CASE 4136: Application of MALLARD PETROLEUM, INC. FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

Case Number.

4136

Application

Transcripts.

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 13, 1969

REGULAR HEARING

IN THE MATTER OF:	
Application of Mallard Petroleum, Inc., for salt water disposal, Lea County, New Mexico.	Case No. 4136 (Continued and Re-advertised.)

BEFORE: DAVID F. CARGO, Governor
A. L. "PETE" PORTER, Secretary-Director

TRANSCRIPT OF HEARING

MR. NUTTER: Case 4136.

MR. HATCH: Case No. 4136 (Continued and Re-advertised), application of Mallard Petroleum, Inc., for salt water disposal, Lea County, New Mexico.

MR. NUTTER: Call for appearances in this case.

MR. HINKLE: If it please the Examiner, I am Clarence Hinkle, appearing on behalf of Mallard Petroleum, Inc.

MR. KELLAHIN: If it please the Examiner, I am Jason W. Kellahin, appearing for William A. and Edwin R. Hudson.

(Whereupon, the witnesses were sworn)

HOMER OLSON, JR.,

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q Will you state your name, your residence, and by whom you are employed?

A Homer Olson, Jr.; Midland, Texas; Mallard Petroleum, Inc.

Q What is your position with Mallard?

A Vice president and petroleum engineer.

Q Have you previously testified before the Oil Conservation Commission?

A Yes, I have.

Q Have you qualified as a petroleum engineer?

A Yes.

Q And your qualifications are a matter of record with the Commission?

A Yes, sir.

Q Are you familiar with the application in this case?

A Yes, sir.

Q What is Mallard seeking to accomplish?

A We are requesting permission to dispose of salt water into the Seven Rivers formation in the Milner Federal Well No. 4, in the Lynch Pool, Lea County.

Q Have you made a study of the Lynch Pool and the well that has been drilled in the pool of the Mallard Wells?

A Yes, I have.

Q Have you prepared, or has there been prepared at your direction, certain exhibits for introduction in this case?

A Yes, sir.

Q Refer to Exhibit No. 1 and explain what this is, what it shows.

A Exhibit No. 1 is that Area Plat, showing Mallard,

Milner Federal lease, outlined in red, the proposed injection well in a red triangle; and the wells that are currently producing from the Yates or Seven Rivers, in yellow.

Q Does this show all of the wells within two miles of the disposal well?

A Yes, it does.

Q Are they all producing from the same formation?

A Yes, with one exception. In Section 25, Shell Federal 1-L was originally completed in the Bone Springs formation.

Q Is it a producing well at the present time?

A No, sir, Bone Springs has been abandoned, is the information that I have.

Q Now, refer to Exhibit 2, and explain that.

A Exhibit 2 is a structure map on the top of the Yates sand; and Mallard Milner Federal lease again is outlined in red, with the proposed injection well shown by red triangles. This is in the immediate area surrounding our lease.

Q Is it also an index map showing the cross section of the exhibit?

A Yes, it is.

Q Now, refer to Exhibit 3, and explain that.

A Exhibit 3 is a cross section shown on Exhibit 2,

going from A to a prime more or less southwest to northeast, going to the Mallard No. 4 Well, the proposed injection well, and several of the surrounding wells; showing the cross section colored in red of where the various wells had been completed. The well on the extreme right is a deep well that was drilled up north, but it shows the massive Seven Rivers reef section. We propose to deepen our Milner Federal No. 4 so as to encounter this massive reef section. Our estimate of the original oil-water contact is shown in the cross section as twenty feet subsea. Our proposed injection will be below this original oil-water contact. The exact intervals can't be defined until the well is deepened and a log run.

Q What do you anticipate would be the total depth of the well of the Milner Federal No. 4, when it is deepened?

A Approximately thirty-eight feet; the present TD is thirty-seven, thirty-seven all together.

Q And your disposal zone will be below the present producing formation in the alleged Pool?

A Yes, sir.

Q And it will be into the formation which is shown in the Shell Sinclair Federal No. 1 on the extreme right of the Exhibit?

A Yes, sir.

Q Now, refer to Exhibit No. 4.

MR. NUTTER: Mr. Hinkle, we might stop here with Exhibit No. 3 and resume this case after the allowables are heard.

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MR. NUTTER: Case No. 4136 will resume.

Mr. Hinkle, I believe you were just getting to Exhibit 4.

BY MR. HINKLE:

Q Now, will you refer to Exhibit 4 and explain that.

A Exhibit 4 is a diagrammatic sketch showing our proposed installation on the Milner Federal No. 4 Well, the proposed injection well. This well was drilled in 1954, has a five and a-half inch casing, cemented 3700 feet, which the men circulate. 706 sacks of cement were used in this. The present perforations open are 3606 and 3627, or additional perforations at 3676 that are separated by means of bridge plug. Present TD is 37. Which means there are 37 feet of open hole in the well. We propose to deepen this well to 3850 in order to reach this massive reef section. This appears on the Shell Sinclair Federal No. 1 on the cross section of Exhibit No. 3. We propose to run a four-inch liner at approximately 3500 TB; and cement this liner back up to the top of the liner,

and we are allowed to test the top of the liner and squeeze if necessary. Injection will be through 2-3/8th inch tubing, which has been internally coated, set on a 10-inch packer inside the 4-inch liner at approximately 3550.

MR. HATCH: By completion in the manner in which you have testified, in running this liner, in your opinion, would this seal off the perforations from 3606 to 3627 and 3672 to 3676?

A Yes, sir.

MR. HATCH: Will completion in this manner, in your opinion, confine the injection of water to the massive reef formation found in Shell Sinclair Federal No. 1?

A Yes, sir.

Q (By Mr. Hinkle) What is the present status of your production in Section 35, Township 20, Range 34, in the Lynch Pool?

A At the present time all three wells are shut in, because of salt water disposal. We were originally connected to Texaco Salt Water Disposal System on their Lynch lease, which is to the west from Section 34; however, their facilities would not handle our water. As of May 19th we were shut down and out of the Texaco system.

MR. HATCH: How much water do you anticipate will

be disposed of in this injection well?

A Approximately 1,000 barrels a day. Each of the producing wells, Well No. 2 and Well No. 3, produce approximately 500 barrels of water a day.

Q Do you anticipate that that water may increase in the future?

A No, sir, I don't anticipate that it will.

Q What is the character of the water which will be injected?

A It is brackish water.

Q Are there any other disposal wells in the Lynch Pool?

A Yes, sir, it is my understanding that Texaco has two wells. You can see on Exhibit 1 here, on your map, and they would both be in Section 34, which would be the section immediately west of the section that the Mallard lease is in. Wells No. 11 and 8, it is my understanding, are injection wells.

MR. NUTTER: Where is No. 8?

A No. 8 would be two locations west of our southernmost well on our lease.

MR. HATCH: Are thosewells you testified to, are disposing of water into the Lynch Pool formation, which is producing?

A Yes, sir. It is my understanding there is one well completed in the Seven Rivers and one in the Yates.

MR. HATCH: I believe you have already testified that, in your opinion, the water will be disposed of in the reef formation below the Lynch Pool formation?

A Below the original oil-water contact in the Lynch Pool; yes, sir.

Q In your opinion, will the completion of this well as an injection well be in the interest of conservation and prevention of waste?

A Yes, sir, it will.

Q In your opinion, will it interfere with any correlative rights?

A No, sir.

Q As a matter of fact, it will protect correlative rights?

A Yes, sir.

Q We would like to offer applicant's Exhibits 1 through 4.

MR. NUTTER: Applicant's Exhibits 1 through 4 will be admitted into evidence.

(Applicant's Exhibit 1 through 4 were marked for identification)

MR. NUTTER: Are there any questions of Mr. Olson?

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Olson, are you familiar with the history of the Yates --

A Yes, sir, I am.

Q What formation did it originally produce from?

A It originally produced from Seven Rivers.

Q And when did production cease from Seven Rivers?

A In 1962.

Q Then what did you do to the well?

A We flood back to the Yates Sands that are perforated and shown on Exhibit 4.

Q And you say you bridge plugged, as I understand it, above the Seven Rivers perforations?

A Yes, sir.

Q So the perforations in the Seven Rivers are still in the well?

A Actually, the Seven Rivers was an open hole section from 3700 to 3737.

Q Then you plugged it back and perforated it to the Yates?

A Yes, sir.

Q And what did you do, did you take any action to stimulate production from the Yates?

A Yes, sir. The well was fracked with 10,000 gallons of oil and 18,000 pounds of sand.

Q What were the results of that fracturing?

A The results were that it made twenty to twenty-five barrels a day, approximately, for the period of a month, two months; and then we had water encroachment.

Q How much water?

A Water encroachment was estimated at that time at approximately 100 barrels a day.

Q Now, is there any water normally found in the Yates formation?

A No, sir, I don't believe there is.

Q Where would that water have come from?

