NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE , NEW MEXICO

Hearing Date SEPTEMBER 18, 1986 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
W. T. Kellahin	Kellahin & Kellahin	Santa Fe
W.F. Abbott	Petro-Thermo Corp	Hobbs
JAMES D. THORNTON	AGUA, INC	HOBBS.
Daniel B. Stephens	Daniel B. Stephens & Assoc. Inc	Socorro
John Paul Webster	Maddox, Renfrow & Saunders	Hobbs
[illegible]	[illegible]	Santa Fe
K.C. Squires	Snyder Ranches	HOBBS
Fran Cherry	BLM	Roswell
David Boyer	OCD	Santa Fe.
JAMI BAILEY	OCD	SANTA FE
ROGER ANDERSON	OCD	SANTA FE
Bill Olson	OCD	Santa Fe

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

18 September 1986

COMMISSION HEARING

IN THE MATTER OF:

Application of Petro-Thermo Corporation for an exception to Division Order No. R-3221 and for authorization to dispose of associated waste hydrocarbons and other solids . . . Lea County, New Mexico. CASE 8781

BEFORE: Richard L. Stamets, Chairman
Ed Kelley, Commissioner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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Santa Fe, New Mexico 87501

I N D E X

I N D E X CONT'D

E X H I B I T S

E X H I B I T S CONT'D

MR. STAMETS: This hearing will come to order.

I'd like to announce that every case on today's docket, except Case 8781, has been continued to the October 23rd Commission Hearing.

Let's call Case 8781.

MR. TAYLOR: The application of Petro-Thermo Corporation for an exception to Division Order No. R-3221, and for authorization to dispose of associated waste hydrocarbons and other solids obtained in conjunction with the drilling and production of oil and gas into a disposal site on the surface, Lea County, New Mexico.

MR. STAMETS: This case was originally heard on April the 9th, and Order No. -- I believe it's 8161 was entered approving the application.

The Commission received a request for rehearing on June 9, 1986, and that request contained some, like, nine, ten, reasons seeking a rehearing.

The Commission determined that we would have a rehearing in this case, but only on three limited issues.

These would be the allegation that the applicant has failed in its burden to prove that contaminated discharge water can safely -- be safely depos-

ited into the facility without adversely affecting fresh water. The evidence at the hearing was that if the seepage from the impoundments at the proposed waste facility migrate off-site towards Laguna Plata the discharge waters could migrate out of the west side of La Plata into Nash Draw and on into the Pecos River. The conclusion from all the hydrologic evidence is that from current data none of the experts know where and at what rate the discharged water will migrate.

The second issue was the Commission's Decretory Paragraph No. (2) denied Snyder Ranches, and Pollution Control, Inc., procedural due process.

The Commission has only required Petro-Thermo submit a revised plan acceptable to the Director of the Division for the installation and sampling of monitor wells.

Such an order provision fails to afford Pollution Control, Inc. and Snyder Ranches with an opportunity to appear and contest the proposed monitoring system.

This provision effectively removes the proponents from the consentual (sic) process and participation in determining the method by which the monitoring system yet to be proposed is supposed to protect correlative rights.

Further, previously approved monitoring systems agreed to by Petro-Thermo and the Division, as set forth in Division letter of February 18th of '86 were contested at a hearing by Pollution Control and Snyder Ranches' hydrologist and the Commission has failed to make appropriate findings.

The last item was a portion of Item No. 7. By approving the design of a disposal facility that does not prohibit the migration of the discharged waste water beyond the boundaries of that facility, the Commission has exceeded its statutory authority and jurisdiction and the order is void.

We indicated that we would hear additional testimony as to the possibility of the migration of contaminated waste water destroying the grazing grasses and vegetation under the ownership and control of Snyder Ranches.

We also agreed that we would take briefs on the remainder of this paragraph by August the 4th and make a determination as to whether or not we would hear any additional evidence in that item. No briefs were received and so we will limit testimony today to the grazing grasses and vegetation of Snyder Ranch.

Does anyone else have any preliminary information or statements?

We would allow, unless some other agreement has been reached, for Snyder Ranches, et al, to proceed, since this rehearing is on their request.

MR. KELLAHIN: We are ready to proceed, Mr. Chairman.

MR. WEBER: Petro-Thermo Corporation is also ready to proceed.

MR. STAMETS: Since this is a rehearing, are there any additional witnesses which were not in the original hearing of this case?

MR. WEBER: Petro-Thermo has none, sir.

MR. KELLAHIN: I have none?

MR. STAMETS: So all the witnesses are sworn and qualified and they are continued that way today.

MR. KELLAHIN: Mr. Chairman, we'll recall at this time, Mr. Larry Squires.

LARRY SQUIRES,

being recalled as a witness and remaining under oath, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Squires, I'd like to direct your attention to the examinations you have made on the surface within the area adjacent to and within the application area that Petro-Thermo has proposed to utilize for a surface disposal facility, and at the conclusion of the April 9th de novo hearing there was a discussion about taking photographs at the area.

Have you, Mr. Squires, had photographs taken or made photographs yourself of this area?

A Yes, sir, I have. At Mr. Stamets' request, you know, we were to meet on the site of the TXO well at this situation down there, and jointly take photographs of the area, and I was the only one who showed up, so I went ahead and took the pictures, and --

Q Did you take photographs on more than one occasion?

A I did. I took -- took photographs on that day and then I took photographs again, I believe it was on September the 9th or 10th.

Q Let me direct you to the series of photographs taken in April of '86, and I believe they're identified as Exhibits One, Two, and Three. Will you look at

those for a moment and tell me if that is correct?

A That is correct.

Q Now let's discuss for a moment how you took the photographs, Mr. Squires.

Using Exhibit Number One as starting point, we've attached each photograph onto a plat. Can you show us approximately by using the plat as a reference point, can you show us approximately where you stood and in what direction you were viewing when you took the photograph?

A Yes, sir. The first photograph here that's got Figure 2 down here, was taken standing on the TXO well pad, and the little arrow that I've drawn on there points the direction I took the picture in and generally towards the northeast.

If the Commission will look very closely in that photograph, way off into the distance there is a -- and bear with me, I'm not a professional photographer and this was just a home camera, but there's a tiny, little speck there on the surface of the lake which is the -- Mr. Williams, who's scraping salt off the lake. He drives a little tractor out there on the surface of the lake and he scrapes the salts up and then he loads the salt and he sells it. And --

Q You've told us you're not a professional

photographer. With regards to this photograph and all the rest of the photographs, do they accurately reflect and depict the character of the topography as you viewed it with your own eye on that day?

A Oh, very definitely so. I think they're awful good pictures, myself.

Q All right, sir. Let's turn to Exhibit Number Two, Mr. Squires, and again before you describe what you're seeing with the photograph, first locate where you were and then tell us the direction of view.

A Well, I was standing on the TXO pad and this is the second picture I took and I just walked generally in a northeast direction, down towards the lake, and I've depicted a little arrow there in the direction I was looking approximately the location I took the picture.

Q All right, sir, and as we go, then, to the last picture taken in the April -- on that day in April, would you again identify where you were and where you were looking?

A Yes, sir. I was -- continued on in the same direction and took another photograph towards the lake, looking in the same general direction and I was looking for the spring down there and apparently I was pretty close to the spring at this time I took this picture.

Q Have you subsequently located the spring

that was the -- one of the points of discussion back in the April de novo hearing?

A Yes, sir, I located it on that day.

Q We'll come back to the spring in a minute, then.

All right, after the April photographs, the next occasion that you took photographs in the area was, you told us, sometime in September of this year?

A That's correct.

Q What else did you do on that particular day besides take photographs?

A I took a sample of the spring water and had it analyzed by UniChem.

Q Before we start looking and having you describe for us the series of photographs taken in September, would you describe for us generally what the condition of your grasses and vegetation were in the April viewing and then how they compared to the September viewing of the grasslands that are on Section 15, which is your acreage immediately to the east of Section 16?

A Well, the grass condition in this area in the last three years has been excellent, all -- the last three years has been excellent.

April it was rather dry and these pictures that we took in April still show excellent grass cover

on the area; certainly the ones we took in September, that going towards the end of the growing season they're -- they're much better. The grasses are about knee-high and there's a lot of grass in the area, and it's got good vegetation, good cover, as the pictures show.

Q Let's start with Exhibit Number Four. Would you identify for us where you were standing and the direction of view when you took the pictures shown on Exhibit Four.

A Where I've got it marked on the map there, looking straight north towards the lake.

Q Would you identify the individual in the photograph?

A A fellow named Charlie Robinson, who's a friend of mine.

Q And approximately how tall is Mr. Robinson?

A About my height, 6'3".

Q And how high would you approximate to be the height of the grass in the area in which you're standing?

A Well it's, as you can see, it's up to his knees, just below his knees.

Q Do you make use of the -- the grasslands in this area that are typical of the grasses we see in this

photograph?

A Very definitely so; not in this particular 16, Section 16. My pasture is back to the east in Section 15, but it's basically the same way.

We very definitely utilize this grass grazing cattle.

Q Let's go to photograph number five. Again would you identify where you were and -- the approximate location of where you were and the direction of view?

A I was -- made an effort to take the picture on the dividing line between Section 16 and Section 15. Section 15 is where Snyder Ranch properties is. This fence that's depicted there is the dividing line between those two sections.

Q Section 16 will be to which side of the photograph?

A To the left side.

Q And your grazing lease is to the right of the fence.

A That's correct.

Q All right, sir, let's go to photograph number six and again show us approximately where you stood and the direction of view.

A Approximately in the same area as before only looking north to the northeast across into our pasture.

Q All right, sir, and photograph number seven.

A Photograph number seven was taken looking back up the hill to the southwest in the approximate area marked on the exhibit.

Q Okay. now let's turn to Exhibit Number Eight? Where did you stand, approximately, for the photograph in Exhibit Number Eight and the direction of view?

A I was looking straight north, as I've noted on the map, looking down straight north towards the lake.

Q Sir, you said that on this particular day when these photographs were taken that you also took a water sample from the spring that was the subject of discussion back at the April de novo hearing?

A That's correct.

Q I show you Exhibit Number Nine and ask you to identify and locate the picture.

A This picture that was -- that I've got here is a picture standing downstream from the spring that's been the subject of conversation in this area, and I believe is in the -- the location of the spring, oh, somewhere right at the edge of one of these draws up there, located -- I think it's been located during the spring. But I'm standing downstream, looking back up towards the pool of water in

this first photograph, and the water is -- is running, is trickling. There's enough water weeping out of the rock up there where the -- where this little spring is running.

Q Let's go to Exhibit Number Ten and ask you to identify this?

A This picture was taken of the pool of the water and the rock where the water is coming out of it, just upstream from that picture in Number Nine.

Q And then photograph number eleven.

A Photograph number eleven I was standing on top of the spring looking right straight down at it. In other words, I'm -- the spring is about 8 feet, 8 feet below me, and it's located in this arroyo, and I took this picture to indicate that the water was not running down the arroyo but it was, actually, in fact, coming out of the rock.

Q All right, photograph number twelve, would you identify that for us?

A That's Mr. Robinson's arm taking a water sample out of the spring.

Q Would you describe for us the method by which the water sample was taken from the spring?

A Well, we just had a little pint bottle with a plastic cap on it and we had two bottles and we took one bottle and set it to -- had a tight plastic cap on it, and clean bottles, and we took it to UniChem to have it ana-

lyzed.

I kept another bottle and was going to bring it up here and let you all have a little drink of it, it's quite good water, but I forgot it and left it in my car.

Q Did you drink water from the spring on that day?

A Oh, yes, very definitely drank water from it and it's good water.

Q The method for taking the sample out of the spring on this particular day, is that the same method you've utilized for taking other water samples for other purposes?

A Oh, yes. Yes.

Q And did you follow an accepted technique for taking the samples, using a clean plastic or glass container with a plastic top?

A Yes. The bottle was very clean and had a tight sealing cap on it, and the container was submersed down in the -- in the water and the water was bubbled, and taken about six inches below the surface.

Q Have you subsequently received a water analysis back based upon the water analysis -- the water sample that you submitted to the analytical laboratory?

A Yes, I have.

Q And is that sample depicted on Exhibit Thirteen with the second page attached to that exhibit?

A That's correct.

Q And what is the total dissolved solids reported back to you by the laboratory from the water sample?

A 1618.

Q If this spring was located on your grazing lands, Mr. Squires, is there a foreseeable, reasonable beneficial use that you could put this spring to?

A Certainly. Those cattle would certainly drink this water, yes.

MR. KELLAHIN: That concludes my examination of Mr. Squires.

MR. STAMETS: Questions of the witness?

MR. KELLAHIN: We'd like to move the introduction of Exhibits One through Thirteen at this time.

MR. STAMETS: Did you have an Exhibit Eleven?

MR. KELLAHIN: I believe we did, sir, let me see --

THE REPORTER: I wrote one down as a photo.

MR. KELLAHIN: Could be a photograph looking down off the spring.

MR. STAMETS: All right, I see what happened. I got Ten and Eleven reversed here.

Okay, without objection these exhibits will be admitted.

RECROSS EXAMINATION

BY MR. WEBER:

Q Mr. Squires, you've shown this Commission a series of photographs depicting grasses and other vegetation growing on Section 16 adjacent to the proposed disposal site.

Now, you've indicated to this Commission what the condition of your grasses and your vegetation. Can you tell us who owns those lands?

A The Federal government owns these lands.

Q Sir, by what document do you claim the right to graze your cattle on those lands?

A A grazing permit.

Q Sir, does that grazing permit indicate that -- on its face, that the permit lease conveys no right, title, interest held by the United States in any of the lands or its resources?

MR. KELLAHIN: Let's show him a

copy of it, if you please.

MR. WEBER: Certainly, we can have a copy of the grazing permit.

Q Sir, I show you now what purports to be a grazing permit/lease marked as Petro-Thermo Corporation Exhibit Number One. It appears to be made out to Snyder Ranches, Limited, in care of Larry Squires, Post Office Box 726, Lovington, New Mexico.

Is that your grazing permit/lease by which you claim the right to graze cattle on this land?

A That is correct.

Q Sir, if I could ask you to look on the bottom portion of that grazing permit/lease and ask you if said paragraph one provides that this permit/lease conveys no right, title, or interest held by the United States in any lands or resources?

A That's correct.

Q Sir, what's the average capacity of this grazing land? Isn't it about one cow per 60 acres?

A This particular section there would -- would be probably double that because the range conditions at the present time.

Q Mr. Squires, are you familiar with the provisions of Title 3, excuse me, Title 43, Code of Federal Regulations, Subpart 4100, relating to the administration of

grazing permits on Federal lands?

A No, I'm not familiar with it.

Q Are you aware that Title 43, Code of Federal Regulations, Section 4130.2(b) --

MR. KELLAHIN: I object to the form of the question. This attorney is testifying. The witness has already testified he wasn't familiar with it. He's had his answer.

MR. STAMETS: Unless you have an outstanding response, I'd have to agree with Mr. Kellahin and --

MR. WEBER: I would just request that --

MR. STAMETS: -- sustain his objection.

MR. WEBER: I would just request that this Commission take administrative notice of the provisions of Title 43, CFR, Subpart 4100, with regard to the fact that neither grazing permits or leases, range improvement permits, or cooperative agreements with the Bureau of Land Management, conveys no right, title, or interest in either the lands held by the United States or the resources developed by those lands.

MR. KELLAHIN: I'll object to the manner of tender of the administrative notice. I think

the Commission can take administrative notice of the CFR.

I'll object to Mr. Weber testifying.

