CASE 5922: A.L. DAUGHERTY FOR AN EXCEPTION TO ORDER NO. R-3221, CHAVES COUNTY, NEW MEXICO

A. L. Daugherty

Case Number

5922

Application

Trascripts

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 11, 1977

EXAMINER HEARING

IN THE MATTER OF:

Application of A. L. Daugherty for an exception to Order No. R-3221, Chaves County, New Mexico. CASE 5922

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
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Santa Fe, New Mexico

For the Applicant: Donald G. Stevens, Esq.
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I N D E X

EXHIBIT INDEX

MR. NUTTER: The hearing will come to order, please. The next case will be Case Number 5922.

MS. TESCHENDORF: Case 5922, application of A. L. Daugherty for an exception to Order No. R-3221, Chaves County, New Mexico.

MR. STEVENS: Mr. Examiner, I'm Don Stevens, an attorney in Santa Fe, representing the applicant in this case and we have two witnesses to be sworn.

(THEREUPON, the witnesses were duly sworn.)

JACK AHLEN

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

DIRECT EXAMINATION

BY MR. STEVENS:

Q. Would you state your name, your residence, your occupation and your relationship to the applicant?

A. My name is Jack Ahlen and I spell the last name, A-h-l-e-n. I live at 2600 North Kentucky Avenue, Roswell, New Mexico. I'm a consulting geologist hired by the applicant to investigate the facts in this case.

Q. Have you testified previously before this Commission and had your qualifications accepted and made a matter of record?

A. Yes.

MR. STEVENS: Are the witness' qualifications acceptable, Mr. Examiner?

MR. NUTTER: Yes, they are.

Q. (Mr. Stevens continuing.) Briefly would you state what the applicant seeks in this case, Mr. Ahlen?

A. The applicant, Mr. A. L. Daugherty, seeks an exception to Rule R-3221 to dispose of produced salt water into an intermittent saline lake located in Section 24 of Township 8 South, Range 29 East and in Section 19 of Township 8 South, Range 30 East, Chaves County, New Mexico.

Q. Referring to what has been marked as Exhibit Number One, would you explain it please?

A. Yes, sir. Exhibit One is a USGS map, published record, the scale is one to two hundred and fifty thousand showing the area of interest, the White Lakes Ranch, as well as the Crosby Ranch is marked in the center of the circle of the illustration. Outlined in red is the location of the particular intermittent salt lake that we have in mind.

The Caprock escarpment or the Ogallala formation is present in the eastern third of this map. You will note that it extends from Mescalero Point on the south part of the map in Township 11 South, Range 31 East, northward through Button Mesa, through the township of Kenna and off the map to the north.

The area to the west of that, surface exposures are Triassic and Permian Redbeds. You will note that there is a drainage divide at the western limit of the Caprock of the Ogallala formation and topographic drainage generally is to the west in the center and the western part of the map.

You will also note that there are several undrained depressions in the vicinity of the location in question.

Q. Where is the nearest running water to this location?

A. The nearest running water is in the Pecos River, thirty miles or so to the west.

Q. Are there any intermittent streams in the immediate vicinity?

A. Intermittent only in that there may be water in them from time to time when it rains, a few hours after it rains.

Q. I know you are going to get into this later but on this map could you show us the approximate location of the nearest fresh water?

A. On this map, approximately two miles to the east is the location of a windmill that does produce fresh water. It is somewhat brackish.

Q. Is that in the approximate vicinity of the terminology "windmills" on this map just east of the red outline?

A. That is correct.

Q. Do you have any other comments concerning this

exhibit, Mr. Ahlen?

A. No, sir.

Q. Referring then to what has been marked as Exhibit Number Two, would you explain it, please?

A. This is a land map, scale four thousand feet to the inch, showing the location of the intermittent salt lake in Sections 24 and 19. It also shows the location of all wells that have been drilled in the vicinity, both producing oil wells, abandoned oil wells and dry holes in the vicinity. It shows the location of the Lightcap, the western part of Cato and Many Gates oil pools. It also shows the location of several dry holes that have been drilled to the west of that.

Also shown on the map is the line of two cross sections, AA prime and BB prime, respectively north and south of the intermittent lake.

Q. Could you point out the approximate locations on this map of the nearest fresh water?

A. On this map the nearest fresh water, the windmill which I previously mentioned is located in Section 17 in the southeast quarter of 8 South, 30 East.

Q. Is there additional fresh water in Section 15 of that Township?

A. Yes, sir, there is additional fresh water in the northwest quarter of Section 15 of 8 South, 30 East, right on the edge of this map. That is the primary water supply for the

Crosby Ranch headquarters. The windmill located in Section 17 is a very weak well and does not produce very much water.

Q. Referring then to what has been marked as Exhibit Number Three would you explain it please?

A. Exhibit Number Three is a Xerox copy of a topographic map that is currently being produced by the U. S. Coast and Geodetic Survey. It is not yet a final map, it is not yet finalized and it will be in print soon so it is subject to correction at the present time but it shows the general configuration of the area. The scale of this map is two thousand feet to the inch. The topographic contours are ten-foot contour intervals. It shows the intermittent lake in question. At the time the survey was done there was some water in the lake, the water level was at four thousand seven feet. The windmill which I have mentioned in Section 17 is at an elevation of four thousand, ninety-nine feet which is a difference of ninety-two feet in elevation between the lake bottom and that one fresh water windmill.

Q. Do you know the depth of that one well there, the water well with the windmill?

A. Yes, sir, the windmill was drilled to a depth of thirty-eight feet.

Q. Thus what would be the distance from the bottom of that windmill to the lake bed level?

A. Fifty-four feet.

MR. NUTTER: Is that windmill on this map?

A. Yes, sir.

MR. NUTTER: Where would it be?

A. Okay. Notes, the location of the A prime on the cross section AA prime, it is located approximately one half inch east of there.

MR. NUTTER: That would be over close to that forty-one hundred foot contour then?

A. Yes, sir, right next to it and the elevation that you see there, forty ninety-nine, refers to the elevation of that windmill.

MR. NUTTER: Is there a litte "wm"?

A. Yes, sir.

MR. NUTTER: And that's the windmill?

A. Yes, sir.

Q. (Mr. Stevens continuing.) Mr. Ahlen, then what is the significance to you of the difference in elevations between the windmill and the water in this lake?

A. The significance is that it is quite a distance uphill for water to move before it would get to that source of fresh water and that's an abnormal circumstance.

Now, one thing that I did not mention, I mentioned the producing windmill, there is also a symbol for a windmill in a little bit closer to the lake but that is an abandoned well that is no longer producing and has been abandoned for

quite sometime because of lack of capacity and that is located immediately to the southeast of the leg on the A prime. It's a little triangle there and there is an unimproved road leading to it. We flew over it this morning and all that is there is the rusted remains of a galvanized tank.

MR. NUTTER: Is that about a quarter of an inch east of A prime?

A. Yes, sir.

MR. NUTTER: And that's an abandoned windmill, is it?

A. Yes, sir. The windmill is no longer there, it is just a tank, just a rusted steel tank.

Q. (Mr. Stevens continuing.) In your opinion, Mr. Ahlen, would it be possible by putting water into this saline lake to contaminate or pollute the windmill water referred to in your testimony?

A. No, sir, I don't think -- it's possible to do anything but that would be highly improbable contamination since there is fifty-four feet of difference in elevation from the lake surface to the bottom of that water well.

Q. How about water traveling in other directions from this lake bed?

A. There are no other water wells in the vicinity of this particular lake. The spill point of the lake is to the southwest of the lake itself and the spill point elevation is approximately four thousand sixty-five feet which theoretically

you might put some fifty-eight feet of water in the lake to fill it to capacity but I doubt that it will ever be filled to capacity.

The size of the lake as indicated by the closing bottom contours is approximately eighty acres.