A The water, I think, is coming from Seven Rivers.

Q Then would you conclude that your frack job fracked the Yates into the Seven Rivers formation?

A Yes, sir, I think that is a reasonable conclusion.

Q Do you plan to squeeze those perforations?

A No, sir, we plan to run a liner and to cement the liner.

Q Now, as I understand it, your plan of completion -- do you plan to squeeze those perforations?

A No, sir, we plan to run a liner and cement the liner.

Q Now, as I understand, you will complete your well for injection for disposal purposes with tubing internally?

A Yes, sir.

Q Will you set a bridge plug or some other --

A The tubing will be set on a packer, yes, down in the liner.

Q And will you fill the casing tubing with inner fluid from a pressure gauge from the surface?

A Yes, sir.

Q But as I understand your plan of completion, your liner will be your only protection between the casing tubing annulus and the Yates perforations?

A Yes, sir.

Q Will that be cemented into place?

A Yes, sir, that will be cemented.

Q As I understand, you inject approximately 1000 barrels per day?

A Yes, sir.

Q What pressure do you anticipate will be required?

A I anticipate that it will be less than 1200 pounds which is the existing injection pressure on the Texaco wells. They are going into Yates and Seven Rivers, and, of course, we hope to encounter the more porous and permeable reef section; and we anticipate somewhat less than that, but it may be similar pressure to Texaco.

Q Would you have any objection, Mr. Olson, to a

provision in the order which would restrict you to not to exceed 1200 pounds pressure?

A Yes, I would, inasmuch as they are injecting at 1200 pounds,I think that would be a little close limit.

Q Well, could you suggest a limit which you think might be reasonable?

A We propose to purchase a pump that would set up for approximately 1500 pounds.

Q Would you object to a limit of 1500 pounds?

A No, sir.

Q You would not?

A No, sir.

Q Now, I understand from your testimony, and I haven't examined your exhibits, you propose to drill into what you refer to as massive reef formation?

A Yes.

Q What is the top of that portion of the formation?

A A depth in our proposed well?

Q Yes, sir. I am talking about the massive reef formation.

A Well, as projected on the cross section, which of course, only considers the Shell-Sinclair Federal, it would be approximately 3800. So we would have, roughly, 50 feet of it. Now, there are additional reef stringers, such as the

producing wells in the field. We might, possibly, encounter above that point.

Q Now, you propose to inject in open-hole interval from 3800 to 3850 feet?

A No, sir, it will not be open hole. We propose to perforate the proposed perforated interval, it is not shown cross section; in other words, we don't know where these reef stringers or massive reef sections will be. We will run a log after the deepening is completed and the injection will be below the original estimated water level at twenty feet subsea.

Q Is it then your testimony that you will inject in the first property that you will encounter below twenty feet subsea?

A No, sir, we plan to deepen the well 3850 and we will inject into the massive reef if it is there. Of course, if it is not there we will inject into the reef porosity -- some reef porosity that we find below the original water level.

Q Which will be minus twenty?

A Yes, sir.

Q So you may then inject at a point approximately minus twenty?

A Yes, sir, that is possible.

Q Now, the massive reef formation which you propose to

inject into, in your opinion, is in communication with the upper portion of the Seven Rivers formation?

A Yes, sir, I believe it is in communication. It may not be in this particular well board, but somewhere in the reef section, I believe they are in communication as evidenced by the water production and apparent water drive that exists in the Seven Rivers section.

Q Actually, the entire Seven Rivers formation is pretty well saturated with water at this time?

A Yes, sir, I believe that is correct.

Q So your water contact, if there is such a thing, is considerably higher than minus twenty?

A Yes, sir, higher than minus twenty.

MR. KELLAHIN: Thank you, Mr. Olsen.

MR. NUTTER: Mr. Olsen, I am still looking for that other Texaco injection. Now, I see a No. 11 there in Section 34, the No. 11 would be the Southwest of the Northeast, and the other injection well --

A It is my understanding that it is the Northeast of the Southeast.

MR. NUTTER: Now, do you know the interval that Texaco is using for disposal?

A No, sir. It is my understanding that they have one

MR. NUTTER: Are there any other questions of Mr. Olsen?

You may be excused.

(Witness excused)

MR. KELLAHIN: We have another witness in this case.

(Witness sworn)

RALPH L. GRAY,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please, and what business are you engaged in?

A Ralph L. Gray, Consulting Engineer.

Q Where are you located?

A Artesia, New Mexico.

Q In connection with your business, as a consulting engineer, you have testified before the Oil Conservation Commission of New Mexico and made your qualifications a matter of record?

A Yes, sir.

Q Mr. Gray, have you done any work for William A. and Edward R. Hudson, in connection with Case No. 4136, presently

before the Commission?

A Yes, sir, I have.

Q You have heard the testimony of Mr. Olsen in this case and have heard him state that the well was fractured in the east formation reformation, do you agree with that?

A Yes, sir.

Q On what would you base your conclusion in this regard?

A Well, the fact that the well after fracturing, has made larger quantities of water.

Q Do William A. and Edward R. Hudson have a well producing in the vicinity of the proposed injection well?

A Yes; it's diagonally offsetting the proposed injection well.

Q What formation is it producing from?

A From the Yates side.

Q Is it presently producing?

A Yes, sir.

Q Does it make any large volume of water?

A No, sir, it makes very small amounts, less than a barrel a day.

Q Do you, as an engineer, have any concern that the use of the Mallard Petroleum Well for injection purposes will cause any damage to the Hudson well?

A Yes, sir, there are some aspects to the proposed plan that we are quite concerned about.

Q With reference to what has been marked as Exhibit No. 1 in this case, will you discuss, for the benefit of the Examiner, the basis for your concern?

A Rather than proceed from a line of questioning, it might be more helpful for me to just comment on this thing and bring out some of the points that we think might be weak points in the plan.

Exhibit 1 is a diagrammatic sketch showing the Mallard Milner No. 4 proposed injection well and the Hudson Federal No. 1 well. The perforations in the Mallard well are indicated on the sketch. The casing is indicated on the sketch, although we are a little bit unsure of the casing point. It seems like we have some conflicting information on the casing point, but that's not too important, I don't think. The present total depth of the Mallard well is indicated on the sketch; that depth is 3737. The minus twenty-foot datum is indicated on the sketch by this yellow horizontal line, which appears at a depth of 3758 feet, I believe. And then the estimated maximum depth, the well may be deepened to, is indicated on the sketch at 3850 feet. Also, we have consulted the Gamma Neutron Laws on the well, which the applicant has

furnished us and we have shown the location of two of the Yates Sands on the diagrammatic sketch; they are indicated by the yellow coloring. The top of the dolamite Seven Rivers reef formation is shown on the diagrammatic sketch and this occurs at a point of, roughly, about 3717 feet, I believe.

Now, the Hudson Federal Well is shown on the same depth scale as the Mallard Well, although there is some, I think, eight feet difference in elevation. The Hudson Well is eight feet higher in elevation so if we wanted to plat this on a datum we would raise everything on the Hudson schedule to eight feet. This has been shown on the same depth scale as the Mallard Well. The location of the casing on the Hudson Federal Well is at 3680 feet. This Well was originally drilled to a depth of 3734, which was estimated to be just short of any reef porosity. It was plugged back to a depth of 3722 and the information that we have indicates that pay occurred at 3708 to 3715; so the Hudson Well is producing from a Yates Sand, which is the basic or basal sand in the Yates, just before going to the reef dolamite. Now, we have also indicated on this sketch a red line which extends from the perforations in the Mallard Well down into the reef section and it is designated as communication. So this may represent fractures that exist in the formation due to the frack job, or it could

possibly be a failure of cement behind the pipe; but at any rate, that represents the line of communication that exists from the reef formation up as high as the upper perforations. Now, you will note that this extends over the oil sands from which the Hudson Well is producing. Now, there is a little uncertainty in my mind as to the applicant's intent in that the application states that this well will be deepened to a porosity below a minus twenty-foot datum. Now, conceivably they may deepen it just a few feet, a minus twenty, or they say they may go to 3850 feet. But I would like to state, first of all, that the original oil-water contract -- if it were a minus twenty-foot datum, we don't know what it was, but even assuming that the original oil contract was logged at this minus twenty-foot datum, that really has no bearing at all on the well condition. Whether or not there will be any chance for the entry of water here to go up and come into the Yates Sands section, which the Hudson Well is producing from at the present time, the reef dolamite is highly saturated with water, and I believe the check of some of the well production figures will indicate that most of these wells produced in the neighborhood of 96% water or greater; so this is highly saturated and, of course, this is in a stage of completion at the present time. Now, our concern

is that water will be injected into the reef -- the Seven Rivers reef formation, and will find its way back into this line of communication and get back into this sand from which the Hudson Well is producing. We think, first of all, that it's very difficult to get a successful liner job, really, in this type of formation. Now, we have knowledge of operations that have been conducted in the Wilson Pool by the Wilson Oil Company, which is not very far from this pool and a similar-type reservoir, and over the years they have had quite a deepening program. I think practically all of their wells have been deepened to some extent. They have set several liners and in some cases they have had to go back and resqueeze several times, and it is my understanding that they consider right now it is practically impossible to effectively shut up anything in the reef by means of a liner. Now, I am not stating that you cannot, but I am merely pointing out the hazards and the difficulties involved.