MR. STAMETS: Mr. Weber, could you have -- surely this will run into the lunch hour, I suppose you could have someone make a Xerox copy of this and introduce it. You obviously have one lurking in your file there.

MR. WEBER: I may have one lurking in my file, sir.

MR. STAMETS: I think it would be more appropriate if you would have one of your witnesses introduce that at a later time.

Q In short, Mr. Squires, Snyder Ranches, Incorporated, holds no right, title, or interest in the land.

A We have a right to utilize the grass growing on this land and you all don't have a right to destroy it. That's what this whole hearing is about.

Q Sir, who owns the subsurface mineral rights as to those lands?

A I have no idea.

Q Do you own them?

MR. KELLAHIN: I'm going to object --

A No.

MR. KELLAHIN: -- to the question. Subsurface mineral rights in the adjoining property are not the focus of this hearing, Mr. Chairman.

We've never claimed the oil and gas rights underneath that tract.

MR. WEBER: Sir, let me pose a hypothetical to Mr. Squires.

MR. STAMETS: I think, do you want to ask this question or do you want to proceed in this --

MR. WEBER: Sir, I'd like to proceed.

MR. STAMETS: I think since we're not talking about tranporting something across the surface and dumping it on top, Mr. Squires, I think maybe questions as to the subsurface are appropriate.

Mr. Squires --

MR. KELLAHIN: We'll admit that he does not own the oil and gas lease on it at this time.

MR. STAMETS: That's fine. Mr. Squires can answer the questions.

Q Sir, to your knowledge have those rights been leased or has there been any evidence that those rights have been leased?

A I don't know --

MR. KELLAHIN: Excuse me, what were the rights?

MR. WEBER: Subsurface rights.

MR. KELLAHIN: Subsurface.

Q Are there any wells located on the western half of Section 16?

MR. STAMETS: 16 or 15? Mr. Squires' lease is in 15.

Q Section 15.

A There are some dry holes, I believe. Then, if -- we own the mineral rights in Section 1 there, and I believe the subsurface in Laguna Plata itself has been leased by Texaco for almost $2000 an acre.

I believe Anadarko has some of that stuff leased in that area for something like $2000 an acre, too, if that's helpful to you.

Q Sir, let's assume just for a moment, that one of those operators of the wells that you've testified are located on Section 15 committed an act of surface or even subsurface waste, who would be entitled to receive compensation for that damage?

MR. KELLAHIN: Object to the form of the question. He's asking for a legal opinion of Mr. Squires.

MR. STAMETS: If Mr. Squires knows the answer he may answer it; if he doesn't, he may not answer it.

MR. KELLAHIN: May we have the question again?

Q Assume that the operators of an oil well located on Section 15 committed an act of waste, subsurface waste, surface waste, who would be entitled to receive damages or compensation for the destruction of the grasses and vegetation located thereon?

A Mr. Weber, I'm -- I'm trying to prevent waste on this land. I have no -- I don't want to collect any money out of these people. I just don't want an eyesore put on this ranch and I don't want this grass destroyed, and I'm quite sure the BLM does not, either.

I would not be entitled to any money from this. I don't want any money from it. I just don't want a mess created out there next door to my ranch.

Q Sir, then could you please explain to us on what basis you claim at Paragraph 7 of your application for rehearing that the migration of contaminated waste water would destroy grasses owned by Snyder Ranches?

MR. KELLAHIN: I object to the form of the question. The call of the hearing asked for the grasses and vegetation under the ownership and control of

Mr. -- of the Snyder Ranches. He didn't complete the full questions of what was asked.

Object to the form of the question.

MR. STAMETS: I'm -- I'm just about lost in where we are on this thing now.

It seems to me that it's quite clear that Mr. Snyder has the use of the grasses in the west half of Section 15 and no matter what terms were phrased requesting this rehearing, it seems quite clear that Mr. Snyder is concerned about the operations of Petro-Thermo damaging that grass to a point where he cannot use it, and I think that that's the question here, not whether Mr. Snyder actually --

MR. KELLAHIN: Excuse me, Mr. Squires.

MR. STAMETS: -- Mr. Squires actually owns that grass fee simple or -- or whether we're talking about the use of it.

So I think we will have to consider those issues.

MR. WEBER: Sir, if I might proceed on a different tack?

MR. STAMETS: Good.

Q Mr. Squires, you indicated that Snyder

Ranches in its control owns no right in the subsurface minerals. Would you agree as --

A No, no, I --

MR. KELLAHIN: Excuse me, that was a misstatement of what he said, no right in Section 15.

MR. WEBER: No right in Section 15 as to subsurface minerals.

A That's correct.

Q Would you also agree that then you have no correlative rights as that term is defined in Section 70-2-33-H, New Mexico Statutes Annotated, 1978, as amended, which this Commission could protect?

MR. KELLAHIN: I'm going to object to the form of the question. He's again asked this witness for a legal opinion and it takes a District Court or someone else to resolve that issue for us.

MR. STAMETS: I don't recall that correlative rights was one of the issues that we were going to allow any additional evidence on today.

So on that basis we'll sustain the objection.

Q Mr. Squires, what other permits or licenses regarding this land have you obtained that you presently have or have had in the past?

A What land are you referring to?

Q The lands in either Section 15 or Section 16?

A We made an application for a business lease on the State Section 16, prior to, I think, Petro-Thermo's application.

Q Mr. Squires, did you not testify on March 16th, 1969, before this Commission in Case Number 4047 that you had applied for but had not received either a special use permit from the Federal government or a business lease from the State of New Mexico, prior to applying for permission to use Laguna Plata or Laguna Gatuna for use as a disposal facility?

A I don't know as I understand what you're getting at, Mr. Weber, but back in 1969 when we got our original permit with Pollution Control, we did have a Special Land Use Permit from the BLM to utilize Laguna Plata at that time for a waste water disposal.

We also had business leases surrounding Laguna Plata at that time. We had business leases in Section 2. I was advised by my partners and fellow board members, Jim Maddox and Don Maddox, and Don Geary at that time, to get a business lease also on Section 16, where Mr. Abbott's application is for now, to protect our rights in that area.

MR. KELLAHIN: Mr. Chairman,

I'm going to object to the question and ask the answer be stricken. This is beyond the scope of this hearing. We're not talking about Mr. Squires applications or what he had with regards to Laguna Gatuna. It's beyond the call of the case.

MR. STAMETS: Mr. Weber, what's the point of this line of questioning?

MR. WEBER: The whole line of questioning is designed to show that Mr. Squires has no right, title, or interest in the land by virtue of either the grazing permit, business leases granted by the State of New Mexico, or Special Use Permits granted by --

MR. STAMETS: In Section 16?

MR. WEBER: In Section 16. We are not concerned with the Bureau of Land Management Special Use Permit. We are, however, on Section 16 concerned with a business license issued by the State of New Mexico.

MR. KELLAHIN: Mr. Chairman, may I ask --

MR. STAMETS: Well, wouldn't it be simpler just to ask him if he has any right, title, interest in Section 16?

That seems like an appropriate kind of question.

MR. KELLAHIN: My question is

that this was not raised by Mr. Weber in any brief filed prior to the deadline and is far beyond the scope of what I thought we were here to do today.

This issue has long since been passed.

MR. WEBER: Sir, I would contend that it has not been -- that we have had the claim of ownership in the paragraphs that were set for this rehearing.

I feel it's entirely legitimate to consider not only the present state of Mr. Squires' right, title, and interest in Section 15 as far as the grass is concerned, but also his past claims of any right, title, interest, or privilege in those lands, so that we may determine his interest in this particular matter.

There's been a claim of ownership made. I do not believe that claim of ownership is substantiated.

MR. KELLAHIN: Mr. Weber mischaracterizes what we're doing here. He's contesting on a claim of ownership or standing to be before the Commission.

Don't misunderstand where he's going. We've long since gone by jurisdiction on the parties and the subject matter of this case.

MR. STAMETS: Mr. Weber, surely

you're not going that direction.

Well, I can't see any -- any point in this. It seems to me that the earlier case pretty well established who owned what and who has an interest in what and who's seeking to do what.

I'd like us to stay close, as close as possible to the specific three issues set out in our June 20th letter, as possible, and if we can show some relation to those issues, you may continue, and if not, let's abandon that line of question and go on.

MR. WEBER: Fine.

Q Mr. Squires, let's go back again to that March 16th, 1969, hearing before the Oil Conservation Commission in Case Number 4047.

Did you not testify at length that there was no usable water in the vicinity of Laguna Plata during that hearing?

A I testified that I had no knowledge of any.

Q Sir, were you asked the question:

QUESTION: Is it your testimony that there is no usable water within the vicinity of the lakes?

MR. KELLAHIN: May we have a page reference for that, please?

MR. WEBER: Transcript Page Number Five.

Let me provide to the Commission and the witness a copy of Pages Three through Eleven of what purports to be Mr. Squires testimony before the Commission on March 16th, 1969, in Case Number 4047.

Q Sir, I show you now the transcript and ask you if you can recognize it?

MR. KELLAHIN: Excuse me, Mr. Weber.

Mr. Chairman, what's the (unclear) of this case?

MR. STAMETS: Which case?

MR. KELLAHIN: 4747, I guess it is.

MR. WEBER: 4047.

MR. KELLAHIN: 4047.

MR. STAMETS: 4047, okay, it's shown on a page about halfway through.

MR. KELLAHIN: Do we have a complete transcript on that hearing?

MR. WEBER: I do not. It is available on microfiche in the offices of the Oil Conserva-

tion Commission.

MR. KELLAHIN: Well, I'm going to object until there's relevancy established as to what case file this came from.

I'm not familiar with Case 4047.

MR. WEBER: Mr. Kellahin, did your law firm represent Mr. Squires in that proceeding?

MR. KELLAHIN: I'm not a witness, Mr. Weber.

Q Mr. Squires, do you recall seeing that transcript?

MR. KELLAHIN: Mr. Chairman, I've objected to the form of the question. He has not laid a proper foundation for the question to allow this witness to make an informed answer about when and where this testimony was taking place and what the subject matter was.

MR. STAMETS: On that same Page 5 the question appears to show that Mr. Squires is talking about three lakes --

A Yes, sir.

MR. STAMETS: -- in the area, Laguna Gatuna is referenced, Laguna Tonto is referenced, and Laguna Plata is referenced.

I think we'll allow this line

of questioning and we'll also allow some time for a review of this record and if there's a problem with this, Mr. Kellahin, you can develop that on redirect.

All right, you may re-ask the question.

Q Sir, did you not testify at the hearing there was no usable water in the vicinity of, among other playa lakes, Laguna Plata?

A What hearing are we talking about?

Q We're talking about the hearing conducted before the Oil Conservation Commission on March 16th, 1969, in Case Number 4047.

A I think my testimony at that time, as I remember it, was that I had no knowledge of any usable water in the area.

MR. WEBER: I would request that the Commission take administrative notice of that portion of the transcript which relates to Mr. Squires testimony.

MR. KELLAHIN: I'm going to object to the manner of judicial notice. We would request that you take administrative notice of the entire transcript.

MR. WEBER: I would concur.

MR. STAMETS: We will withhold our decision on that. I -- I don't believe we ought to fur-

ther confuse this record with a transcript that is obviously dated here. I think the judge will have quite enough to work over with the records in this case all by itself, but if this proves important we might reconsider it at that time.

Q Mr. Squires, did you sit through that entire hearing?

MR. KELLAHIN: Which hearing?

Q That was held on March 16th, 1969, before the Oil Conservation Commission in Case Number 4047?

A Yes, I think I did.

Q Mr. Squires, do you remember if your opponents raised the same objections with regard to the westward migration of waste water as you have presented in connection with Petro-Thermo's application for --

A I don't know what --

Q -- salt water disposal?

A I don't recall anybody -- I don't recall any opponents at that hearing.

Q Mr. Squires, you've testified that you went out on the ground and sampled a spring.

MR. STAMETS: Let's try and keep these -- these two hearings, because we've got this old one and we've got the new one, and if we're going to ask him questions about both of them, let's figure out which one

we're asking.

Q Mr. Squires, you testified today at this rehearing that you went out onto the proposed disposal site in Section 16; that you found a spring and that you sampled some waters from that spring.

Is that correct?

A That is correct.

Q Sir, where is that spring located?

A North of the site between the lake and you all's plat, in that general area. I didn't survey it. I don't know exactly where it is.

Q Are you aware that more than one spring has been located in that vicinity?

A No.

Q And have been tested?

A No, I am not aware of it.

Q Might you have tested a spring which is different from that which has been tested by representatives of the Oil Conservation Commission or by representatives of Petro-Thermo Corporation?

A I don't think so, no. I think it's the same spring from viewing the pictures that you all had taken and the general appearance of the spring.

Q Mr. Squires, isn't it true that during the spring of 1986 the southeastern portion of New Mexico,

particularly western Lea County, had one of the heaviest rainfalls on record?

A In the spring? I don't -- I don't recall a real heavy, you know, in the springtime. We did get some rain in the first two weeks of March. During April it was pretty dry.

Q Subsequent to April was heavy rainfall experienced in this particular area?

A If my memory serves me correct, we had some pretty good rains the first ten days in March. I -- I was not out in that area.

Now, as most people realize that's lived in southeastern New Mexico for forty years, you know, it can rain three inches in one spot and not rain in a spot next door, so I have no knowledge of rain in this particular area at that particular time. I was not there.

Q Isn't --

A When it rained.

Q Isn't it true that the grass in this particular area is just a little bit lusher than it would normally be at this point in time?

A It has been like that for the last three or four years.

Q And prior to that?

A This pasture that we graze there in 15 is

always good because we manage and control it in an expert manner.

As to my neighbors' grazing practices, I have no knowledge of it.

Q You said it's always good. Has it been better the last two or three years?

A Yes.

MR. WEBER: I have no further questions.

MR. STAMETS: Any other questions of the witness?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Squires, I have taken from the Commission file a photograph taken on March 27th, 1986, which is marked as Petro-Thermo Corporation Exhibit Number Eleven to Case 8781 for hearing date of April 10th, '86, and ask you if, sir, the spring that you have discussed in your testimony is the same spring that is depicted on that exhibit?

A I believe it to be, yes. In fact, I'm sure that it is.

Q Mr. Squires, I show you Petro-Thermo's Exhibit Number Eight, Page 6, also from the same April

hearing, in which there is marked on that exhibit in red pen a circle and then a red line is drawn on that exhibit. I ask you to look at this exhibit, sir, and tell me whether or not that approximates the location of the spring from which you took the water sample on September 4th, 1986?

A Yes, I believe it to be.

MR. KELLAHIN: No further questions.

MR. WEBER: Sir, I have one more question.

RECROSS EXAMINATION

BY MR. WEBER:

Q Mr. Squires, I direct your attention to Exhibit Number Thirteen, which is the water analysis report completed by UniChem, International, on the sample that you sent over to the laboratory.

UniChem, International, has obviously just made a mistake when it indicates that the sampling point is on Snyder Ranch. Those lands where you sampled it are not part of Snyder Ranch, are they?

A No, they didn't make a mistake. They want to know where the water came from and I indicated to them that it was not necessarily -- necessary that they know, and they billed me and that's why -- they billed Sny-

der Ranches and that's why it's depicted thataway.

MR. WEBER: I have no other questions.

MR. STAMETS: Any other questions of this witness?

He may be excused.

MR. WEBER: Sir, I would move at this time for the admission of Petro-Thermo Exhibit Corporation's Exhibits Number One and Two.

MR. KELLAHIN: May I see which ones Exhibits One and Two are?

MR. WEBER: Exhibit Number One is the grazing permit which was identified by Mr. Squires.

