CASE 3924: Application of MINERALS INC. & R. F. MONTGOMERY, et al., for AN EXCEPTION TO ORDER R-3221.

Case Number

3924

Application

Trascripts

Small Exhibits

ETC.

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

November 13, 1968

REGULAR HEARING

IN THE MATTER OF:

Application of Minerals, Inc., and R. F. Montgomery, et al, for an exception to Order Number R-3221, as amended, Lea County, New Mexico.

Case No. 3924

BEFORE: A. L. "Pete" Porter, Examiner

TRANSCRIPT OF HEARING

MR. PORTER: We will take up Case 3924.

MR. HATCH: Case 3924. Application of Minerals, Inc., and R. F. Montgomery, et al, for an exception to Order Number R-3221, as amended, Lea County, New Mexico.

MR. KELLAHIN: If the Commission pleases, Jason Kellahin, Santa Fe, New Mexico, appearing on behalf of the applicant. I have one witness I would like to have sworn.

(Witness sworn.)

(Whereupon, Applicant's Exhibit Number 1, a multi-page exhibit, consisting of 9 exhibits together with sub-exhibits attached to Exhibits 4, 5, 6, 7, 8, were marked for identification.)

DONALD L. GAREY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A My name is Donald L. Garey.

Q What business are you engaged in, Mr. Garey?

A I am a consulting geologist and associated with Minerals, Incorporated.

Q Have you done any work for Minerals, Incorporated, in

connection with Case 3924?

A Yes, sir, I have.

Q And do you also represent R. F. Montgomery, the other applicant in this case?

A Yes, sir, I do.

Q Did you do some work for him in connection with this application?

A Yes, sir, I did.

Q Have you ever testified before the Oil Conservation Commission?

A Yes, I have.

Q Your qualifications are a matter of record?

A Yes, sir, that's right.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. PORTER: Yes, they are.

Q (By Mr. Kellahin) Mr. Garey, are you familiar with the application in Case 3924 presently before the Commission?

A Yes, I am.

Q What is proposed by the applicants in this case?

A We are asking for an exception to the Order Number R-3221 to dispose of water in our pits in the old Salt Lake Pool.

Q Is that a presently producing oil pool?

A Yes, sir, it is.

Q Now, have you prepared a multi-page exhibit which has been marked as Applicant's Exhibit Number 1 in this case?

A Yes, I have.

Q Referring to Applicant's Exhibit Number 1, would you refer to the Exhibit 1 attached to that exhibit.

A Okay. The Exhibit Number 1 is just strictly a location map. It shows the location of the R. F. Montgomery property, which is the Brooks Federal Lease and it is circled in yellow. The Minerals, Incorporated Bass property is circled in green, which is located in Sections 7 and 18 of 20 South, Range 33 East, respectfully. The producing wells, as you can see, there are a number of old plugged wells in the field. There are only six producing wells now. There is three on the Montgomery Brooks Lease, and there is three on the Minerals. Bass Lease, and they are circled in red. The two pits, the disposal pits for the Brooks Lease is, as you can see is indicated in red, adjacent to, or more or less in Unit "N" of Section 7, and the disposal pit for the Bass Lease is in Unit "C" of Section 18, and the areas in green are the locations that is more or less the outline of the bottom of the salt lakes in the area.

Q The large green area in Section 18, is that the lake

that has been designated as Laguna Gatuna?

A Yes, sir, it is. It's Laguna Gatuna, I believe, is the correct name.

Q Are there other salt lakes in the area?

A Yes, sir. There is one northwest of the area around two miles.

Q And that is the Laguna Plata, is that correct?

A Yes, sir, that's correct.

Q Now, referring to Exhibit 2 of the exhibit, would you identify that?

A Well, Exhibit Number 2 is a sub-surface structure map, more or less, showing the sub-surface structure at the Yates level. This particular field produces primarily from the Yates Sands and the top of the Seven Rivers Lease and this is the structure map of the Yates level. The contours, I might say, are positive contours. It is above sea level at this area. Of course, again, the producing wells are circled in red.

Q Now, referring to what has been marked Exhibit Number 2 of Exhibit 1, would you identify that exhibit?

A Exhibit Number 3?

Q Three, pardon me.

A Exhibit Number 3 is just a typical section of the producing pay zones in the field. It shows the top of the Yates

and the top of the Seven Rivers, and it shows more or less where the indication -- some of these wells, of course, are completed in the open holes, and when they are, the oil setting is set usually in this dense zone around 2650 feet, and then it is completed open hole from there to around the top of the Seven Rivers. Some of the wells and casings are set through the entire pay section, and when they are, the zones indicated here with the arrows are usually the zones perforated in those particular wells. This is a typical section. It is not any one particular well.

Q Now, referring to Exhibit Number 4, of Exhibit 1, 4A, would you discuss that exhibit?

A Yes. Number 4A is just a compilation of the well data of all the old plugged and abandoned wells in the field. It more or less gives a location, and completion dates. As you can see, the field was discovered back in 1941, and it was plugged out around 1948, and this more or less gives accummulative production, the zones completed, the casing settings, the TD's, just general information on these old plugged out wells. As you can see that they produced an average of around 30, to 35,000 barrels of oil before they were plugged out.

Q Now, some of these wells have been re-entered, have

they not --

A Yes, sir, they have.

Q -- by the applicants in this case?

A Yes.

Q Are those wells shown then on Exhibit 4B of --

A They are in Exhibit 4B. These are actually the six producing wells in the field, and, as you can see, the Brooks wells, the No. 3 -- Montgomery No. 3, Brooks re-entered one of the old Continental wells, the No. 4 Brooks re-entered an old Continental well, the No. 6 Brooks re-entered an old Texaco well. That was a 15,560-foot Devonian test.

Q And all these wells were re-completed for production from the Yates Sands of Yates Seven Rivers Formation?

A Yates Seven Rivers, yes, sir.

Q Now, referring to what has been marked Exhibit Number 5A, would you identify that exhibit?

A Exhibit Number 5A shows the total water and total oil production of the Minerals Bass Lease since it was originally drilled in 1963. Now, these are the three producing wells now. This doesn't include, of course, the old plugged out wells. This is strictly the No. 1, No. 2, and No. 3 Bass wells and I think you can see that we can actually total it up on a lease basis per year, or on a per-well basis, but I might say

that actually that these three wells produced a total of 37,234 barrels of oil as of the first of October, and 189,526 barrels of water.

Q Now, that was a total from their date of re-completion in 1963?

A Yes, sir.

Q Normally, on a month-to-month basis, what is this lease producing in the way of water?

A Well, we had a -- took an October GOR Test, and you can see on the bottom of the page that the lease will actually produce around 24 barrels of oil and 55 barrels of water per day at the present time.

Q And this water is presently going into the pits referred to you in your testimony on Exhibit Number 1?

A This particular water is going into the pit in Section 18 in Unit "C".

Q That is an unlined pit?

A That's an unlined pit, yes, sir.

Q Now, referring to what has been marked as Exhibit 5B, would you identify that exhibit?

A Exhibit 5B is a very same exhibit except it is for the R. F. Montgomery Brooks Federal Lease. Again, it shows the oil-water produced on a per-well, or lease basis, for the various

years, and this particular lease as of October 1st of this year has produced 118,045 barrels of oil and 376,966 barrels of water.

Q Now, that is since the wells were re-entered in 1962?

A Yes, sir, that's right.

Q What is the monthly production of water from that lease?

A Well, the GOR Test that we took in October of this year indicates that the lease is -- will make 50 barrels of oil and 251 barrels of water per day.

Q And that water is presently going into the pit shown on Exhibit Number 1?

A Shown in Section 7 on the exhibit.

Q Now, have you made a study of the economics of the operation of this pool?

A Yes, sir, I have.

Q Referring to what has been marked as Exhibit 6A, would you discuss that exhibit?

A Exhibit 6A is -- refers again to just the Minerals Bass Lease. It shows the No. 1, and 2, and 3 wells -- I've totaled 1967 and then I've broken, of course, our gross income and direct operating expenses and therefore net operating income

down on a per-month basis for the nine months in 1968. But, just to sum up the operation, for instance, the No. 1 Bass well in 1967 had a net operating income of a minus $1650.09. So far this year, the No. 1 well has made $158.23. This direct operating expense is strictly invoice, operating expenditures.

Q It does not include any intangibles?

A No administrative, no overhead, no insurance or anything like that is injected into that.

Q This is just the actual cost of operation paid out by the operator?

A Yes, that's right. The No. 2 well, as you can see, in the first nine months of this year has lost $303.48. The No. 3 well has lost, in the nine months of this year, $6,460.76. Now the reason that figure is a large figure, because in September we fracture-treated the well with 20,000 gallons of Jell Brine, which was roughly a $6,000.00 invoice, so, without that particular treatment, you could see that it would be around, maybe, $260.00 to the good.

Q Now, with reference to your Exhibit 6A, insofar as the operation of Minerals, Incorporated, on the Bass Lease are concerned, would you consider those marginal operations?

A Yes, sir. As a matter of fact, if we don't -- we are studying the field in more detail now -- if we don't come

up with something and better the production, you can see we can't keep operating the lease as it is, at a loss.

Q Now, if you were required to drill a salt water disposal well, or re-complete an old, abandoned well for the purpose of a salt water disposal, would this lease be able to carry that additional expense?

A Not at all. As a matter of fact, if we had to do that we would have to plug it.

Q Now, referring to what has been marked Exhibit 6B, would you discuss that exhibit?

A Well, it is the very same exhibit as 6A, except it is for the R. F. Montgomery Brooks Lease. Again, it shows the very same thing. The No. 3 well, as you can see, for the first nine months of this year, has made $926.49. The No. 4 well has made some $7,343.80. The No. 6 well has made $12,148.20.

Q Again, the direct operating expenses do not include any overhead or administrative costs? These are invoice costs?

A Strictly invoice costs.

Q Would you consider this lease as marginal?

A Well, this lease is a little above marginal. It hasn't quite reached that point yet. The No. 3 well is, yes, you can see the last three months for the No. 3 has definitely been a loss. The No. 4 and the No. 6 are approaching marginal wells,

but as yet they are not.

Q Now, have you made an analysis of the fluids produced from the producing wells?

A Yes, sir, I have.

Q Referring to what has been marked as Exhibit 7A, B, C, D, E, and F, would you discuss those exhibits?