One of the reasons that it is so hard to get a successful cement job, in a liner, in a reef formation, is the fact it is difficult to prevent any fluid movement. If you don't have quite enough fluid head on the well at the time, you cement the liner in the hole, well, then, there is going to be a tendency for movement to come from the reef back into

this well bore and act against this cement and tend to move it. If you have too much head, there is a tendency to cause the flow to be in the opposite direction and you will push on the cement behind the liner and tend to push it out into the formation. That is just one of the mechanical difficulties involved in setting a liner in this type of formation. Now, we are not stating that you cannot get a successful liner job, but we do want to point out that it isn't something to be taken for granted, that by just cementing a liner in a hole you are going to effectively shut off everything in the area.

Now, the second thing we are concerned about is that we feel if the applicant went deep enough to encounter porosities that is not connected with the top reef formation, he may have a reasonable chance of injecting water into this segregated sand without affecting the reef formation up here (indicating with a pointer on a map in front of the Commission). In that case that might be a proper disposal plan. But if he injects water into any zone of porosity that has connection with this top part of this reef formation, well, then, you can readily see that this water has access to the oil sands from which the Hudson well is producing. Now, one of the things that bothers me a little is, the applicants state they don't intend to squeeze these perforations here. They are merely going to cement a liner

up into here. So, I think the cement might shut off the perforations and the liner. Certainly, it is not going to shut off effectively its own communication that exists over the sand base. I think that the least we should do is to squeeze this thing and that might not be successful, but at least that's the best you can do, is to try to squeeze this zone of communication off before you try to inject.

Mr. Kellahin, I think, will explain later why we are so concerned about the protection of the Hudson well. This well is a small producer; it makes only about three to six barrels of oil a day. But there are some other aspects involved that make this well very valuable to the Hudsons. And we think that it is very necessary that this thing be done mechanically, in such a way that there will be no chance for water to travel from the reef dolamite, come back up into this sand, and probably flood out the well and cause expiration of the lease.

That's all I have.

MR. NUTTER: Are there any questions for Mr. Gray?

MR. HATCH: I believe not, but we would like to put Mr. Olson back on the stand.

Cross

BY MR. NUTTER:

Q Your well is producing from an open-hole interval there?

A That's right.

Q And all of the open holes would be above the top of the reef?

A Yes.

Q I presume where you have got your top of the reef line bent there, that you are dropping down below your flood back total depth?

A The one thing, as I explained, you see this well is about eight feet higher in elevation. If we were going to plat this thing on a common datum, we would shift everything up about eight feet so it would make it slightly bent down but not the degree shown here.

Q So, all of your production is coming from the Yates? That's the only interval that is open in your well -- no Seven Rivers?

A Yes.

Q Is yours the only well producing solely from the Yates Pool in this area?

A Well, I haven't made a study of the Lynch Pool -- a detailed study -- I know at times there have been many other wells that produce from the Yates Sand and at this time I can't really say.

Q What I was wondering, is your well the only Yates well that was not making water?

A I can't say; I haven't made a study.

Q Then you don't know if Yates well might be making water?

A No, sir.

Q You don't know if they are not making water?

A No, sir.

Q Are you acquainted with whether the Texaco wells to the west were authorized for injection with the Yates or the Seven Rivers?

A We are not familiar with that. We are going to check into it more thoroughly, and it's possible that we will want to have some kind of meeting with Texaco on this thing. Very often -- let me put it this way --very recently we have encountered conditions in water injection operations in other areas in which problems are developing due to high injection pressures; and we very recently had a meeting with one of these companies that are operating a very high injection pressure. As a result they had run some surveys and we have got together again and had a closer meeting of the minds on this thing. But very often when we start injecting water into the ground we kind of forget the thing and lose sight of what is happening. There is a limit to maximum pressure in most cases that should be applied against the formations. Quite often there is nothing in the orders to set out a maximum

so, maybe, somebody in the area might want you to handle their water and you will start trying to put that water into the ground and the first thing you know you are trying to cram much more volume into the well than you originally planned, and that's the sort of thing that can cause problems.

Q I gather from your testimony and from the questions from Mr. Kellahin that you suggest, at least, that these perforations should be squeezed?

A I think the perforations definitely should be squeezed here and then, secondly, I think the applicant should go deep enough to get into some type of porosity that is not connected with the upper reef.

Q Well, now, he mentioned during his direct testimony that he was going to the top of this massive reef --

A I understood from his testimony that he may not go into it, too, if they have porosity below minus twenty and the log doesn't show some massive reef they will still inject into it.

Q Then your other suggestion, I gathered from Mr. Kellahin's question, there will be some kind of a limitation placed on the pressure?

A Yes, sir.

Q What is your feeling as far as maximum pressure?

A I think 1500 is definitely the highest you should go.

MR. NUTTER: Are there further questions to be asked of Mr. Gray? You may be excused.

(Witness excused)

MR. HATCH: We would like to put Mr. Olson back on the stand.

HOMER OLSON, JR.,

having been recalled, testified further as follows:

CROSS EXAMINATION

BY MR. HATCH:

Q You have heard the testimony of Ralph Gray on behalf of William and Edwin Hudson?

A Yes, sir.

Q Will you refer to Exhibit No. 4 again and explain how you intend to complete this well as far as running a liner is concerned and cementing to the total depth which you drill?

A Yes, but I would like to explain this proposed completition installation again.

We do propose to drill 3850. As shown on the cross section, we anticipate to encounter massive reef in drilling into approximately fifty feet; however, in the event that the massive reef is absent, we would propose to inject into the reef -- the Seven Rivers reef porosity, somewhere below the estimated original water level of minus twenty. But we do

fully propose, and I believe have stated, that we will drill to 3850. The liner will be set the total depth. It will be cemented --

Q You mean by cemented, you will circulate the cement --

A On top of the liner, yes.

Q Will any tests be made in that connection?

A The top of the liner will be tested when it is drilled out, yes, sir. If it is shown to be leaking, then it will be squeezed. I would like to cover one point, Mr. Gray has suggested in his exhibit that he is fearful that the water might move from the Seven Rivers reef section through possible then existing communication in our proposed injection well; and I believe he is suggesting that it might move through the Yates Sand so as to water out his well. In my opinion, in judging the performance on these wells and the need for fire treatment on completion, that I would have serious doubt as to the ability of Yates to transmit this water from this porous and resection through the Yates --

Q Is that due to the fact that the Yates formation is a tight --

A Yes, it is tight, and by comparison --relative comparison--I would say the permeability is considerably lower than that found in Seven Rivers Reef section -- as judged

from performance.

Q Do you have any further comments with respect to completion of the proposed injection well or with respect to Exhibit No. 1 of Hudson?

A No, sir, no more comments with respect to the exhibit. We do, as I would like to repeat, intend to drill to 3850 in an effort to encounter the massive reef section. We will try to complete as low as possible in the porous interval that is encountered; however, we don't know what will be encountered inasmuch as there are no nearby wells that depth other than the ones on the cross section.

Q I believe you stated you would run an electrical log?

A We will run a gamma ray neutron.

Q For the purpose of determining the porosity -- where your porosity is, you will perforate into that porosity?

A Yes, sir, below the original estimated water level.

Q In your opinion, by injecting water below the original water level, could it possibly interfere with any of these other wells?

A No, sir. In my opinion, the water will not migrate through this Yates section so as to endanger the Hudson well. The water will be confined to the reef section.

MR. HATCH: I think that's all we have.

BY MR. NUTTER:

Q Mr. Olson, the number was mentioned, but I didn't write it down. What was the depth in this well, this minus twenty?

A That would be 3757. Check the elevation on ours, I believe it would be, yes, 3757. Excuse me, I am going to get a log so I will be sure. It will be 3758; that is the correct figure, 3758.

Q Do you know whether other Yates wells exist in the pool or not; is everything producing from the Seven Rivers, or just what is the status of the production?

A There are Yates in Seven Rivers. Our two wells are producing from the Seven Rivers.

Q Do you know if other wells are exclusively producing from the Yates, other than this one well?

A It is my understanding that the Burke Royalty wells to the northeast there are all producing from the Yates.

Q Do you know if these wells make water or not?

A They had one well that made a light amount of water and I believe that was shut in. That was the Neel No. 3.

Q So as far as you know -- is it true that the Yates is relatively water free in this pool?

A Yes, sir, I believe that is correct.

Q 'The wells that are making water are the Seven Rivers wells?

A Yes, sir, that is correct.