The second is a copy of Mr. Squires testimony at the March 16th, 1969 hearing before the Oil Conservation Commission in Case Number 4047.

MR. KELLAHIN: We'll object to both exhibits on the grounds of relevance.

MR. STAMETS: We'll take about a fifteen minute recess.

(Thereupon a recess was taken.)

MR. STAMETS: The hearing will please come to order.

We will admit the Petro-Thermo Exhibits.

You may proceed.

MR. KELLAHIN: Thank you, Mr. Chairman.

We'd like to recall at this time Mr. Tim Kelly.

TIM KELLY,

being recalled as a witness and remaining under oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Kelly, subsequent to the de novo hearing in April, have you made a review of the technical information with regards to preparation of responses to the issues the Commission requested testimony on for today's hearing?

A Yes, I have.

Q Let me begin, sir, by asking you whether or not you have reviewed the monitoring program that the Commission approved for this facility as a result of the entrance of Commission Order R-8161-A?

A Yes, sir.

Q Do you have an opinion, Mr. Kelly, concerning whether the Commission's approval of that monitoring program constitutes an adequate program?

A I do not believe that it is adequate as proposed.

Q Let me have you summarize for us without going into all the specific details, but I would like to have you summarize for us the geologic conclusions that you would as a hydrologist have to reach in order to conclude that the Commission's approved monitoring program, the one that was approved in this order, is adequate to protect fresh water and to avoid migration of the disposal fluids onto or under the adjoining lands.

A First they would have to reach the conclusion or the assumption that the water table in the area slopes in the same direction as the topographic surface. This is rarely the case and therefore not a valid assumption.

Secondly, they would have to assume that the configuration of the redbeds, which is the lowermost limit of porosity for all practical purposes also slopes in the same direction as the topographic surface, and again this is not a valid assumption.

They would also have to assume that there is no outflow from Laguna Plata and no testimony or documen-

tation has been presented which supports that conclusion, either.

But those are the assumptions that would have to be made.

Q Those are the basic, fundamental assumptions that you would need in order to justify or accept the adequacy of of the monitoring program the Commission has adopted?

A Yes, sir.

Q And in your opinion as a hydrologist, there is a lack of the technical data upon which to support those assumptions.

A Yes, sir. There is additional technical data which is required, but certainly those are the principal assumptions on which this monitoring system apparently is designed.

Q And based upon current available hydraulic studies -- hydrogeologic studies and information, you have concluded, I assume, just the opposite on those fundamental issues.

A Yes, sir.

Q Based upon the current state of the information that we have available to us, do you have a recommendation, Mr. Kelly, to the Commission as to a monitoring program that in your opinion would protect fresh water sour-

ces and minimize the potential for the migration of the disposal water on to or under the adjoining lands?

A Yes, I do.

Q Is that contained as part of your report which has been identified as Exhibit Number Fourteen for today's hearing?

A Yes, sir.

Q For purposes of the record would you simply identify this report?

A This report was prepared by me and is entitled Technical Response to Items Five, Six, and Seven of Order R-8161-A, and Prepared for Pollution Control and Snyder Ranches, September 16th, 1986.

MR. KELLAHIN: At this time, Mr. Chairman, we'd move the introduction of Exhibit Number Fourteen.

MR. STAMETS: Without any discussion of Exhibit Fourteen?

MR. KELLAHIN: Yes, sir, and then we'll discuss it. I believe we've laid a proper evidentiary foundation for the admission of the exhibit at this point, and rather than go through the entire report I would like to direct Mr. Kelly's attention to certain fundamental issues.

MR. STAMETS: Do you have any

objection, Mr. Weber?

MR. WEBER: I would object and request that the Commission reserve its ruling on the admissibility of this particular document until after testimony has been elicited and Mr. Kelly has been cross examined with regard to it.

MR. STAMETS: We'll delay the admission of this exhibit until the conclusion of cross examination.

Q That being the case, Mr. Kelly, I will ask you to begin with the first page, sir, and would you summarize for us the information you have presented for today's hearing?

Let's start with the background. Let's start with the background that brought us to today's case in terms of your opinion that there is insufficient data available on which to predict the effects that the Petro-Thermo Corporation facility will have on Laguna Plata and the adjoining sites.

Where did you start, then, in preparing this ehxibit?

A We prepared, in starting this exhibit, by the testimony that was presented at the April 10th, 1986 hearing, and pertaining to the appliction by Petro-Thermo for a facility to dispose of oilfield waste in Section 16 of

Township 20 South, Range 32 East.

Q Does this report have in it references to the basic fundamental findings that you and I have just discussed orally?

A Yes, it does.

Q Let's turn, sir, if you will, to page four of the Exhibit Fourteen and have you refresh our recollection on the monitoring program that the applicant had submitted to the Commission and the Commission had incorporated into the de novo order.

What is your understanding of that?

A It was my understanding, as shown by this illustration, Figure 2, which was presented at the earlier hearing, that the monitoring system would consist of two wells, both located approximately 200 feet north of the site, I guess it's Tract B, in Tract B, and that these are shown by two "X's" directly north of that particular site.

It was also indicated in the testimony that there would be a third well drilled at some point yet to be determined, and I presume that's indicated by the "X" identified as "monitoring well location" which is floating out here to the -- into Section 15.

Q Would you summarize for us some of the conclusions you have reached to satisfy yourself that this monitoring program is inadequate?

A Well, first of all, if there's going to be seepage from this disposal system, and in fact it's designed to allow seepage to occur, no contaminants would be identified until it had moved at least 200 feet off of the site and the assumption is based -- or this is based on the assumption that it's going to move directly north, so it goes back to those assumptions that we talked about. There is no subsurface information presented to indicate either that it's going to move 200 feet north or that it's going to move directly north in the first place. There's no data to indicate it's not going to move south.

So, on the basis of these two proposed wells, anybody with any geologic information available to them, and I think that includes most people in this room, know that it requires at least three points to identify anything in the subsurface and certainly not two, and 200 feet away is certainly an excessive distance in my opinion, if you have a problem, to start cleaning up.

Q Let's turn, sir, to the foldout, which appears following page number 6, and ask you, Mr. Kelly, have you a monitoring program to propose to the Commission for adoption for this facility?

A Yes, it's identified on this page 6-A -- or excuse me, page 7.

Q Would you take a moment and describe for

us, first of all, the location of the proposed monitoring wells and why you have picked these locations?

A This is a modification of an exhibit that was presented by the applicant at the April hearing, and it shows their facility. The one in solid lines is their Unit 1 and, as I understand it, in dashed lines is Unit 2, and it shows the tract in which these would be located.

The monitoring system which I have proposed would includ eight wells, which would be drilled at a distance of no greater than 40 feet from any one facility. It would -- it should be installed at the -- as soon as possible to provide background data, and it would identify not only the configuration of the water table in the project area, but also the configuration of the redbeds, and would therefore enable the applicant to know, rather than assume, the direction of groundwater movement, not only at the water table but also on top of the redbed, and much sooner than would be identified by a 200-foot -- or a well spaced 200 feet directly to the north.

Q Let me ask you why you have selected locations that were this distance from the facility as opposed to farther out in the acreage?

A Simply because if there are hydrocarbons entering the groundwater environment, it is far easier and less expensive to clean up a mess that's only 40 feet away

than it is one that's 200 feet away.

Q What is the reason for having eight wells located as you have proposed, versus simply two or three wells?

A All of the subsurface information for the -- for Section 16, 15, and for Laguna Plata has failed to show anything except a few outcrops, and therefore, nothing is know of the bedrock configuration except that which was presented by Mr. Squires and done by Mr. Reed in 1969 and submitted to the Division, which purports to show the bedrock configuration.

Since we don't know, other than on a gross regional scale, what the bedrock configuration is, eight sites drilled immediately adjacent to the property would adequately define the bedrock configuration, in my opinion.

Q And you would recommend that those wells be located as depicted on this exhibit?

A Yes, sir, although there's nothing cut and dried about a well located at this point or three feet in either direction. These were located on the basis of their diagrams, not on the basis of topography, or their development plan.

Q Let's talk about each individual proposed monitoring well in terms of how you would recommend that

they be drilled and completed, and to aid us in understanding your opinion, if you'll look at the schematic on the righthand side of the same exhibit page that we've been discussing.

A This is a proposed monitoring well, which is quite similar to that which had been originally suggested by the applicant; however, there are some very important differences, and I feel that a monitoring well should be completed by this method in order to obtain maximum information to -- in order to enable the applicant to monitor the groundwater environment and also to allow for subsequent clean-ups of the area.

The well should be drilled from the surface to penetrate the bedrock a minimum of five feet. It should be drilled with air so that no fluids are induced into the system. The samples should be analyzed by a competent individual so that we're not taking the driller's word for the fact that he went into redbeds and when, in face, he went in and reworked red shale.

After the well is drilled geophysical logs should be run on each hole and this would include SP, resistivity, gamma, and neutron, the purpose of these being that even though a person can analyze the samples, you cannot identify individual sand stringers which might act as zones of high permeability and transmit seepage laterally.

It would not -- they would not identify clay zones which might prevent vertical migration, which is also an assumption that the applicant has made.

So the geophysical logs are very important.

After the well has been drilled, or after the hole has been drilled, it should be cased with .05 slot wrapped PVC screen. This is simply far more permeable than can be obtained by using a skill saw to slot PVC casing on the site, and therefore it would be more effective in opening up the formation for collecting samples but also I would recommend that after the well has been completed, gravel packed, and a cement plug put at the surface, that the well be tested. By that I mean an aquifer test conducted, either by pumping at a slow rate or with a slug test, so that the aquifer characteristics can be determined and this information would be vital in order to use the same wells for clean-up purposes in the even that hydrocarbons do in fact show up in the waste plume.

Q Do you have a recommendation to the Commission with regards to how often the monitor wells are sampled and those water samples analyzed?

A Well, I think that it's customary within the Environmental Improvement Division of the State of New Mexico to require that initally all wells will be sampled

quarterly; that is, every three months, and after two years, if a well remains dry, then the sampling period or measuring period be extended to six months. So then if, in fact, water subsequently shows up you go back to a quarterly system.

A quarterly system would enable the applicant to know within a matter of ninety days whether or not water and contamination is getting into the environment, and it would facilitate clean-up.

Q Do you have a recommendation to the Commission with regards to what type of analysis should be conducted on those samples?

A Yes, there's a letter I refer to in my report that was dated February 18th, 1986, and it was from Mr. Stamets to Mr. Weber, in which an analysis program was defined, and I've included that as the last page in this report, or last three pages, and I feel that this type of sampling would be adequate, provided that the analysis were done by an EID-approved -- or excuse me, an EPA-approved laboratory, because some of these items, such as benzene, ethyl-benzene, and toluene, cannot be readily obtained by any laboratory in the state.

Q And those would be analyses to check for the presence of hydrocarbons and various constituents that would be introduced into the water table with regards to

the disposal of hydrocarbon wastes and produced waters?

A Yes, sir.

Q Let me ask you something on a little different subject, Mr. Kelly.

I'm interested in issue number five, the way we've denominated it for the hearing, and that has to do with whether or not the proposed facility is adequate along with the approved monitoring system that has now been approved, if that is adequate to protect fresh water sources or to prevent the facility from adversely affecting fresh water sources.

The question is whether or not, from the currently available geologic and hydrogeologic evidence, and taken with the view most favorable to the applicant, can you, as a hydrologist, determine that the disposal facility as designed by the applicant, as approved by this Commission, along with that monitoring program that they have thus far approved, will that preclude the surface water disposal from having that water percolate to the surface or migrate subsurface onto adjoining tracts and be in communication with the root system of vegetation or shallow zones in any of those adjoining tracts?

A Not in my opinion.

Q Let's discuss what information you use to cause you to believe that opinion is justified.

A Well, we, by "we" I mean our firm, Geohydrology Associates, made a very comprehensive study of the area for the Bureau of Land Management, and these reports have been published and, in fact, referenced in the reports prepared for the applicant, and we found that the alluvial material in that area is very discontinuous, and we ran a number of tests and found wide ranges in aquifer characteristics.

No data has been presented that I have seen which would indicate that there may not be clay beds within this material, within this alluvial material above the redbeds, which would in fact prevent the vertical migration of waste from the facility, and could, in fact, cause it to spread at very shallow depths and, in fact, within the root zone, to adjoining pieces of property, so that brines would, in fact, be in communication with the root zones of the grass and other vegetation in the area, and no data has been presented to show that that's not the case.

MR. KELLAHIN: That concludes my examination of Mr. Kelly.

We move the introduction of Exhibit Number Fourteen.

MR. STAMETS: Without objection, Exhibit Fourteen will be admitted.

I presume that there are questions of Mr. Kelly.

MR. WEBER: There are questions of Mr. Kelly.

RECROSS EXAMINATION

BY MR. WEBER:

Q Mr. Kelly, let me begin by posing a question first asked of you by Chairman Stamets at the hearing de novo held on April 19, 1986.

You did testify with regard to the information you provided at that hearing, did you not, sir?

A Yes, I did.

Q Since that hearing have you availed yourself of the opportunity to read and review the complete report which you refer to on page 153 of the transcript, which you said was entitled Lea County, Salt Lakes Area, Western Lea County, by Mr. Ed Reed? Have you reviewed that document?

A Not since the April hearing, no, sir.

Q But you did review the complete document before the April hearing?

A I'm not sure that I ever saw the document in the first place. The document was presented in support of the 1969 application and the illustration, the water

table contour map and map on the redbeds, I think is what he identified, was submitted as an exhibit in the 1969 hearing.

I obtained a copy of that from the OCD and utilized that, that particular diagram, plus the other data that had been obtained since then, which postdates anything that Reed did.

Q Yes, sir; however, did you avail yourself of the opportunity to review the transcript of Mr. Reed's testimony at that March 16, 1969 hearing before the Oil Conservation Commission in Case Numbere 4047?

Have you read that transcript?

A I don't believe I have.

Q Sir, let's go back to the testimony which you provided at the hearing on April 9th, 1986, and I direct your attention to page 153 of the transcript and ask you if you did not say: The heavy contours on this illustration, on Exhibit Three, are contour maps drawn by -- contours drawn by Mr. Reed on the top of the redbeds, and, as you can see, the 3450 foot contour does not close around Laguna Plata but, in fact, is open to the west, which would indicate that there is a bedrock low on top of the Triassic which would be draining toward the west and towards Nash Draw and Williams Sink.

Was that your testimony, sir?

A I think you read it quite well.

Q Is that a correct statement of the fact, sir?

A Yes, sir, as I perceived Mr. Reed's map.

Q Sir, at page 157 of the transcript of the April 9, 1986 hearing, was it your testimony that Mr. Reed's attempt to contour it, shows that there is a bedrock low draining to the west?

A Would you refer to the lines that you're --

Q Sir, I direct your attention on page 157 of the transcript to lines 16 and 17.

A Yes, sir, that's correct.

Q And on page 158 of the transcript of the April 9, 1986 hearing was it your testimony that: So again we do not know what is happening other than from Mr. Reed's earlier work in 1969 on the bedrock surface the pollution will move to the west and not be contained in Laguna Plata.

A I made that statement, yes, sir.

Q Did you also make the statement on the same page that the report by Petro-Thermo does not disapprove, or disprove, any of the work that Reed did in 1969, which indicates that there is a bedrock channel which would result in the westward migration of groundwater from Laguna Plata?

Were those your two statements, sir?

A I'm reading. Yes, that's my testimony.

Q Sir, in each of those items that I've quoted from the transcript you make no reference to any other work than that done by Ed L. Reed in 1969, is that correct?