A Yes. These are water analyses of the formation water being produced at the present time. Exhibit 7A is the analysis on the Minerals, Incorporated No. 1 Bass, and I'll use the chlorides as a comparison of the water analysis, and not get into the other ingredients. As you can see, the formation water has got 6600 milligrams per liter in the Bass No. 1. In the Bass No. 2, in Exhibit 7B, the chlorides are very much the same at 7500 milligrams per liter. Now these wells are all producing from the same formation, and they should have the same water analysis. The Bass No. 3 has got 25,235 parts, milligrams, per liter. There's a reason for this. We just got through fracture-treating the well with Jell Brine and we are still getting some contamination from the Jell Brine.

Q You wouldn't consider this a representative sample of the formation water?

A No, not at all, but it is the sample we took when we

took all the other wells.

Q Is this the same producing formation as the No. 1 and 2?

A The very same, yes.

Q You would anticipate, then, once you have recovered all your fracture fluid the analysis would be the same?

A Yes, I sure would.

Q Now, the No. --

A Now, this is a Brooks 3, and this would more or less prove just what I said. Of course, it is the same producing formation and here we have the milligrams per liter again at 6700, very close to the others. Exhibit 7E is the No. 7 Brooks, and there the Milligrams per liter is 5900. Exhibit Number 7F is the R. F. Montgomery No. 6 Brooks, and the milligrams per liter is 5700. So you can see that the formation water is safely around 6,000 milligrams per liter, in round figures.

Q Now, are there any water wells in that area?

A Yes, sir, there sure are.

Q Have you compiled some information on those wells?

A Yes, Exhibit Number 8A is actually a compilation of the water wells in the area, where they are located, what their TD's are, whether they were completed in the Quaternary,

or Triassic formations and what their status are as to whether or not they are being produced, whether they were abandoned or they are listed as non-producing, and this is all found in Exhibit 8A. I might say that the Quaternary wells in the area usually will find water evidently around 50 to 60 feet in depth, and the Triassic will have to go as deep as 400 -- 450 feet or so before they get water in the Triassic Red Beds.

Q Now, is all this water suitable for domestic or livestock use?

A No, sir, it is not.

Q You have noted this on your Exhibit 8A, have you?

A Right. In other words, I actually might refer to this last exhibit, Mr. Kellahin, while we are talking about these water wells; it might make it a little easier.

Q The map, Exhibit Number 9?

A Yes. In looking at Exhibit Number 8A, and going down the list of the wells that I have been -- the information that I have listed, if we will use Exhibit 9 to -- as a reference as I talk about the wells -- well, in Section 4 of 2023, there's a Quaternary water well that had a TD of 58 feet, and it is an abandoned stock well, and the ranchers state that the water was jippy and the cattle would walk greater distance to another water source. In other words, they wouldn't drink this particular

water.

MR. PORTER: Mr. Garey, I notice you refer to the rancher, and also your exhibit refers to the rancher. Who was that; was that Mr. Smith?

THE WITNESS: No, sir, this is Mr. Bingham.

MR. PORTER: Beene?

THE WITNESS: Bingham.

MR. PORTER: I see.

Q (By Mr. Kellahin) Would you go ahead with your discussion of the wells in Section 5?

A Yes. In Section 5 is a Triassic well. This well was used by Pan American in drilling a deep test, and, in other words, it was used for drilling purposes strictly.

Q Is it presently being used for any purposes?

A Not at all. It is listed as a commercial well with the State Engineer's Office.

Q Now the well in Section 18; what was the situation as to it?

A Section 18 was completed in the Triassic Red Beds, originally. Now, this TD of 456 feet is a depth that was given by the man that drilled the well back in 1942; he remembered it. It was an old Continental camp at that time, and it was reportedly not potable at that time, and that they used it strictly for washing around the camp.

Q What is the present situation; is that well --

A It is completely -- it's plugged.

Q Now, the well in Section 21.

A It was completed in the Quaternary. It is also -- it was a stock well, originally. It is now an abandoned stock well.

Q Then the second well in Section 24.

A It was completed in the Triassic, and it is a stock well presently used as a stock well.

Q Now, moving over to the wells in Range 32. Would you discuss those?

A Yes. There is a well in Section 1 at the old Salt Lake Branch, and it was completed in the Quaternary and is now listed as a non-producing well. It wasn't -- the State Engineer's Office didn't have a TD on it, and the rancher again, which is Mr. Bingham, told me that the wells were too salty for the cattle to drink, and that it has been plugged out, actually, about twenty years, so it's an old well.

Q Now, the wells in Section 23, there appears to be two wells there.

A Yes. Deep wells -- this is the old Halfway Bar, there, on the highway, and these two wells are used for domestic and stock. Of course, I've got here, in my Exhibit 8A, I've mentioned

that they are only two and half miles, of course, from the Laguna Plata Lake where some 3,000 barrels of water per day are being disposed of, I understand, at the Potash Mine.

Q Is that the Potash Mine water?

A Yes.

Q Now, the wells in Section 25.

A The wells in 25, these are two stock tank wells, and they are both being used at the present time. All these wells in this area are, of course, in the Quaternary.

Q Then the wells in Section 36.

A The wells in Section 36 are around the Bingham Ranch. There's three wells there, one of them is being used for domestic and the other two are abandoned, and one is listing, actually, as non-producing.

Q Now, the closest fresh water supply, then, to the area where you are disposing salt water, would be how far, Mr. Garey?

A For domestic use?

Q Yes, sir.

A Well, it would be actually around two miles southwest of the area.

Q And that would also be true as to stock use?

A Right.

Q About two miles?

A Two, to two and a half miles, it looks like on the map.

Q Do you have an analysis on the water in Laguna Gatuna?

A Yes, sir, I have.

Q Referring to what has been marked as Exhibit 8B, would you identify that exhibit and discuss it?

A Yes. We walked out into the lake and got a sample of the water that was standing in the lake. Now, of course, I'm sure we can all understand this will vary according to how soon after a rainfall, and at this particular time, I believe it was a week or two after a rainfall, but, at any rate, the analysis of that particular sample of water taken out of the lake itself is Exhibit 8B, and, as you can see, it had chlorides of 158,000 miligrams per liter, and I personally feel, of course, that any rain water that hit the lake is immediately contaminated from the salt lying in the bottom of it.

MR. PORTER: Is that Laguna -- what is that?

THE WITNESS: That is the Laguna Gatuna. It's the lake in Section 18.

MR. PORTER: That is the well immediately adjacent to your disposal pit, is it not?

THE WITNESS: That's the lake immediately adjacent,

yes, sir.

MR. HAYS: How much water did it have in it when you took your sample?

THE WITNESS: It looks like about -- I would say about a third to a half of the bottom covered. It's never very deep.

MR. HAYS: Was it a foot deep?

THE WITNESS: I would say a foot to two feet.

Q (By Mr. Kellahin) Now, that 158,000 milligrams per liter compares with approximately 6,000 milligrams per liter chlorides in your produced water?

A Yes, sir, that's right.

Q And if you put it in the lake, it would improve the quality of the lake, would you not?

A It would make it look fresher.

Q Now, are there some springs feeding this particular lake?

A Yes, sir. There's natural springs in the area. They actually go into the lake.

Q Now, referring to Exhibit 8C, would you discuss that exhibit?

A Well, it is actually a water analysis of one of these natural salt springs. This particular spring is at the south end of the lake, and again comparing just the chlorides of the

analysis, you can see that the natural salt springs at 51,736 miligrams per liter of chlorides.

MR. PORTER: Let me ask you a question in connection with that spring. Do you know what part of the year it flows?

THE WITNESS: No, sir, it -- I think it varies somewhat with rainfall.

MR. PORTER: But there are times of the year, I suppose, when it doesn't flow at all?

THE WITNESS: Yes, sir, I would suppose, myself. Yes, sir.

Q (By Mr. Kellahin) Now, referring to what has been marked as Exhibit 8D, would you identify that exhibit?

A Exhibit 8D is a water analysis of the water wells in Section 21 of 20 South, 33 East. It's an old stock tank well that had been plugged out, and again, comparing the chlorides, you can see that this particular water well has 3518 milligrams per liter in chlorides.

Q Now, would that content be suitable for domestic or stock use?

A It definitely wouldn't be suitable for domestic, and as far as stock is concerned, I understand that you get above 2,000 milligrams per liter and you are getting -- you are getting pretty salty for even stock.

Q Now, referring to what has been marked as Exhibit 8E, would you identify that exhibit.

A Exhibit 8E is a water analysis of the water wells located in Section 4 of 20 South, 33 East, and it's the old plugged out and abandoned water well which is also a Quaternary well, and it again, has chloride -- in comparing chlorides -- it had 12,978 milligrams per liter. It's pretty easy to see why they abandoned it as a stock well.

Q It was probably never used, was it?

A I don't know whether it was ever used, actually.

Q Now, Exhibit 8F; would you identify that exhibit?

A Exhibit 8F is a water analysis of the old water well in the old Continental camp, the Salt Lake Pool located in Section 18 of 20 South, 33 East, and now this is Triassic water, and again comparing the chlorides it had 21,013 milligrams per liter in chlorides. This is right adjacent to one of the disposal pits on the Bass Lease, or of the disposal pit on the Bass Lease, which is, of course, 7,000 parts milligrams per liter.

Q Now, Exhibit Number 9, you have already discussed it, but would you identify it for the record.

A Exhibit Number 9 is a water well location map, and it's superimposed on a U.S.G.S. topographic map which is entitled

Laguna Gatuna, New Mexico.

Q Now, Mr. Garey, have you made an examination of the area involved in this application?

A Yes, I have.

Q In your opinion, what would be the direction of drainage, if any occurred, from these unlined surface pits presently being used by the applicants?

A Well, I think the drainage would be directly toward the Laguna Gatuna.

Q Would the surface drainage also be in the same direction?

A Same direction.

Q Would there be any possibility of drainage taking place or occurring either on surface or underground in a southwesterly direction?

A No, sir. I think if there is any drainage in the area, it would strictly be -- in other words, from the north it would be south into south into this synclinal depression, and it would be from the south north into the center of it, and then from that point west.

Q So, actually, you are in a basin at that location; there would be no outward drainage in any direction?

A None whatsoever. I think the water would drain into

the basin and then drain westward from that point.

Q Drain westward from the basin?

A Once it got into the synclinal sink then it would drain westward because it's plunging westward.