Q Now, why was it that Texaco shut you out as far as disposal into their wells?

A They did not have the capacity in their disposal system to handle our water.

Q Was it a matter of reaching maximum capacity as far as pressure was concerned?

A Yes, sir.

Q Now, one of the wells -- is a Seven Rivers well and the other is a Yates well?

A Yes, sir.

Q Are they getting approximately equal volume into both of those wells?

A I can't testify as to that. I don't know.

Q Well, you stated you thought that the Yates would probably be so tight that it would prevent migration of water from your well over to the Hudson well. It is rather usual that there is a vast amount of permeability in the Seven Rivers formation --

A Yes, sir.

Q You say it is usual?

A Yes, sir.

Q But the Yates is characteristically tight?

A Yes, sir.

MR. NUTTER: I believe that's all.

Are there any questions for Mr. Olsen?

You may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: I have nothing; but I would like to make a brief statement. I think the problem involved here is quite clear and there are just differences of opinions as to the effect of injecting water into this particular well. My real concern is based on the fact that as the applicant's witness testified, in fracking the Yates formation they did frack into the Seven Rivers and, as a result, produced large volumes of water from the Yates. This only indicates that there is a line of communication open, as Mr. Gray has testified, between the Yates formation and the Seven Rivers formation, and it is rather obvious that if large volumes of water is put into the top of the Seven Rivers formation there is a grave danger that it will migrate up through these fractures and into the Yates formation, and water out the Hudson well.

Another point of concern, as Mr. Gray has testified, is that the Hudson well is not a big producer, but it is, however, at the present time holding a large lease. We don't intend to hold this lease indefinitely for this particular well; Hudson and Hudson are presently working on an arrangement whereby this lease will be drilled, but meanwhile, they are very much concerned that if this well is watered out, as they fear it might be, they will lose their lease. So we are very much concerned over the situation of putting water in a well fractured into the Yates as this one is, so close to their producing well. If the Commission does see fit to grant the application we would suggest, and we do want to make it clear we realize they have a water problem and, we only ask that they drill deep enough to get into a porous formation. We also ask that the perforations be squeezed and that a maximum pressure of 1500 pounds be included in the order, limiting them to a pressure of 1500 pounds in injection pressure. I think they have already testified to this.

That is all I have. Thank you.

MR. HINKLE: I think the gist of the testimony of Mallard is that this well is going to be cautiously completed as injection wells. And they are going to take every precaution possible to prevent communication from water backing

into the Yates zone. Their whole case of protest is based on speculation that they might not be able to complete this by a liner which would effectively seal off this formation; that is pure speculation. I think that Mallard has considered this type of completion and considered it to be effective and will do the job. And the liner will be effectively cemented and with cement circulated to the top, and the liner will be set to the bottom of the hole and an electrical log will be run first to determine the zones of porosity and permeability. And water will be injected into those zones. I think it just appears that they might not be able to complete the well so it would effectively shut off the formation. And we have no objection to putting in the order of provisions to the effect they will not exceed 1500 pounds of pressure. Of course, Mallard, due to the fact their production has been shut in since the middle of May, is anxious that this matter be considered promptly by the Commission and that the order be gotten out as quickly as possible so they can get their well back on production.

Just for the record, I would like to state that the Hudson well is holding a lease for 2,000 acres.

MR. NUTTER: Does anyone have anything further to offer in Case 4136? If not, we will take the case under advisement; and the hearing is adjourned.

I N D E X

E X H I B I T S

STATE OF NEW MEXICO)
)
COUNTY OF BORNILILLO)

I, KURLEEN E. McCUTCHEN, a Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing is a record of the proceedings had before the New Mexico Oil Conservation Commission, on June 13, 1969; that the same was reported by me; and that the same is a true and correct record, to the best of my knowledge, skill and ability.

Kurleen E. McCutchen
NOTARY PUBLIC

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

June 4, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Mallard Petroleum Company for salt water disposal, Lea County, New Mexico.

Case 4136

BEFORE: DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

MR. HATCH: Case 4136, continued and readvertised, application of Mallard Petroleum Company for salt water disposal, Lea County, New Mexico.

This Case 4136, it has been necessary to readvertise this Case to change the disposal interval and readvertise for June 13.

MR. NUTTER: Case 4136 will be continued to the Commissioner Hearing in Morgan Hall of this Building on June 13, at 9 o'clock or to an Examiner Hearing in this room at 9 o'clock A. M. June 13, 1969. We will call next Case 4145.

STATE OF NEW MEXICO)
) SS.
COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, 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.

Samuel R. Mortelette

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4136 heard by me on 6-4, 1969.

Examiner
New Mexico Oil Conservation Commission

IN THE MATTER OF:

Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico.

Case 4136

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

May 21, 1969

EXAMINER HEARING

MR. UTZ: Case 4136.

MR. HATCH: Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico.

This case has already been readvertised for June 4, I recommend that it be continued to June 4, but on June 4, it will also have to be continued and readvertised for June 13, because the Applicant has received an objection for the disposal.

MR. UTZ: Case 4136 will be moved to June 4, at which time it will be continued to June 13.

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, CA FENLEY, 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.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4136 heard by me on Nov. 21, 1969.

Examiner
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

June 13, 1969

Mr. Clarence Hinkle
Hinkle, Bondurant & Christy
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Re: Case No. 4136
Order No. R-3779
Applicant:
Mallard Petroleum, Inc.

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 Mr. Jason Kellahin and
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. 4136
Order No. R-3779

APPLICATION OF MALLARD PETROLEUM, INC.,
FOR SALT WATER DISPOSAL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 13, 1969, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 13th day of June, 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 the applicant, Mallard Petroleum, Inc., is the owner and operator of the Milner Federal Well No. 4, located in Unit C of Section 35, Township 20 South, Range 34 East, NMPM, Lynch Pool, Lea County, New Mexico.

(3) That the applicant proposes to deepen said well to approximately 3850 feet and to utilize the well to dispose of produced salt water into the Lower Seven Rivers formation, with injection into selected perforated intervals below the estimated original oil-water contact at 3758 feet.

(4) That injection should be limited to that portion of the Lower Seven Rivers formation between a point 20 feet below

the aforesaid estimated original oil-water contact and the expected new total depth of approximately 3850 feet.

(5) That a 4-inch liner should be installed in said well extending from 3500 feet to the new total depth and that cement should be circulated on said liner.

(6) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 3550 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

(7) That an administrative procedure should be provided to permit deepening said well in the Seven Rivers formation beyond 3850 feet if insufficient porosity has been encountered to that point.

(8) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Mallard Petroleum, Inc., is hereby authorized to deepen its Milner Federal Well No. 4, located in Unit C of Section 35, Township 20 South, Range 34 East, NMPM, Lynch Pool, Lea County, New Mexico, to approximately 3850 feet, and to utilize said well to dispose of produced salt water into the Lower Seven Rivers formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 3550 feet, with injection into selected perforated intervals between 3778 feet and total depth.

(2) That a 4-inch liner shall be installed from 3500 feet to total depth, and cement circulated around said liner;

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 casing, tubing, or packer;

PROVIDED FURTHER, that the Secretary-Director of the Commission may authorize deepening said well in the Seven Rivers formation below 3350 feet if insufficient porosity to permit disposal of produced salt water has been encountered to that point.

(3) That the applicant shall submit monthly reports of its disposal operations 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

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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

esr/

Docket No. 16-69

DOCKET: EXAMINER HEARING - WEDNESDAY - JUNE 4, 1969

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

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

CASE 4121: (Continued from the May 7, 1969, Examiner Hearing)
Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

CASE 4143: (Continued from the May 21, 1969, Examiner Hearing)
Application of Amerada Petroleum Corporation for downhole commingling and special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Eumont Gas Pool and the Skaggs-Grayburg Pool in the wellbore of its Fred Turner, Jr., "A" Well No. 2, the Eumont completion of which is presently classified as a gas completion, located in Unit K of Section 18, Township 20 South, Range 38 East, Lea County, New Mexico. Applicant, further seeks the establishment of a special gas-oil ratio limitation for the subject well.

CASE 3796: (Reopened)
In the matter of Case No. 3796 being reopened pursuant to the provisions of Order No. R-3452, which order established 160-acre spacing units for the Cerca-Upper Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre or 80-acre spacing units.

CASE 4093: (Reopened)
Application of BTA Oil Producers for salt water disposal, Lea County, New Mexico. Order No. R-3727, dated April 15, 1969, authorized the applicant to dispose of produced salt water into the Devonian formation in the intervals from approximately 12,233 feet to 12,275 feet in its Max Pray State "E" Well No. 1 and from approximately 12,088 to 12,164 feet in its Max Pray State "E" Well No. 2 located, respectively, in Units F and C of Section 5, Township 10 South, Range 36 East, adjacent to the West Crossroads-Devonian Pool, Lea County, New Mexico. Applicant now seeks authority to extend said Devonian zones of disposal to 12,233 feet to 12,500 feet in said Well No. 1 and 12,088 feet to such depth as is necessary in said Well No. 2.

