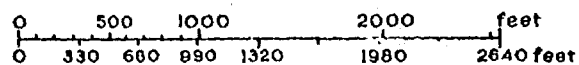
BEFORE THE OIL CONSERVATION COMMISSION State of New Mexico
Exhibit No. _____
Case No. <u>3391</u>
EXHIBIT No 3

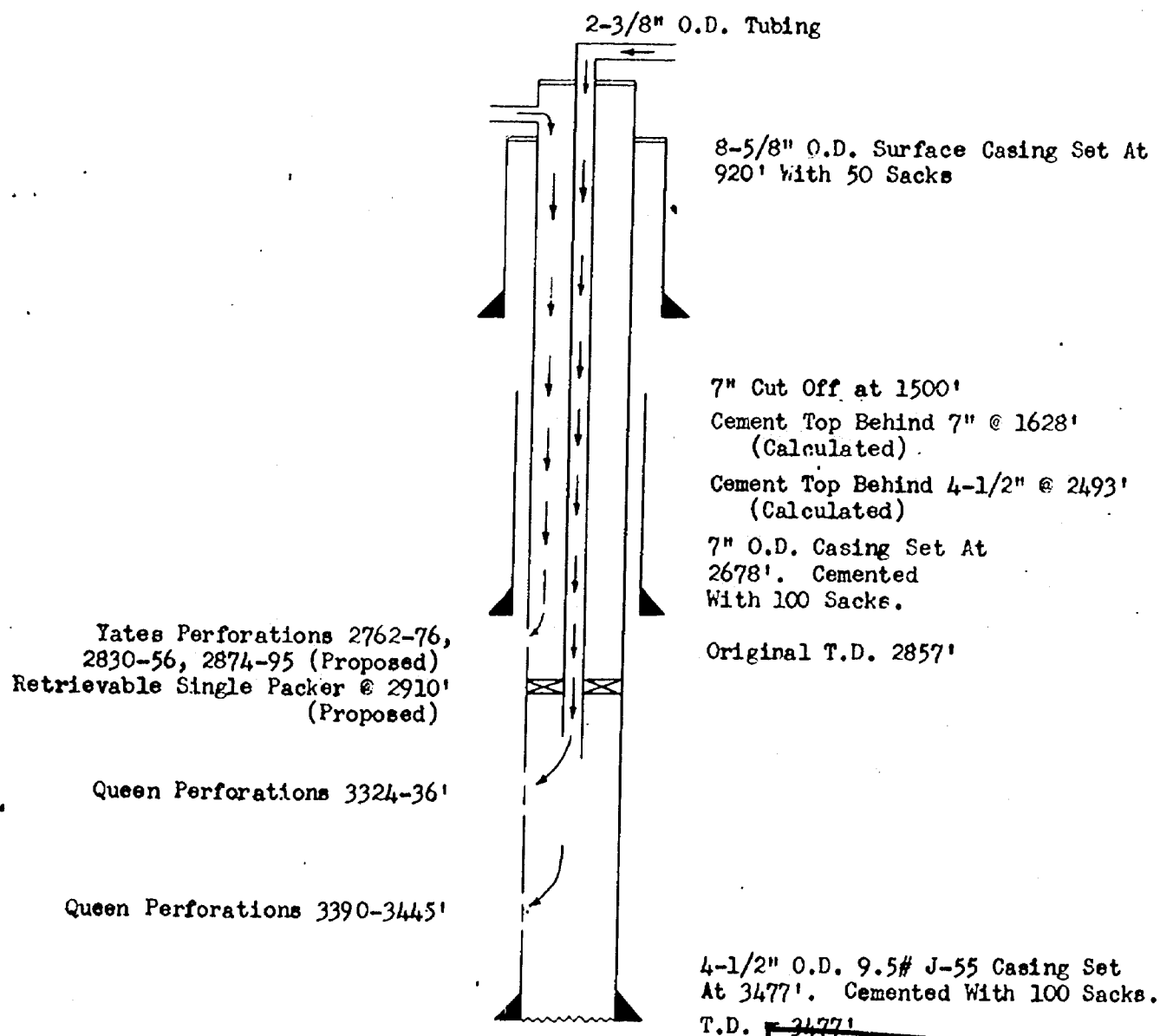
T. 185 R. 31E Mer. State.