Q Could that have any effect on the fresh water wells located to the southwest on the Quaternary wells?

A No, none whatsoever. I think it's actually on the south flank of the synclinal sink, so the water would not drain to the wells. Actually, the water at the Halfway Bar in that area would drain ~~south~~ north to the synclinal sink.

Q It would go the same direction?

A Right, it would go ~~south~~ north. Water wouldn't come up to those parts at all.

Q In your opinion, would the continued use of the surface pits presently being used by the applicants cause any contamination to any fresh water supply anywhere, either surface or underground?

A I do not think so, whatsoever. I think that this area has been nature's disposal pit for several hundred thousand years, and there isn't anything that we can do to contaminate it further. As a matter of fact, our water is much less fresher than any of the water in the area, and I don't see how we could possibly contaminate it any further.

Q It's fresher than the lake water, and it's also fresher than the spring water?

A Than the spring water, right, and it's also fresher than the water in the water well right adjacent to the pit.

Q Now, in the event this application isn't approved by the Commission, what alternatives do the applicants have, Mr. Garey?

A Well, of course, we would have to consider the economics of disposing of the water. The Bass Lease couldn't justify it. I made a few preliminary studies. I think -- these are just round figures -- it depends on how much surface equipment you need, but just in round figures it could cost very easily as much as $10,000.00 to convert a well into a disposal well. The Bass Lease could not justify it. I think we would have to plug the lease out. The Brooks Lease -- we would have to study it -- and right now I couldn't say without making a study of it.

Q Would such an expenditure, in your opinion, be an unnecessary expenditure which would constitute waste?

A Yes, sir. I think it is because I don't believe that -- I don't believe that we could contaminate the area whatsoever with the water being disposed as it is, and I think that any other expenditures to dispose of water would be -- just wouldn't

be justified.

Q Was Exhibit Number 1, a multi-page exhibit consisting of nine exhibits, together with sub-exhibits attached to Exhibits 4, 5, 6, 7, and 8, prepared by you or under your supervision?

A Yes, it was.

MR. KELLAHIN: At this time, I'll offer in evidence Exhibits Number 1.

MR. PORTER: No objections, the exhibits will be admitted.

MR. KELLAHIN: That completes the direct examination of the witness, Mr. Porter.

CROSS EXAMINATION

BY MR. PORTER:

Q Mr. Garey, how many disposal pits are there; did you testify as to that?

A Yes, sir, I believe I said that there was one in Unit "N" of Section 7, and one in Unit "C" of Section 18, of Township 20 South, Range 33 East.

Q So you only have two pits?

A Yes, sir.

Q Two disposal pits?

A Two disposal pits.

Q And they are relatively close to this salt lake, or the Laguna Gatuna, is that it?

A Yes, sir.

Q And one is northwest and the other is west of that section?

A Yes, sir. There's one northwest about two miles, two to two and a half miles --

Q I see.

A -- and that's called the Laguna Plata, that particular salt lake.

Q Now, on this map here on Exhibit Number 9, you show the Salt Lake Ranch. Is that the Snyder Ranch?

A Yes, sir.

Q Now, is that the former Snyder Ranch headquarters; is it occupied now; anybody living there?

A Yes, sir, there's someone living there.

Q Where do they get their water?

A They get their water from this Potash pipeline that comes across the south of the ranch. You'll see it there, a dotted line.

Q They have this one well, water well, there? Do you know how long that well -- I think you testified on that. How long that's been abandoned.

A At the old ranchhouse?

Q Yes, sir.

A From what I understand, from Mr. Bingham, for about twenty years.

Q About twenty years?

A Yes, sir.

MR. PORTER: Thank you. Anyone have any other questions?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Garey, what type of reservoir drive do you have here in this Salt Lake Pool?

A It's strictly solution gas.

Q No water?

A None to speak of. Of course, we produce water, but it's not a big water drive whatsoever; primarily, the production is coming from the Yates Sands.

Q Now, I notice hre on your Exhibit Number 4A, the second well from the bottom, there is a Montgomery Bass 4 located in Unit "K", of Section 18, has seven-inch pipe at 2721 that was drilled as a dry hole, and evidently the pipe was not pulled according to the ledger over to the right, it just says cement plugs. Now, if we refer to your Exhibit Number 2, the structure map, we find that that well would be low on the structure. Now,

what's to prevent you from drilling out those cement plugs and putting that water in that well?

A Mechanically, nothing.

Q Except the economics of drilling out the well?

A Yes, except the economics of making it into a disposal well.

Q You estimate it would cost as high as $10,000.00 to plug that well?

A Yes, sir. It depends on how much surface pressure is required. It depends an awfully lot on that and you don't know until you actually start disposing.

Q I see. You don't have any measure of the permeability that you had in that well, or anything?

A No, sir, we didn't core it or anything like that. We have no idea.

Q There are other wells in the area, but for the most part, according to that one exhibit, the pipe was pulled when they were plugged?

A Yes, sir, the hole was pretty well torn up.

Q There's another one there that just has cement plugs in it. That's this Conoco Brooks 7. I don't know what the location of it is, it's in "K" of 7.

A That well we re-entered.

Q That has been re-entered?

A Yes, sir. That is now the Montgomery No. 4 Brooks.

Q Is that producing now?

A Yes, sir.

Q Now, with respect to this fresh water that you have in the area, structurally, where is this water located with respect to these pits and the Laguna Gatuna?

A The fresh water that's being used for domestic purposes and stock purposes?

Q Yes, sir. Down here halfway, and then the wells there in 25 and also down to the Bingham Ranch in 36.

A It's structurally updip.

Q How far above the lake is this water?

A As you can see, topographically, it's in -- I say structurally -- I'm going to lean a little bit on the testimony that was given last month by Mr. Gray for the Hudson and Hudson presentation. He got into, of course, the Red Bed structure and in the -- he referred to an engineering report that proved that the structure actually followed the topographic contours in the area.

Q No, I'm not concerned with the Red Beds, Mr. Garey. I'm talking about the surface structures here. You have a contour map here in your Exhibit Number 5.

A Yes. Those wells are found at 3550, and --

Q That would be the Halfway wells?

A The Halfway wells.

Q They are 3550, and what is the elevation at your pit?

A And the elevation at the pits is 3520.

Q All right. Now, with respect to the wells in Section 25, what would be the elevation of those wells?

A They are at 3560.

Q So they're some 40 feet above the lake bed, or the pits?

A Yes, sir.

Q Now, with respect to the Bingham wells, what's the elevation of those?

A The elevation is around 3590, and so they're some 70 feet.

Q Now, if we take the Bingham wells, say they are at 3590, then we come back to your Exhibit Number 8A, we find that the depth of the one well that's being produced is 50 feet so the bottom of that well would be some 40 feet above the lake bed, is that correct?

A That's correct, yes, sir.

Q Now, the wells in Section 25 are at 3560; they're some 40 feet, I guess, above the lake bed, then, and the depth of them is 65 feet, so the depth of the water there would be

lower than the lake, is that correct?

A That's correct.

Q And this would also be true with respect to the Halfway ones?

A That's right.

Q So we do have seven water wells that you are talking about. Three of them, the bottom of the well would be lower but the bottom of the well would be higher than the lake, and four of the seven the bottom of the well or the source of water would be lower than your lake?

A Datumwise, yes.

MR. NUTTER: I believe that's all. Thank you.

MR. PORTER: Anyone else have a question?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Garey, in line with Mr. Nutter's question, if the bottom of the well were lower than the lake bed and they were still producing fresh water, would that indicate any communication between the lake bed and the wells was occurring?

A I don't think there's any whatsoever, because this same condition has existed for several hundred thousand years, and if that lake hasn't contaminated that water by now, it's never going to.

MR. NUTTER: Those wells haven't been there that long.

THE WITNESS: Well, I mean the water has been in the formation that long, that they are producing from.

MR. NUTTER: I think an examination of the geological water report for this area will show that the force of water in these wells is from the south moving north.

THE WITNESS: You're absolutely right. In other words, the lake would not move south; the contaminated water from the lake will not move south updip into the wells.

MR. NUTTER: Probably the source of water would be the water that's moving from the south north and is the source of water for that spring in the southeast into the lake.

THE WITNESS: That's true. In other words, the water would not move south to these wells; the water at the water wells would move south into the lake area.

MR. NUTTER: Moving north in the lake area.

THE WITNESS: Yes, sir, north; that's right.

MR. PORTER: Does anyone else have a question? The witness may be excused. Does anyone have anything further to offer in Case No. 3924? If not, we'll take the case under advisement.

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

Glenda Burks
COURT REPORTER

Docket No. 34-68

DOCKET: REGULAR HEARING - WEDNESDAY - NOVEMBER 13, 1968

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

ALLOWABLE: (1) Consideration of the oil allowable for December, 1968.

(2) Consideration of the allowable production of gas for December, 1968, from thirteen prorated pools in Lea, Eddy and Roosevelt Counties, New Mexico, and also presentation of purchaser's nominations for said pools for the six-month period beginning January 1, 1969; Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for December, 1968.

CASE 3924: Application of Minerals, Inc., and R. F. Montgomery, et al., for an exception to Order No. R-3221, as amended, Lea County, New Mexico. Applicants, in the above-styled cause, seek 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' wells located in Sections 7 and 18, Township 20 South, Range 33 East, Salt Lake Pool, Lea County, New Mexico. Applicants seek authority to continue to dispose of produced water in two unlined surface pits located in Units N and C, respectively, of said Sections 7 and 18. In the alternative applicants seek authority to dispose of said produced water into a dry lake bed, known as Laguna Gatuna, located principally in said Section 18.

CASE 3925: Application of W. E. Jeffers 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 applicant's well located in the NW/4 NE/4 of Section 36, Township 17 South, Range 27 East, Red Lake Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of produced water in an unlined surface pit located in said quarter-quarter section.

CASE 3926: Southeastern nomenclature case calling for an order for the creation and extension of certain pools in Eddy, Lea, and Roosevelt Counties, New Mexico.