CASE 4144: Application of Sam G. Dunn Oil Operations for salt water disposal, Chaves 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 1910 feet to 1950 feet in its E. Faircloth "C" Well No. 1 located in Unit N of Section 32, Township 7 South, Range 27 East, Acme-San Andres Pool, Chaves County, New Mexico.

CASE 4135: (Continued and readvertised)
Application of Mallard Petroleum Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers formation in the open-hole interval from approximately 3700 feet to [illegible] in the Milnes Federal Well No. 4, located in Unit C of Section [illegible], Township 20 South, Range 34 East, Lynch (Yates) Pool, Lea County, New Mexico.

CASE 4145: Application of Tenneco Oil Company for an exception to Order No. R-3221, as amended, Lea and Eddy Counties, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for applicant's Rusk Field leases comprising the SW/4 NW/4 of Section 19, Township 18 South, Range 32 East, Lea County, New Mexico, and the NE/4 of Section 24, Township 19 South, Range 31 East, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells completed on said leases in unlined surface pits on said leases.

CASE 4146: Application of V. S. Welch for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the applicants lease comprising the NE/4 of Section 28, Township 18 South, Range 31 East, Shugart Field, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells completed or to be completed on said lease in unlined surface pits on said lease.

CASE 4147: Application of Mobil Oil Corporation for pool reclassification, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to have the North Vacuum-Morrow Pool, Lea County, New Mexico, reclassified from an oil pool to a gas pool.

CASE 4148: Application of Fannie Lee Mitchell, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Wolfcamp formation in the perforated interval from approximately 10,450 feet to 10,550 feet in the former Southern Petroleum Exploration Co., Inc. Machris State 36-3 Well No. 1 located in Unit W of Section 3, Township 16 South, Range 35 East, Townsend-Wolfcamp Pool, Lea County, New Mexico.

CASE 4149: Application of Jack L. McClellan for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for applicant's Harris Well No. 1 located in Unit P, Section 5, Township 16 South, Range 30 East, West Henshaw-Grayburg Pool, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by said well in unlined surface pits in the vicinity of the well.

Docket No. 17-69

DOCKET: REGULAR HEARING - FRIDAY - JUNE 13, 1969

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

ALLOWABLE: (1) Consideration of the oil allowable for July, 1969;

(2) Consideration of the allowable production of gas for July, 1969, from fourteen prorated pools in Lea, Eddy, Roosevelt and Chaves 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 July, 1969; also presentation of purchaser's nominations for the six-month period beginning August 1, 1969, for that area.

CASE 4017: (De Novo) (Continued from the May 14, 1969 Regular Hearing) Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying Section 8, Township 21 South, Range 24 East, North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled in the SE/4 of said Section 8. 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. Upon application of David Fasken, this case will be heard De Novo under the provisions of Rule 1220.

CASE 4043: (De Novo) (Continued from the May 14, 1969, Regular Hearing) Application of David Fasken for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying Section 8, Township 21 South, Range 24 East, North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled 1980 feet from the North line and 2105 feet from the East line of said Section 8. 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. Upon application of David Fasken, this case will be heard De Novo under the provisions of Rule 1220.

CASE 4088: (De Novo)
Application of Paul M. Mershon, Jr., for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Upper Pennsylvanian formation underlying Section 21, Township 22 South, Range 23 East, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled at an unorthodox gas well location 990 feet from the North and East lines of said Section 21, and within one mile of the Indian Basin-Upper Pennsylvanian Gas Pool. 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. Upon application of Marathon Oil Company, this case will be heard De Novo under the provisions of Rule 1220.

CASE 4089: (De Novo)
Application of Paul M. Mershon, Jr. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the special rules and regulations governing the Indian Basin-Upper Pennsylvanian Gas Pool to permit the drilling of a well at an unorthodox gas well location 990 feet from the North and East lines of Section 21, Township 22 South, Range 23 East, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Upon the applications of Hanagan Petroleum Corporation, Robert N. Enfield, and Marathon Oil Company, this case will be heard De Novo under the provisions of Rule 1220.

CASE 4150: Southeastern nomenclature case calling for an order for the creation and extension of certain pools in Lea and Chaves Counties, New Mexico.

(a) Create a new pool in Chaves County, New Mexico, classified as an oil pool for Mississippian production and designated as the Lone-Mississippian Pool. The discovery well is B.W.P., Inc., General American Federal No. 1 located in Unit E of Section 7, Township 7 South, Range 31 East, NMPM. Said pool described as:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
SECTION 7: NW/4

(b) Extend the vertical limits of the North Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include all of the "Bough" zones (entire Cisco formation of the Pennsylvanian) in the interval from 9590 feet to 9979 feet on the log of the Pan American Petroleum Corporation State DL Well No. 1 located in Unit L of Section 13, Township 13 South, Range 32 East, NMPM.

(Case 4150 continued)

(c) Extend the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 13 SOUTH, RANGE 33 EAST, NMPM
SECTION 32: SE/4

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

(d) Extend the North Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 13 SOUTH, RANGE 32 EAST, NMPM
SECTION 24: E/2
SECTION 25: N/2
SECTION 26: NE/4

(e) Extend the Fowler-Devonian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 37 EAST, NMPM
SECTION 10: E/2 SW/4

(f) Extend the Hobbs-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
SECTION 32: NE/4

(g) Extend the Justis-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
SECTION 23: SW/4

(h) Extend the North Paduca-Delaware Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 32 EAST, NMPM
SECTION 33: SE/4

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

(i) Extend the West RangerLake-Devonian Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 12 SOUTH, RANGE 34 EAST, NMPM
SECTION 34: S/2

(j) Extend the Scharb-Bone Springs Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
SECTION 7: SE/4

(k) Extend the Vada-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM
SECTION 25: SW/4

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM
SECTION 15: SE/4

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
SECTION 8: SW/4

* * * * * * * * * * * * *

THE FOLLOWING CASE WILL BE HEARD BEFORE THE COMMISSION OR
DANIEL S. NUTTER, EXAMINER

CASE 4136: (Continued and Readvertised)

Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Lower Seven Rivers formation below the estimated oil-water contact at 20 feet subsea in its Milner Federal Well No. 4, located in Unit C of Section 35, Township 20 South, Range 34 East, Lynch Pool, Lea County, New Mexico. Said well would be deepened to approximately 3850 feet, and disposal made into selected porous intervals below said oil-water contact through perforations in the liner.

Clarence Hinkle for Appl
Homer Olsen for V.P. & P.E.
Jason K for [illegible] Wm Hudson
Ralph [illegible]

Burk Royalty Co.

800 Oil & Gas Building
Wichita Falls, Texas 76301

Case 4136

April 29, 1969

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attn: A. L. Porter, Jr.

Re: Request for Authority to
Dispose of Salt Water,
Mallard Petroleum, Inc.

Gentlemen:

The Mallard Petroleum Company has requested permission to inject water into their Milner Federal well #4, Lea County, New Mexico. This well is located 990' from the North line and 1650' from the West line of Section 35, Twp. 20S, Rge. 34E, Lea County, New Mexico.

The Burk Royalty Co. objects to this well being used as a water disposal well in the zone quoted in their letter of April 25th, which is from 3606-3627', being the Yates Sand. The Burk Royalty Co. is the owner of a lease located in the NE/4 of Section 35 which is a direct offset to the subject well. All of our wells are completed in the Yates Sand. These wells do not produce any water, and we are presently negotiating with Phillips Petroleum Company to initiate a secondary recovery project.

This letter will serve as an objection, and we hope that the Commission will refuse Mallard Petroleum Company permission to inject into the Yates Sand.

Very truly yours,

BURK ROYALTY CO.

Tom Darling

TD:eb

DOCKET MAILED
Date 5-22-69

DOCKET MAILED
Date 5-9-69

for June 4th

Docket No. 15-69

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 21, 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 3405: (Reopened) (Continued from the May 7, 1969 Examiner Hearing)

In the matter of Case No. 3405 being reopened pursuant to the provisions of Order No. R-3081, which order established 640-acre spacing for the North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should or should not be developed on 320-acre spacing units.

CASE 4131: Application of Gulf Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice oil pools, Lea County, New Mexico, in the wellbores of six wells located as follows:

TOWNSHIP 21 SOUTH, RANGE 36 EAST

Arnott Ramsay (NCT-D) Well No. 6 - Unit K - Section 33
Arnott Ramsay (NCT-D) Well No. 7 - Unit M - Section 33
Arnott Ramsay (NCT-D) Well No. 8 - Unit N - Section 33
Arnott Ramsay (NCT-D) Well No. 9 - Unit L - Section 33
J. F. Janda (NCT-B) Well No. 4 - Unit O - Section 32

TOWNSHIP 22 SOUTH, RANGE 36 EAST

J. F. Janda (NCT-F) Well No. 8 - Unit C - Section 4

CASE 4132: Application of Pan American Petroleum Corporation for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for three wells located in Unit D, E, and P of Section 27, Township 18 South, Range 31 East, Shugart Field, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced in two unlined surface pits located in the E/2 of said Section 27.