Inside deposit £846 - lease rate
outside " " flat 12.5%



Scale: 1 inch = 1000 feet





THE ATLANTIC REFINING COMPANY
Schematic Drawing
Hinkle "A" No. 3 Well
Shugart Pool
Eddy County, New Mexico

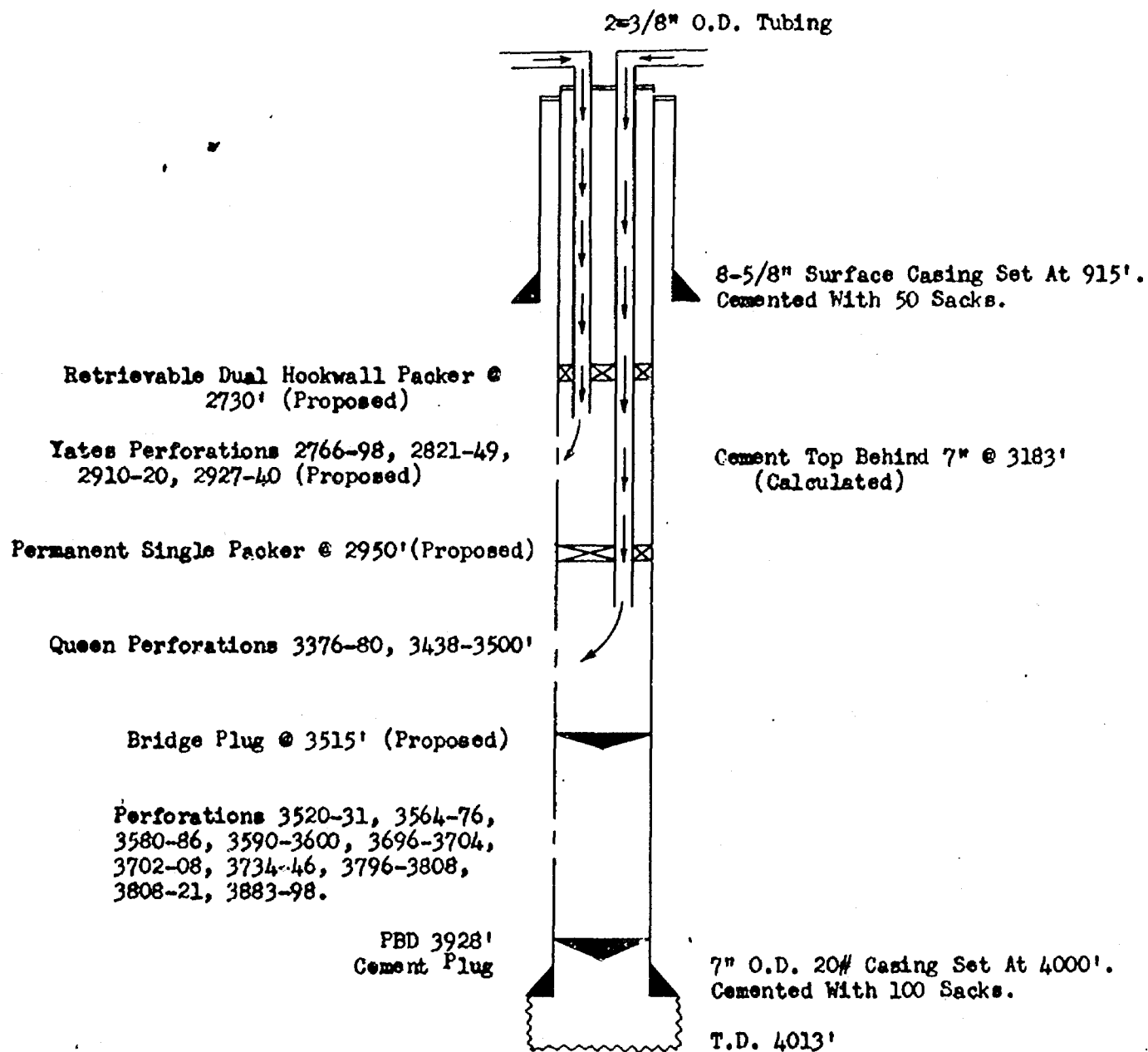
BUREAU OF THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Exhibit No. 4

Case No. 3391

EXHIBIT NO.