Q. Referring then to what has been marked as Exhibit Number Four would you explain it, please?

A. Yes, sir, Exhibit Number Four is copies of photographs that were taken of the lake itself in different directions. On the top sheet of Exhibit Four is a photograph taken looking southwest, illustrating the topographic relief from the lake bottom up to the ridge that is on the west side of the lake. The photograph to the immediate right of that is a close-up of those white clumps that you see in the other photograph. Those are salt crystals. An illustration of the salt crystals and the watch is used for scale. The lower left shows a view looking to the east, with an individual walking across the lake bottom. In the bottom right is a view from the top of the western side of the divide looking eastward toward the lake.

Now, on the second page of Exhibit Four are four aerial views. Top left looking eastward, top right looking southward, the lower left looking northwest and lower right looking westward. You will note the white material in the center of the lake is crystallized salt in the lake bottom.

On the eastern side of the lake you will note an area of sand dunes. This is sand which has blown out of the lake when it has been dry and blown up on the east side of the lake.

These photographs were taken perhaps an hour or two hours after a local rainstorm in the area and at that particular time some of the salt had actually been dissolved, so this is probably a very conservative photograph of this particular lake, minimizing the amount of salt in it.

MR. NUTTER: Now, you mentioned that the lake covered eighty acres, I believe?

A. Yes, sir.

MR. NUTTER: What would be the eighty acres on these photographs?

A. On the photographs that would be the bottom-most topographic contour.

MR. NUTTER: Now referring to --

A. Okay, that would be where you had the maximum change in color on the color photograph.

MR. NUTTER: Taking for example this northwest view, that would be over on the left side when you go from the -- you can see the beach, so to speak around there, is that what you are talking about, the eighty acres would be encompassed into the beach area?

A. Yes, sir.

MR. NUTTER: And in the west view it would be to the

edge of the vegetation there, approximately?

A. Yes, sir, right. The bottom is salt saturated and very little or no vegetation grows in the concentrated salt brine. Immediately adjacent to that when you get up above the ground water level where you get some fresh water from the surface vegetation will grow.

Q. (Mr. Stevens continuing.) Referring to what has been marked as Exhibit Number Five, would you explain it, please?

A. Yes, sir, Exhibit Number Five is a sample of the soil and salt from the bottom of the lake itself.

Q. Have you made any type of test to determine the saltiness of that soil?

A. I tasted it this morning in your office, Mr. Stevens, and it was indeed salty.

Q. Could you describe from your geological examination of it the constituents of all of the exhibit?

A. It is primarily a sand or silt, a very fine grained sand or silt, unconsolidated, completely unconcolidated as you would expect at the surface of the ground. It was saturated with salt.

Q. And what has been marked as Exhibit Number Five, would you explain it, please?

A. Five or Six?

Q. Six, excuse me.

A. Exhibit Number Six is a cross section AA prime.

Referring back to Exhibit Three, the topographic map, it shows here the location of Exhibit Six. Cross section AA prime runs west to east. This is an illustration of the two logs run on these two wells that are the ends of cross section AA prime. The immediate subsurface in this area is Triassic and Permian Redbeds occur to a depth of approximately one thousand feet. At that point, we have the top of the Rustler which is marked on the exhibit at approximately thirteen and fourteen hundred feet, the Yates formation is located. I have datumized these cross sections, a sea level datum of three thousand feet.

You will note that the Yates formation and its dip reflects regional dip in the area. The Yates and all deeper formations dip structurally to the east, slightly south of these. The Yates, Queens, San Andres and all of the deeper formations dip in that direction. You will note, however, that the Rustler formation dips to the west. This is an illustration of salt solution near the surface. Most of the Rustler formation is salt, imbedded salt, and through the ages percolating ground waters have dissolved the salt near the surface which is probably the cause for most of the sinks in this part of the country.

The overlying Permian and Triassic is primarily a red shale. There are thin intermittent siltstones interbedded with that shale.

Q. Is there any particular large amount of permeability

within this Redbed of which you speak?

A. It is generally impermeable.

Q. Is it your opinion that the bottom of the lake bed and its environs lie on and in the Redbed?

A. Yes, it certainly does.

Q. Referring to what has been marked as Exhibit Number Seven, would you explain it, please?

A. Exhibit Number Seven is cross section BB prime constructed similar to cross section AA prime except that it runs east-west on the south end of the lake. It shows the same subsurface conditions as previously discussed and also the same Redbeds to a depth of a thousand feet in the area.

Q. Mr. Ahlen, based upon these exhibits and your study of the area and your knowledge of the geology of southeast New Mexico, do you have an opinion as to whether the granting of this application would tend to prevent pollution and protect the environment?

A. Yes, sir, I think it would.

Q. Do you have an opinion that there might be additional pollution caused by the granting of this application?

A. No, this is a naturally occurring salt lake and putting salt water in a salt lake would not tend to increase pollution.

Q. Were these Exhibits One through Seven prepared by you or under your direction, Mr. Ahlen?

A. Yes, sir.

MR. STEVENS: At this time we would like to introduce into evidence Exhibits One through Seven.

MR. NUTTER: Applicant's Exhibits One through Seven will be admitted into evidence.

(THEREUPON, Applicant's Exhibits One through Seven were admitted into evidence.)

MR. STEVENS: We have no further questions on direct, sir.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Ahlen, referring to your Exhibit Number One, please.

A. Yes, sir.

Q. Now, you mentioned that these wells to the east and the northeast of this intermittent salt lake were the closest water wells to the lake.

A. Yes, sir.

Q. However, to the southwest, which is in the direction of general surface drainage here I see a number of windmills and tanks and lakes. I wonder if you would go into those individually and tell me what the status of these various windmills, tanks and lakes is?

A. To the extent that I can. I think that the next witness has a more personal knowledge of those.

Q. Well, the reason I ask you, you are a geologist and if these are, in fact, fresh water lakes and tanks that have fresh water in them and drainage is to the southwest, you might have water percolating through the formation to the southwest and intercepting these sources of water. Now for instance, the first thing that I see on the exhibit is a large depression marked Red Lake.

A. Yes, sir.

Q. Now, that looks like a synclinal feature there, is that another lake bed, is that a salty lake bed or fresh water or what?

A. It's another salty lake bed. Now, surface waters do accumulate in it from time to time, they are less salty than this particular salt lake we are discussing.

You will also note there is a lake directly south of the lake that we are discussing.

Q. Yes.

A. It shows four thousand right next to it?

Q. Right.

A. That lake appears to be just as salty as the one under consideration.

Now, if the topographic rim of the lake is exceeded by produced waters then certainly there would be a tendency to contaminate other surface waters and I think that Mr. Daugherty will insure against that.

Q. Okay, now, if we go southwest from Red Lake I see a windmill there, do you know the status of that windmill?

A. I do not.

Q. And then we have Spotted Tank and Madison Square Garden Tank and Salmon Lake and Race Track Well, Antelope Tank?

A. Yes, sir, these are all features on the way to the Pecos River to the west. The scale here, these squares that you see here on the map, these are each township, six mile squares.

Q. Now, there is a dike across here?

A. Yes, sir, there are two of them.

Q. Where is that dike?

A. Right to the north of the area in question is Railroad Mountain. Railroad Mountain is located -- and it's labeled on this map.

Q. Right, I found it.

A. To the south of this area is the Diablo Dike and it is located just north of Highway 380 and it's near Race Track Well which is --

Q. Okay, is it shown by just a solid line?

A. A solid line, yes, sir.

Q. And it has the word "Del Diablo" or something?

A. To the left of it, right.

Q. And it looks like it cuts across along Arroyo Draw or something like that?

A. Yes, sir, and Race Track Well and then it disappears in the subsurface immediately to the east of that. For the most part the surface in this area is covered by the Triassic Redbeds which primarily are impermeable Redbeds, red shales. There are a few scattered intermittent siltstone beds in the Redbed sequence.

Q. Now, an examination of this lake, you have been on the site, have you not?

A. Not on the ground, I flew over it this morning. I did not personally make those photos.

Q. You haven't been out there then and done any ground geology on this lake bed?

A. Not on the lake bed itself, no, sir.

MR. NUTTER: Are there any questions of Mr. Ahlen? He may be excused. We might want to call him back.