CASE 4133: Application of Skelly Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Dollarhide Drinkard Unit Area comprising 3,533.52 acres, more or less, of Fee, Federal, and State lands in Townships 24 and 25 South, Range 38 East, Lea County, New Mexico.

CASE 4134: Application of Skelly Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its West Dollarhide Drinkard Unit Area by the injection of water into the Tubb-Drinkard formation through 43 wells located in Townships 24 and 25 South, Range 38 East, Dollarhide Tubb-Drinkard Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4135: Application of Roy E. Kimsey, Jr. for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the P. R. Bass-Federal Well No. 1 located in Unit F of Section 3, Township 16 South, Range 30 East, West Henshaw Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of produced salt water in an unlined surface pit located near said well.

CASE 4136: Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates formation in the interval from 3606 feet to 3627 feet in its Milner Federal Well No. 4 located in Unit C of Section 35, Township 20 South, Range 34 East, Lynch Pool, Lea County, New Mexico.

CASE 4137: Application of Atlantic Richfield Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the East Shugart Unit Area comprising 1359.40 acres, more or less, of Federal and State lands in Townships 18 and 19 South, Range 31 East, Eddy County, New Mexico.

CASE 4138: Application of Atlantic Richfield Company for a waterflood project and unorthodox injection well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Yates-Seven Rivers-Queen formations through 11 wells in Townships 18 and 19 South, Range 31 East, Shugart Pool, Eddy County, New Mexico. Applicant further seeks an exception to permit the drilling of one of said wells at an unorthodox location 100 feet from the South line and 990 feet from the West line of Section 35, Township 18 South, Range 31 East.

CASE 4139: Application of Allied Chemical Corporation for a unit agreement, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Milnesand (San Andres) Unit Area comprising 5370.18 acres, more or less, of Federal and Fee lands in Township 8 South, Ranges 34 and 35 East, Roosevelt County, New Mexico.

CASE 4140: Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Milnesand (San Andres) Unit Area by the injection of water into the San Andres formation through 33 wells located in Township 8 South, Ranges 34 and 35 East, Milnesand-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4141: Application of McCasland Disposal System for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers formation in the intervals from approximately 3756 feet to 3851 feet and from approximately 3918 feet to 3939 feet, respectively, in the Getty Oil Company N. H. Day Wells Nos. 1 and 2, both located in the NW/4 of Section 8, Township 22 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.

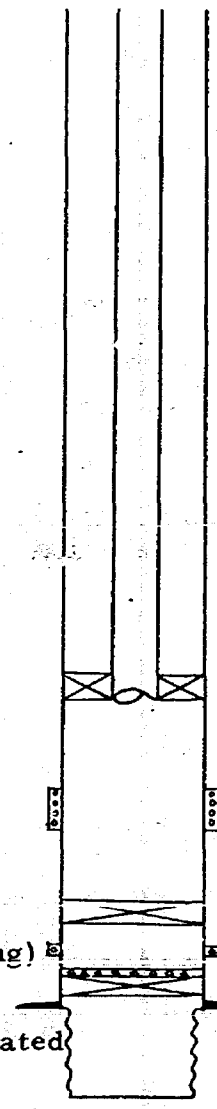
CASE 4142: Application of Tamarack Petroleum Corporation, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water by injection into the Queen formation in the interval from 4946 feet to 5040 feet in its Cabot 15 State Well No. 2 located in Unit P of Section 15, Township 19 South, Range 35 East, Pearl-Queen Pool, Lea County, New Mexico.

CASE 4143: Application of Amerada Petroleum Corporation for downhole commingling and special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Eumont Gas Pool and the Skaggs-Grayburg Pool in the wellbore of its Fred Turner, Jr., "A" Well No. 2, the Eumont completion of which is presently classified as a gas completion, located in Unit K of Section 18, Township 20 South, Range 38 East, Lea County, New Mexico. Applicant, further seeks the establishment of a special gas-oil ratio limitation for the subject well.

(Continued from the May 7, 1969 Examiner Hearing)

CASE 4121: Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

PROPOSED INSTALLATION



2-3/8" Internally Coated Tubing
Set on Tension Packer @ 3550'

Perforations:
3606'- 3627' (Open)

Cast Iron Bridge Plug Set @ 3650'

3672'- 3676'(Below Bridge Plug)

Cast Iron Bridge Plug Set @ 3690'
With 1 Sx Cement on Top

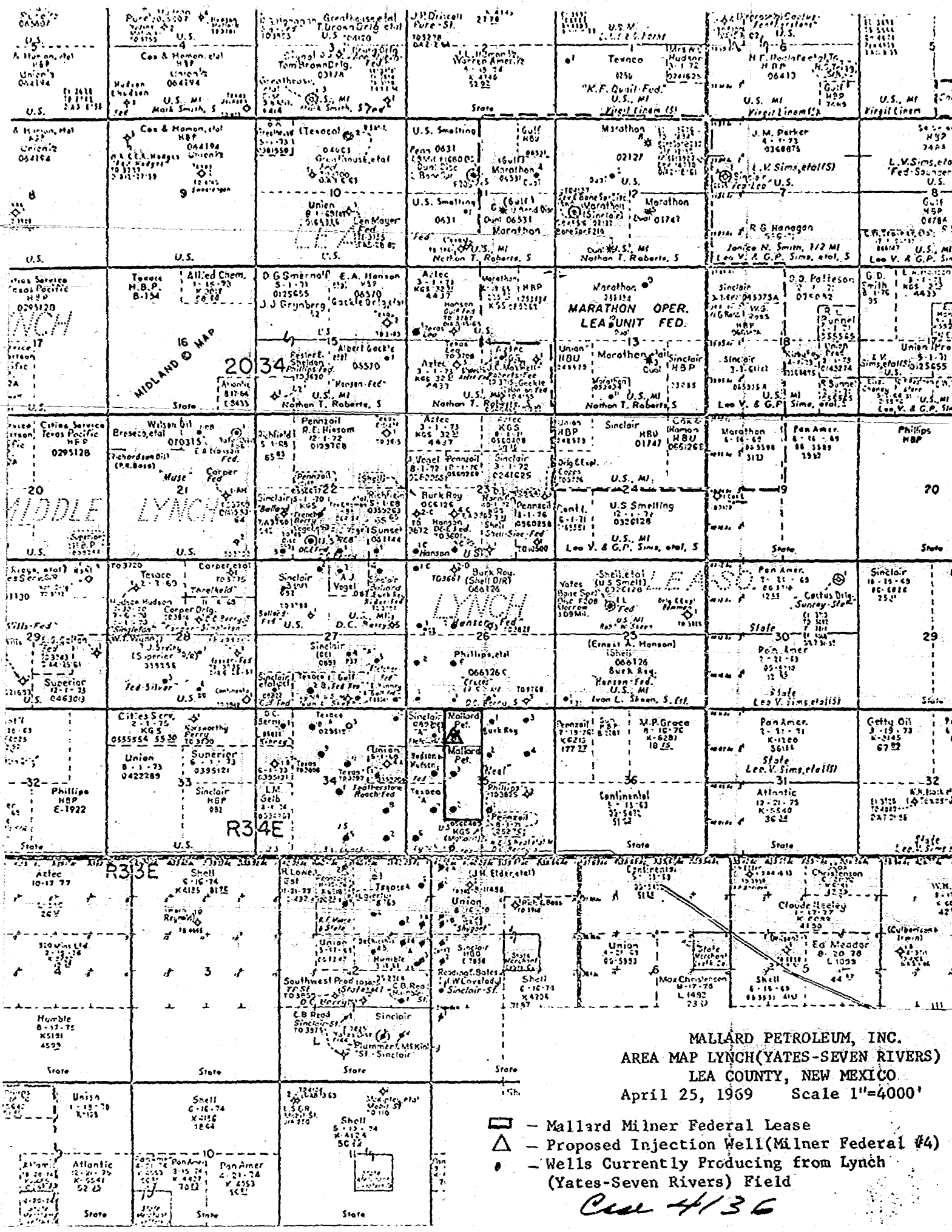
5-1/2" 14# Casing Set at 3700'
Cemented with 706 sx - circulated

4-3/4" Open Hole from 3700' - 3737'

3737' T. D.

MALLARD PETROLEUM, INC.
Milner Federal No. 4
Lynch (Yates - 7 Rivers) Field
Unit C - 35 - 20-S - 34-E
Lea County, N. M.