(a) Create a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the Anderson Ranch-Morrow Gas Pool. The discovery well is Sunray DX Oil Company, State Land "76" Com No. 1 located in Unit J of Section 2, Township 16 South, Range 32 East, NMPM. Said pool described as:

TOWNSHIP 16 SOUTH, RANGE 32 EAST, NMPM
SECTION 2, Lots 9, 10, 15 and 16

(b) Create a new pool in Eddy County, New Mexico, classified as an oil pool for Yeso production and designated as the Five Mile-Yeso Pool. The discovery well is John A. Yates, Ferguson No. 1 located in Unit L of Section 7, Township 18 South, Range 26 East, NMPM. Said pool described as:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
SECTION 7: NW/4 SW/4

(c) Create a new pool in Lea County, New Mexico, classified as an oil pool for Devonian production and designated as the West Lovington-Devonian Pool. The discovery well is Jake L. Hamon, State K-33 No. 1 located in Unit K of Section 30, Township 16 South, Range 36 East, NMPM. Said pool described as:

TOWNSHIP 16 SOUTH, RANGE 36 EAST, NMPM
SECTION 30: SW/4

(d) Create a new pool in Lea County, New Mexico, classified as an oil pool for Cisco production and designated as the North Mescalero-Cisco Pool. The discovery well is Roger C. Hanks, Ltd., Zapata State No. 1 located in Unit A of Section 10, Township 10 South, Range 32 East, NMPM. Said pool described as:

TOWNSHIP 10 SOUTH, RANGE 32 EAST, NMPM
SECTION 10: NE/4

(e) Create a new pool in Lea County, New Mexico, classified as a gas pool for Yates production and designated as the Quail Ridge-Yates Gas Pool. The discovery well is Sinclair Oil & Gas Company, Mescalero Ridge Unit MA No. 31 located in Unit L of Section 21, Township 19 South, Range 34 East, NMPM,

(e) continued

Said pool described as:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
SECTION 21: SW/4

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

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
SECTION 5: SE/4

(g) Extend the East Benson-Yates Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 31 EAST, NMPM
SECTION 18: SE/4 NW/4 and S/2 NE/4

(h) Extend the Bronco-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 13 SOUTH, RANGE 38 EAST, NMPM
SECTION 14: NW/4

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

TOWNSHIP 14 SOUTH, RANGE 34 EAST, NMPM
SECTION 4: W/2

(j) Extend the Chaveroo-San Andres Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 32 EAST, NMPM
SECTION 24: NE/4

(k) Extend the Eagle Creek-San Andres Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 25 EAST, NMPM
SECTION 23: SE/4 NW/4 and E/2 SW/4

(l) Extend the Southwest Gladiola-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 12 SOUTH, RANGE 37 EAST, NMPM
SECTION 27: S/2

(m) Extend the West Henshaw-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM
SECTION 5: Lot 16

(n) Extend the North Morton Permo-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 15 SOUTH, RANGE 35 EAST, NMPM
SECTION 6: NW/4

(o) Extend the Penasco Draw San Andres-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
SECTION 30: SW/4 SW/4

(p) Extend the Rock Tank-Lower Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 25 EAST, NMPM
SECTION 6: All

(q) Extend the Scarborough Yates-Seven Rivers Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 26 SOUTH, RANGE 36 EAST, NMPM
SECTION 36: NE/4

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

TOWNSHIP 14 SOUTH, RANGE 32 EAST, NMPM
SECTION 22: SE/4

(s) Extend the North Vacuum-Morrow Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
SECTION 11: S/2 NE/4 and SE/4

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

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM
SECTION 19: SE/4
SECTION 33: N/2

TOWNSHIP 10 SOUTH, RANGE 34 EAST, NMPM
SECTION 29: N/2
SECTION 30: N/2

GOVERNOR
DAVID F. CARGO
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

November 26, 1968

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

Re: Case No. 3924
Order No. R-3600
Applicant:
Minerals, Inc. & R. F. Montgomery, et al.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

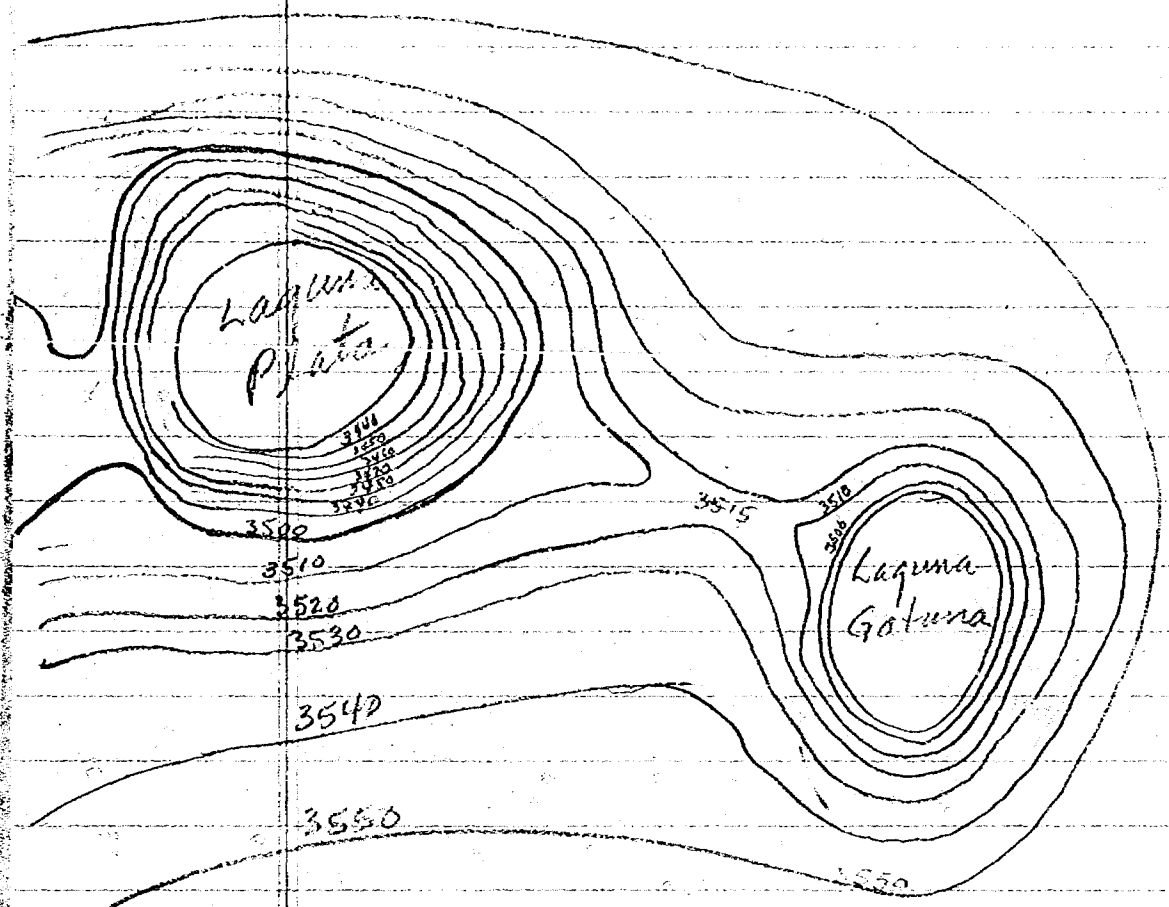
Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC
Other State Engineer Office


Laguna Plata
3500
3510
3520
3530
3540
3550
3515
Laguna Gatuna

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. 3924
Order No. R-3600

APPLICATION OF MINERALS, INC., AND
R. F. MONTGOMERY, et al., FOR AN
EXCEPTION TO ORDER NO. R-3221, AS
AMENDED, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 13, 1968, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 26th day of November, 1968, 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 applicants, Minerals, Inc., and R. F. Montgomery, et al., are the owners and operators of certain oil wells located in Sections 7 and 18, Township 20 South, Range 33 East, NMPM, Salt Lake Pool, Lea County, New Mexico.

(3) That effective January 1, 1969, Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any

other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicants seek an exception to the provisions of the aforesaid Order (3) to permit the continued disposal of salt water, produced by applicants' wells located in said Sections 7 and 18, in two unlined surface pits located in Unit N of said Section 7 and Unit C of said Section 18.

(7) That, in the alternative, applicants seek authority to dispose of said produced water into a salt lake, known as Laguna Gatuna, located principally in said Section 18.

(8) That there is an abandoned shallow water well, the water from which was reported as too salty for cattle to drink, approximately two miles to the northwest of the subject pits in the Laguna Plata synclinal depression.

(9) That there are five producing shallow water wells located from 2 1/2 to 3 1/2 miles to the south and southwest of the subject pits.

(10) That there is an abandoned shallow water well, the water from which was reported as too gypseous for cattle to drink, approximately 2 1/2 miles northeast of the subject pits.

(11) That there is an abandoned shallow water well approximately 1 3/4 miles to the southwest of the subject pits.

(12) That the subject pits are located very near the northwestern edge of the aforementioned Laguna Gatuna which lake occupies the lowermost portion of a synclinal feature.

(13) That each of the shallow water wells described in Findings Nos. (9), (10), and (11) are located structurally higher than the aforesaid pits and lake.

(14) That water will not flow from the aforesaid pits or lake up-structure to the shallow water wells described in Findings Nos. (9), (10), and (11).

(15) That there appears to be no water within the immediate area of the subject pits for which a present or reasonably foreseeable beneficial use is or will be made that would be impaired by contamination from said pits.

(16) That the applicants should be permitted to continue to dispose of salt water, produced by applicants' wells located in said Sections 7 and 18, in the two subject unlined surface pits.

IT IS THEREFORE ORDERED:

(1) That the applicants, Minerals, Inc., and R. F. Montgomery, et al., are hereby granted an exception to Order (3) of Commission Order No. R-3221, as amended, to continue to dispose of water produced in conjunction with the production of oil or gas, or both, by their wells located in Sections 7 and 18, Township 20 South, Range 33 East, NMPM, Salt Lake Pool, Lea County, New Mexico, in the unlined surface pit located in Unit N of said Section 7 and in the unlined surface pit located in Unit C of said Section 18 until further order of the Commission.

(2) That the Commission may by administrative order rescind such authority whenever it reasonably appears to the Commission that such rescission would serve to protect fresh water supplies from contamination.