4.8



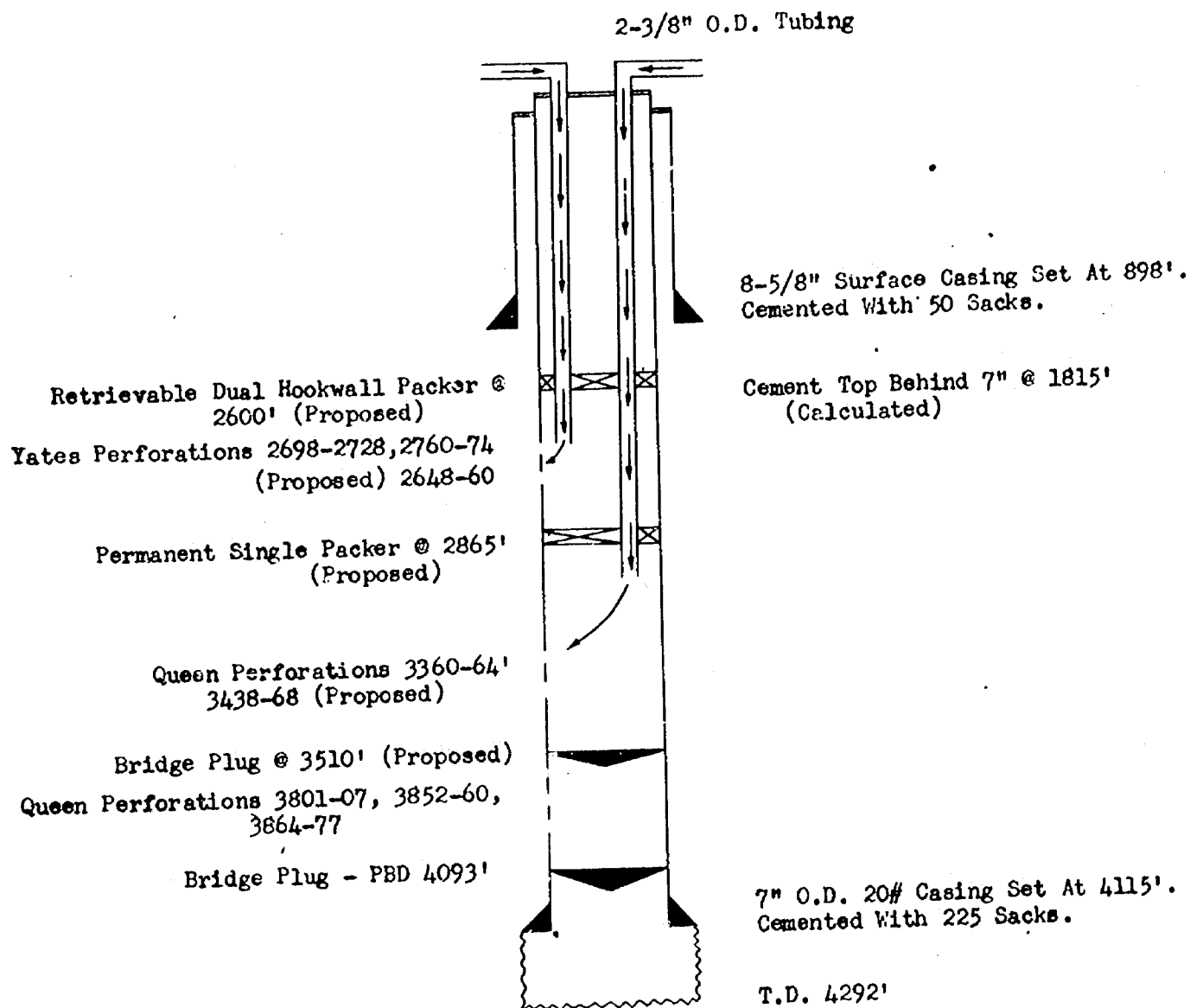
THE ATLANTIC REFINING COMPANY

Schematic Drawing
Hinkle "A" No. 8 Well
Shugart Pool
Eddy County, New Mexico