A In these statements that you are referring to?

Q Yes, sir.

A In those statements that you're referring to, that is correct. That was not my total testimony.

Q Sir, could there be any other reason for Mr. Reed's failure to close the 3450 foot contour line?

A Lack of subsurface control, I assume, but that's an assumption of mine that's eighteen years of hindsight.

Q Sir, is it possible that he did not attempt to contour Laguna Plata? Isn't it possible that he did absolutely no work with regard to the western edge of Laguna Plata?

MR. KELLAHIN: I'm going to object to the form of the question. He's asked this witness to speculate about what Reed's done.

He's asked him if it was possible. I assume anything's possibly, Mr. Chairman. I'm not sure the answer or the question gets us anywhere.

MR. STAMETS: If you can phrase

the question so that the witness can answer without speculating, why, we'll allow it and if not, we'll sustain the objection.

Q Could Mr. Reed have testified at page 44 of the transcript of the hearing held in 1969 that it was not necessary to investigate the western side of Laguna Plata, to even walk over that area, because the Commission had, in the words of Mr. Jason Kellahin, deleted the western portion of Laguna Plata and the lands lying to the west of that lake from the provisions of Order 3221?

MR. KELLAHIN: I'm going to object to the form of the question. Counsel is testifying again. If he's got evidence he wants to use, he well knows how to introduce it and it's not in the method that he's chosen at this time.

MR. STAMETS: I'll sustain the objection.

Q Sir, have you read that transcript of testimony at all?

A Reed's transcript?

Q Yes, sir.

A I believe my testimony is that I have never seen that testimony.

Q If you would assume the following things, this is a hypothetical question, if you assume that Mr. Reed

was specifically asked whether water from Laguna Plat might flow westward, and he declined to speculate on the possibility of any such flow, that he recommended that no monitor wells be place around Laguna Plata but suggested that monitor wells around Laguna Gatuna would be desireable, assuming that Mr. Reed testified that salt water disposal would have no affect on any fresh water supply in the vicinity, and if you would assume that the volume of water that could be safely discharged into Laguna Plata was calculated by Mr. Reed as to be greater than the total volume of water that could conceivably be transported there, and assuming that Mr. Reed testified by way of comparison that there was a maximum limit of 30,000 per day of produced water which could be disposed of in Laguna Plata, if all these statements were actually made by Mr. Reed, under oath, before the Commission, would they not suggest to you that your reliance on the incomplete contour to reach a conclusion that Laguna Plat was unsuitable for disposal may have been misplaced?

A I do not care to pass judgment on any of Mr. Reed's assumptions that were made in 1969.

I simply know that until Columbus sailed across the Atlantic they thought the earth was flat. Subsequent information proved that he was correct.

There have been a large number of studies done in the Laguna Plata area subsequent to Mr. Reed's and

if we are going to base our testimony on something that was done on 1969 and ignore the work that was done by the Bureau of Land Management, including as many as 50 test holes in the area, if we're going to ignore the work that has been done by the Sandia Corporation, and all of these were introduced in my testimony in April of 196 -- 1986. then we can assume anything we want to about Mr. Reed.

Q Sir, then why did you spend so much time during your testimony emphasizing the fact that the 34-foot contour was not closed by Mr. Reed?

A Because Mr. Reed and nobody else subsequent to the investigation made by Dr. Stephens, has shown that this is a closed depression, and Dr. Stephens made a study and he closed it without showing any additional control; therefore, he made a judgment that that contour should be closed but he provided no documentation to disprove the work of the Sandia Corporation, the work of the Bureau of Land Managemet, or the work of Reed to show that they were in error.

Q If Dr. Stephens did provide that information would you be satisfied?

A I would go a long way.

Q Sir, let's go now to some of the other documents you made reference to.

Now, is it your testimony that you pre-

pared a hydrologic assessment of the salt lakes area, Western Lea County, New Mexico, by Geohydrology Associates, Inc., in July, 1984?

A We prepared that report, yes, sir.

Q Sir, do you recall the provisions of that report? Do you have a copy of that report available?

A No.

MR. WEBER: Sir, let the record reflect that Dr. Dan Stephens has presented to the witness a copy of that report.

MR. STEPHENS: And Mr. Stephens has asked for it back, too.

MR. STAMETS: The record will so show.

A Let the record show that we mailed this to him out of the goodness of our hearts, too.

Q Sir, I direct your attention to page 15. Was it your statement on page 15 that it's impossible that Laguna Gatuna, Laguna Plata, Laguna Tonto, and Laguna Toston, apply -- occupy collapse structures?

A Yes, sir.

Q Sir, if I could direct your attention --

A I would like my testimony to show that the statement reads as follows:

"It is possible that the salt lakes of

Laguna Gatuna, Laguna Plata, Laguna Tonto, and Laguna Toston occupy collapsed structures associated with northeastern extension of the brine aquifer."

Q Sir, if I could direct your attention to page 16.

For the record did you state that the Dewey Lake sequence is locally 500 feet thick and that the redbeds are not generally considered to be an aquifer?

A Again I would like to quote from the text:

"No evaporite deposits have been reported in the Dewey Lake sequence, which is locally 500 feet thick. Although the redbeds are not generally considered to be an aquifer it is possible that some wells located north and east of the salt lakes may produce small quantities of water from these deposits."

Q Sir, if I might direct your attention to page 17 of that report, did you state in that report that in his testimony before the OCD, Case Number 4047 on March 19, 1969, Mr. Larry Squires stated that there was no fresh water in the vicinity of the salt lakes?

A What page are you reading from?

Q Page 17, sir.

MR. KELLAHIN: I don't find it on page 17, Mr. Weber.

Q Do you recall making that statement as part of your report?

MR. KELLAHIN: One question at a time, Mr. Chairman. He's referring to a question that's not on this exhibit at this page.

A What's the date on the report, Tom?

You got the later version; this is the earlier version.

MR. STAMETS: Is that statement on page 17 in that report?

A No, sir.

MR. STAMETS: Okay. Do you have another question?

Q Sir, do you recall making that statement in that report?

A Well, if I did, it was in a draft report and not in the final report.

Yes, sir, it was made in a rough draft, as stamped here, and not in the final report.

Q Sir, why did you delete it from the final report?

A I don't recall. It may have been gram-marily (sic) --

Q Sir, if I might --

A -- grammarily (sic) wrong.

Q Grammatically?

A It may have had a grammatical error in it.

Q If I might direct your attention to page number 26 of that report, do you include in that report the statement that Laguna Gatuna and Laguna Plata are natural groundwater storage areas?

A Yes, sir.

Q Did you also say that both lakes have intermittent springs along their borders, indicating that the bed of each lake is below the natural water table?

A Yes, sir.

Q Is that a correct statement, that the presence of intermittent streams along the borders of a lake indicate that the bed of a lake is below the natural water table?

MR. STAMETS: Streams or springs?

MR. WEBER: Springs, sir.

A Well, in -- on geologic environment at Laguna Plata there are a number of springs along the east and north boundary of the lake and there are none, to my recollection, on the west, so this would indicate that there is either a permanent water table or perched water table along parts of the lake but not necessarily along the entire

lake.

The regional gradient in that area, topographic gradient, I believe, is towards Nash Draw; that is, from east to west, so it would not be surprising that you could have springs on one end of the lake contributing to the water and you could, in fact, have outflow from the other end of the lake. It's quite a large body.

Q Yes, sir. You were here when your client testified with regard to his finding of the spring on the western portion of the lake?

A This morning?

Q Yes, sir.

A Well, it was on the south end, but I was here, yes.

Q And during the hearing we held on April 19th you were shown, I believe, a water sample from a seep that was taken by members of the Oil Conservation Division, were you not?

A In the April hearing there was a sample analysis submitted that had been collected by the OCD? Is that your question?

Q Yes, sir, didn't you examine that?

MR. KELLAHIN: Let's show the witness the analysis --

A I'd like to see it.

MR. KELLAHIN: -- so that he'll be looking at the same thing you're talking about.

MR. STAMETS: Do you have a copy of that handy, Mr. Weber?

MR. WEBER: I do, sir, but if I could have a moment, I would be happy to locate it within the official record.

MR. STAMETS: Let's see if you could find it.

Are we ready?

Q Mr. Kelly, I show you now what has been marked as Exhibit Number Ten in Case Number 8781, dated April 10, 1986, and ask you if you recognize this particular document?

A Well, this appears to be a water analysis --

MR. KELLAHIN: Excuse me, Mr. Chairman, the witness is not being responsive to the question. He was asked whether he recognized it.

Do you recognize it?

A No.

Q Do you recall testifying about any water quality analysis at the hearing?

A Yes, I do recall that an analysis had been submitted by Petro-Chem -- or Petro-Therm, excuse me,

on the -- that was collected in the bed of Laguna Plat, and there was discussion as to the high level of chlorides in that particular sample.

There was also testimony pertaining to the spring. I don't recall that an analysis was presented. it probably was. I'm just getting older.

Q If I might return that to the Commission's record file?

MR. STAMETS: You may proceed.

Q Mr. Kelly, assuming for a moment that there were a seep in the western portion of Laguna Plata, and water quality analyses were done over a period of months on that sink, how much variance would you expect?

A Well, on that assumption, that was in the western end, I wouldn't know what to expect.

I would -- I'd like to clarify in my own mind, as far as this line of questioning is concerned, what you are referring to as the western end of Laguna Plata, and what I am considering to be the western end of Laguna Plata.

Q Let's assume instead of specifying west or western, that we say at any point on the periphery of Laguna Plata, what sort of variation would you as an expert hydrologist expect to see in a series of water quality analyses done over a period of several months?

A I think wide variation in chemical qual-

ity would likely occur.

Q Would that very wide variation in any way be attributable to the amount of rainfall and runoff --

A Yes, sir.

Q -- at the time of testing?

Sir, would you go back to that report that you have in front of you and I will ask that you direct your attention to page 27.

Do you, on page 27, make the statement: If Laguna Gatuna and the other playas in the area are the result of collapsing strata, normal faulting would be a consequence.

A That's a correct statement.

Q Did you go on to say, sir on the same page that these fault zones would serve as conducts for highly mineralized water in the brine aquifer?

A I said they would serve as conduits but I did in fact say that.

Q Do you also say that a deep seated brine source would move along fault zones but encounter more brine on the lake surface?

A Yes, it could.

Q Do you believe that to be the case?

A I do not know what is the case at Laguna Gatuna.

Q I thank you, sir. I would ask that you return that document to Dr. Stephens, and if Dr. Stephens would provide you with a copy of the document entitled Water Resources Study of the Carlsbad Potash Area, New Mexico.

Sir, while he is searching for that document, let me ask you if you did prepare a document called or entitled Water Resources Study of the Carlsbad Potash Area, New Mexico.

MR. KELLAHIN: Did you hear the question, Mr. Kelly?

A No, I didn't.

Q Sir, did you prepare a water resources study of the Carlsbad Potash Area, New Mexico?

A Our firm prepared it and I was one fo the investigators on the project.

Q Sir, when is that study dated?

A July, 1979.

Q Sir, if I could direct your attention to page 79 of that study, did you indicate that Clayton Basin is a closed groundwater basin of (unclear) drainage?

A Yes, I did; the report so states.

Q Did you also state that the lowest port -- the lowest point in the basin is Clayton Lake, a natural groundwater discharge point?

A That's also a correct statement.

Q Do you also state that refinery waste emptied into this lake, or other sites in the basin would be adequately contained?

A That's correct. That's what it states.

MR. WEBER: Sir, if I might have a moment and refer the witness to another exhibit, of his own this time.

MR. STAMETS: Feel free.

Q I'll show you what has been marked as Pollution Control Exhibit Number Two, submitted at the hearing in Case Number 8781 on April 10th, 1986.

And I ask you if you can recognize that map?

A I believe this is Plate I of the document which we were just addressing.

Maybe it's not. Anyway, yeah, I recognize the document.

Q Sir, did you testify concerning that document?

A Yes, I did.

Q At the hearing de novo?

A Yes, sir.

Q Sir, could you tell me from looking at that document what the elevation of Laguna Plata is?

A Well, it's approximately 3400.

Q Sir, there's a well on the east side of Williams Sink. It appears to have the water level elevation of between, well, either 1340 -- or 3440 or 3450, depending upon the land surface elevation.

Do you see that well?

A Is that in Section 17? Yes, I see that well.

Q Yes, sir. You have drawn the 3450 contour directly through that, have you not, sir?

A No, close but it's not through it.

MR. STAMETS: Will you circle that well with a colored pen or something, a red pen, or -- okay, what color did you circle that well?

A I circled it with red.

MR. STAMETS: Thank you.

Q Now, as you've drawn the water table contours on that particular map, does the 3440 contour somehow indicate that the water table rises above the 3400 level at Laguna Plata?

A Well, I clearly didn't have -- whoever in our office prepared this document clearly didn't have enough control to extend the contour, either the 3450 or the 3425 foot contour, around Laguna Plata. There was a question in their mind as to the validity of the control beyond that particular well that you refer to in Section 17.

Q Now, generally speaking, how would you as an expert hydrologist explain a circumstance in which the water table contour map shows elevations on the water table of a lake that are lower than the free water surface?

A Would you repeat the question?

Q You have said that the elevation of Laguna Plata is about 3400 feet.

A Now, we're talking about the surface elevation of Laguna Plata, all right.

Q Now, you have elevations on the water table that are higher than the free water surface. How does that occur?

A It occurred on the south side of Laguna Plata because the water level data that was available to us form wells and test holes enabled us to draw the contour. There are no contours on the north or west perimeter of Laguna Plata because there's no control. We don't know.

Q Let me return that map to its proper location.

Sir, you testified at the hearing de novo, did you not, that the salinity of the waters of Laguna Plata most probably was attributable to the potash district. Was that your testimony?

A I believe my testimony would show that

that was one possible cause for the high chloride level, because such chloride levels were not found in the bottom of similar geomorphic features.

Q Sir, do you know of your own knowledge whether or not any company is presently discharging potash slurry into the waters of Laguna Plata?

A National has a contract to do so but I don't believe they're doing it at the present time.

Q How long have they not been doing it, sir?

A I don't have any idea, but what -- whenever they did it, unless somebody got in there and hauled out the brine, the brine is still there.

Q Sir, what are the total dissolved solids in the waters of Laguna Plata by any sample or analysis that you have considered?

Can you give us an order of magnitude?

A I don't -- I don't know that we've ever collected any samples but the samples, I would have to say, range from the one that Mr. Squires recently collected at 1600 to as much as 325,000, depending on where it's collected, where the point of inflow to Laguna Plata is.

Q I'm talking of the waters of Laguna Plata. Aren't they -- aren't the test results and water analysis of those waters indicative of levels of total dissolved

solids on the order of 300,000 parts per million?

A To the best of my recollection, the only analysis that's been presented in this testimony, in this hearing, or this series of hearings, came from the bottom of Laguna Plata and it did have a total dissolved solids content on the order of 325,000, which, as my testimony will show, is compatible with that of brine discharge from the potash refineries.

Q Now, did you not also at the rehearing testify that total dissolved solids produced from the disposal area concerning Laguna Gatuna was approximately 50,000 parts per million, that the same TDS would generally be experienced by the proposed operation of the applicant, Petro-Thermo Corportion?

Was that your testimony?

A I'd have to review the testimony. I would hate for you to put words in my mouth.

Q Oh, I wouldn't do that, sir.

Sir, you testified with regard to your proposed monitoring system. Could you identify, please, for the Commission which fresh water source this monitoring system would protect?