(THEREUPON, the witness was excused and the hearing was in recess.)

MR. NUTTER: The hearing will come to order, please.

A. L. DAUGHERTY

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

DIRECT EXAMINATION

BY MR. STEVENS:

Q. Would you state your name and address, please?
A. A. L. Daugherty, White Lake Ranch, Roswell, New Mexico.
Q. And you are the applicant in this case?
A. That's right, I am.
Q. Are you the only party in interest in this application?
A. No, sir, the man that owns the ranch, Mr. Fred Seevickson. I'm representing him in it, we are in it together.
Q. Mr. Seevickson owns which ranch.
A. Well, he owns White Lake Ranch and the Crosby Ranch.
Q. Do those ranches comprise most of the acreage in the townships to the east and west of this subject lake?
A. Yes, they do.
Q. Mr. Daugherty, how long have you lived in the area or on the ranch?
A. Well, I've been there since 1934.
Q. How long have you been foreman of the White Lakes Ranch and the Crosby Ranch?
A. Well, for the White Lake Ranch eight years, going on nine and the Crosby Ranch we've owned it going on four years now.
MR. NUTTER: Is that Crosley or Crosby?
A. It's Crosby. They have it spelled wrong here, it's the Bob Crosby Ranch.
Q. (Mr. Stevensons continuing.) Have you been foreman of that Crosby Ranch during that four year period?

A. Yes, sir, I have.

Q. Are you familiar with all or most of the wells drilled for water on both of the ranches?

A. Yes, sir, for the last -- well, since I've been on the ranch. Everytime a seismograph or anybody comes through we follow them and check on the hole and we've drilled countless wells and on the White Lake Ranch out of over eighty thousand acres we have one well on there.

Q. Where is that well, incidentally?

A. It will be off from that windmill, it will be at Elkins, two miles west of there.

Q. Is that approximately fifteen miles northwest of this subject lake?

A. Twelve or fifteen miles.

Q. Was there any other water that you know of that might be considered potable or even that cattle might drink on either of these two ranches in the vicinity of this lake, other than those previously testified to?

A. We have two windmills, they would be approximately eight miles south and a little bit east of the lake. It's marked with a windmill just right outside of the circle on the southeast corner.

Q. Is that Township 9 South, Range 30 Eas

A. It would be in Range 30 East so that's not it. It's this one way over here. This windmill will be in Range 30 East.

MR. NUTTER: Okay, that would be the well then that -- it's just outside this circle, I think. Now, first of all we've got the subject lake circled in red, right?

A. That's right.

MR. NUTTER: Okay, but one township south there is another lake?

A. Where it has four thousand?

MR. NUTTER: Yes, sir, and then east of that and a little bit south there is a windmill, is that the one you are talking about?

A. Yeah, but that doesn't look far enough east, though, on the map, of course, the scale --

MR. NUTTER: Well that square is six miles.

A. Yeah, the windmill ought to be four miles south of the lake and about a mile east, so it's going to be the lower windmill there, the other well is not there, I don't know.

MR. NUTTER: That would be the lower one in that township?

A. Yeah, the lower one.

MR. NUTTER: Is that a good windmill?

A. It's about a two gallon well. In that country it's considered a fair stock well.

Q. (Mr. Stevens continuing.) How do you provide water for your cows on that ranch, Mr. Daugherty?

A. We have pipelines running from a mile and a half eas

of the Crosby Ranch to within three-fourths of a mile of the windmill on the south end or approximately ten miles of pipeline.

Q. Are some of the windmills shown on that map possibly windmills that were set up to pump water out of the lake bed or a tank?

A. The windmill directly southwest of the lake, maybe eight miles, is not there, it was in a lake bed, pumping water out of the lake bed into a drink tub.

MR. NUTTER: Okay, now, let me get oriented here, would that be in the same township that has Spotted Tank in it?

A. Yes.

MR. NUTTER: And would that be the windmill that's just south of a couple of oil wells?

A. That's right, it's southwest of Red Lake.

MR. NUTTER: And that didn't pump water out of the ground?

A. It was in a dirt tank and pumped out into a drink tub. Another windmill directly northwest on the railroad map was a deep well that was drilled twenty years ago that never did -- well, they tried to pump it for maybe a year and then did away with it.

Q. (Mr. Stevens continuing.) How far west is your nearest fresh water from a windmill?

A. Ten to twelve miles due west.

Q. How far north or northwest perhaps?

A. Well, that would be ten miles.

Q. And south you have already mentioned the one well and east you have mentioned those wells. In your opinion, based on the wells that have been drilled in the area there is no other subsurface fresh water?

A. We have had well drillers come in and drill double or nothing and always leave, they would get all they wanted and leave so there is just no water in there.

Q. Did Mr. Hank Sweeney drill some wells with air with the idea perhaps of helping you find some water?

A. We have had two air rigs in within the last five years and no water.

Q. What's your reasons, Mr. Daugherty, for wanting to put salt water in this lake?

A. Well, the lake has been there forever and it's not worth anything to anybody. I have been approached by different people for a salt water disposal and also you can see from the photographs that the lake bed is blowing out in the pasture and if we could keep it wet maybe we wouldn't get so much silt coming out of the bottom of the lake.

Q. Have you had any problems with truckers dumping salt water on your roads on your ranches?

A. Well, we've had quite a bit of a problem with that because some of the wells are hauling water approximately

seventy miles.

Q. This was not done with your consent?

A. Well, no.

Q. What is the result if they do that continually?

A. The result of that is they are going to contaminate all of the -- wherever the runoff winds up at.

Q. By contamination does that mean it will kill your grass?

A. Kill my grass and there are lots of, or several weak wells in the area. They are going to have to have a disposal somewhere. I understand that Amoco is cutting their water flood, they are not taking any new water in, and Aqua Water Disposal have got all they can handle.

Q. So according to your information there just isn't a good convenient place for salt water to be disposed of, is that correct?

A. As far as I understand it there isn't.

Q. And this would have a tendency to keep truckers from dumping water on your roads?

A. I think it would and I also think it would keep some of the weaker wells pumping if they've got convenient disposal in the area.

Q. Why in particular did you choose this lake, Mr. Daugherty?

A. It is the deepest lake and there is no possible

chance for water to ever get out of it. Evaporation is the only way water will ever go from there.

Q. It's not a spring fed lake?

A. No springs in there.

Q. Do you have any idea as to whether the water in this lake goes down into the ground or whether it principally evaporates?

A. It's evaporation. We've had tanks, regular stock tanks, twenty to thirty feet deep that have been there some of them thirty years and we've cleaned them out and when you get to the natural bottom the water won't be four inches down into the natural bottom, they are just like it was when the tank was there so I would say the water goes by evaporation, it's the only place. We've got tanks that have had water in them for thirty years and never been dry.

Q. In your experience there since 1933 what is the most water you have ever seen in that lake from natural rainfall?

A. In 1941, I was eleven years old then and they said there was approximately two feet of water was the most that had ever been in the lake from rainwater and I think 1941 was the wettest year we ever had on record, I imagine.

Q. Mr. Daugherty, if this application is granted, what would be the procedure and the surface facilities you would install for the disposal of water into this lake?

A. We have in mind to put up two five hundred barrel

tanks, settling tanks, so that no oil would get through into the lake bed, strictly water would be all that would go in there.

Q. You wouldn't allow the trucks just to dump the water into the lake?

A. No, everything will have to come through the tanks.

Q. And the oil that would be recovered from it you would presumably sell through normal channels for recovered oil?

A. Yes, sir.

Q. Is there a possibility that pipelines might be built to your tank battery there to carry the water?

A. There is probably a chance that there would be maybe.

Q. Would you plan metering or not necessarily metering but keeping a fairly accurate record of the volume of water going into the lake bed?