THE
OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

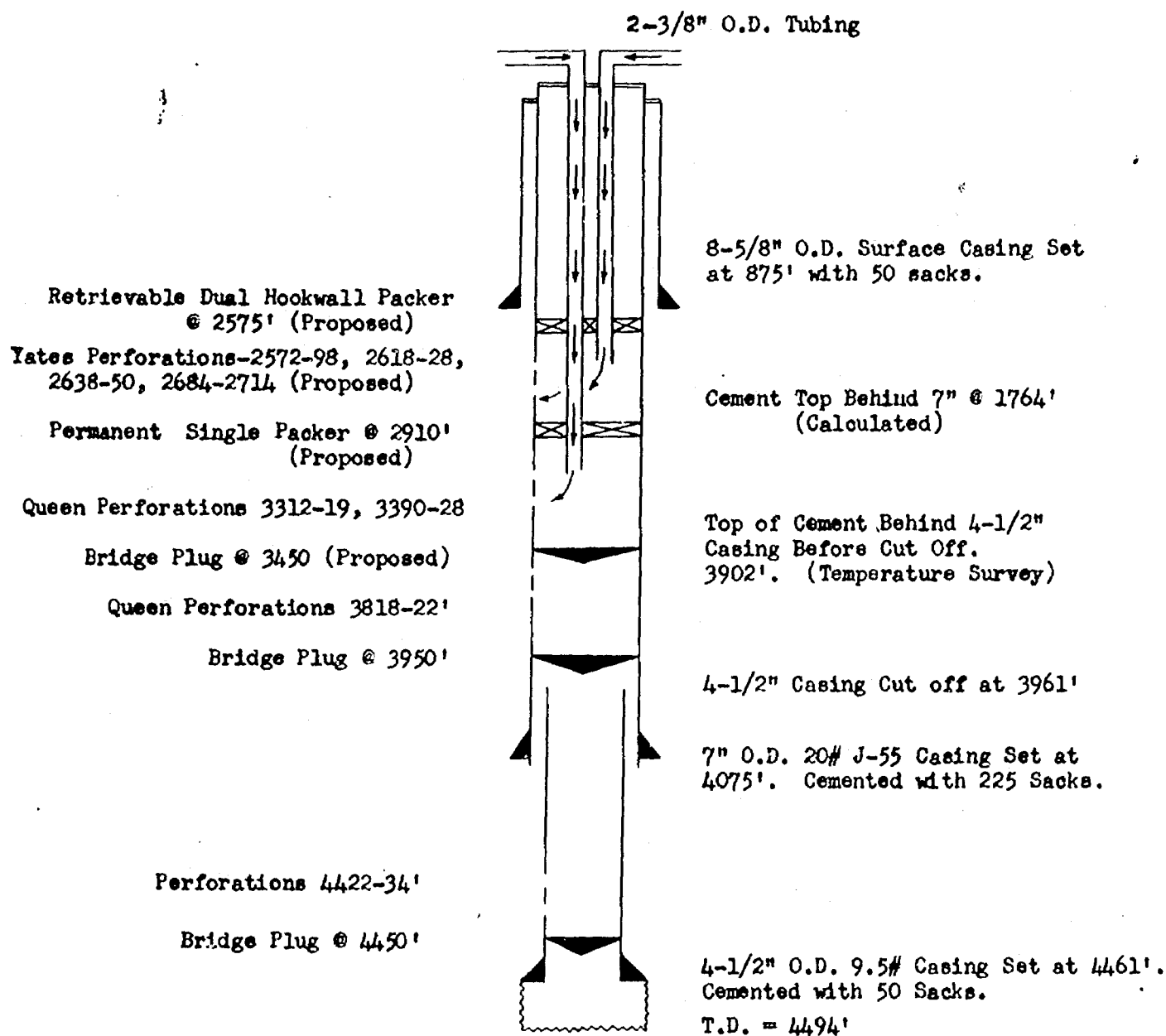
Exhibit No. 5
EXHIBIT NO. 5
Case No. _____