A This would protect any fresh water that is present in the unconsolidated material above the redbeds.

Q And is there any, to your knowledge?

A Well, there's some that's got 1600 parts per million.

Q Sir, you indicated when you were testifying about the number of monitor wells that you recomend, I believe it was eight monitor wells you would have?

A I believe that was my testimony, yes, sir.

Q Sir, are you familiar with the Resource Conservation and Recovery Act?

A A little bit.

Q Sir, does that Act not require three down gradient wells and one up gradient well?

A I believe that is the minimum requirement, yes, sir.

Q And the Oil Conservation Division did in fact propose in this case three down gradient monitoring wells, did they not?

A Well it was my understanding from reading the reports that they proposed -- or that they accepted the proposal for two down gradient and one was just kind of a floater that was going to be put in somewhere else. I don't remember that a site was actually identified for that.

So I don't know whether it was going to be down gradient, up gradient, or side gradient.

Q Sir, to your knowledge, if you know, are

these same comprehensive programs of well monitoring presently in existence at Laguna Gatuna?

A I don't know.

MR. WEBER: I have no further questions of the witness.

RECROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Kelly, do you have an estimate of -- of what the average monitor depth would be that you propose?

A I would estimate probably 50 or 60 feet. I believe that the testimony of the applicant is that it ranges from zero to about 130 feet in thickness and I suspect that 130 is probably extreme.

Q Do you have any idea what the cost would be of each of those?

A I would assume that the drilling and placement of the casing would cost approximately $12 to $15 a foot.

That would not include the on-site evaluation or the geophysical logging.

Q Now you talked about how the salt water, or the disposed fluid could get over and harm the Snyder Ranch grass, indicating it would move past the root zone. Is that correct?

A I stated that there's no evidence to indicate that there aren't impermeable clays which could impede the downward movement from the disposal system and cause it to spread laterally to any -- in any direction.

Q Is that the sort of thing which would be observed before it got to the Snyder Ranch grass or is it the kind of thing that would just move right to the Snyder Ranch grass and be unobserved anywhere else?

A I believe that with the number of monitoring wells that are proposed, and if they were completed as suggested, even if this was perched water, it would be intercepted by the well and therefore identified, although -- and then, presumably, the geophysical logs, such as a neutron log, would pick up the zones of permeability and enable us to identify where the -- where it was coming from.

Q If there were o monitor wells out there would -- is there some mechanism by which water could move unobserved from the disposal site to harm Snyder Ranch grass?

A Well, I don't have a topo map but it's my understanding that there's a swale or a depression directly east of the proposed site, which is -- has a fairly low surface elevation; presumably there could be migration from this facility to the east along permeable zones, and discharged into that area.

Q Discharged into the low place?

A Into the swales, right.

Q If it discharged into the swale, then would it be observed?

A Yes.

Q And is -- do you recall that that swale is on the Snyder Ranch property or on the -- in Section 16?

A I believe it's in Section 15 on the Snyder Ranch property.

Q Okay. Now you talked about dissolved hydrocarbons in the waste plume. You were talking about dissolved hydrocarbons or (unclear)?

A Well, we were talking about hydrocarbons. They probably would not be dissolved. I assume they would be free hydrocarbon.

Q Like benzene would be dissolved in the --

A Right.

Q -- in the water.

A Right.

Q I'm not sure what we're talking about now. Are you anticipating that there will be liquid hydrocarbons, crude oil, moving from this site into the lake?

A Mr. Stamets, I'm -- I'm referring to the letter that you wrote on February 18th transmitting this suggested sampling program and I'm saying it's a good deal,

let's go with it.

Q I'm trying to figure out what kind of hydrocarbons you and your client are concerned about being disposed of here and what the real problem is, or what you visualize from that disposition.

A Well, I'm sure that your hydrologist, Mr. Boyer, could address this better than I can, but I believe that it is against the law in the State of New Mexico to introduce hydrocarbons into a freshwater zone, and so since this water is going to come from -- this water is in fact oilfield waste product, it may in fact contain hydrocarbons of some sort from whatever origin it may have, and lead to contamination of a reasonably potable source of water.

Q So that is the concern, then, that whatever hydrocarbons, or some of the hydrocarbons disposed of at this site could enter fresh water.

A Yes, sir.

Q Okay.

MR. STAMETS: Any other questions of this witness?

He may be excused.

MR. KELLAHIN: Mr. Chairman, I was going to ask him the clarification of an answer he gave you to one of your questions, because I'm not sure I understood the answer.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Stamets asked you about detection of adverse impact on the disposal waters, the adverse impact on the adjoining Snyder Ranch grasses to the east in Section 15, and the question is whether or not -- or at least my question is whether or not you can rely simply on visual detection, going out there every week or once a month, to visually see movement of water across the surface or as it comes in and out of the soils, whether that visual detection would serve as an adequate means of monitoring the disposal or conversely, whether, in fact, you do need the monitoring program as you suggested, and I'm not clear of what the answer was.

A I may not have understood the question. It's my position that the monitoring wells are necessary in order to identify the movement of material away from the disposal site, and I was -- I understood the question to ask if it got to adjoining land would you recognize it, and I think, yes, you would, it would -- it would kill the vegetation. But the vegetation could -- there could be a number of reasons why the vegetation might die or might become dormant or whatever, and the only way to -- to really know whether or not it is the facility is to periodically collect samples and see if there is an increase in dissolved solids

or the presence of hydrocarbons, or whatever.

Q And you would need the monitoring wells in order to make that collection?

A Yes, sir.

MR. KELLEY: I have one question for Mr. Kelly.

CROSS EXAMINATION

BY MR. KELLEY:

Q This new spring that everybody's talking about, have you had a chance to observe it?

A No, I haven't.

Q So you haven't been able to make a determination of whether that's a fluvial aquifer or whether that was associated with some other kind of faulting --

A No, I've not seen the site.

MR. STAMETS: Mr. Weber, you have an additional --

MR. WEBER: If I may follow up based upon the questions asked by members of the Commission, by Mr. Kelley.

RECROSS EXAMINATION

BY MR. WEBER:

Q You talked in terms of possible harm to

Snyder Ranch grasses in Section 15.

Do you know what the distance from the easternmost edge of the initial waste disposal pits is to Section 15, the shortest route by whatever direction?

A I would judge it's on the order of 500 feet.

Q Sir, is it not more like 720 feet?

A Well, it may be. I'm looking at your illustration and it shows it in a portion of Tract B, which is in the southeast of the northeast of Section 16, and so it would depend on the actual location of the site. I think you said the first site was going to be put in, so, you know --

Q Sir, would this area be an adequate buffer to prevent damage to the grass and other vegetation in Section 15?

A As I understand the law, and I'm not a lawyer, if you have -- if you are putting hydrocarbons in the ground and they're only traveling 10 feet, then you've gone too far.

Q How probable is it that they would travel this 750 feet?

A You want me to speculate on that?

Q Yes, sir.

A I would speculate that it could require 100 years to get that far.

Q Sir, you indicated that the lateral spread would only occur if certain impermeable clays were found beneath the proposed disposal site and extending, I presume, to Section 15, is that correct?

A No, that was not my testimony.

Q What was your testimony?

A My testimony was that we are dealing with a highly variable lithic unit in the alluvium of this area and the migration of fluids is going to follow the zones of greatest permeability. Clays have low permeability; gravels have high permeabilities.

So that a rather -- so that in order for the waste to move directly down to the water table and then move laterally as your client is proposing, we would have to be dealing with a very uniform bucket of sand that does not exist. So rather than getting a path, flow path that goes vertical and then horizontal, we are going to get a series of downward and laterally moving paths of this material and without more detailed subsurface information, we don't have a clue as to where those paths may be. We may not even know with eight observation wells but at least it's a step in the right direction.

Q So you're saying that there is a distinct possibility that liquids disposed of in the proposed disposal pits might not damage the grasses presently used by Sny-

der Ranches for grazing its livestock.

A That's a possibility.

Q And that that possibility, assuming your best scenario as an expert hydrologist would be that the water would not show up on those grasses for a period of 100 years.

A That was speculation on my part. Assuming a rate of movement of 7 feet per year, which is based on a number pulled out of the air, and which follows your assumption that it is in fact 700 feet.

Q Do you in your work generally make these sorts of projections?

A I didn't make that, you did. You're the one that gave me the parameters to assume.

Q Do you in your work as a geologist ever make projections as to the time liquids will flow subsurface traveling from point A to point B? Is this within your sphere of expertise?

A Yes, it is.

Q Given that it is within your sphere of expertise, is it your expert opinion that it would take, assuming those parameters that I have given you, the 720-foot distance, the lithographic composition which is such to make that water flow at a 90 degree angle from the pits, would it be your expert opinion that it would take a period of 100

years to travel that distance?

A Based on those assumptions, then it -- that is a correct statement.

MR. WEBER: I have no further questions of the witness.

RECROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Kelly, is it possible that given a different set of parameters other than distance that it could take less than 100 years?

A Yes.

Q Could it take two years?

A It could; it would just depend on the transmissivity of the saturated zone.

MR. STAMETS: Any other questions of the witness?

He may be excused.

Does that conclude your direct, Mr. Kellahin?

MR. KELLAHIN: My stomach says it does, Mr. Chairman.

MR. STAMETS: Outstanding. We'll recess the hearing until 1:15 and certainly hope that it proceeds in a more rapid fashion this afternoon.

(Thereupon the noon recess was taken.)

MR. STAMETS: Mr. Weber, you may --

MR. WEBER: Yes, sir. I would like to call as my first witness Dr. Dan Stephens.

DANIEL BRUCE STEPHENS,

being recalled as a witness and being still under oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. WEBER:

Q Sir, for the record would you please state your full name?

A Daniel Bruce Stephens.

Q Sir, you're the same Dr. Stephens who testified here at the Examiner Hearing on 18 December 1986 and at the hearing de novo on April 9, 1986.

A Yes.

Q Have you had an opportunity to review the transcripts of those particular hearings?

A Yes.

Q Have you reviewed any additional docu-

ments in preparation for your appearance here today?

A Yes.

Q What are those documents, please, sir?

A I reviewed the prior testimony of Ed Reed at 1969 hearing.

Q Why did you do so, sir?

A Excuse me?

Q Why did you do so, sir?

A It was testimony that was referenced quite frequently in the testimonies of these proceedings.

Q What other documents did you consider?

A The hydrogeologic, portions of the hydrogeologic report by Hunter on the regional water balance and the report by Mr. Kelly for Pollution Control, Inc., of 1984.

Q Based upon that review did you prepare a document for consideration by the Commission in this case?

A Yes, we did.

Q What is the title of that document, sir?

A It's Update on Hydrogeologic Conditions Near Laguna Plata, Lea County, New Mexico, for Petro-Thermo Corporation, September, 1986.

Q And that report has been identified as Petro-Thermo Corporation's Exhibit Number Three?

A That's correct.

Q Sir, would you please turn to the table of contents and indicate to us what information you have provided in summary form.

A Well, the first figure is a contour map of the top of the redbeds.

The second figure shows water level elevation contours.

The third is locations of geologic cross sections.

And Figures Four and Five are cross sections, two, two of the cross sections which we drew.

And Figure Six is a -- shows groundwater flow directions between Laguna Plata and Clayton Basin and Pecos River.

Q I believe we have also provided two appendices.

A Appendix I was a well log which we hadn't seen before. It was in the records at the time of the last testimony. It was not included in the report that I had done previously, nor was it found in any of the other reports in the area.

Q And the second appendix?

A Relates to the chemistry of water sampled from springs in the vicinity of the site. These samples were collected and analyzed by the OCD.

Q Sir, will you please turn to Figure 1, and explain what you have depicted on the structure contour map.

A The contour map shows elevations of top of redbeds that were picked from geologic logs of numerous holes in the area, many of which are just west of this site, and it shows two closed depressions, one, Williams Sink, the other, Laguna Plata, separated by a relatively high area just west of the site.

Q Sir, do you sufficient control points to close those contours?

A We believe we do.

Q Approximately how many control points have you identified there?

A Perhaps 20 in this figure.

Q And between Laguna Plat and the Williams Sink?

A 14 or 15.

Q Sir, will you please turn to Figure No. 2 and explain what you have shown on the water level elevations?

A These are contours of a shallow water system, which includes the elevations of springs. It also includes the elevation of Laguna Plata as a free water surface.

Q I notice you have indicated quite a number of springs and seeps there. Will you please explain those?

A The springs on the east side have previously been identified, I believe, as early as the work Reed had done and perhaps some Geological Survey topographic maps show these springs.

The two on the southwest side were those which I identified and they were also identified by engineers with Petro-Thermo, have since been sampled by the Oil Conservation Division, its hydrologists.

Q Sir, please describe the relationship between the level of the lake surface and the water level elevations that you have shown.

A The water level in the lake is an expression of the water table where it intercepts the land surface.

The springs are at higher elevations and data from available wells show water levels which are at higher elevations than the lake elevation.

This suggests to me that the Laguna Plata is a closed groundwater basin.

Groundwater flows towards Laguna Plata and Williams Sink from the southeast and appears to be divided and separated in flow directions to Williams Sink and

Laguna Plata. There is, in my opinion, a groundwater divide which separated Williams Sink and Laguna Plata and thereby locally reversing the direction of groundwater flow that has been identified in a regional sense to be from east to west.

Q Sir, if you will please turn to Figure 3, your map showing cross section locations. Will you please explain why you selected Lines B-B' and E-E' as representative cross section?

A We believe these particular lines would show the relationship between bedrock, the water table, and land surface as it might relate to the question of whether or not Laguna Plata or seepage from the site could move westward towards the Pecos River.

Q Sir, if you could now turn the page to Figure 4 and explain to us what is depicted on cross section B-B'?

A B-B' cuts across the northwest corner of the site and shows the alluvial fill thickness where it may be a maximum of 130 feet. And it also shows the boundary of the site to be east of that thick alluvial fill zone.

It also shows that the general trend of the slope is from -- at least across this section -- is from southwest to northeast, which is consistent with Laguna Plata being a collapse feature.

Q What is the significance of the location

of the proposed disposal site with regard to the flow of disposed water?

A It's my opinion that the slope of the Triassic in this area is towards Laguna Plata and therefore this will enhance the movement of seepage towards Laguna Plata.

Q Sir, if you'd please now turn to Figure 5 and explain what you have identified on cross section B-B'.

A B-B' goes through both Laguna Plata and Williams Sink. It shows the Triassic redbed surface and the alluvium that depicts the water table divide which I mentioned that's just west of Laguna Plata. It appears to us that in fact the redbeds may be fairly shallow in the zone between Williams Sink and Laguna Plata and, in fact, the water table might be strongly influenced by this bedrock ridge, thereby separating the Laguna Plata system from the Williams Sink system.

Q Sir, what have you depicted by the dashed line?

A The dashed line is the surface of the water table from shallow wells that we have in the area.

Q In order for water to flow westward from Laguna Plata towards Williams Sink, what would have to occur?

A It's my opinion that the water would have

to breach this bedrock ridge and escape from the system, the local hydrologic system of Laguna Plata. Not only that, it would have to go -- not only would it have to go over this Triassic bedrock ridge but it would also have to go locally against the hydraulic gradient.

Q Could you codify the possibility of that flow occurring?

A In my opinion it's very unlikely that there will be an excursion from the site which would move westward.

Q Sir, if I might now direct your attention to Figure 6, I would ask you to explain the groundwater flow pattern that you have shown here.