A. Yes, with all of the water will be trucked into there it would be easy to but if we have a pipeline we would have to have a way to know how much they are putting in. I can personally guarantee there will never be five foot of water in the lake, I don't think there is ever a chance that it would be but it would be shut off before then.

Q. So if you had five feet of water in it you would shut it down?

A. I just don't believe there is a way that there ever would be.

Q. If there were five feet that wouldn't exceed the

eighty acre lake bottom?

A. It wouldn't get out of the lake bottom, I wouldn't put anymore than that in there.

Q. That wouldn't exceed your eighty acre lake bottom by any appreciable amount?

A. No.

Q. Is it your belief then that this will tend to prevent pollution as opposed to causing any?

A. I believe it would.

MR. STEVENS: We have no further questions on direct, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Daugherty, you mentioned that you had never seen the lake contain any appreciable amount of water except when you were eleven years old. I take it then that you have never seen the lake spill over and flow in a southwest direction?

A. No, there is no possible way. The picture may not show it but you are looking way high -- there is no way that the water can ever.

Q. Well, I see by the contour lines that there would be considerable elevation above this bed that is shown on Exhibit Number Three and the spill point which Mr. Ahlen mentioned which would be at four oh six five. Now, with

reference to these photographs, this photograph of this man walking across the snow here in Exhibit Number Four.

Now, is this salt -- are you acquainted with the Lane Salt Lake that is some miles east of there?

A. I know it is on the old Lane Ranch that is south and east of us.

Q. Now, I have been out on that one, Mr. Daugherty, and I know that salt is kind of slushy and has a lot of water in it. It appears maybe from this photograph that this lake is the same way, is that the case?

A. This lake will be salt, not spongy water but there will be black mud under the salt.

Q. And the salt will be dry?

A. Dry.

Q. In the absence of any rainfall the salt is dry?

A. Yes.

Q. Now, these little white spots that are on this pictur southwest of you, these are up out of the white portion of the lake and along the beach, is that it?

A. yes. They are just salt forming.

Q. Just little growths of salt here and there?

A. Back in close up where the watch is laying there.

Q. And that's not out in the midst of the salt water?

A. No, that's around the edge of it.

Q. Now, on down to the southwest here a number of miles

where we have Spotted Tank and Madison Square Garden Tank and Salmon Lake and those features, what is the nature of those, Mr. Daugherty?

A. They are just all rainwater tanks.

Q. Those are all manmade tanks for catching water?

A. They are approximately what, twelve or fourteen miles.

Q. They are about two townships southwest?

A. Yeah.

Q. Okay, now, you mentioned that you had a pipeline running from the Crosby Ranch south to within three-quarters of a mile of that southernmost windmill?

A. That's right.

Q. Does that more or less follow that little dotted line there that looks like a road?

A. Well, no, it will be along the roadway and then it will cross the road to the east and come out, well, northeast of where we have the windmill circled here, approximately three-quarters of a mile.

Q. Let's see, you've got a purple pen, maybe I can just draw it on my exhibit so I would know where that pipeline would be.

A. Here's the Crosby Ranch. All right, it will run from in here somewhere by the ranch and it runs into a storage tank here and it will come somewhere right along in here, it comes across the road and there is a storage in here, we've got another

storage and it will come out into here and then back up here. This will be off scale.

Q. That's about six miles. About every mile there, approximately, you've got a drink tub there.

A. But our main source of water comes from these three wells here. We dump it into a big metal storage at the windmill there.

Q. Well, now, Mr. Daugherty, on my exhibits you have made a little purple line with dots and that's the approximate location of the pipeline that carries water to the cattle?

A. Yes.

Q. What size of a pipeline is that, Mr. Daugherty?

A. It's an inch parts of the way, inch and a quarter and an inch and a half. The man who put it in I think just used whatever pipe he had and every time you dig into a leak you've got a different sized pipe.

Q. That carries windmill water from up around the Crosby Ranch headquarters?

A. The Crosby Ranch headquarters, yes.

Q. And where is the White Ranch headquarters?

A. It will be -- I don't know whether this map is going to go far enough.

VOICE: White Ranch or White Lakes Ranch?

A. White Lakes Ranch, it will be due west of Red Lake, approximately four miles. It is marked on there White Lake.

Q. And then I see a little black square, that would be the headquarters of the ranch?

A. That's right.

Q. Okay. And on that ranch you only have one windmill and that's up there west of Elkins?

A. West of Elkins, about two and a half miles west of Elkins. It's a sixty-eight foot well. We have drilled, like I say, all over the ranch, followed the seismographs in trying to find it. In the forty years I have been connected with it it hasn't been found.

Q. Now, these windmills that are here on the Crosby Ranch, Mr. Ahlen mentioned the depths of some of them, what is the average depths of those wells out there?

A. The well right northwest of the lake is thirty-eight feet -- northeast, northeast. And then the well east of the Crosby headquarters is around forty-two to forty-five feet.

MR. STEVENS: Those wells are in Section 15.

A. And they are sulphur wells, that's what we call them because the water, you sure won't drink it, the cattle will drink it.

Q. (Mr. Nutter continuing.) Referring to the surface ownership here, Mr. Daugherty, how is the surface owned around here?

A. All of White Lake, other than four to five sections is deeded land.

Q. Okay, now, take Exhibit Number Two which shows all of the leases, the oil and gas leases, around that lake for a distance of three miles east and west and and five or six or ten miles all together north and south, what is the surface ownership around through this exhibit?

A. Well, all of the west of it, Section 24 and then all west is all deeded rather than 16 and 36 in each township is State. But now Crosby, it is checkerboarded with State, Federal and deeded and due east of the lake our fence line, the White Lake fence line is a quarter of a mile off the township line into 19, so that is all deeded land. It looks like the east half of 19 is deeded land.

Q. Well, the east half of the west half then would be Federal land, is that it?

A. According to this map it shows it but my map at home doesn't show it this way. I went to the BLM office in Roswell and checked with them and they show, I would say -- what would you call this Don, this section right here, how much of that?

MR. STEVENS: It would be eighty acres, being the east half of the northwest.

A. Of 19?

MR. STEVENS: Of Section 19.

A. They have it on this map the lower half but the BLM, of course, the lake doesn't touch any of that, the lake is all to the west.

Q. (Mr. Nutter continuing.) Now, over here in the township to the west here, I see a good number of sections where the ownership at the bottom of the lease is stated to be D. C. Chamberlain, et al and J. W. and W. B. O'Brien, now, are those fee lands?

A. Yes, well, the O'Brien Company out of Amarillo has owned that ranch since 1918, I believe, and they sold it to Fred Seevickson, it will be four years this November.

Q. That's all deeded land in there?

A. Deeded land but I'm sure O'Brien kept their mineral because Fred Seevickson didn't.

Q. But as far as the surface ownership?

A. The surface ownership belongs to Fred Seevickson.

Q. Seevickson owns it now and O'Brien's did have it?

A. O'Brien's did have it. That's the good thing about O'Brien White Lakes there, it's all deeded other than what little the State's got in there, scattered around through it.

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

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Daugherty, have you found any waters other than fresh water in this immediate area, real brackish waters or at shallow depths?

A. Over in Red Lake to the southwest we have a seismograph hole there came within, oh, twenty or thirty feet of the surface but it was not usable. There are some wells right south of White Lake headquarters, lots of water but it's salty and not usable. You can get brackish water in pretty near any lake bed that holds above the Redbed, I guess, it just seeps out of it.

MR. RAMEY: Okay.

MR. NUTTER: Are there any further questions of Mr. Daugherty? He may be excused.

(THEREUPON, the witness was excused.)

MR. NUTTER: Did you have anything further, Mr. Stevens?

MR. STEVENS: Nothing further, Mr. Examiner.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 5922? We will take the case under advisement.

REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Sidney F. Morrish, C.S.R.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 · SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

June 15, 1977

Mr. Donald G. Stevens
Attorney at Law
Post Office Box 1797
Santa Fe, New Mexico

Re: CASE NO. 5922
ORDER NO. R-5464

Applicant:

A. L. Daugherty

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

Don Stevens 28583

CASE 5919: Application of Tenneco Oil Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Strawn formation through the perforated interval from 11,174 feet to 11,236 feet in its Jones Federal Well No. 1, located in Unit K of Section 23, Township 19 South, Range 31 East, Lusk-Strawn Pool, Eddy County, New Mexico.

CASE 5920: Application of New Mexico Salt Water Disposal Co., 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 Devonian formation through the perforated interval from approximately 13,000 feet to 13,500 feet in its Sinclair State Lea Well No. 1, located in Unit M of Section 1, Township 11 South, Range 34 East, Sand Springs-Devonian Pool, Lea County, New Mexico.

CASE 5921: Application of Eastland Oil Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Grayburg formation through perforated intervals from 3506 feet to 3598 feet in its Power Deep Unit Well No. 1, located in Unit F of Section 6, Township 18 South, Range 31 East, Power Grayburg-San Andres Pool, Eddy County, New Mexico.

CASE 5922: Application of A. L. Daugherty for an exception to Order No. R-3221, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks, as an exception to the provisions of Commission Order No. R-3221, permission to dispose of produced salt water into an intermittent saline lake located in Section 24, Township 8 South, Range 29 East, and Section 19, Township 8 South, Range 30 East, both in Chaves County, New Mexico.

CASE 5653: (Reopened) (Continued from April 6, 1977, Examiner Hearing)

In the matter of Case 5653 being reopened pursuant to the provisions of Order No. R-5191 which order established temporary special pool rules for the Daisey-Wolfcamp Pool, Lea County, New Mexico. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 5923: Application of El Paso Natural Gas Company for underground gas storage, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute its Barker Dome Gas Storage Project by utilizing certain wells for the injection into and withdrawal of gas from the Upper Dakota formation underlying all of Sections 8, 9, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23, 28, and 29, and portions of Sections 7, 18, 19, 27, 30, and 32, all in Township 32 North, Range 14 West, Barker Creek-Dakota Pool, San Juan County, New Mexico.

CASE 5904: (Continued from April 20, 1977, Examiner Hearing)

Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Fruitland and Pictured Cliffs formations underlying the NE/4 and/or SE/4 of Section 20, Township 32 North, Range 6 West, San Juan County, New Mexico, and in the Mesaverde and Dakota formations underlying the E/2 of said Section 20, the above-described lands to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5905: (Continued from April 20, 1977, Examiner Hearing)

Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde and Dakota formations underlying the W/2 SE/4 and the E/2 SW/4 of Section 3, and the NW/4 of Section 10, and all mineral interests in the Pictured Cliffs and Fruitland formations underlying the NW/4 of Section 10, all in Township 31 North, Range 7 West, San Juan County, New Mexico, to be dedicated to a well to be drilled 1800 feet from the North line and 850 feet from the West line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operting costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 5906: (Continued from April 20, 1977, Examiner Hearing)

Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde and Dakota formations underlying the W/2 SW/4 of Section 2, the E/2 SE/4 of Section

(Case 5906 continued on Page 3)

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. 5922
Order No. R-5464

APPLICATION OF A. L. DAUGHERTY
FOR AN EXCEPTION TO ORDER NO.
R-3221, AS AMENDED, CHAVES COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 11, 1977, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 14th day of June, 1977, 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 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.

(3) 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.

(4) 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.

(5) That the applicant herein, A. L. Daugherty, seeks an exception to the provisions of the aforesaid Order (2) to permit the disposal of water produced in conjunction with the production of oil and gas in an intermittent saline lake located in Section 24, Township 8 South, Range 29 East, NMPM, and Section 19, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico.

(6) That said lake's bed lies at the bottom of a synclinal feature comprising some 940 acres within a closure elevation of at least 4060 feet above sea level, and that said lakebed comprises no more than 80 acres in the bottom of said syncline at an elevation of 4007 feet.

(7) That the spill point of said synclinal feature is at an elevation of 4065 feet above sea level.

(8) That the synclinal feature including the intermittent salt lake lies between two natural dikes, Railroad Mountain, running east-west at a distance of approximately 4.5 miles to the north, and El Camino del Diablo, running east-west at a distance of approximately 9.0 miles to the south-southwest.

(9) That the area between said dikes is devoid of useable ground waters, the only water available for watering livestock being surface waters captured by earthen dams or water brought into the area by water pipelines.

(10) That the lake bed is composed of salt (NaCl) and black mud overlying impermeable red beds, and the only means of water escape from the lake bed is by evaporation.

(11) That the disposal of produced salt water in the subject intermittent salt lake will not constitute a hazard to any ground waters nor impair their quality, and will not cause waste nor violate correlative rights provided

(A) That all disposal water should be allowed to settle in tanks prior to being placed in the lake, in

order that any residual oil in said water might be removed and not be passed through to the lake bed;

(B) That a permanent steel marker, graduated in feet and tenths of feet, should be suitably located in the lake bed and set in concrete, extending at least five feet above the lake bed;

(C) That the water level in the lake bed should not be permitted to exceed five feet in depth;

and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, A. L. Daugherty, is hereby authorized to dispose of produced salt water in an intermittent salt lake located in Section 24, Township 8 South, Range 29 East, NMPM, and Section 19, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico, hereinafter referred to as Crosby Salt Lake.

(2) That the applicant shall install a permanent steel marker, graduated in feet and tenths of feet, at a suitable location in said Crosby Salt Lake, embedded in concrete and extending at least five feet above the lake bed.

(3) That the applicant shall install and maintain in good condition wooden or metal settling tanks, and shall allow all oil field brines to remain in such tanks for a sufficient period of time to permit any residual oil contained in said brines to be skimmed off, and not be passed on with the brines to the disposal lake.

(4) That the applicant shall install and maintain in good condition meters or other measuring devices to permit an accurate determination of the quantity of water disposed of in Crosby Salt Lake.

(5) That the applicant shall file a monthly report with the Commission in accordance with Rule 1120 of the Commission Rules and Regulations, reporting each source and quantity of disposal water and the total quantity disposed of.

(6) That at no time shall disposal be permitted in the aforesaid Crosby Salt Lake if the total quantity of water in

the lake, from both natural precipitation and previous disposal, is five feet or more in depth.

(7) That the Commission by administrative order may rescind the authority to dispose of produced salt water in Crosby Salt Lake if it reasonably appears to the Commission that such rescission would serve to protect fresh water supplies from contamination.