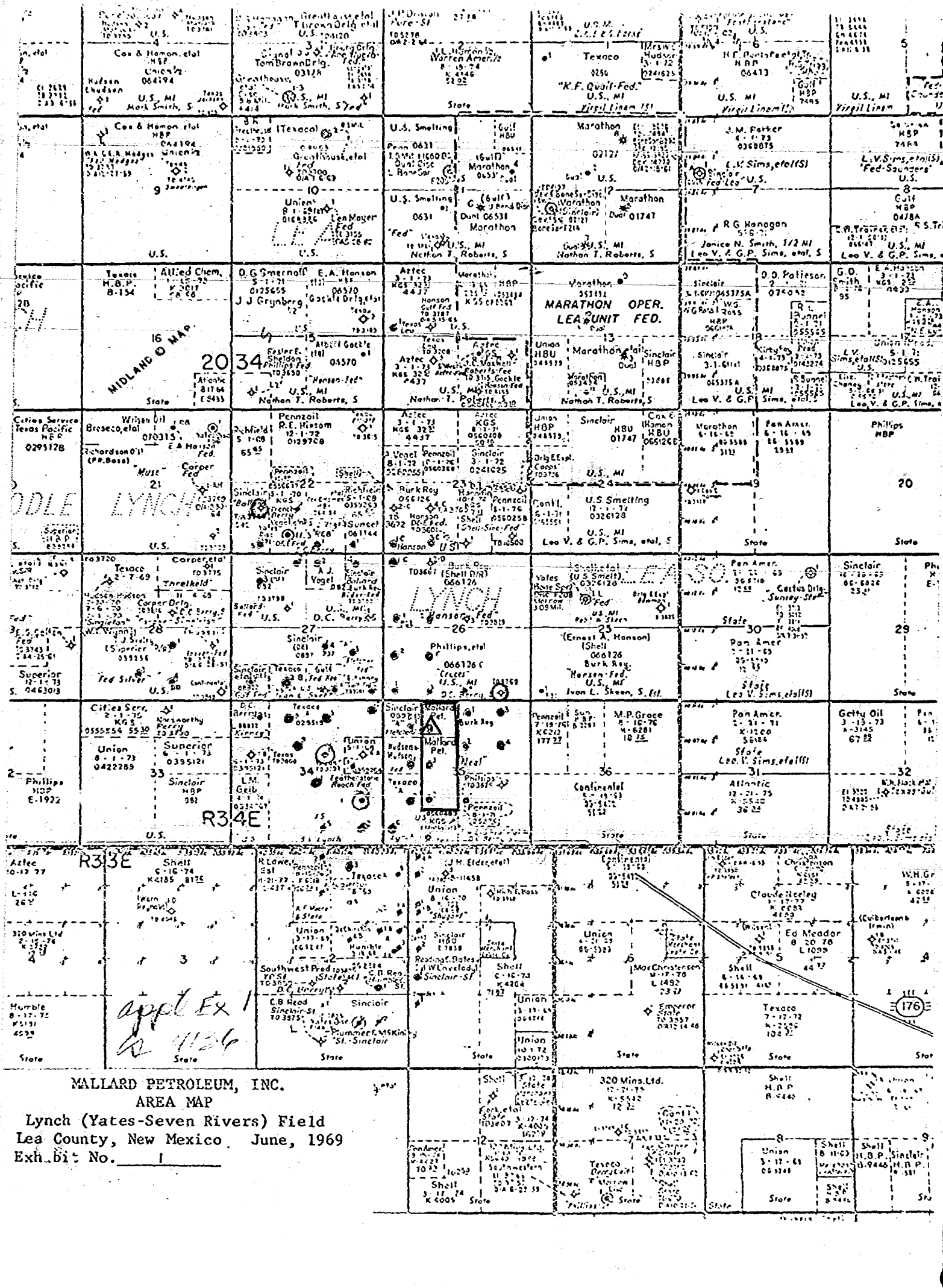
Case 4136



MALLARD PETROLEUM, INC.
AREA MAP LYNCH(YATES-SEVEN RIVERS)
LEA COUNTY, NEW MEXICO
April 25, 1969 Scale 1"=4000'

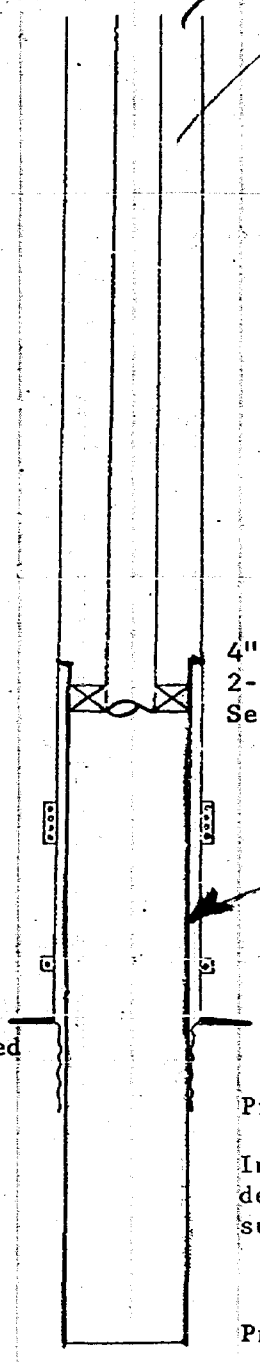
▭ — Mallard Milner Federal Lease
△ — Proposed Injection Well(Milner Federal #4)
• — Wells Currently Producing from Lynch (Yates-Seven Rivers) Field

Case 4136



MALLARD PETROLEUM, INC.
AREA MAP
Lynch (Yates-Seven Rivers) Field
Lea County, New Mexico June, 1969
Exhibit No. 1

PROPOSED INSTALLATION



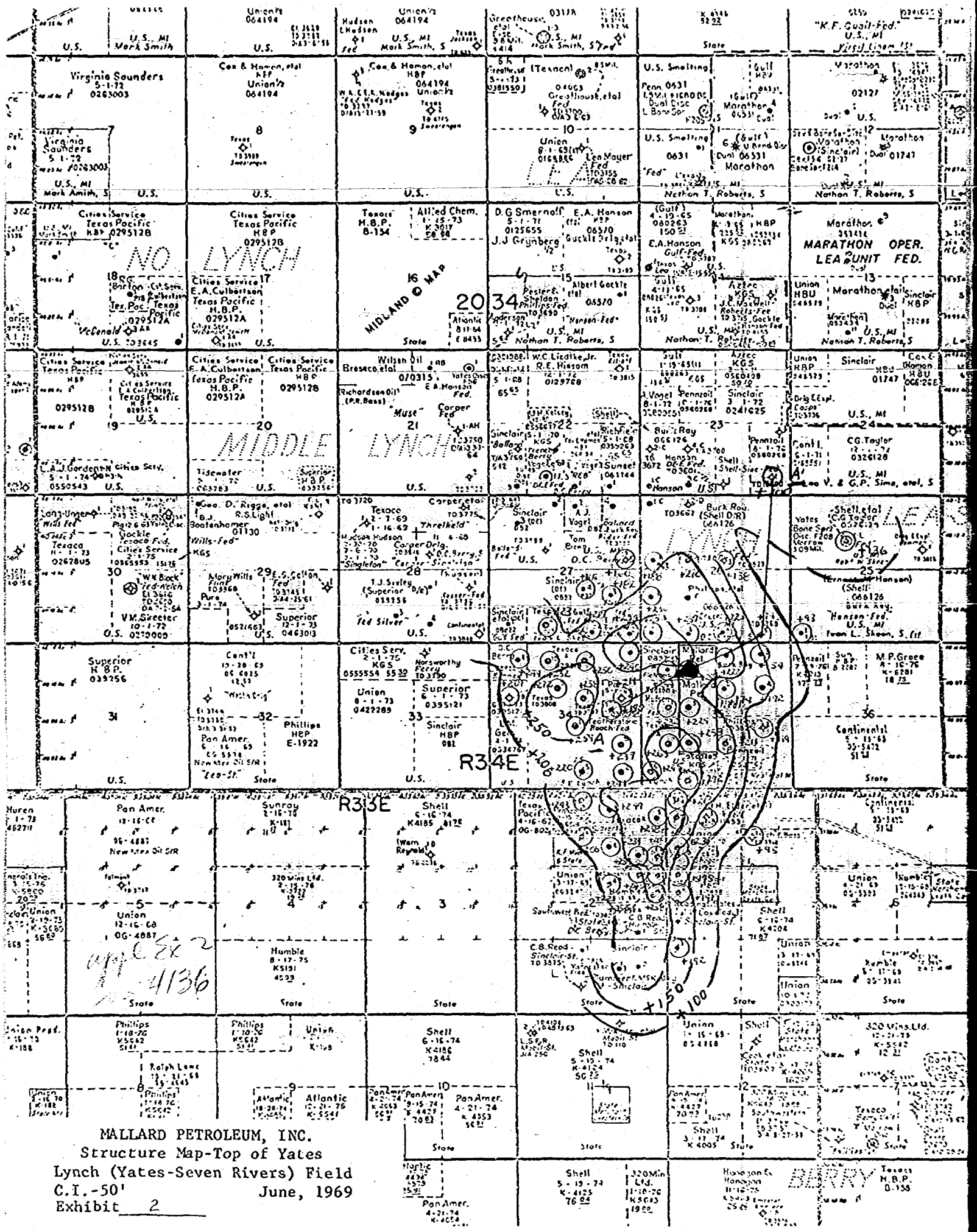
Present T.D. - 3737'