A Laguna Plata is shown on the righthand or eastern side of this figure. In the center of the figure is Clayton Basin and this particular map, I believe, was taken from the report by Hunter and when we draw flow lines perpendicular to the equipotential lines in areas north and south of Laguna Plata, the regional flow, if there were an excursion from Laguna Plata, would move towards Clayton Basin.

Q Would that water flow when it reached Clayton Basin move toward the Pecos River?

A No.

Q Why not?

A Clayton Basin has been shown here on this map and described by Mr. Kelly in previous reports to be a closed groundwater basin or shallow basin in which fluids which enter this basin would be adequately contained.

Q Could you identify that report?

A I believe that's the Geohydrology Associates 1979 report.

Q Based upon this groundwater flow pattern that you have shown, what is the possibility that an excursion from Laguna Plata will pass through Clayton Basin and reach the Pecos River?

A In my opinion, based on information available to me, there is almost no possibility that that would happen.

Q Sir, if I might direct your attention to your first appendix, the well log, would you please identify the location of this well in general?

A This well, I believe, is located north of the Williams Sink.

Q If I may ask you to turn now to Appendix 2, Water Chemistry, you appear to have a series of general water chemistry and nitrogen analysis reports.

Could you identify each of those reports?

A The first one is an analysis of a sample taken from Laguna Plata in February, 1986.

Q Who took that sample, sir?

A Mr. Dave Boyer of the OCD.

Q And what did that sample show insofar as total dissolved solids in this sample?

A 225,830 milligrams per liter.

Q Sir, is there anything about this particular sample which would suggest that it represents the discharge from a potash manufacturing plant?

A I haven't seen -- we looked for an analysis of discharge, chemical analysis of discharge froma potash operation and were unable to find a complete analysis in available information.

But I would say that the data here could suggest a source of influx from a potash operation but it's pretty difficult to tell.

Q If I may ask you now to turn to the second sample that was taken. Could you identify when and where that sample was taken?

A This one is from the seep referenced previously in this hearing, just north of the site. It was collected by Mr. Boyer and --

Q Was that the seep referenced in the April 9, 1986, hearing?

A That's my understanding.

Q And what does it show?

A The total dissolved solids concentration in February, 1986, was 36,428 milligrams per liter.

Q Did you personally observe this particular seep?

A Yes.

Q What conclusion did you draw from the presence of this seep, the analytical results, and the general location of the seep with respect to the waters of Laguna Plata?

A It was my interpretation that this spring represented a discharge of shallow groundwater that fed into Laguna Plata and was consistent with the interpretation that Laguna Plata was a closed basin and in this area there was no flow to the -- to the west.

The spring also showed, or the arroyo's where the spring occurred, also showed the presence of redbeds, which was consistent with the geologic data that we had which could indicate that the redbeds and their expression could in fact be the cause for the spring to occur at this particular location.

Q Sir, if I may now ask you to turn your attention to the final analysis and ask you if you can identify that analysis?

A This was an analysis of the spring -- I guess this is the same spring, if we're looking on page 13,

this is the same spring that was sampled previously, I believe.

Excuse me, let me check here.

I believe this is another page of the same analysis, page 14 would be a different -- no, I'm sorry, Jami Bailey sampled this particular spring. This is the same one that was sampled previously that I mentioned, had a total dissolved solids concentration of 37,428.

Q Was the seep at some distance up the arroyo from the previous seep?

A The one on page 13, I believe, is the same one that was analyzed or sampled by Mr. Boyer.

The analysis on page 14 is -- appears to be a second seep that she identified, which is located upstream from the one which had been photographed as an exhibit.

Q Are these last two general water chemistry analyses roughly compatible? Are they within the same margin of error?

A Roughly, that's -- that's correct.

Q Now you have, have you not, a water quality analysis performed on a sample collected by Mr. Squires, I guess?

A Yes.

Q Is there a considerable difference be-

tween the three analyses?

A Yes.

Q To what might that difference be attributed?

A It's difficult to believe that water in that pit could be as low in salinity as was shown in the analysis but the only explanation I can offer is that it's possible that runoff flushed through the arroyo after a significant rain event and washed out any saline water which had been accumulating there for some time because of very slow seepage from the saline spring, and at the time he was there sampling, the water he was sampling was predominantly comprised of surface runoff rather than seepage from the spring.

Q You have walked that arroyo, have you not?

A Yes.

Q Have you noted the presence of gypsum in large quantities up and down that arroyo?

A Yes.

Q What would happen if rainwater were to collect in that gypsum basin for even a relatively short period?

A Well, the gypsum would tend to dissolve but it's a question of time and contact with the gypsum.

MR. WEBER: At this time I would move the admission of Petro-Thermo Exhibit Number Three.

MR. KELLAHIN: No objection.

MR. STAMETS: Exhibit Number Three will be admitted.

Q Let's turn now to your analysis of the testimony of Mr. Tim Kelly.

You've indicated that you reviewed his testimony at the prior hearing?

A Yes.

Q And you were here present when he testified today.

A Yes.

Q During the last hearing Mr. Kelly indicated that ultimately any water from the east side of Nash Draw is going to end up in the Pecos River.

Please evaluate that comment for us.

A The -- the context, I believe, in which the statement was made is in reference to seepage that might be leaving from Laguna Plata and water which leaves Laguna Plata would move towards Clayton Basin, which is closed, and very unlikely make it to the Pecos River.

Q Sir, Mr. Kelly also made the comment that the absence of springs on the west side suggest to him that there is a groundwater flow out of the west side of Laguna

Plata.

Please evaluate that statement.

A It's my opinion that there are, in fact, springs and seeps in this area which suggest a shallow component of groundwater exists there, discharges by flowing west, excuse me, eastward from the groundwater divide towards Laguna Plata.

Q Mr. Kelly also indicated that Laguna Plata is simply a surface exposure of the water table, is that not correct?

A I believe that's a correct statement.

Q Now, if you take that statement and compare it to the remainder of his testimony, what conclusions might you draw?

A My -- my impression is that Laguna Plata is in fact a large data point which one could use on contouring water level information, and previous work has, in fact, neglected to consider that the water table is sloped towards Laguna Plata, which is itself an expression of the water table being at a very low elevation relative to water levels in wells and surrounding springs.

And I believe when one does take into consideration in the context of more regional information, one would find a local reversal of the hydraulic gradient in the vicinity of Laguna Plata on its west side.

This is not inconsistent with other similar collapse features, such as Clayton Basin, which have a local reversal of groundwater flow being that it is a closed depression.

Laguna Gatuna also is shown with contours of water level elevations to be somewhat greater than the lake, I believe, and so we could reasonably expect to find that a feature as large as Laguna Plata would have a strong influence on shallow groundwater movement and cause -- be sufficient to cause a local reversal of the hydraulic gradient.

Q Now Mr. Kelly also commented that the thickness of the alluvium is unknown at the proposed site, did he not?

A Yes.

Q Have you been able to determine with any reasonable certainty whether or not there are sufficient control measures to give you a fairly good idea of what the thickness of the alluvium is?

A I believe we have a fair idea from the drilling logs. There are approximately 13 wells within about a half mile radius of the site.

To the west, in addition to those, there are exposures in the arroyos. There's no doubt about it. The testimony that I read by Ed Reed clearly indicated he

never inspected the west side of Laguna Plata and I think had he done so, he would have seen enough geologic evidences to show that the redbeds do, in fact, outcrop in the arroyos and they're clearly visible, and with that control, geologic control in wells to the west, the geologic control and the redbed surface in wells drilled in Laguna Plata, topographic expression of Laguna Plata, suggests to me that the redbed surface definitely dips towards, slopes towards the north/northeast across the site, towards Laguna Plata.

Q Then you do have an idea as to where the Triassic redbed zone is.

A It's a very good, remarkably good control to have that many wells within such a small area in a remote site like this prior to any commencement of -- of operations.

Q Now, with respect to the redbeds, was it not Mr. Kelly's testimony that without knowing the contours of the redbeds within the area of Laguna Plata you can't really predict a direction the disposal water will migrate?

A Yes. The main -- the redbeds are important in determining the movement of brine. The hydraulic gradient, however, is more important to my opinion and I'm certain that in this particular area the water table slopes towards Laguna Plata. The general trend of the redbeds is also towards Laguna Plata, but you have to keep in mind that

the water table slope has a very significant influence on the direction of seepage migration.

Q Mr. Kelly indicated that caliche is a very common subsurface occurrence. Have you had an opportunity to inspect the site and determine its relation to the caliche lay?

A The site does have caliche in its southern limit. It forms a prominant caprock in the area; fractured, very brittle; however, most of the site, especially that where the water seepage pits are to be located, does not appear to contain appreciable amounts of any caliche. The site is lower in elevation than the caprock.

Q And what effect does the absence of caliche have?

A I believe if the caliche were fairly impermeable and the site were located on it, that seepage may tend to move laterally further than it would otherwise if it were underlain by permeable sand.

Q Based upon your inspection is that area underlain by permeable sand?

A Relatively permeable sand underlies the site. I would estimate it to be fairly fine textured sand.

Q Now, Mr. Kelly also said, did he not, that the best quality water that Petro-Thermo will put into the system, put into Laguna Plata, is roughly 25,000 parts

per million, or about three times greater than natural discharge from the springs at Laguna Plata.

Is this statement correct?

A I believe that the information that was relied upon to make that statement was based on the inference that chloride concentration was equated to total dissolved solids concentration, which is not correct.

My report shows that chloride concentration at the springs is about 9000 parts per million and roughly, if one tried to estimate what the total dissolved solids concentration might be based on chloride, it would definitely be much higher, perhaps total dissolved solids would exceed 15,000 parts per million and therefore this 3-to-1 ratio is probably not correct.

Q What is the total dissolved solids concentration of the springs?

A The data that were sent to me by the Oil Conservation Division indicated 36,000 to 49,000 parts per million of springs located closest to the site.

Q If I may direct your attention to the testimony that we heard today of Tim Kelly, first with regard to the monitoring wells.

His first criticism of the proposed monitoring program was that the distance was excessive; that the monitoring wells were spread too far from the pits.

Will you please evaluate that criticism?

A I believe Mr. Boyer did a reasonable job in locating the wells in his recommendation for the Commission. It's -- it's a matter of opinion where the wells should be located, but I believe they're located in the direction which we're most likely to see seepage migrate.

Q Now, Mr. Kelly suggested that we have at least eight wells located throughout the periphery of the salt water disposal facility.

Will you please evaluate that comment.

A I believe that at this point in the project it's premature to require that many wells at so many locations. We have a lot of flexibility in the order that was drafted to have imposed requirements for the addition of other monitor wells. I believe that if the first go-round indicates there's some sort of a problem, the data we provide to the Oil Conservation Division would lead them to suggest the addition of other wells in the area and thereby may be increasing gradually the number of monitor wells that are required as the case dictates.

Q Now, Mr. Kelly has also recommended that we drill the well from surface to a depth of 5 feet in the bedrock, to drill that with air, have drilling cores or samples analyzed by a company, to conduct tests as to resistivity with gamma ray, neutrons.

What is your evaluation of those specifications?

A I think it's a good idea generally to have that kind of information available when you're trying to identify local permeable pathways.

In this particular case it's my opinion the wells would be fairly shallow and I would say that the wells might only be 30 feet deep, 20 to 30 feet deep in most parts of the site, and even less in others, and a lot of the geophysical logging tools that are going to be readily available in this part of the state I believe are relatively large for collecting data in such a small hole to get reasonable resolution of stratification. Some of the tools, in fact, require that water be added to the borehole. For example, the SP and resistivity need to have water in the borehole, and to drill the hole dry and then add water to it later, I'm not sure what -- what is gained by that.

The idea as a whole, I would say, is a good one, except in this particular area we -- what we would be looking for with the -- with -- ideally with high resolution geophysical logs, is some delineation within redbeds or within the overlying, unconsolidated materials of some high permeable pathways and I believe it has been recognized that many of these features are discontinuous and I'm not convinced that you would have much luck correlating these indivi-

dual strata even with eight wells, considering that, and as Mr. Kelly has spaced them, many of them are 500 feet apart.

So I believe it's a little overkill.

Q Is it cost effective?

A Not in my opinion at this point in time.

Q In conclusion, is the plan proposed by Petro-Thermo Corporation adequate to protect existing fresh water sources?

A Yes, but I have yet to be able to identify what the fresh water resource is, defining as something which has a TDS of less than 10,000 milligrams per liter.

Q So you've found no fresh water sources that could possibly be contaminated by the proposed disposal facility.

A Not at this point in time.

Q Let me just take a moment to review rather quickly the issues we were charged to address during this rehearing.

If the seepage from the impoundments at the proposed waste facility migrated off site, would the discharged water migrate out the west side of Laguna Plata into Nash Draw and on to the Pecos River?

A No.

Q Considering all of the hydrologic evidence that you have available, what can you tell us about

where and at what rate discharged water will migrate?

A The discharge will migrate to the north-northeast from the site towards Laguna Plata at a rate which I've estimated in the past could be on the order of 100 feet per year.

Q Let's turn now to Paragraph No. 6 of the application for rehearing and ask you whether or not the proposed plan provided by the Oil Conservation Division is acceptable insofar as the installation and sampling of monitoring wells is concerned?

A Yes, I think it's acceptable.

Q And its open-ended nature permits the Oil Conservation Commission or Oil Conservation Division to make necessary modifications as required.

A That's my interpretation.

Q Do you have an opinion with regard to the migration of waste water from the proposed disposal site insofar as the destruction of grazing grasses and vegetation in Section 15 is concerned?

A I believe that the dominant direction of groundwater seepage will move towards the north and if it moved to the east towards Section 15, it would be moving parallel or along strike of the slope of the redbeds and it would most likely be parallel or, excuse me, perpendicular to the regional direction of flow from the south to the

north.

Q Is that a real possibility?

A Given that the distance from the west -- the east edge of the waste disposal ponds to the Section 15 west line is 700 feet, I believe it's more likely that seepage will move towards the Laguna Plat a lot faster than it will to the east.

MR. WEBER: Sir, I have no further questions.

MR. STAMETS: While I've got this in my hand let me ask a couple of questions here.

RECROSS EXAMINATION

BY MR. STAMETS:

Q In looking at the order that was issued in Order R-8161-A, which was the Commission's order, in Finding No. (24) there is the reference to the monitor wells.

MR. WEBER: From a hydrological standpoint.

Q It does not seem as though that -- that finding is written in a manner which would indicate concern about dissolved hydrocarbons entering fresh water, but only dissolved hydrocarbons entering the lake.

A Which number is this, sir?

Q Finding No. (24).

A I'm sorry, I don't follow your question.

Q All right. Does Finding No. (24) say anything at all about the -- a threat of dissolved hydrocarbons or any other hydrocarbons entering the fresh water?

A No reference to fresh water in that.

Q Okay. Would you take -- is it your understanding that the reason for the monitor wells is just to provide the division some information on what's going on in the ground?

A That's correct.

Q And not to protect fresh water.

A That's correct.

Q Okay. Is the -- do you feel that the proposal of Mr. Kelly's for the eight monitor wells would be more appropriate if there were fresh water in the area to protect?

A I still think it would be an excessive number based on a couple of lines of thinking.

One is that it seems to have no precedent. The regulations that pertain, Federal regulations which pertain to groundwater monitoring in the vicinity of many hazardous waste disposal impoundments would only require three down gradient monitor wells and an up gradient background monitor well.

Eight, right off the bat at this site, if

there were fresh water to protect, seems -- seems excessive, although when a site does have contamination that does occur, many more wells than eight are fairly common.

Q But I understand your testimony is that there is no fresh water in this area to protect.

A That's right.