(3) 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

GUYTON B. HAYS, Member

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

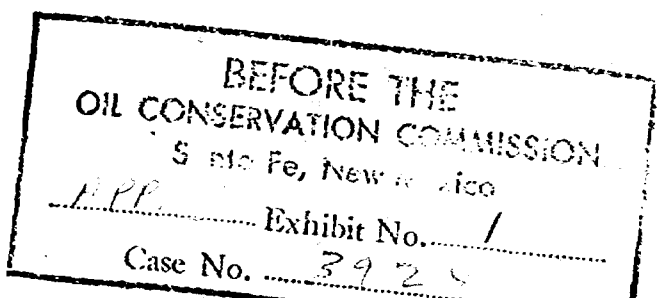
esr/

CASE 3924

APPLICATION OF MINERALS, INC., AND R. F. MONTGOMERY, ET AL.,
FOR AN EXCEPTION TO ORDER NO. R-3221, AS AMENDED,
LEA COUNTY, NEW MEXICO.

Applicants, in the above-styled cause, seek 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' wells located in Sections 7 and 18, Township 20 South, Range 33 East, Salt Lake Pool, Lea County, New Mexico. Applicants seek authority to continue to dispose of produced water in two unlined surface pits located in Units N and C, respectively, of said Sections 7 and 18. In the alternative applicants seek authority to dispose of said produced water into a dry lake bed, known as Laguna Gatuna, located principally in said Section 18.

THE FOLLOWING EXHIBITS ARE IN SUPPORT OF THIS APPLICATION.



INDEX

R 32 E

R 33 E

T 20 S

SALT LAKE

SALT LAKE SO.

WEST

Richardson Oils HBU 069060

Richardson Oil HBU 069060

Dorothy B. Perry 11-1-58(2) 063587

Dorothy B. Perry H.B.P. 069944

Dorothy Perry 6-1-61(1) 069944

D.B. Perry 11-1-58 060117 (2)

D.B. Perry 11-1-58 060118 (2)

D B Perry 11-1-58 063587 (2)

D B Perry 2-1-61(2) 064228

W.M. Snyder

R.F. Montgomery 7

"Brooks" (1)

(Texaco)

Texaco HBU 03023

Texaco 7-1-61(2) 065750

Merrill L. Connally 7-1-61(2) 065750

Merrill L. Connally 8-1-61(2) 068104

Rich. & Bass HBP E-5231

E.A. Henson 2-20-78

Rich. Oils HBU 03023

H.H. Anderson 9-1-61 05961

H.H. Anderson 9-1-61(2) 05961

Sinclair HBP 071900A

W.G. Ross Sinclair Opt. HBP J.E. 071900A Fielden 11-1-73 0446667

W.K. Byrom "Fed"-17 TD3266 D/A 7-30-62

Sinclair HBP E-4207

Cities Service H.B.P. B-1482

Cities Serv. 9-1-70(2) 026982 $50/A

Texaco 5-1-61(1) 03023

Texaco HBU 03023

Dorothy Perry 4-1-61(2) 065161A

Texaco 11-15-65 E-9543 HBU

Texaco, etal H.B.P. Rich. Oils etal

P.R. Bass 5-1-74 0530012

Anderson 1-64(3) 01321

W.W. Lomerson Little Eddy Unit

Pan Amer. Little Eddy Unit TD 14895 U.S. D/A 7-1-66

Continental, etal Brooks TD 4003

Cities Service State

Code & Harrell TD 2927

W. Monroe, Jr. E. Texas State TD 3156

Ohio TD 3705

Atok & Mar-Mex Disc

Ayers TD 3435

U.S.

State

11-1-68

EXHIBIT NO. 1
SALT LAKE POOL
Lea County, New Mexico

LOCATION MAP

-LEGEND-

Minerals Inc. Lease

R. F. Montgomery etal Lease

Producing Well

Disposal Pit

Salt Lake

D. L. Garey

R 32 E

R 33 E

T 20 S

Richardson Oils H B U 069060

Richardson Oils H B U 069060

Richardson Oils H B U 03023

Richardson Oils H B U 03023

Texaco H B U 03023

Texaco H B U 03023

Richardson Oils, etal

Richardson Oils, etal

Rich. & Boss H B P E-5231

Rich. Oils etal H.B.P. E-5231

Texaco 7-1-61 (2) 065750

Texaco 7-1-61 (2) 065750

Texaco 5-1-62 (2) 03023

Texaco, etal H.B.P. Rich. Oils etal

Texaco, etal

Merrill L. Connally 7-1-61 (2) 065750

Merrill L. Connally 7-1-61 (2) 065750

Dorothy B. Perry 11-1-58 (2) 063587

Dorothy B. Perry 11-1-58 (2) 063587

Dorothy B. Perry H.B.P. 069944

Dorothy B. Perry H.B.P. 069944

Dorothy B. Perry H.B.P. 069944

Texaco 6-1-61 069944

Dorothy B. Perry H.B.P. 069944

Dorothy B. Perry 4-1-61 (2) 065161A

H.H. Anderson 9-1-61 05961

H.H. Anderson 9-1-61 (2) 05961

Sinclair H B P 071900A

W G Ross Sinclair Opt. H B P 071900A

Sinclair H B P E-4207

Cities Service H.B.P. B-1482

Cities Serv. 9-1-70 (2) 026982

Cities Serv. H.B.P. B-1482

Phillips Union Tex Nat 05148 US

Continental, etal Brooks TD 4883

Pan Amer. Little Eddy Unit TD 14895 U.S. O/A 7-1-66

D.B. Perry 11-1-58 060117 (2)

D B Perry 11-1-58 063587 (2)

D B Perry 2-1-61 (2) 064228

D.B. Perry 2-1-61 (2) 064228

Richardson Oils H B U 069060

D B Perry 2-1-61 (2) 064228

E.A. Henson 2-20-78

Code & Harrell Pier TD 2927

W.W. Lomerson Little Eddy Unit

R.F. Montgomery

Boss-St.

Richardson Boss T/A3144

Ryan Consol. Acres 3410

M.L. Connally 8-1-61 (2) 068104

P.R. Bass 5-1-74 0530012

Anderson 1-64 (3) 01321

Texaco 11-15-65 E-9543 HBU

Texaco E-5231 "CH"

Atok & Morro Disc

W S We Ayer TD 343

Ohio TD 3705

3 2 Mil. Richards L. Scoff, etal G.H. Bingham

Atlantic ¼ M.I.

SALT LAKE

SALT LAKE SO.

WEST

U.S.

State

11-1-68

D. L. Garey

EXHIBIT NO. 2

SALT LAKE POOL

Lea County, New Mexico

STRUCTURE MAP

"Top of Yates"