(8) 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

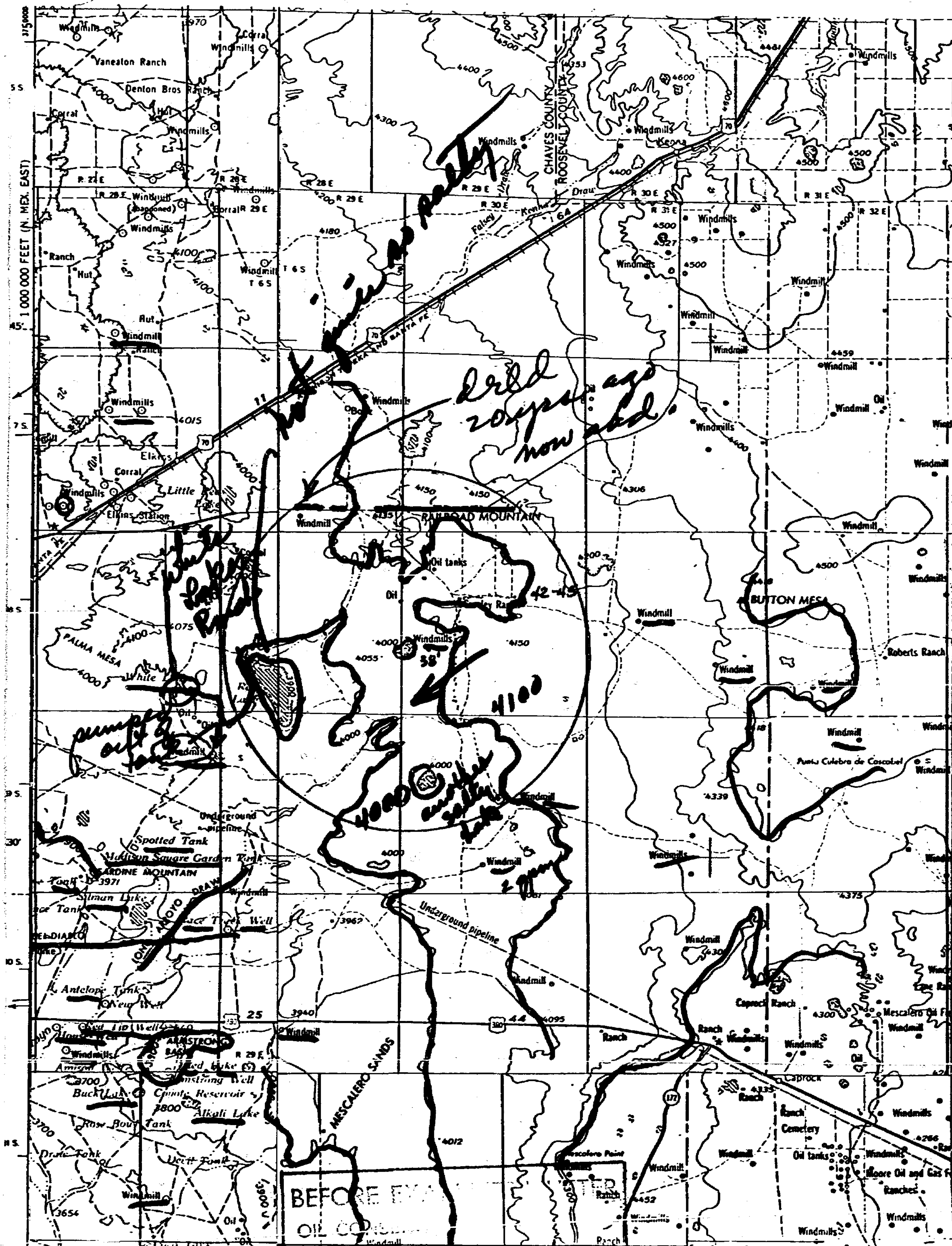
PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