Q On Exhibit Number Three, Figure No. 1, there is one -- well, let me -- let me ask you first, if we're looking at the area between Laguna Plata and Williams Sink or looking at the area as a whole, are all of these tops derived from -- from well logs --

A Yes, sir.

Q -- oil and gas wells that were drilled?

A Yes, sir.

Q You show one well in there that has a top of 3351. It's at the southwest quarter of Laguna Plata.

A Yes.

Q Now, why is that not indicative of a low in the redbeds, which would allow water to move to the west?

A Because we've seen an outcrop on the arroyos between there and the edge of Laguna Plata, redbeds.

Q Okay.

A I've got to conclude that there is a local low there and I wanted to bring that out. I didn't want to hide it in my cross sections. I wanted to make clear

that this is the data point where we're talking about 130 feet of alluvial fill, for example. The log may be in error, it's certainly one of the few that shows this feature, but an outcrop along the edge, it's -- it's redbeds exposed there.

Q If we flip over a few more pages to Figure No. 4, would that be -- would this well represent the feature you show there to the lefthand side of center, the low on the Triassic, now why would such a low not serve as a potential channel for the water and the material that's disposed of at this site to move away from the site in some direction other than into Laguna Plata?

A I believe our site is -- from what I can tell walking the arroyos, our site appears to be east of this incision in the redbeds and the channel, the nature of this channel, if you want to call it that, has -- has not been supported by other -- other wells to the northwest of it.

Q It's a localized low which you have not found in any other well.

A Well, there's another one, 3366 is to the southeast of it, but all along the west edge of Laguna Plata one can see exposed in the arroyos reddish sediments that in my opinion are expressions of the Triassic redbeds and these are continuous with those which have been identified in

outcrop on the north side.

Q On Figure No. 2 you show two springs at the southwest corner of Laguna Plata. If there was a major channel in the -- in the redbeds diverting materials south and west of there some place else, would those springs be there?

A No, sir, I don't believe they would.

Q So you believe those are a pretty good indication that anything put on the surface at the proposed disposal site will move to the north and east into Laguna Plata.

A Yes, sir.

MR. STAMETS: Other questions of the witness?

MR. KELLAHIN: Yes, Mr. Chairman.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Stephens, since the hearing on April 9th and 10th of this year, have you since that date visited the site of the proposed facility?

A No, sir.

Q Has there been any of the proposed monitoring wells drilled?

A No, sir.

Q Have there been any cores or drilling taking place in the alluvium within the facility to determine the thickness of the alluvium down to the redbeds?

A No, sir.

Q Have you conducted since the last hearing any field studies to derive any other factual information upon which you might draw conclusions?

A No, sir.

Q Have you done any calculations of the rate at which the water would move from the site in any particular direction?

A Yes.

Q The calculations that you discussed for us at the April hearing, you estimated water movement at the rate of approximately 100 feet a year?

A Yes, that was my estimation and water movement to the north.

Q Since doing that calculation have you made any new or additional calculations?

A No, sir.

Q Have you made any calculations of the area of influence or saturation that will occur around the pits?

A The saturation, the maximum saturation

that would occur would be in the alluvium and that would be defined primarily by the thickness of the alluvium beneath the site.

Q Have you indicated on your Figures 1 and Figure 2 all the available subsurface geologic control points that are available to us within the area described on each of the exhibits?

A Yes, I've left nothing out that is available.

Q When we look at Figure 3 and then Figure 4 and 5, am I correct in understanding that these diagrams or depictions have their basis in how you have contoured the structure and the water levels as shown on Figures 1 and 2?

A That's correct.

Q And if Figures 1 and 2 are different or are subject to different interpretations, then Figures 3, 4, and 5 could be change accordingly.

A Well, we would have to change them to be consistent from one to the other.

Q That was my only point, is that these depictions on the cross section are based upon your interpretations of the structure and the water level.

A That's correct.

Q When we look at Figure No. 2 on the water level elevations, do we have any new, new data points depic-

ted on this exhibit that you did not use on the water elevation figure you presented at the de novo hearing?

A We've added the springs to enhance our interpretation and we've made a -- yes, we're made a reassessment of all the land surface elevations and the depths to recompute all the parameters.

The one data point on the east side of Williams Sink, 3451, I believe is the same one that's shown as 3450, excuse me, 3440, in my previous map. The slope of the land surface is such that you have approximately 10 feet of uncertainty in choosing the land surface from which the depths to redbeds were measured.

Q Do you have available to you, Dr. Stephens, your report from December that will show the water level elevations as you've represented them at that point?

A Yes, sir.

MR. KELLAHIN: I hand you a copy of that exhibit which Dr. Stephens and I are discussing.

Q All right, sir, if we look at the water level elevations as depicted on Figure 2 for today's exhibit book, and if we commence with the two springs that are identified as seeps --

A Yes.

Q -- at the 3455 point, data point, and

then going clockwise, following your interpretation of the 3450 contour line, as we move around the west side and the northwest side of Laguna Plata, the next data point, then, is 3468?

A Yes. I would like to expand on that because there are numbers of data to the north off of this figure. This is in part taken from regional information and these contours, like 3460 that you mentioned, do have reference points of data to the north.

Q That would be beyond the area depicted on this figure?

A Yes, sir.

Q Within the area of the figure, though, around Laguna Plata you have plotted all the control points that were available to you.

A Yes.

Q All right, sir. At the hearing back in April we did not have a structural contour map from you, is that correct?

A That's correct.

Q Figure 1 for today's exhibit book, Exhibit Number Three, represents your interpretation of the structure within at least the area shown on the exhibit.

A Yes, sir.

Q What portion of the exhibit as presented

to us represents a matter of the interpretation of the data points?

A I'm sorry, could you ask the question again, please?

Q Yes, sir. As a hydrologist, when you take the data points, and by data points I understand those to be the black dots with the numbers next to them.

A Yes.

Q That is actual subsurface geologic points for which there is no interpretation, is that correct?

A There's interpretation on the part of the person who logged the hole, and that's what I'm using to base my information on.

Q Once you have those points established for yourself on the plat, then the manner in which you link those points together to determine the configuration of the contour lines is the area in which you apply your interpretations.

A Yes, sir.

Q All right. I believe I've asked you this already, but the data points on this structural contour map represent all the data points that are currently available within the area described on this figure.

A These are the logs which were available in the New Mexico Bureau of Mines records that we have ac-

cess to, and those are logs which were provided in existing consultant reports and reports by Sandia.

MR. KELLAHIN: I have nothing further.

MR. STAMETS: Any other questions of the witness?

MR. LYON: I want to ask a question.

QUESTIONS BY MR. LYON:

Q Dr. Stephens, on -- we've plowed this ground before, but on Exhibit One, or on Page -- Figure 1, the cluster of wells we've just been discussing, there are none of those points that have been brought to light since the last hearing, is that right? Have there been any --

A All these data points have -- almost all of these have been in a report that I prepared last time. This data is not new. It just was not plotted in this fashion.

Q Right.

A There was one new well which really is not highly relevant. It's in the north side of Williams Sink and I included it in this update for completeness.

Q I see, so there haven't been any wells drilled since --

A No, sir.

Q Referring to your cross section B-B, which is Figure 4, your top solid line running from B to B', is the surface?

A Yes, sir.

Q And the dashed line or -- well, a short, dashed line with the triangles above it is the water --

A Yes, sir.

Q -- table. And then the lower solid line is the top of the Triassic --

A Yes, sir.

Q -- redbeds. Is there water in the lake?

A Yes, sir.

Q But it does not show on this cross section, is that right?

A The water level data, I believe that we're using here, are -- the dotted line should correctly be drawn to be coincident with the Laguna Plata. I believe that this comprises an error in this diagram, and that is the dashed line beneath Laguna Plata should be coincident with the surface of the lake.

Q That was -- that was one of my points. It appears that --

A That's correct.

Q Another point I'd like to ask you about

is this trough that you have discussed before where you found rather anomalous shallow elevations of the top of the Triassic, indicates a channel or something in there in the -- that would be filled with alluvial material.

A That's the interpretation from the drilling marks.

Q And is it below the water table?

A Yes, sir.

Q So you would expect that to be filled with water.

A Yes, sir.

Q Do you know if there have been any tests of that water or any samples taken, or anything?

A No, I don't. For chemical quality?

Q Yes.

A I'm not aware of any chemical analyses, no. Most -- most of those holes were oilfield exploratory holes and it's my interpretation that they may have been drilled in this area on some sort of an anticlinal or fault structure.

MR. LYON: I believe that's all I have. Thank you.

MR. STAMETS: Any other questions?

MR. WEBER: No, sir.

MR. STAMETS: The witness may be excused.

MR. WEBER: Sir, if I may call Mr. Jim Thornton to the stand for a brief identification of a report.

JAMES D. THORNTON,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. WEBER:

Q Sir, would you please state your full name?

A James Douglas Thornton.

Q Sir, are you the same James Thornton who testified here before at the Examiner Hearing on December 18, 1985, the hearing de novo on April 9th and 10th, 1986?

A Yes, I am.

Q Did you have an opportunity recently to examine the ownership and all the lands directly to the east of the proposed disposal facility?

A Yes, I did. I visited with Mr. John Spain with BLM in Carlsbad.

Q And did Mr. Spain provide you with any information at that time, sir?

A Yes, he gave me the grazing permit lease

that Mr. Squires has and also gave me a copy of the regulations dealing with grazing permits and leases.

Q I show you now what has been marked as Petro-Thermo Corporation Exhibit Number Four and ask you if you can identify that.

A Yes, this is a document he gave me.

Q And what is that document entitled?

A Well, it's Department of Interior, Bureau of Land Management, Grazing Administration Exclusive of Alaska. It's the grazing permit and lease regulations.

MR. WEBER: Sir, I move the admission of Petro-Thermo Exhibit Number Four.

MR. STAMETS: What specific portion of this was that that was in question earlier in the case?

MR. WEBER: The specific portions were Title 43, Code of Federal Regulations, Section 4130.2 (B).

MR. STAMETS: 4130.2?

MR. WEBER: Yes, sir. On page 4, sir.

MR. STAMETS: Lower righthand side?

MR. WEBER: Yes, sir.

MR. STAMETS: Paragraph (B)?

MR. WEBER: That is correct, sir.

MR. STAMETS: Just Paragraph (B)?

MR. WEBER: Just Paragraph (B) for our purposes.

MR. STAMETS: Okay, objection to --

MR. KELLAHIN: No, sir, I haven't seen a copy of the exhibit.

We object, Mr. Chairman, on the grounds of (unclear).

MR. STAMETS: Overrule the objection and admit the exhibit.

Q Mr. Thornton, did you cause to be prepared a new exhibit book entitled Engineering and Design of Plata Disposal FAcility, which has been marked as Petro-Thermo Corporation Exhibit Number Five?

A Yes, I have.

Q What additional information did you place in that exhibit?

A The first page is the Plata Disposal Facility ownership map. That is taken from the Midland Map Company, Southwest Lea County, New Mexico, ownership map, which was posted to January 25th, 1985.

Q And what map does that show insofar as the ownership of Section 15, Township 20 South, Range 32 East?

A The minerals and surface are both owned by the United States.

MR. WEBER: Sir, at this point I move for admission of Petro-Thermo Exhibit Number Five.

MR. STAMETS: Okay, the only reason you've submitted this, that otherwise is identical to the original exhibit, is this map.

A Well, I've also included the letter from yourself concerning the monitoring wells and the testing procedures outlined.

MR. STAMETS: That's a February 18th, 1986 letter.

A Yes, sir.

MR. STAMETS: And those are the only two changes from the earlier exhibit?

A Yes, sir.

MR. STAMETS: Without objection this exhibit will be admitted.

MR. WEBER: Sir, I have no further questions of this witness.

MR. STAMETS: Are there questions of the witness?

MR. KELLAHIN: No, sir.

MR. STAMETS: He may be excused.

MR. WEBER: Petro-Thermo Corporation has no other witnesses.

MR. KELLAHIN: I'd like to call -- recall Mr. Kelly for a moment but I need to make a photocopy of one of the exhibits. It will take me about two or three minutes.

MR. STAMETS: That's fine, we'll rest while you're doing that.

(Thereupon a brief recess was taken.)

MR. STAMETS: All right, Mr. Kellahin, you may proceed.

MR. KELLAHIN: Thank you, Mr. Chairman.

At this time, Mr. Chairman, we'll recall Mr. Tim Kelly.

TIM KELLY,

being recalled as a witness and remaining under oath, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Kelly, have you listened to Mr.-- Dr. Dan Stephens presentation with regards to his interpretation of the structure and his interpretation of the water level elevations as shown respectively on his Figures 1 and 2 from Petro-Thermo Exhibit Number Three.

A Yes, I have.

Q Let me show you what I have marked as Exhibit Number Fifteen and ask you, sir, whether or not you, as a hydrologist, can take the same data points that Dr. Stephens used and recontour the structural interpretation of this information?

A Yes, I can.

Q And have you done so?

A Yes, sir.

Q Would you describe for us what you have done to honor the data points and yet come up with a different interpretation from Dr. Stephens?

A I have simply extended the 3450-foot contour between Williams Sink and Laguna Plata to encircle a nose between the two points and then extended this same contour around the east and north side of Laguna Plata, bringing it back to Williams Sink, using as a control point Dr.

Stephens' new well identified by the elevation of 3456.

This presents a structural contour map not unlike that which was prepared by Reed in 1969 and I believe that it is certainly justified inasmuch as the contours are at a 50-foot interval and yet Dr. Stephens has taken the liberty of closing a contour where it is 2-1/2 miles between the nearest control points; that is, between control point 3472 near the southwest corner of Laguna Plata and the control point 3473 in the northwest corner of that particular township, so that if one were to envision a bedrock channel, and this, of course, ignores his two excessively low bedrock control points of 3351 and 3366, you still have a bedrock low draining to the northwest between the two lakes and ultimately beneath Williams Sink to Nash Draw.

Q Let's take Exhibit Number Sixteen, which represents Dr. Stephens' interpretation of the water level elevations and ask you whether or not you have, using the same process, reinterpreted the geologic subsurface control points and come to a different conclusion?

A Yes, sir, you'll notice that on the east end of Williams Sink there's a control point of 3451, which is compatible with the other two directly east at the southwest corner of Laguna Plata of 3450 and 3455.

The logical thing to do would be to sim-

ply extend the contour between those two points and then you never see another 3450, which means, then, that there is no evidence to support the conclusion that 3450 foot contour can be closed between the two, creating the groundwater divide which he supposes exists.

Then, if you were to use the same technique that he used in his Figure 6, of drawing arrows, you in fact would have the groundwater moving towards the north and west except at Laguna Plata where it would be moving directly west, and then again towards the northwest.

In other words, Laguna Plata is simply a dimple on the contours that pulls them out of configuration, but there is no evidence presented on either of these diagrams to indicate that that contour can be closed, and certainly not a 10-foot contour stretched 2-1/2 miles.

Q You've made your reinterpretation of the contour lines on both exhibits and shown those in -- at least on the Commission exhibit -- in red?

A Yes, I have.

Q Have you listened to Dr. Stephens' testimony and presentation to the Commission this afternoon?

A Yes, I have.

Q Has that testimony caused you to change any of the opinions and conclusions you have drawn earlier today in your testimony?

A No, sir.

MR. KELLAHIN: We move the introduction of our Exhibits Number Fifteen and Sixteen.

MR. WEBER: No objections.

MR. STAMETS: The exhibits will be admitted.

Does this conclude your --

MR. KELLAHIN: Yes, sir.

MR. STAMETS: -- redirect?

Any questions?

MR. WEBER: Yes, sir.