THE ATLANTIC REFINING COMPANY

Schematic Drawing
Hinkle "A" No. 12 Well
Shugart Pool
Eddy County, New Mexico

OIL CONSERVATION COMMISSION
S. H. 18, New Mexico
Exhibit No. 6
EXHIBIT NO. 6
Case No. 6



THE ATLANTIC REFINING COMPANY
Schematic Drawing
Hinkle "B" No. 5 Well
Shugart Pool
Eddy County, New Mexico

C I C C CONSERVATION COMMISSION
Santa Fe, New Mexico

Exhibit No. 7
Case NO. EXHIBIT NO. 7

2-3/8" O.D. Tubing

Retrievable Dual Hookwall Packer @ 2560'
(Proposed)
Yates Perforations 2632, 2640, 2662, 2670,
2680, 2692, 2699, 2709, 2722,
2726, 2730, 2735
Permanent Single Packer @ 2830
(Proposed)

8-5/8" 24# Surface Casing Set At 910'.
Cemented With 50 Sacks.

Cement Top Behind 7" @ 2067'
(Calculated)

7" Squeezed Through Perforations 2794
With 75 Sacks Cement Prior to Perfor-
ating for Production.

Perforations @ 3402-40'

Bridge Plug @ 3460' (Proposed)
Perforations 3686-96, 3699-3710,
3716-24'

Perforations 3822-52, 3836-50
3880-90'

PBD 3948'

7" O.D. 20# J-55 Casing Set At 4117'.
Cemented With 200 Sacks.
T.D. 4117'

THE ATLANTIC REFINING COMPANY

Schematic Drawing
Hinkle "A" No. 13 Well
Shugart Pool
Eddy County, New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

EXHIBIT NO. 8

Case No. _____



THE ATLANTIC REFINING COMPANY
INCORPORATED - 1870
PETROLEUM PRODUCTS

February 10, 1966

NORTH AMERICAN PRODUCING DEPARTMENT
NEW MEXICO - ARIZONA DISTRICT

S. L. SMITH, DISTRICT MANAGER
JACK BIARD, DISTRICT LANDMAN
E. R. DOUGLAS, DISTRICT GEOLOGIST
A. D. KLOXIN, DISTRICT DRLO. & PROD. SUP'T.
M. D. ROBERTS, DISTRICT GEOPHYSICIST
W. P. TONLINSON, DISTRICT ENGINEER
B. R. WARE, DISTRICT ADMINISTRATIVE SUP'V.

SECURITY NATIONAL BANK BLDG.

MAILING ADDRESS
P. O. BOX 1978
ROSWell, NEW MEXICO

Cities Service Oil Company (3)
P. O. Box 69
Hobbs, New Mexico

Attention: Mr. Ray Ely

Re: Shugart Pilot Waterflood
Sections 34 and 35
T-18-S, R-31-E
Eddy County, New Mexico

Gentlemen:

We are planning a pilot waterflood on some properties we recently acquired in the Shugart Pool, Township 18 South, Range 31 East, Eddy County, New Mexico. Injection will be into the Yates and upper Queen zones during the pilot operation. One of our proposed injection wells is the Atlantic - Hinkle "A" No. 3 located 330 feet from the east line and 1650 feet from the south line of Section 34. This well offsets the 80 ± acre Cities Service - Hinkle "A" lease being the S/2 of the SE/4 of Section 34. If Cities Service has no objection to the conversion of Atlantic's Hinkle "A" No. 3 to an injection well, we would appreciate it if you would execute and return one copy of this letter.