C. I. - 20'

- LEGEND -

Producing Well ----- ○

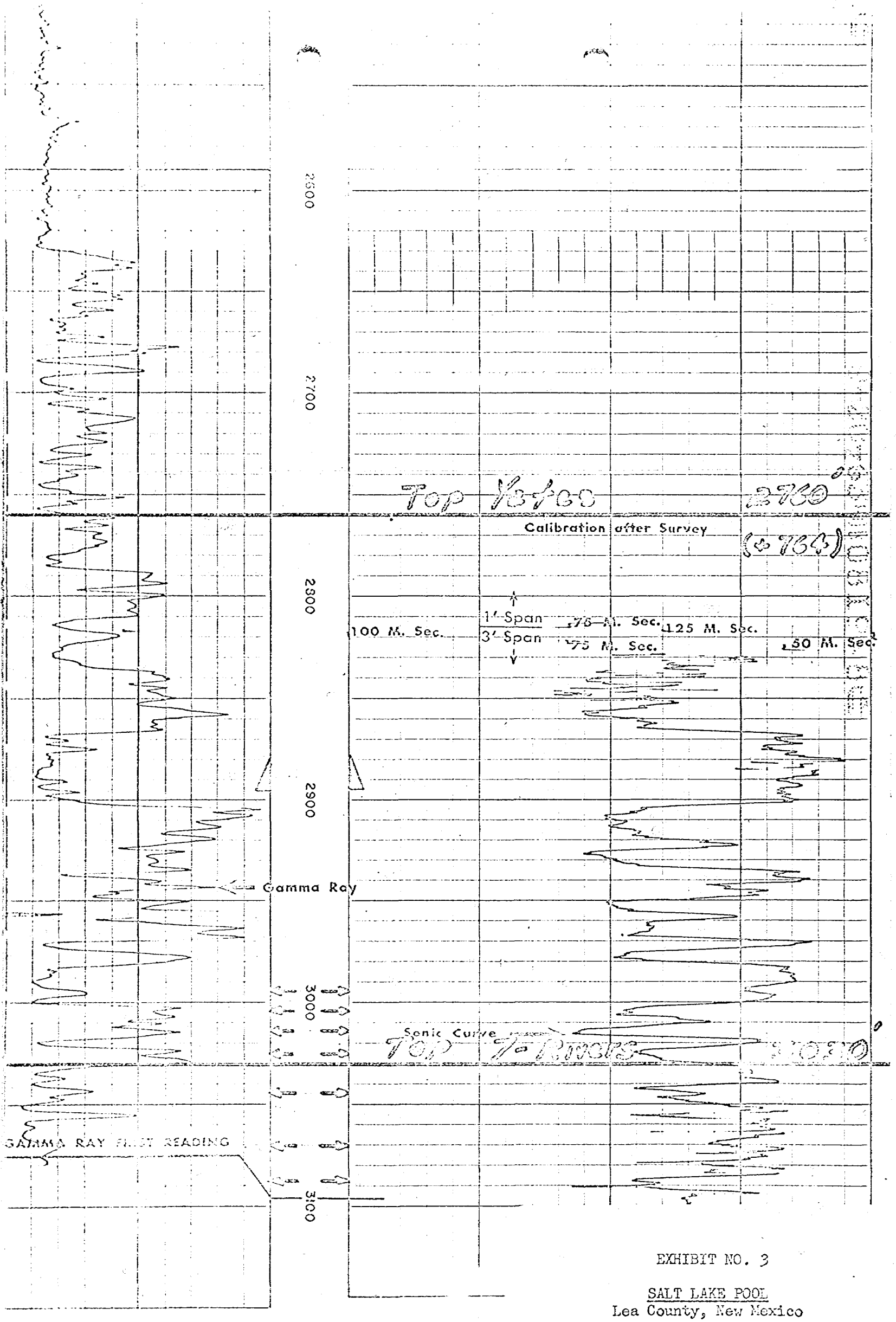


EXHIBIT NO. 3

SALT LAKE POOL
Lea County, New Mexico

TYPICAL SECTION

EXHIBIT NO. 4A

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

Plugged and Abandoned Wells

LEASE	LOCATION	COMPLETED	TD	CASING	PRODUCING FORMATION	PRODUCING INTERVAL	TREATMENT	I.P.P.	P & A	CUM. BARRELS PRODUCTION	REMARKS
Conoco #1 Brooks 7	M 7-20-33	10-31-41	3110	7 @ 2906'	Yates	2906-3110	1000 Gal. Acid	102 BO/12 hrs	11/48	39,337	Pulled Csg.
Conoco #2 Brooks 7	N 7-20-33	1-9-42	3075	5½ @ 2910'	Yates	2910-3075	Natural	233 BO/24 hrs.	11/48	39,000	Pulled Csg.
Conoco #3 Brooks 7	O 7-20-33	10-14-44	3025	5½ @ 2887'	Yates	2887-3025	Natural	288 BO/24 hrs.	11/48	35,600	Pulled Csg.
Conoco #4 Brooks 7	K 7-20-33	1-11-45	3064 PB 3054	5½ @ 2907'	Yates	2907-3054	Natural	104 BO/12 hrs.	11/48	21,200	Cement Plugs
Conoco #5 Brooks 7	F 7-20-33	5-30-45	3123 PB 3060	5½ @ 2933'	Yates	2933-3060	100 qts. N 2000 Gal. Acid	6 BO/24 hrs.	11/48	3,100	Pulled Csg.
Conoco #1 Smith 18	B 18-20-33	3-11-42	3034	5½ @ 2908'	Yates	2908-3034	Natural	182 BO/15 hrs.	7/28/48	41,000	Pulled Csg.
Bay Petroleum #1 Welch State	D 18-20-33	7-10-41	3102	7 @ 2865'	Yates	2865-3102	Natural	250 BO/24 hrs.	3/14/47	32,800	Pulled Csg.
Bay Petroleum #2 Welch State	E 18-20-33	12-31-41	3104 PB 3047	7 @ 2995'	Yates	2995-3047	500 Gal Acid	7 BO/24 hrs.	3/30/47	26,400	Pulled Csg.
Bay Petroleum #3 Welch State	C 18-20-33	11-17-41	3099	7 @ 2975'	Yates	2975-3099	1000 Gal. Acid	115 BO/24 hrs.	2/7/48	28,900	Pulled Csg.
Bay Petroleum #4 Welch State	F 18-20-33	12-15-41	3001	7 @ 2953'	Yates	2953-3001	Natural	35 BO/1 hr.	3/15/47	26,700	Pulled Csg.
Conoco #1 Brooks	D 8-20-33	1-16-29	4003	6 5/8 @ 3526'	--	--	Natural	Dry	5/7/29	-0-	Pulled Csg.
Conoco #2 Smith 18	G 18-20-33	5-12-42	3074 PB 3050	5½ @ 2910'	--	--	10 qts. Nitro	Dry	5/42	-0-	Pulled Csg.
Texaco #1 Muse Federal	N 7-20-33	4-21-57	15,560	5½ @ 10,780'	--	--	---	Dry	4/21/57	-0-	Pulled Csg.
R. F. Montgomery Base #A	K 18-20-33	9-25-65	3126 PB 3095	7 @ 2721'	--	--	5750 Gal. Acid	Dry	9/25/65	-0-	Cement Plugs
N. Monroe #1 State	P 12-20-32	7-16-43	3156	8¼ @ 1117'	--	--	---	Dry	7/43	-0-	Pulled Csg.

EXHIBIT NO. 4B

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

Producing Wells

(As of 10/1/68)

NAME	LOCATION	COMPLETED	TD	CASING	PRODUCING FORMATION	PRODUCING INTERVAL	TREATMENT	I.P.	CUMULATIVE PRODUCTION	REMARKS
Montgomery #3 Brooks	O 7-20-33	11-29-62	3025	3½ @ 2910'	YATES	2910-3025	Natural	Swbd. 37 BO + 200 BW/24 hrs.	24,448	Re-en Conoco #3
Montgomery #4 Brooks	K 7-20-33	7-13-62	3064	5½ @ 2907'	YATES	2907-3054	Natural	P 26 BO + 125 BW/24 hrs.	45,293	Re-en Conoco #4
Montgomery #5 Brooks	N 7-20-33	8-8-63	15,560	9 5/8 @ 8156'	YATES	3026-3052	1000 Gal. Acid	P 38 BO + 16 BW/24 hrs.	48,304	Re-en Texaco #1 Muse Federal
Minerals #1 Bass St.	C 18-20-33	9-30-63	3100	4½ @ 3100'	YATES-7 R	2992-3072	3500 Gal. Acid	P 33 BO + 2 BW/24 hrs.	9,265	New Well
Minerals #2 Bass St.	F 18-20-33	2-2-64	3101	4½ @ 3101'	YATES-7 R	3014-3080	500 Gal. Acid	P 25 BO + 100 BW/24 hrs.	12,932	New Well
Minerals #3 Bass St.	D 18-20-33	4-5-65	3120	4½ @ 3120'	7 RIVERS	3096-3112	168 Gal. Acid	Swbd. 31 BO + 20 BW/24 hrs.	15,037	New Well

EXHIBIT NO. 5A

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

Production Data

KINDRAN, INC.

Mass State Lease

Year			Well No. 1	Well No. 2	Well No. 3	Lease Total
1963		Oil	1027			1027
		Water	161			161
1964		Oil	2636	3195		5831
		Water	2033	39077		41110
1965		Oil	3518	6470	5764	15752
		Water	6348	75226	2066	83640
1966		Oil	1009	2032	5420	8461
		Water	2018	20320	2689	25027
1967		Oil	508	972	2730	4210
		Water	1218	13300	2521	17039
1968	January	Oil	70	28	142	240
		Water	140	1400	1278	2818
	February	Oil	34	12	66	112
		Water	68	600	594	1262
	March	Oil	69	25	135	229
		Water	138	1250	1215	2603
	April	Oil	49	18	95	162
		Water	98	900	855	1853
	May	Oil	57	21	111	189
		Water	114	1050	999	2163
	June	Oil	46	17	91	154
		Water	92	850	819	1761
	July	Oil	51	19	102	172
		Water	102	950	918	1970
	August	Oil	112	44	224	380
		Water	224	2200	2016	4440
	September	Oil	79	79	157	315
		Water	188	1821	1670	3679
Total 1968 (9 months)		Oil	567	263	1123	1953
		Water	1164	11021	10364	22549
Grand Total		Oil	9265	12932	15037	37234
		Water	12942	158944	17640	189526
Daily average production for October 1968 based on annual GOR test:		Oil	7	7	10	24
		Water	9	41	5	55
Estimated Month of October:		Oil	217	217	310	744
		Water	279	1271	155	1705

EXHIBIT NO. 5B

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

Production Data

R. P. MONTGOMERY, ET AL

Brooks Federal Lease

Year			Well No. 3	Well No. 4	Well No. 6	Lease Total
1962		Oil	564	4155		4719
		Water	5640	41550		47190
1963		Oil	5858	8619	4961	19438
		Water	34190	36305	10700	81195
1964		Oil	5528	8237	11342	25107
		Water	31915	49474	23154	104543
1965		Oil	4182	6742	8992	19916
		Water	14792	16111	14407	45310
1966		Oil	3331	6133	8243	17707
		Water	13324	11710	11280	36314
1967		Oil	3126	7490	8358	18974
		Water	7732	13613	13713	35058
1968	January	Oil	264	620	667	1551
		Water	792	2325	952	4069
	February	Oil	209	432	753	1394
		Water	627	1296	1130	3053
	March	Oil	223	461	802	1486
		Water	669	1383	1203	3255
	April	Oil	189	391	682	1262
		Water	567	1173	1023	2763
	May	Oil	217	450	783	1450
		Water	651	1350	1174	3175
	June	Oil	198	408	711	1317
		Water	594	1224	1066	2884
	July	Oil	203	420	731	1354
		Water	609	1260	1097	2966
	August	Oil	174	359	625	1158
		Water	522	1077	937	2536
	September	Oil	182	376	654	1212
		Water	546	1128	981	2655
Total 1968 (9 months)		Oil	1859	3917	6408	12184
		Water	5577	12216	9563	27356
Grand Total		Oil	24448	45293	48304	118045
		Water	113170	180979	82817	376966
Daily average production for October 1968 based on annual GOR test:		Oil	2	22	26	50
		Water	9	75	167	251
Estimated Month of October:		Oil	62	682	806	1550
		Water	279	2325	5177	7781

EXHIBIT NO. 6A

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

Minerals, Inc., Bass Lease

Income and Expenses per Producing Well

WELL NO. 1

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$ 1,294.02	$ 2,944.11	$(1,650.09)
1968	January	$ -0-	$ 60.14	$(60.14)
	February	284.71	105.59	179.12
	March	-0-	75.06	(75.06)
	April	153.80	81.17	72.63
	May	161.57	90.17	71.40
	June	-0-	65.16	(65.16)
	July	104.44	90.33	14.11
	August	94.79	94.80	(.01)
	September	109.95	88.61	21.34
Total 9 Month Period		$ 909.26	$ 751.03	$ 158.23

WELL NO. 2

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$ 2,823.38	$ 1,571.02	$ 1,252.36
1968	January	$ -0-	$ 60.15	$(60.15)
	February	104.39	87.12	17.27
	March	-0-	75.07	(75.07)
	April	56.39	71.12	(14.73)
	May	59.24	84.17	(24.93)
	June	-0-	65.18	(65.18)
	July	38.29	29.82	8.47
	August	34.75	85.70	(50.95)
	September	40.31	78.52	(38.21)
Total 9 Month Period		$ 333.37	$ 636.85	$(303.48)

WELL NO. 3

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$ 7,646.64	$ 6,821.53	$ 825.11
1968	January	$ -0-	$ 123.13	$(123.13)
	February	559.93	202.35	357.58
	March	-0-	366.73	(366.73)
	April	302.46	409.00	(106.54)
	May	317.74	259.03	58.71
	June	-0-	119.49	(119.49)
	July	205.38	218.53	(13.15)
	August	186.40	104.60	81.80
	September	216.23	6,446.04	(6,229.81)
Total 9 Month Period		$ 1,788.14	$ 8,248.90	$(6,460.76)