Injection zone to be determined after deepening completed but will be below 20', subsea

Proposed T.D. - 3850'

MALLARD PETROLEUM, INC.
Milner Federal No. 4
Lynch (Yates-Seven Rivers) Field
Unit C-35-20S-34E
Lea County, New Mexico

Exhibit No. 4



MALLARD PETROLEUM, INC.
Structure Map-Top of Yates
Lynch (Yates-Seven Rivers) Field
C.I.-50' June, 1969
Exhibit 2

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

APR 28 AM 7 17

Case 41/26

April 25, 1969

Area Code 915
PHONE MU 2-8217

Re: Request for Authority to Dispose
of Salt Water
Mallard Petroleum, Inc.-Milner Federal
Lease, Lynch (Yates-Seven Rivers) Field
Lea County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

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

Gentlemen:

Mallard Petroleum, Inc. respectfully requests authority to dispose of produced salt water in its Milner Federal No. 4 well, Lynch (Yates-Seven Rivers) Field, Lea County, New Mexico. The Milner Federal No. 4 well is located 990' FNL and 1650' FWL of Section 35, T-20-S, R-34-E, Lea County, New Mexico.

Attached are the following:

1. Area map showing the location of the proposed injection well, Mallard's Milner Federal lease, and the producing wells in the Lynch (Yates-Seven Rivers) Field.

2. Copy of the Gamma Ray-Neutron log on the proposed injection well.

3. Diagrammatric sketch showing the proposed installation in the Milner Federal No. 4 well.

We propose to inject produced water in the Yates through perforations 3606'-3627'. Current approximate production from the lease is 800 to 900 barrels of water per day. The water will be disposed through a closed system with an estimated maximum injection pressure of 1200 p.s.i.

DOCKET MAILED

Date 5-9-69

It will be appreciated if you will set this matter for hearing at the earliest possible date. If we can provide any additional information, please advise.

Very truly yours,

MALLARD PETROLEUM, INC.

Homer Olsen Jr.

Homer Olsen, Jr.

HO/d

Enclosures

cc: Offset Operators
Addressee List Attached

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

April 25, 1969

Area Code 915
PHONE MU 2-8217

cc:

Phillips Petroleum Company
Room B-2, Phillips Building
Odessa, Texas 79760

Sinclair Oil and Gas Company
P. O. Box 1920
Hobbs, New Mexico 88240

Burk Royalty Company
Box 1627
Fort Stockton, Texas 79735

Texaco Inc.
P. O. Box 728
Hobbs, New Mexico 88240

Hudson & Hudson
1510 First National Bank Building
Fort Worth, Texas 76100

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

May 20, 1969

Area Code 915
PHONE MU 2-8217

Re: Case No. 4136
Request for Authority to Dispose
of Salt Water
Mallard Petroleum, Inc.
Milner Federal Lease
Lynch (Yates-Seven Rivers) Field
Lea County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

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

Gentlemen:

Case No. 4136 which is currently set for hearing on June 4, 1969, covers Mallard's request to dispose of produced salt water from its Milner Federal lease into the Milner Federal No. 4 well, Lynch (Yates-Seven Rivers) field, Lea County, New Mexico. Mallard's current application provides for disposal of water into the Seven Rivers formation through the current open hole section from 3700'-3737'.

In an attempt to satisfy the opposition of offsetting operators to the above disposal zone, Mallard respectfully requests an amendment to its request for salt water disposal authority. The amended request provides for salt water disposal into the Seven Rivers formation below the estimated original oil-water contact of 20 feet subsea. Mallard proposes to deepen its Milner Federal No. 4 well from its present total depth of 3737' sufficiently to encounter Seven Rivers porosity below 20 feet subsea. It is estimated that the well will be deepened to a maximum total depth of 3850'. The exact disposal zone will be determined after the deepening is completed and porous intervals below 20 feet subsea located. A liner will be run over the open hole section with the water to be disposed of through perforations.

DOCKET MAILED
Date 5-29-69
for June 13th

It is our understanding that our application will be continued and readvertised to the June 13, 1969, examiner hearing. If we can provide any additional information at this time, please advise.

Yours very truly,

MALLARD PETROLEUM, INC.

Homer Olsen Jr.

Homer Olsen, Jr.

HO/dd
Offset Operators
Addressee List Attached

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

May 20, 1969

Area Code 915
PHONE MU 2-8217

cc: Phillips Petroleum Company
Room B-2, Phillips Building
Odessa, Texas 79760

Sinclair Oil and Gas Company
P. O. Box 1920
Hobbs, New Mexico 88240

Burk Royalty Company
Box 1627
Fort Stockton, Texas 79735

Texaco Inc.
P. O. Box 728
Hobbs, New Mexico 88240

Hudson & Hudson
1510 First National Bank Building
Fort Worth, Texas 76100

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

69 MAY 8 PM 1 15

May 7, 1969

Area Code 915
PHONE MU 2-8217

Re: Amendment to Request for
Authority to Dispose of
Salt Water
Mallard Petroleum, Inc.
Milner Federal Lease, Lynch
(Yates, Seven Rivers) Field
Lea County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

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

Gentlemen:

On April 25, 1969, Mallard Petroleum, Inc. made a request for authority to dispose of produced salt water into the Yates formation through perforations 3606-2637' in its Milner Federal No. 4 well, Lynch (Yates, Seven Rivers) Field. The Milner Federal No. 4 well is located 990' FNL and 1650' FWL of Section 35, T-20-S, R-34-E, Lea County, New Mexico.

Mallard proposes to amend the April 25th request so as to provide for salt water disposal into the Seven Rivers formation through open hole 3700' to 3707' rather than through Yates perforations 3606' to 3627' in the Mallard Petroleum, Inc. Milner Federal No. 4 well. Attached is a diagrammatic sketch showing the proposed installation in the Milner Federal No. 4 well which would provide for water disposal into the Seven Rivers formation. All pertinent data given on the April 25th request other than the proposed disposal zone will remain unchanged.

It is our understanding that this proposed amendment to our request will necessitate a delay in the hearing date, but it will be appreciated if you will set this matter for hearing at the earliest possible date. If we can provide any additional information, please advise.

Yours very truly,

MALLARD PETROLEUM, INC.

Homer Olsen Jr.

Homer, Olsen, Jr.

HO/dd
Offset Operators
Addressee List attached

Enclosure

MALLARD PETROLEUM, INC.
1206 V & J TOWER
MIDLAND, TEXAS 79701

May 7, 1969

Area Code 915
PHONE MU 2-8217

cc:

Phillips Petroleum Company
Room B-2, Phillips Building
Odessa, Texas 79760

Sinclair Oil and Gas Company
P. O. Box 1920
Hobbs, New Mexico 88240

Burk Royalty Company
Box 1627
Fort Stockton, Texas 79735

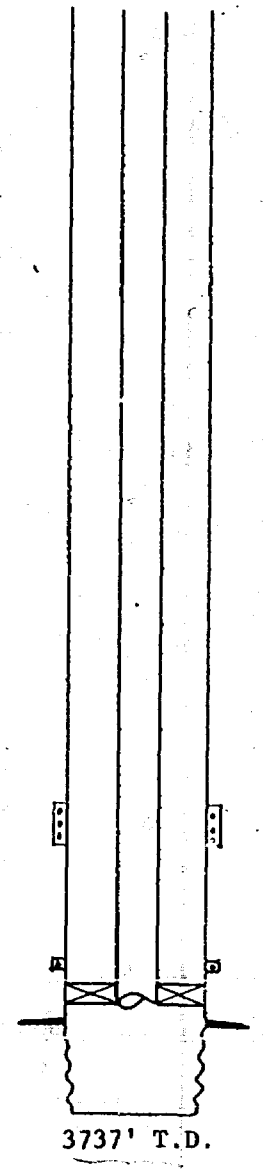
Texaco Inc.
P. O. Box 728
Hobbs, New Mexico 88240

Hudson & Hudson
1510 First National Bank Building
Fort Worth, Texas 76100

Perforation:
3606'-3627' (squeezed)

3672'-3676' (squeezed)

5-1/2" 14# Casing Set at 3700'
Cemented with 706 sx-circulated



3737' T.D.

3610

2-38/" Internally Coated Tubing
Set on Tension Packer @ 3790'

4-3/4" Open Hole from 3700'-3737'

MALLARD PETROLEUM, INC.
Milner Federal No. 4
Lynch (Yates-7 Rivers) Field
Unit C - 35 - 20-S - 34-E
Lea County, N.M.