dr/



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Denton Bros Ranch
Corral
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Windmill (abandoned)
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Elkins
Elkins Station
Little Red Lake
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Oil tanks
Oil
BUTTON MESA
Roberts Ranch
PALMA MESA
Punta Culebra de Coscobel
Underground pipeline
Spotted Tank
Madison Square Garden Tank
SARDINE MOUNTAIN
Antelope Tank
New Well
ARMSTRONG BASIN
Armstrong Well
Buck Lake
Coyote Reservoir
Alkali Lake
Drake Tank
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Caprock Ranch
Caprock
Mescalero Oil Field
Moore Oil and Gas Field
Cemetery
Ranches
Mescalero Point
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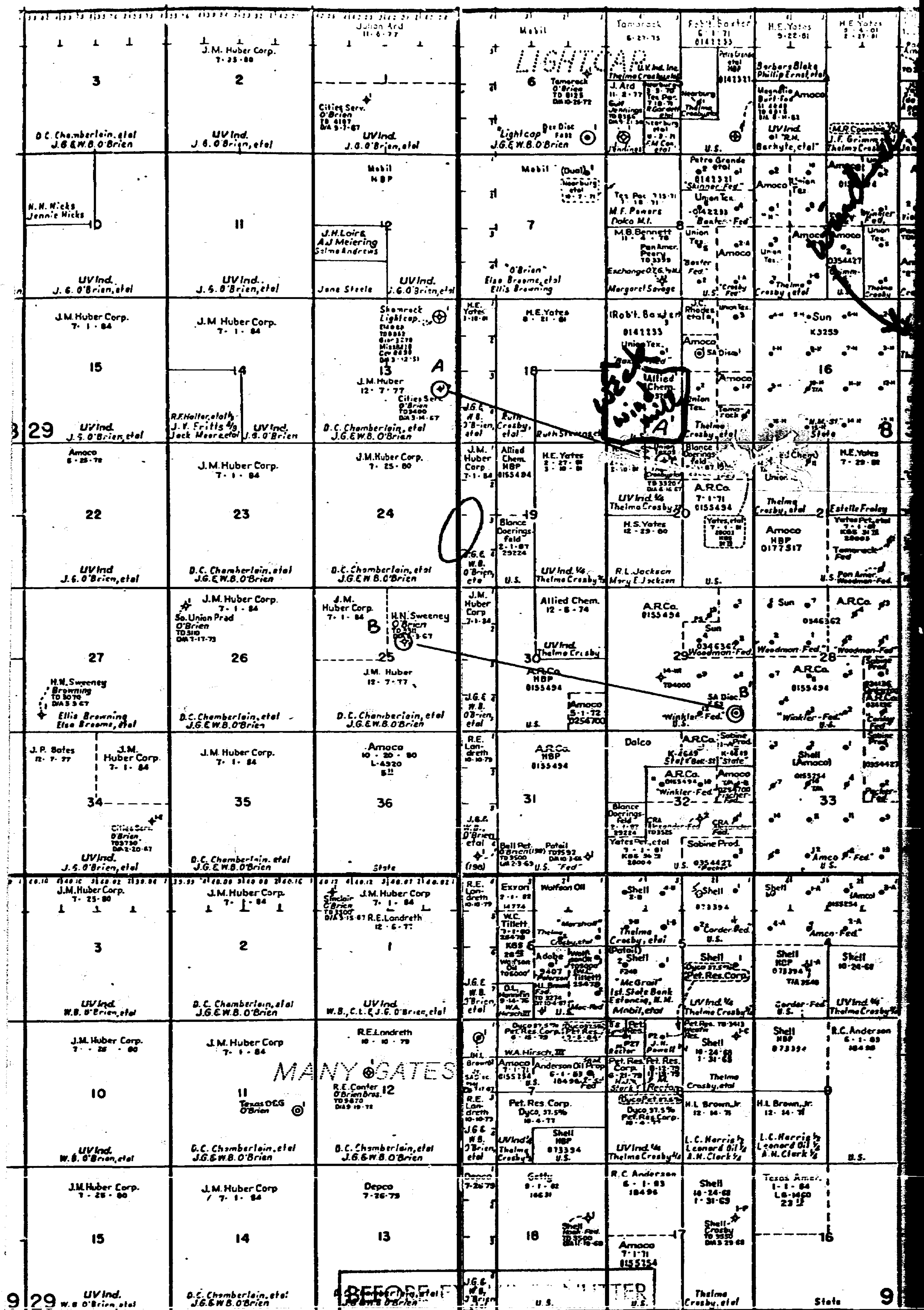
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MANY GATES
J.M. Huber Corp.
UV Ind.
J.G. O'Brien, etal
D.C. Chamberlain, etal
J.G. & W.B. O'Brien
Mobil
Lightcap
Julian Ard
Tamarack
Rob't. Baxter
H.E. Yates
Cities Serv.
O'Brien
J.H. Loire
A.J. Meiering
Jane Steele
Else Broome, etal
Ellis Browning
Margaret Savage
Shamrock
J.M. Huber 12-7-77
Allied Chem.
H.S. Yates
R.L. Jackson
Mary E. Jackson
Amoco
A.R.Co.
Sun
Union Tex.
Thelma Crosby
Blance Doerings
H.N. Sweeney
So. Union Prod
Woodman-Fed.
Winkler-Fed.
Dalco
J.P. Bates
Texas O&G
R.E. Landreth
Exxon
Wolfson Oil
Shell
Pet. Res. Corp.
Anderson Oil Prop.
W.A. Hirsch, III
L.C. Harris
Leonard Oil
A.H. Clark
H.L. Brown, Jr.
R.C. Anderson
Getty
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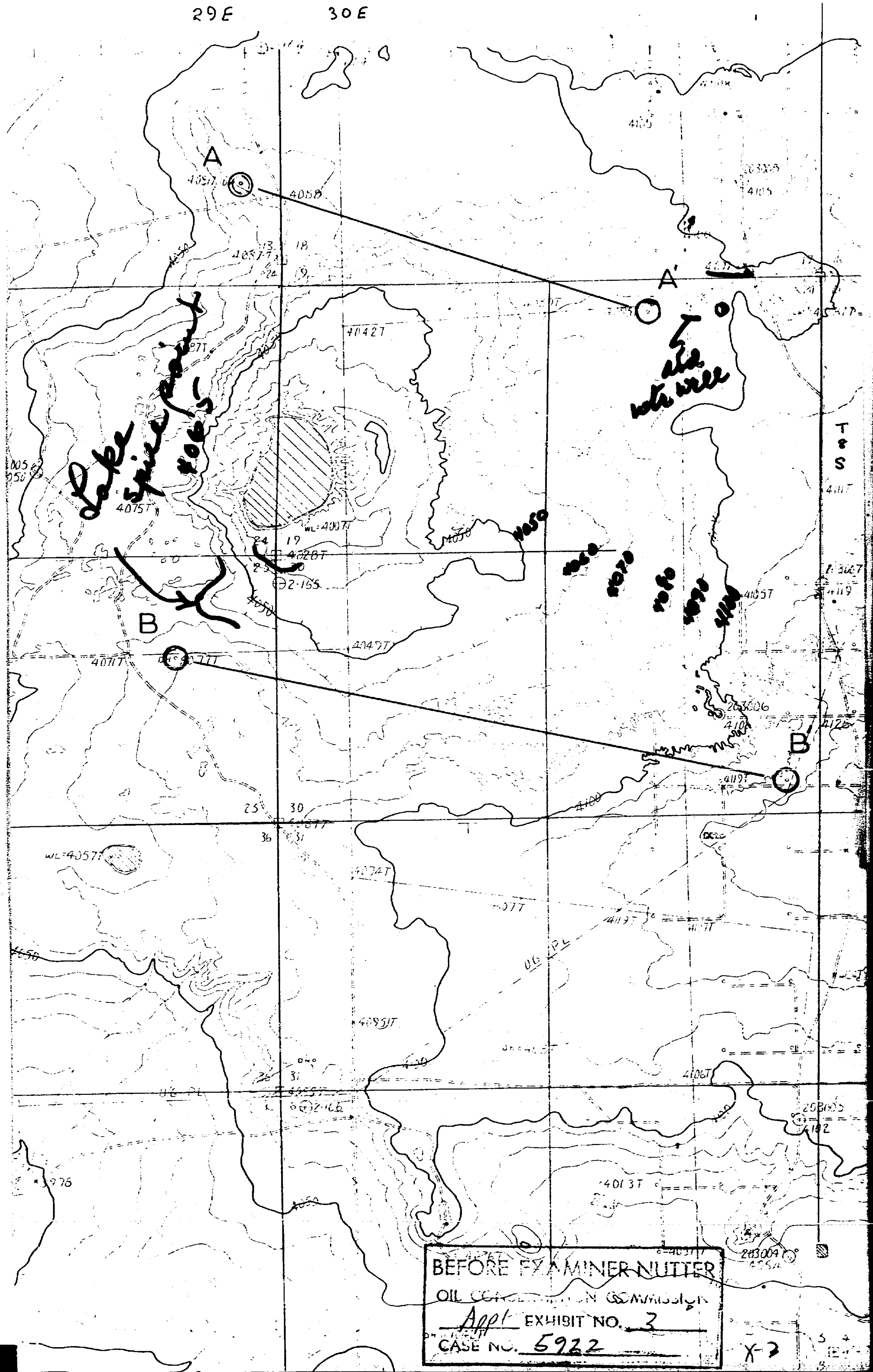
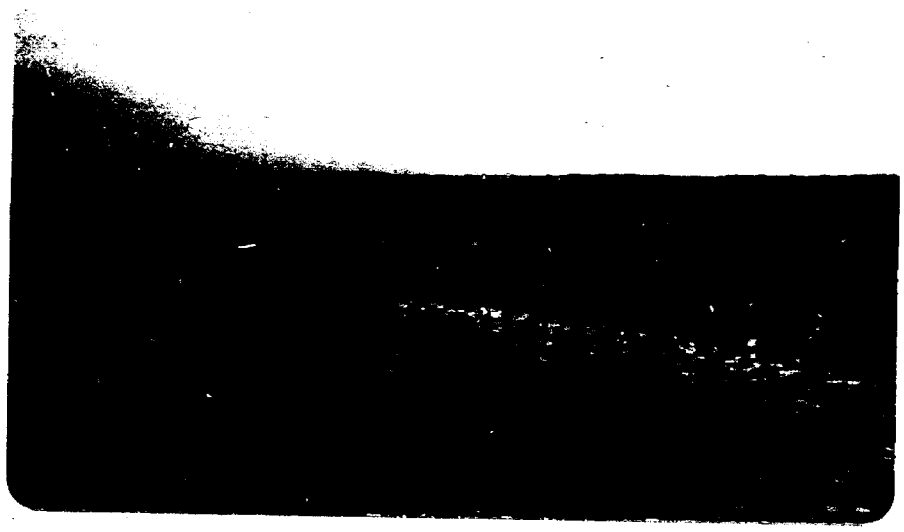
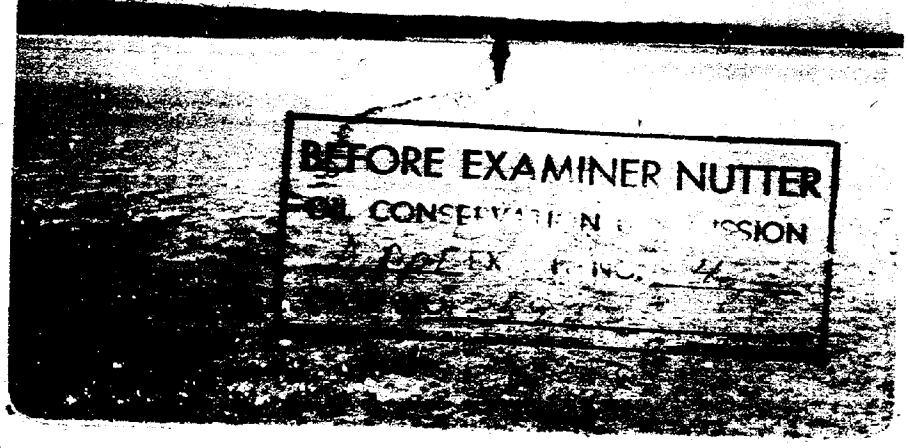


BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 3
CASE NO. 5922



SOUTHWEST

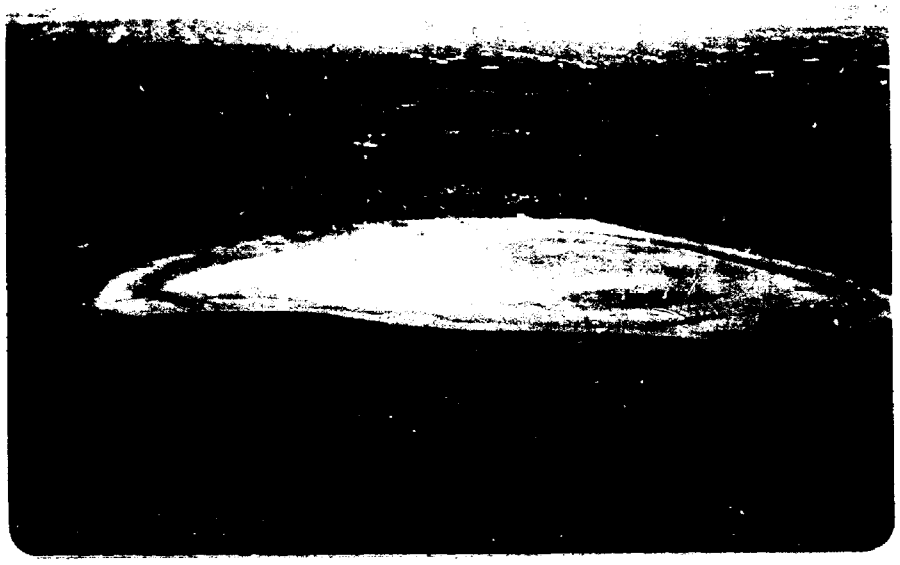
CLOSE-UP OF SALT IN LAKE BED



EAST

Appl. Exhibit No. 4, Case 5922

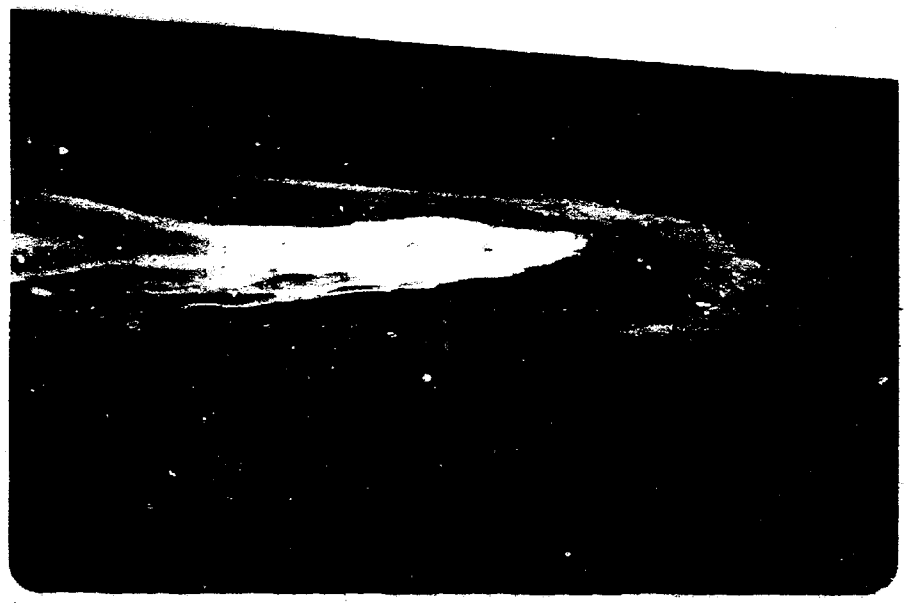
EAST



EAST

SOUTH

NORTHWEST



WEST

SOIL SAMPLE

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Appl. Exhibit No. 5
CASE NO. 6922

EXAMINER NUTTER
EXHIBIT NO.

X-3

Case 5922

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF A. L. DAUGHERTY)
FOR AN EXCEPTION TO ORDER NO. R-3221,)
AS AMENDED, CHAVES COUNTY, NEW MEXICO)

A P P L I C A T I O N

COMES NOW, A. L. Daugherty, by his attorney, and seeks an exception to Order Number R-3221, as amended, in order to permit the disposal of produced salt water into a saline intermittant lake located in Section 24, Township 8 South, Range 29 East, and in Section 19, Township 8 South, Range 30 East, Chaves County, New Mexico, and in support of his application states:

1. Applicant is the owner of the right to dispose of produced salt water from the surface owner of the above described lands in Chaves County, New Mexico.

2. There is no fresh water and there are no windmills in the immediate vicinity of the said saline lake, and therefore the exception that is sought to Order Number R-3221, as amended, if granted, will not injure any fresh water or present any threat of injury thereto.

3. Approval of this application will prevent waste, protect correlative rights, and prevent the premature abandonment of the oil and gas wells in the vicinity.

WHEREFORE, applicant requests that this application be set for hearing before the Commission or one of its examiners, and that the Commission enter its order granting to applicant an exception to Order Number R-3221, as amended, in accordance with this application.

Respectfully submitted,

A. L. DAUGHERTY

By Donald G. Stevens
DONALD G. STEVENS
P.O. Box 1797
Santa Fe, New Mexico 87501

ATTORNEY FOR APPLICANT

ROUGH DRAFT

dr/

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. 5922

Order No. R- 5464

APPLICATION OF A. L. DAUGHERTY

FOR AN EXCEPTION TO ORDER NO. R-3221,

AS AMENDED, CHAVES COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 11, 19 77, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of May, 19 77, 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, A. L. Daugherty, is the owner and operator of the _____, located in Unit _____ of Section _____, Township _____, Range _____, NMPM, _____ Pool, Chaves County, New Mexico.

(3) That 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.

(3) 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.

(4) 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 dissovled 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.

(5) That the applicant herein, A. L. Daugherty, seeks an exception to the provisions of the aforesaid Order (2) to permit the disposal of water produced in conjunction with the production of oil and gas in an intermittent saline lake located in Section 24, Township 8 South, Range 29 East, NMPM, and Section 19, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico.

(6) That said lake's bed lies at the bottom of a synclinal feature comprising some 940 acres within a closure elevation of at least 4060 feet above sea level, and that said lakebed comprises no more than 80 acres in the bottom of said syncline at an elevation of 4007 feet.

(7) That the spill point of said synclinal feature is at an elevation of 4065 feet above sea level.

(8) That the synclinal feature including the intermittent salt lake lies between two natural dikes, Railroad Mountain, running east-west at a distance of approximately 4.5 miles to the north, and El Camino del Diablo, running east-west at a distance of approximately 9.0 miles to the south-southwest.

(9) That the area between said dikes is devoid of useable ground waters, the only water available for watering livestock being surface waters captured by earthen dams or water brought into the area by water pipelines.

(10) That the lake bed is composed of salt (NaCl) and black mud overlying impermeable red beds, and the only means of water escape from the lake bed is by evaporation.

(11) That the disposal of produced salt water in the subject intermittent salt lake will not constitute a hazard to any ground waters nor impair their quality, and will not cause waste nor violate correlative rights provided ~~that~~

(A) That all disposal water should be allowed to settle in tanks prior to being placed in the lake, in order that any residual oil in said water might be removed and not be passed through to the lake bed;

(B) That a permanent steel marker, graduated in feet and tenths of feet, should be suitably located in the lake bed and set in concrete, extending at least five feet above the lake bed;

(C) That the water level in the lake bed should not be permitted to exceed five feet in depth;

and should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, A. L. Daugherty, is hereby authorized to dispose of produced salt water in an intermittent salt lake

located in Section 24, Township 8 South, Range 29 East, NMPM, and Section 19, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico, hereinafter referred to as Crosby Salt Lake.

(2) That the applicant shall install a permanent steel marker, graduated in feet and tenths of feet, at a suitable location in said Crosby Salt Lake, embedded in concrete and extending at least five feet above the lake bed.

(3) That the applicant shall install and maintain in good condition wooden or metal settling tanks, and shall allow all oil field brines to remain in such tanks for a sufficient period of time to permit any residual oil contained in said brines to be skimmed off, and not be passed on with the brines to the disposal lake.

(4) That the applicant shall install and maintain in good condition meters or other measuring devices to permit an accurate determination of the quantity of water disposed of in Crosby Salt Lake.

(5) That the applicant shall file a monthly report with the Commission in accordance with Rule 1120 of the Commission Rules and Regulations, reporting each source and quantity of disposal water and the total quantity disposed of.

(6) That at no time shall disposal be permitted in the aforesaid Crosby Salt Lake if the total quantity of water in the lake, from both natural precipitation and previous disposal, is five feet or more in depth.

(7) That the Commission by administrative order may rescind the authority to dispose of produced salt water in Crosby Salt Lake if it reasonably appears to the Commission that such rescission would serve to protect fresh water supplies from contamination.

(8) 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.