EXHIBIT NO. 6B

SALT LAKE POOL
Lea County, New Mexico

WELL DATA

R. F. Montgomery, et al, Brooks Lease

Income and Expenses per Producing Well

WELL NO. 3

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$ 7,931.67	$ 8,381.83	$(450.16)
1968	January	$ 707.21	$ 182.34	$ 524.87
	February	419.48	163.04	256.44
	March	533.12	211.30	321.82
	April	546.05	175.04	371.01
	May	513.46	134.41	379.05
	June	516.40	138.21	378.19
	July	545.72	138.36	407.36
	August	407.50	1,632.40	(1,224.90)
	September	526.25	1,013.60	(487.35)
Total 9 Month Period		$ 4,715.19	$ 3,788.70	$ 926.49

WELL NO. 4

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$19,018.64	$ 7,515.23	$ 11,503.41
1968	January	$ 1,664.02	$ 285.40	$ 1,378.62
	February	866.94	218.13	648.81
	March	1,101.77	279.18	822.59
	April	1,128.51	219.61	908.90
	May	1,061.16	201.65	859.51
	June	1,067.22	607.88	459.34
	July	1,127.81	214.42	913.39
	August	842.17	175.14	667.03
	September	1,087.57	401.96	685.61
Total 9 Month Period		$ 9,947.17	$ 2,603.37	$ 7,343.80

WELL NO. 6

		Gross Income	Direct Operating Expenses	Net Operating Income
1967	For Year	$21,263.82	$ 3,166.06	$ 18,097.76
1968	January	$ 1,788.81	$ 298.85	$ 1,489.96
	February	1,510.17	297.27	1,212.90
	March	1,919.21	376.73	1,542.48
	April	1,965.78	807.86	1,157.92
	May	1,848.47	502.36	1,346.11
	June	1,859.04	303.20	1,555.84
	July	1,964.57	283.60	1,680.97
	August	1,467.00	609.10	857.90
	September	1,894.48	590.36	1,304.12
Total 9 Month Period		$16,217.53	$ 4,069.33	$ 12,148.20

TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION
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601 NORTH LEECH P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated

Field

Lease Bass #1 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS C 18-20-33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	43.91	880
Magnesium (Mg++)	32.24	392
Sodium (Na+) (cal.)	180.70	4154
Bicarbonate (HCO_3)	16.60	1012
Carbonate (CO_3 -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4 -)	54.13	2600
Chloride (Cl-)	186.12	6600
6.9 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	76.15	3808
Carbonate Hardness as $CaCO_3$ (temporary)	16.60	830
Non-Carbonate Hardness as $CaCO_3$ (permanent)	59.55	2978
Alkalinity as $CaCO_3$	16.60	830
Specific Gravity c 68° F	1.010	

* mg/l = milligrams per liter
* me/l = milliequivalents per liter

EXHIBIT NO. 7

SAUL LAKE POOL
Lea County, New Mexico

TELEPHONE: HOBBS 393-6215

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Company Minerals, Incorporated

Field

Lease Bass #2 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS F 18-20,33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	51.90	1040
Magnesium (Mg++)	32.24	392
Sodium (Na+) (cal.)	177.10	4072
Bicarbonate (HCO_3)	13.40	817
Carbonate (CO_3 -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4 -)	64.54	3100
Chloride (Cl-)	183.30	6500
6.9 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	84.14	4207
Carbonate Hardness as $CaCO_3$ (temporary)	13.40	670
Non-Carbonate Hardness as $CaCO_3$ (permanent)	70.74	3537
Alkalinity as $CaCO_3$	13.40	670
Specific Gravity c 68° F	1.010	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 7B
SALT LAKE POOL
Lea County, New Mexico
OIL WELL
WATER ANALYSIS

TELEPHONE: HOBBS 393-6215

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OF NEW MEXICO

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HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Minerals, Incorporated

Field Salt Lake Field

Lease Bass #3 Sampling Date 10/24/68

Type of Sample

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	65.77	1318
Magnesium (Mg++)	53.13	646
Sodium (Na+) (cal.)	728.10	16,739
Bicarbonate (HCO_3^-)	19.57	1194
Carbonate (CO_3^-)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4^-)	115.80	5562
Chloride (Cl-)	711.63	25,235
6.7 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C	118.90	5945
Hardness as $CaCO_3$	19.57	979
Carbonate Hardness as $CaCO_3$ (temporary)	99.33	4967
Non-Carbonate Hardness as $CaCO_3$ (permanent)	19.57	979
Alkalinity as $CaCO_3$	1.030	
Specific [illegible]		

EXHIBIT NO. 7C

SALT LAKE POOL
Lea County, New Mexico

OIL WELL
WATER ANALYSIS

TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION
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601 NORTH LEECH P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company R. F. Montgomery, et al

Field

Lease Brooks T-7-3 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS Unit O 7-20-33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	45.91	920
Magnesium (Mg++)	32.24	392
Sodium (Na+) (cal.)	184.81	4249
Bicarbonate (HCO_3^-)	7.40	451
Carbonate ($CO_3^=$)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate ($SO_4^=$)	66.62	3200
Chloride (Cl-)	188.94	6700
7.8 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	78.15	3908
Carbonate Hardness as $CaCO_3$ (temporary)	7.40	370
Non-Carbonate Hardness as $CaCO_3$ (permanent)	70.75	3538
Alkalinity as $CaCO_3$	7.40	370
Specific Gravity c 68° F	1.010	

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

EXHIBIT NO. 7D

SALT LAKE POOL
Lea County, New Mexico

OIL & GAS

TELEPHONE: HOBBS 393-6215

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OF NEW MEXICO
601 NORTH LEECH P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company R. F. Montgomery, et al

Field

Lease Brooks T-7-4 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS K-7-20-33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	36.93	740
Magnesium (Mg++)	27.63	336
Sodium (Na+) (cal.)	169.67	3901
Bicarbonate (HCO_3 -)	21.00	1281
Carbonate (CO_3 --)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4 --)	46.85	2250
Chloride (Cl-)	166.38	5900
6.6 pH @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as $CaCO_3$	64.56	3228
Carbonate Hardness as $CaCO_3$ (temporary)	21.00	1050
Non-Carbonate Hardness as $CaCO_3$ (permanent)	43.56	2178
Alkalinity as $CaCO_3$	21.00	1050
Specific Gravity @ 68° F	1.005	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 7a

CASE NO. 1601

TELEPHONE: HOBBS 393-6215

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HOBBS, NEW MEXICO 88240

Company R. F. Montgomery, et al

Field

Lease Brooks T-7-6 Sampling Date 9/19/68

Type of Sample Wellhead

WATER ANALYSIS Unit N 7-20.33

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	34.93	700
Magnesium (Mg++)	27.63	336
Sodium (Na+) (cal.)	163.29	3754
Bicarbonate (HCO_3)	26.59	1622
Carbonate (CO_3 -)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4 -)	38.52	1850
Chloride (Cl-)	160.74	5700
6.7 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	62.56	3128
Carbonate Hardness as $CaCO_3$ (temporary)	26.56	1330
Non-Carbonate Hardness as $CaCO_3$ (permanent)	36.00	1800
Alkalinity as $CaCO_3$	26.56	1330
Specific Gravity c 68° F	1.005	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 7F

DAVE DAGG POOL
Lea County, New Mexico

EXHIBIT NO. 3A

SALT LAKE POOL

Lea County, New Mexico

W A T E R W E L L I N F O R M A T I O N

Township 20 South, Range 33 East

Sec 4 SW/4 NW/4 SE/4 Quaternary
T.D. 58'. ABANDONED STOCK. Rancher states water was gypy and cattle would walk greater distance to another water source.

Sec 5 SW/4 SE/4 SW/4 Triassic
T.D. 680' COMMERCIAL - was used for oil well drilling.

Sec 18-NE/4 NW/4 Triassic
T.D. 450' (approx) ABANDONED. Well was reportedly drilled in 1942 and water was not potable. Used only for washing in old oil field camp.

Sec 21-NW/4 NW/4 NW/4 Quaternary
T.D. 52' ABANDONED STOCK

Sec 24-SE/4 NE/4 NW/4 Triassic
T.D. 676'. STOCK.

Township 20 South, Range 32 East

Sec 1 SW/4 NW/4 SW/4 Quaternary
No T.D. recorded. NON-PRODUCING. Rancher stated well was too salty for cattle to drink.

Sec 23-SW/4 SW/4 SE/4 Quaternary (2 wells)
T.D. 78' DOMESTIC AND STOCK. These wells are approx. 2 miles from salt lake being used for surface disposal.

Sec 25-NW/4 NW/4 NW/4 Quaternary (2 wells)
T.D. 65' (2 wells) Both STOCK.

Sec 36-SW/4 NE/4 NE/4 Quaternary (3 wells)
T.D. 50' STOCK AND DOMESTIC
T.D. 65' ABANDONED
T.D. 80' NON-PRODUCING

TELEPHONE: HOBBS 393-6215

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UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated

Field

Lease Salt Lake Sampling Date 9/19/68

Type of Sample See. 7, 18 20-33

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++	9.98	200
Magnesium (Mg++)	1667.17	20,272
Sodium (Na+) (cal.)	5395.75	124,048
Bicarbonate (HCO_3)	14.80	902
Carbonate (CO_3--)	NOT	FOUND
Hydroxide (OH-)	NOT	FOUND
Sulphate (SO_4--)	2602.50	125,000
Chloride (Cl-)	4455.60	158,000
7.7 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C	1677.15	83,858
Hardness as Ca CO_3	14.80	740
Carbonate Hardness as $CaCO_3$ (temporary)	1662.35	83,118
Non-Carbonate Hardness as $CaCO_3$ (permanent)	14.80	740
Alkalinity as $CaCO_3$	1.250+	
Specific Gravity c 68° F		

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

EXHIBIT NO. 8

SALT LAKE POOL
Lea County, New Mexico

SURFACE LAKE
WATER ANALYSIS

TELEPHONE: HOBBS 393-6215

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UNITED CHEMICAL CORPORATION
OF NEW MEXICO
601 NORTH LEECH P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated

Field Salt Lake Field

Lease Salt Springs Sampling Date 10/24/68

Type of Sample

WATER ANALYSIS SW NE 19-20-33

IONIC FORM		mg/l *	mg/l *
Calcium (Ca++)		27.59	553
Magnesium (Mg++)		586.62	7133
Sodium (Na+)	(cal.)	2389.29	54,930
Bicarbonate (HCO_3-)		4.80	292
Carbonate (CO_3--)		7.60	228
Hydroxide (OH-)		NOT	FOUND
Sulphate (SO_4--)		1532.14	73,590
Chloride (Cl-)		1458.96	51,736
8.4 ph c @ 68 °F			
Dissolved Solids on Evap. at 103° - 105° C			
Hardness as $CaCO_3$		614.21	30,711
Carbonate Hardness as $CaCO_3$ (temporary)		12.40	620
Non-Carbonate Hardness as $CaCO_3$ (permanent)		601.81	30,091
Alkalinity as $CaCO_3$		12.40	620
Specific [illegible] @ 68° F		1.115	