Under the terms of the purchases we have made, we are required to be water-flooding by certain dates, the earliest being June 1, 1966. Since it will be impossible to unitize by such an early date, we feel that our only alternative is to begin a pilot injection program. However, as soon as possible, we plan to begin negotiations to unitize all productive intervals and include, among other leases, the Cities Service Hinkle "A" lease.

Atlantic's Hinkle "A" No. 3 will be a dual injector with about 200 barrels of water per day injected into the Yates within an interval from 2694 feet to 2894 feet and about 200 barrels of water per day injected into the upper Queen within an interval from 3320 feet to 3446 feet. The water injected will be fresh water purchased from the Double Eagle Corporation.

RLT:job

Concur - Cities Service Oil Company

BY J. E. [Signature]

Yours very truly,

R. L. Trimble
R. L. Trimble

BEFORE THE
CONSERVATION COMMISSION

Santa Fe, New Mexico

Exhibit No. 11

Case No. 2341

EXHIBIT No. 11

Clarence Hinkle 3/15

The Atlantic Refining Co 34-35-18S-31E

Shugart Pool, Eddy Co

3 sep WF proj 3 sep contig leaves
pending unitization,
Yates farm & upper Q

5 inj wells 34-35-18S-31E

Also seeks est of adm proc whereby
proj areas can be expanded to
incl other land in the unit area
& adal wres approved.

3 wells	400 acres	34-35
1 "	80 acres	34
1 "	160 "	34

advised Clarence this case will be
on the 6th at SF or the 13th at Hbs
will let him know which.

DOCKET: REGULAR HEARING - WEDNESDAY - APRIL 13, 1966

OIL CONSERVATION COMMISSION - 9 A.M., THE INN MOTOR HOTEL, CONVENTION CENTER,
200 SOUTH LINAM, HOBBS, NEW MEXICO

- | | | |
|-----------|-----|--|
| ALLOWABLE | (1) | Consideration of the oil allowable for May, 1966; |
| | (2) | Consideration of the allowable production of gas for May, 1966, 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 May, 1966. |

CASE 3389: Application of David Fasken for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle in the wellbore, production from the North Bagley-Upper Pennsylvanian, North Bagley-Middle Pennsylvanian, and North Bagley-Lower Pennsylvanian Oil Pools in his Felmont Collier Well No. 1, located in Unit H of Section 9, Township 11 South, Range 33 East, Lea County, New Mexico, with the provision that no more than one top allowable could be produced from said well.

CASE 3376: Application of T. E. Brown, Jr. and Claudyne Brown Thorp for compulsory pooling, Lea County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all oil and gas mineral interests in the Lusk-Strawn Pool underlying the NE/4 of Section 7, Township 19 South, Range 32 East, Lea County, New Mexico. Said order to be effective the date of first production from said land and pool.

CASE 3390: Application of Pan American Petroleum Corporation for special rules for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, including a provision for 80-acre proration units.

CASE 3391: Application of The Atlantic Refining Company for three waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on each of three separate contiguous leases, pending unitization, by the injection of water into the Yates and Upper Queen formations, Shugart Pool, through five wells located in Sections 34 and 35, Township 18 South, Range 31 East, Eddy County, New Mexico. Applicant further seeks an administrative procedure whereby the project areas could be consolidated or expanded to include other lands upon unitization and whereby additional injection wells could be approved.

CASE 3392: Southeastern New Mexico nomenclature case calling for an order for the creation, extension and contraction of certain pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

a) CREATE A new gas pool for San Andres production designated as the South Crossroads-San Andres Gas Pool. The discovery well is W. K. Byrom, T. P. State No. 1, located in Unit K of Section 10, Township 10 South, Range 36 East, NMPM. Said pool described as:

TOWNSHIP 10 SOUTH, RANGE 36 EAST, NMPM
SECTION 10: SW/4

APRIL 13, 1966, REGULAR HEARING

- b) EXTEND the Chaveroo-San Andres Pool to include therein:

TOWNSHIP 7 SOUTH, RANGE 33 EAST, NMPM

SECTION 24: SW/4

SECTION 25: W/2

SECTION 26: S/2

SECTION 28: NE/4

SECTION 35: NW/4

- c) EXTEND the South Corbin-Queen Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM

SECTION 34: N/2

- d) EXTEND the Jenkins-Cisco Pool to include therein:

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM

SECTION 25: NW/4

- e) EXTEND the Justis-Blinebry Pool to include therein:

TOWNSHIP 24 SOUTH, RANGE 37 EAST, NMPM

SECTION 26: SW/4

- f) EXTEND the Morton-Lower Wolfcamp Pool to include therein:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM

SECTION 12: SE/4

- g) EXTEND the Querecho Plains-Pennsylvanian Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

SECTION 15: SW/4

SECTION 22: NW/4

- h) EXTEND the Scarborough-Yates-Seven Rivers Pool to include therein:

TOWNSHIP 26 SOUTH, RANGE 37 EAST, NMPM

SECTION 30: SW/4

- i) EXTEND the Indian Basin-Upper Pennsylvanian Gas Pool to include therein:

TOWNSHIP 21 SOUTH, RANGE 23 EAST, NMPM

SECTION 29: All

SECTION 32: All

- j) CONTRACT the Red Lake Pool by the deletion therefrom of the following lands:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM

SECTION 31: SE/4 NE/4 and E/2 SE/4

APRIL 13, 1966, REGULAR HEARING

k) EXTEND the Artesia Pool to include the lands deleted from the Red Lake Pool in Paragraph (j) above.

l) EXTEND the Linda-San Andres Pool to include therein:

TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM
SECTION 8: N/2 NE/4

CASE 3393: Northwestern New Mexico nomenclature case calling for an order for the abolishment, creation and extension of certain pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

a) ABOLISH the Rattlesnake-Pennsylvanian "B" Gas Pool which comprises the following-described area:

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 2: S/2
SECTION 11: N/2

b) ABOLISH the Rattlesnake-Pennsylvanian "CD" Oil Pool which comprises the following-described area:

TOWNSHIP 29 NORTH, RANGE 18 WEST, NMPM
SECTION 18: S/2 NW/4 and SW/4
SECTION 19: N/2 NW/4 and W/2 NE/4

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 1: SW/4
SECTION 2: E/2 and E/2 SW/4
SECTION 11: E/2 NW/4 and NE/4
SECTION 12: NW/4, E/2 SW/4 and SE/4
SECTION 13: NE/4

c) CREATE the Rattlesnake-Pennsylvanian "BCD" Oil Pool with vertical limits being from 6404 feet to 6827 feet on the log of the Continental Oil Company Rattlesnake Well No. 136, located in Unit J of Section 2, Township 29 North, Range 19 West, San Juan County, New Mexico, and with horizontal limits described as follows:

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 2: S/2
SECTION 11: N/2
SECTION 12: All

d) EXTEND the Ballard-Pictured Cliffs Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 6 WEST, NMPM
SECTION 17: NW/4
SECTION 18: NE/4

e) EXTEND the South Blanco-Pictured Cliffs Pool to include therein:

TOWNSHIP 23 NORTH, RANGE 2 WEST, NMPM
SECTION 14: SW/4
SECTION 15: W/2 and SE/4
SECTION 22: NE/4
SECTION 23: S/2

APRIL 13, 1966, REGULAR HEARING

TOWNSHIP 25 NORTH, RANGE 4 WEST, NMPM

SECTION 1: SE/4

SECTION 2: SE/4

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM

SECTION 3: SW/4

SECTION 10: N/2 and SE/4

f) EXTEND the Blanco-Mesaverde Pool to include therein:

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM

SECTION 10: E/2

TOWNSHIP 26 NORTH, RANGE 6 WEST, NMPM

SECTION 17: All

SECTION 18: All

SECTION 20: N/2

SECTION 21: N/2

TOWNSHIP 26 NORTH, RANGE 7 WEST, NMPM

SECTION 13: S/2

TOWNSHIP 27 NORTH, RANGE 9 WEST, NMPM

SECTION 26: W/2

g) EXTEND the South Blanco-Tocito Oil Pool to include therein:

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM

SECTION 18: SE/4

SECTION 19: NE/4

SECTION 20: N/2