* mg/l = milligrams per Liter
* m.e./l = milliequivalents per Liter

EXHIBIT NO. 8C

SALT LAKE POOL
Lea County, New Mexico

SALT SPRINGS
Area Boundary

TELEPHONE: HOBBS 393-6215

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UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated

Field Salt Lake Field

Lease Bingham Well Sampling Date 10/24/68

Type of Sample NW NW NW 21-20-32

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	19.86	398
Magnesium (Mg++)	17.19	209
Sodium (Na+) (cal.)	84.21	1936
Bicarbonate (HCO_3^-)	3.21	196
Carbonate ($CO_3^=$)	NOT	FOUND
Hydroxide (OH^-)	NOT	FOUND
Sulphate ($SO_4^=$)	18.84	905
Chloride (Cl^-)	99.21	3518
7.5 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as $CaCO_3$	37.05	1853
Carbonate Hardness as $CaCO_3$ (temporary)	3.21	161
Non-Carbonate Hardness as $CaCO_3$ (permanent)	33.84	1692
Alkalinity as $CaCO_3$	3.21	161
Specific Gravity c 68° F	1.005	

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

EXHIBIT NO. 8D

SALT LAKE POOL
Lea County, New Mexico

BINGHAM WELL
WATER ANALYSIS

TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Minerals, Incorporated

Field Salt Lake Field

Lease Well #3 Wells Sampling Date 10/24/68

Type of Sample

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	21.61	433
Magnesium (Mg++)	122.37	1488
Sodium (Na+) (cal.)	561.94	12,919
Bicarbonate (HCO_3^-)	4.60	286
Carbonate (CO_3^{--})	0.80	24
Hydroxide (OH^-)	NOT	FOUND
Sulphate (SO_4^{--})	334.54	16,068
Chloride (Cl^-)	365.98	12,978
8.3 ph c @ 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as $CaCO_3$	143.98	7199
Carbonate Hardness as $CaCO_3$ (temporary)	5.40	270
Non-Carbonate Hardness as $CaCO_3$ (permanent)	138.58	6929
Alkalinity as $CaCO_3$	5.40	270
Specific Gravity @ 68°	1.030	

* mg/l = milligrams per Liter

* me/l = milliequivalents per Liter

EXHIBIT NO. 23

SALT LAKE POOL

Case No. [illegible]

THREE WELLS

Well symbols

TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Minerals, Incorporated

Field Salt Lake

Lease Bass #1 Water Well Sampling Date 11/4/68

Type of Sample 18-20S-33E

WATER ANALYSIS

IONIC FORM		me/l *	mg/l *
Calcium (Ca++)		59.33	1189
Magnesium (Mg++)		105.68	1285
Sodium (Na+)	(calculated)	508.85	11,698
Iron			212
Bicarbonate (HCO_3^-)		0.20	12
Carbonate ($CO_3^=$)		Not Found	
Hydroxide (OH^-)		Not Found	
Sulphate ($SO_4^=$)		81.09	3895
Chloride (Cl^-)		592.57	21,013
5.9 ph c 68 °F			
Dissolved Solids on Evap. at 103° - 105° C			
Hardness as $CaCO_3$		165.01	8251
Carbonate Hardness as $CaCO_3$ (temporary)		0.20	10
Non-Carbonate Hardness as $CaCO_3$ (permanent)		164.81	8241
Alkalinity as $CaCO_3$		0.20	10
Specific Gravity c 68° F	1.025		

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

Calcium Carbonate Scaling Index - Negative at 86°F
Calcium Sulfate Scaling Index - Negative

EXHIBIT NO. 8 F

SALT LAKE POOL
Lea County, New Mexico

BASS WATER WELLS
WATER ANALYSIS

JASON W. KELLAHIN
ROBERT E. FOX

KELLAHIN AND FOX
ATTORNEYS AT LAW
54½ EAST SAN FRANCISCO STREET
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

TELEPHONE 982-4315
AREA CODE 505

October 17, 1968

Case 3924

68 OCT 18 AM 8 07

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico

Re: Application of Minerals, Inc. and R.G. Montgomery

Gentlemen:

Enclosed please find original and two copies of the above application.

Kindly set same for hearing November 13, 1968.

Yours very truly,

Jason W. Kellahin

JASON W. KELLAHIN

jwk;peg
Enc.

DOCKET MAILED

Date 11-1-68

BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

APPLICATION OF MINERALS, INC., AND R. F. MONTGOMERY, ET AL., FOR AN EXCEPTION TO THE PROVISIONS OF R-3221, AS AMENDED, SALT LAKE POOL, LEA COUNTY, NEW MEXICO

'80 Oct 13 AM 8 37

Case 3924

A P P L I C A T I O N

Come now MINERALS, INC., and R. F. MONTGOMERY, et al., and apply to the Oil Conservation Commission of New Mexico for an exception to the provisions of Oil Conservation Commission Order No. R-3221, as amended, to permit the continued disposal of produced water in unlined surface pits in the Salt Lake Pool, Lea County, New Mexico, or in the alternative, to permit use of a surface, salt lake for water disposal, and in support thereof would show the Commission:

1. Applicants are the operators of producing oil wells located in Sections 7 and 18, Township 20 South, Range 33 East, N.M.P.M., Lea County, New Mexico.

2. At the present time water produced in association with the oil production is being disposed of in unlined surface pits, one of which is located in Unit N of Section 7, Township 20 South, Range 33 East, N.M.P.M., and the other is located in Unit C of Section 18 of Township 20 South, Range 33 East, N.M.P.M.

3. Volumes of water produced total approximately 150 barrels per day, with approximately 95 barrels per day being produced from wells located in Section 7, and approximately 55 barrels per day from wells located in Section 18.

4. Said surface pits are located in the vicinity of a large surface lake, designated as Laguna Gatuna, which lake

contains concentrations of chlorides far in excess of the chloride content of water produced from the Salt Lake Pool.

5. Continued use of said surface pits will not result in damage to any underground or surface fresh water supply.

6. In the alternative, applicant proposes to utilize Laguna Gatuna for disposal of produced water from the Salt Lake Pool, the major portion of said lake being located in the E/2 of Section 18, Township 20 South, Range 33 East.

7. The utilization of said lake will not endanger any fresh water supply nor create any possibility of pollution not already present under natural conditions.

WHEREFORE, applicant prays that this application be set for hearing before the Commission or its duly appointed examiner, and that after notice and hearing as required by law, the Commission enter its order granting an exception to the provisions of Order No. R-3221, as amended, to permit continued use of surface pits for water disposal, or, in the alternative, use of Laguna Gatuna for water disposal.

Respectfully submitted,

MINERALS, INC., and R. F. MONTGOMERY ET AL.,

BY: Jason W. Kellahin

KELLAHIN & FOX
Post Office Box 1769
Santa Fe, New Mexico

DRAFT

GMH/esr
11-25-68

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. 3924

Order No. R-3600

APPLICATION OF MINERALS, INC., AND
R. F. MONTGOMERY, et al., FOR AN
EXCEPTION TO ORDER NO. R-3221, AS
AMENDED, LEA COUNTY, NEW MEXICO.

11-26-68

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 ~~o'clock~~ a.m. on November 13 1968, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of November, 1968, 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 applicants, Minerals, Inc., and R. F. Montgomery, et al., are the owners and operators of certain oil wells located in Sections 7 and 18, Township 20 South, Range 33 East, NMPM, Salt Lake Pool, Lea County, New Mexico.

(3) That effective January 1, 1969, Order (3) of Commission Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any

other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(4) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(5) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(6) That the applicants seek an exception to the provisions of the aforesaid Order (3) to permit the continued disposal of salt water, produced by applicants' wells located in said Sections 7 and 18, in two unlined surface pits located in Unit N of said Section 7 and Unit C of said Section 18.

(7) That, in the alternative, applicants seek authority to dispose of said produced water into a salt lake, known as Laguna Gatuna, located principally in said Section 18.

(8) That there is an abandoned shallow water well, the water from which was reported as ~~salty for cattle to drink~~ "low", approximately two miles to the northwest of the subject pits in the Laguna Plata synclinal depression.

(9) That there are ~~seven~~ five producing shallow water wells located from 2 1/2 to 3 1/2 miles to the south and southwest of the subject pits.

(10) That there is an abandoned shallow water well, the water from which was reported as too ~~gypy~~ gypsaceous for cattle to drink, approximately 2 1/2 miles northeast of the subject pits.

(11) That there is an abandoned shallow water well approximately 1 3/4 miles to the southwest of the subject pits.

(12) That the subject pits are located very near the north~~eastern~~ western edge of the aforementioned Laguna Gatuna which, lake occupies the ~~bottom~~ lowermost portion of a ~~small~~ synclinal feature.

~~(13) That the ground and surface waters within the area of said synclinal feature flow to said salt lake.~~

~~(14) That water does not flow from said lake.~~

(15) That there appears to be no water within the ~~seepage~~ immediate area of the subject pits for which a present or reasonably foreseeable beneficial use is or will be made that would be impaired by contamination from said pits.

(16) That the applicants should be permitted to continue to dispose of salt water, produced by applicants' wells located in said Sections 7 and 18, in the two subject unlined surface pits.

IT IS THEREFORE ORDERED:

(1) That the applicants, Minerals, Inc., and R. F. Montgomery, et al., are hereby granted an exception to Order (3) of Commission Order No. R-3221, as amended, to continue to dispose of water produced in conjunction with the production of oil or gas, or both, by their wells located in Sections 7 and 18, Township 20 South, Range 33 East, NMPM, Salt Lake Pool, Lea County, New Mexico, in the unlined surface pit located in Unit N of said Section 7 and in the unlined surface pit located in Unit C of said Section 18 until further order of the Commission.

(2) That the Commission may by administrative order rescind such authority whenever it reasonably appears to the Commission

that such rescission would serve to protect fresh water supplies from contamination.

(3) 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.