RECROSS EXAMINATION

BY MR. WEBER:

Q Mr. Kelly, if I could direct your attention to Dr. Stephens' Figure 1, are you saying that Dr. Stephens' interpretation of the data is incorrect?

A I'm saying that Dr. Stephens' interpretation is subject to argue.

Q Why is your interpretation a more plausible alternative?

A Because my interpretation is supported by the work of Reed and the Sandia Corporation, and Geohydrology Associates.

Q Are you aware that Reed did not investi-

gate this particular area?

A Reed did the -- to my knowledge, the most detailed subsurface evaluation that has been made at Laguna Plata.

Q You do not know of your own knowledge whether or not he did any evaluation of the western portion of Laguna Plata.

A No, I don't. I do know that none of the later studies have -- have changed anything that he did other than Dr. Stephens'.

Q What evidence do you have for bedrock channel moving west to the Nash Draw?

A It is shown on the -- all of the earlier work.

Q You have no other evidence, then,

A No, sir. The burden of proof is not on me; it's on the applicant.

Q When was the last time you visited this particular site?

A 1984.

Q Have you done any additional field studies or other work since the 9 and 10 April hearing de novo?

A Is that '86?

Q Yes, sir.

A No, I have not.

Q Let's turn now to Dr. Stephens' Figure 2, the water level elevations.

If we might return just one moment to Figure 1, do you have that before you, sir?

A Yes, I do.

Q Sir, on your map, what is the slope of the redbeds at the proposed disposal site?

A It's not shown on this illustration.

Q Sir, do you know generally where the proposed disposal site is in relation to Laguna Plata?

A Yes, roughly. Let me ask -- may I ask a question?

There is -- the scale shows one mile. Is this an entire township? Is this Township 20 South, Range 32 East that we're looking at in this block right here?

MR. STEPHENS: I believe that's correct. I may have to go back and check another map, though.

MR. WEBER: Let the record reflect that Dr. Stephens responded to Mr. Kelly's question.

A And your question was that --

Q On your map, the map that you have drawn showing the red line, 3450 contour line, in which direction do the redbeds slope if we were to assume that the red lines

correctly depict the structural contour?

A Well, I would assume that the site that we're talking about here is in the vicinity of the 3400 foot contour at that point, or at the south end -- or southwest corner of Laguna Plata, so that at that particular location the contours on the redbeds would be towards the northeast if we disregard the two extremely deep sites of 3366 and 3351.

If we don't, then we don't have any idea what the direction is.

Q Now the proposed site is well inside the 3450 contour, is it not?

A I don't know. It's not -- it's not clear to me on this map where that particular 8-acre tract is in this 36 square mile area.

Q But assuming that your map is correct, then the slope of the redbeds would be toward the northeast or in the general vicinity of the waters of Laguna Plata.

A That's correct.

Q Sir, I wonder if you could on your copy there pick out the control point marked 3473 and the control point marked 3472.

Could you scribe a line between those points, sir?

A Could I? Yes, sir, I could connect those

two points with a line.

Q Now, if you did connect those two points with a line, is that generally a lower elevation or generally a ridge?

A That would be a ridge.

Q Separating Laguna Plat from Williams Sink.

A No, sir. That ridge would only extend about 25 percent of the way across the west end of laguna Plata. It's at the very southwest corner of Laguna Plata, and we have no control to indicate that that ridge extends for the next 2-1/2 miles, which is the next control point.

Q Sir, if we assume that you have drawn the 3450 contour in red correctly, where would be the 3400 contour?

A I don't have any idea. There's no control other than one point. I have no idea.

It is entirely possible that that 3400-foot contour extends beneath Williams Sink all the way to Clayton Basin; certainly no control to disprove that.

Q Now, sir, if you would look at the point where you have drawn the red line on the 3450-fooot contour, I draw your attention to control points identified as 3351 and 335 -- correct, 3366.

A Yes, sir.

Q They would appear to be on the wrong side of the contour that you've drawn, would they not?

A Yes, sir. In my testimony I stated that I was going to ignore those because they are anomalously low elevations.

Q But if they were not anomalously low, then you have put them on the wrong side of the contour.

A There's a 3450-foot contour goes through there. It's conceive -- on a larger scale it's conceivable that if those are in fact a trough, there's a 3450-foot contour on both sides of those.

Q Sir, let's now turn to Figure No. 3, showing the location of the site and comparing it with the red line you have drawn on Figure No. 1.

Is that site not within the new redrawn 3450 contour?

A I would say that the site is outside the 3450, if I'm overlaying these properly, there's a page in between the two.

As a matter of fact, the site appears to underlie and be immediately adjacent to the 3366 control point.

Q Sir, if I may direct your attention now to --

A If the 3366 control point is accurate,

then there is a phenomenally deep amount of alluvium beneath the site, contrary to what the testimony has presented.

Q Sir, let me now direct your attention to Figure No. 2, water level elevations.

Are you indicating that Dr. Stephens closure of the 3450 foot contour around Laguna Plata and the indication of another contour around Williams Sink isn't correct, that it does not correctly reflect the actual water level elevations on the ground?

A The water levels, I think you do not mean on the ground.

Q On the ground to indicate --

A Any water level contour map is based on the data that is available and I have the utmost respect for Dr. Stephens but I don't think he can see any deeper underground than I can and there is no evidence presented in this illustration or within the documents that we have seen thus far, to indicate a justification to extend the 3450-foot contour as a solid line from 3451 at the east end of Williams Sink 2-1/2 miles north to a point of somewhat questionable elevation at 3447.

Q So you're saying he's not necessarily wrong but there isn't sufficient evidence to support his interpretation.

A That, as I said, I think the burden of

proof is on the applicant to prove that his map is right.

Q Why is your map better than his map?

A I'm not saying my map is better. I'm simply saying that he hasn't proved that this map is correct.

MR. WEBER: I have no further questions.

MR. STAMETS: Any questions of the witness?

MR. KELLAHIN: No, sir.

MR. STAMETS: He may be excused.

MR. KELLAHIN: I have nothing further, Mr. Chairman.

MR. WEBER: Yes, sir, I would like to call Dr. Stephens for a brief rebuttal.

MR. STAMETS: Very good; give everybody brief rebuttals.

DANIEL B. STEPHENS,

being recalled as a witness and being previously sworn and remaining under oath, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. WEBER:

Q Dr. Stephens, have you reviewed the maps that have been reconstructed by Mr. Kelly?

A Yes.

Q If I could request that you direct your attention to Figure 1, I would ask that you explain your interpretation of the closure of the 3450 contours around both Williams Sink and Laguna Plata.

A The closure is based on available information and if I were to extend the 3450 contour from the north side of Laguna Plata to the north side of Williams Sink, you would say I would be incorrect because I would be drawing that between two points that are about at the same elevation, 3473, 3472.

I believe that proper interpretation shows closure when you also consider the outcrop patterns that have been identified by OCD staff and myself in the arroyos at the north end of the site.

Q Can you envision a bedrock channel to Nash Draw based upon the available data?

A No, I can't, and I would like to add that a bedrock channel does not determine that any excursion will be occurring. If the bedrock channel connects Laguna Plat

to something else it's very likely that water is flowing towards Laguna Plata in the channel because that is my interpretation of the groundwater flow based on the springs.

Perhaps if this mysterious channel exists, that's where the discharge from this channel is occurring, is at the springs near the north end of the site.

Q Going from west to east.

A Going from west to east.

Q Sir, have you had an opportunity to review Mr. Kelly's interpretation of your water level elevations?

A Yes.

Q What comments do you have with regard to his interpretation of the 3450-foot contour?

A Can you give me a minute to study it a little bit further?

I believe that our interpretation is a viable interpretation which is consistent with the occurrence of a bedrock ridge between Laguna Plata and Williams Sink, consistent with the existing data, and it's consistent with observations of redbed outcrops on the west side of Laguna Plata and not just the two springs that are shown here.

I indicated in previous testimony that there is a line of seeps, a moist zone which I observed in the field, extending northward from the site along the west

edge of Laguna Plata, and the topography often is an indication of what the water table configuration is. This has been established quite often and, in fact, there is a divide in the topographic surface, and expressing a water table divide in the same general area. It was very consistent with regional and local interpretations of the reflection between topography and the water table slope.

MR. WEBER: I have no further questions.

MR. STAMETS: Any questions of Dr. Stephens?

MR. KELLAHIN: No, sir.

MR. STAMETS: He may be excused.

MR. WEBER: Sir, before I conclude, I would once again request that this Commission take administrative notice of Case 4047, if only with regard to the testimony of Mr. Ed L. Reed.

MR. KELLAHIN: Same objection, Mr. Chairman.

MR. STAMETS: The Commission is going to let the record in this case stand on its own and not look at the record in any other case.

MR. WEBER: That concludes our presentation.

MR. STAMETS: Okay. Do you have a closing statement, Mr. Weber?

MR. WEBER: Sir, I will defer to Mr. Kellahin.

MR. STAMETS: Mr. Kellahin?

MR. KELLAHIN: Yes, Mr. Chairman.

MR. KELLAHIN: The applicant's case reminds me of my grandpa. He used to raise dogs and occasionally we'd get a litter in which, regardless of what you do, you couldn't teach that dog to fetch birds. And he'd go to great lengths to teach that dog to hunt, and he'd feed, and love, and care for him, and try as he would, that dog wouldn't hunt, and he'd eventually give up.

And growing up with my grandpa, he applied that to a lot of the things I did (unclear) and I occasonally use that expression when I get into a situation where I've devoted a lot of time and effort to something and you just can't make it work, and that's the way I feel about the applicant's case here before you, is that there's only so much you can do with some dogs and eventually you're going to have to give up on them, and this is one that's not going to hunt.

You've got a particular problem with the way the Commission has organized the de novo order. It is predicated on a fundamental concept and that is that you have denied all the theories that Pollution Control and Snyder Ranches has put forward based upon a water analysis from a small seep, and you can see the way the order is structured, you re-articulate the arguments of the opponents and you answer them with the fact that the best -- in Finding 22, the best geohydrologic evidence at the time of the

hearing included the existence of a high TDS spring located at the northwest corner of the proposed facility.

If, in fact, that high TDS spring is a perennial spring and in fact if it remains at a TDS level in excess of the 10,000-to-1 parts per million, then maybe the order will hold up, but a significant hole has been punched in this order today when we introduce the September 4th water analysis from this very seep and it shows a TDS level of 1,682 parts.

You now have a quandary; you're in a Catch 22 situation where now you've got to somehow ignore that water analysis. I don't know how you resolve it. If you say that the water now is water to be protected, and if you follow Dr. Stephenson's (sic) analysis, this seep is in the area where it will be contaminated.

I quite frankly think the preferable position is to adopt that of Mr. Kelly's. He's never thought much of this seep in the first place, regardless of what the water analysis showed you. I think he's right. I think you ought to ignore that and not use it as a basis to deny his position and what he has so carefully articulated for you today, and that is that this facility poses an environmental risk to the fresh water, and I don't think you can deny it and I don't think you can get around it; there it is.

Despite Dr. Stephens' best effort, what the problem in this case is, is there's just not enough information, and we can talk about it forever, but until the applicant can meet his burden of proof and tells us more about this -- the alluvium layer and the redbeds, there is no way to know where this water's going to go, and you have a duty to make sure that the surface disposal facilities operate in such a way that several things don't occur, and it's not simply protection of fresh water. I discussed that one, you can figure it out.

You also have an obligation and a duty to make sure that one of these facilities that you approve does not damage someone else.

I think it's very fundamental. The evidence presented to you does not allow you to know that the adjoining ownership of those adjacent neighborhood lands is going to be protected.

It's going to happen. It may take 100 years; it may take 2 years. If Dr. Stephens is right and it moves at a rate of 100 feet a year, well, there's 7 years and we could speculate about how long it's going to take, and that's the problem with this case. There's too much speculation on behalf of the applicant. He needs some more information and doesn't have it.

The only way to minimize this,

as we can see, is to adopt what Mr. Kelly has suggested and require the applicant to install a monitoring facility that gives us a reasonable chance of protecting the adjoining property, and that's what we're suggesting.

We think that that's the minimum requirement. We are not at all persuaded that that's going to protect fresh water or preclude the contamination of the adjoining ownership, but at least gives us some method by which we can detect it, and there's no greater environmental disaster going than those that have laid dormant for tens of years and somehow, sometime later on, you find you've got a terrible mess out there and no way to clean it up.

Right now we've got property that is not damaged and you have an obligation under the statute to protect us, and that's what we're asking.

MR. WEBER: Sir, Mr. Kellahin is correct to the point in which you have on two previous occasions denied the theories posed by Pollution Control and Snyder Ranches.

The point that escapes my client is the fact that we really have two sets of theories here.

One theory that was propounded in Case Number 4047, when Pollution Control obtained the

authorization.

The other theory is the theory offered by their opponents in this hearing. The very same argument offered by Mr. Squires opponents in Case 4047, are the very same arguments that have been raised on the 18th of December, the 9th and 10th of April, and today.

We can't have it both ways. What's sauce for the goose is sauce for the gander. The truth, we believe, lies in the fact that Laguna Plata is a closed structure; that there is no possibility of contamination to existing fresh waters; that the Commission has issued an order which is supported by substantial evidence. That order does not (inaudible). The monitoring system is effective and it's efficient, even though there are no fresh water supplies in the area which could be contaminated.

And finally, the possibility that any discharge waste water would pass beyond the boundaries of the site selected by Petro-Thermo Corporation is so remote, and has been shown to be so remote, as to not warrant the Commission's concern.

We urge the Commission to issue an order confirming it's two previous orders in this case.

I have nothing further.

MR. STAMETS: Let me ask Mr. Abbott something.

As I understand it, this area where you have proposed this facility is up for a business lease from the State Land Office, is that correct?

MR. ABBOTT: We made application, yes, some time ago.

MR. STAMETS: Do you have any idea when that is going to be dealt with?

MR. ABBOTT: Well, they're working on it now. They recently, I understand, wrote a report. The site was visited the past week by two of the people from the State Land Office and it's just a matter of how they want to write the order. They -- they're using a lot of different ideas on writing the business lease.

MR. STAMETS: I'm trying to get a handle on when the Commission needs to get an order out on this so that everybody knows whether it's yea or nay.

MR. ABBOTT: Well, we'd like an order immediately because we've been very patient and especially me, I'm a patient man, and, you know, after three hearings I think we've done our best and this was in an area which was an exempt area to start with.

In fact we've discussed it with the Commission --

MR. KELLAHIN: I'm going to object to all this, Mr. Chairman --

MR. ABBOTT: -- and they didn't even -- they didn't even --

MR. KELLAHIN: -- I --

MR. ABBOTT: -- realize that the -- that they needed a hearing, you know, it's exempt.

MR. STAMETS: Okay, now you don't have -- you don't have a date in mind. You don't know that you're going to need this --

MR. ABBOTT: No.

MR. STAMETS: -- a week, two weeks, or a month.

MR. KELLAHIN: Mr. Chairman, I have other information. I understand the Commissioner of Public Lands is going to put this business up for bid. Mr. Squires, and others, also have applications for a business lease and some of them, I believe, predate Mr. Abbott's filing, and I don't know that the Commissioner has decided when and if or how to resolve his half of this problem.

MR. STAMETS: Okay, well, we may try and determine by contact with the Land Office when that's coming up and so that we can, if at all possible, get an order out before that time.

We don't have another Commission hearing scheduled before the 23rd of October. We would try and get together, I think, on October -- let me look at

my calendar, I think October 1, and see if we can get an order signed, if -- if there's nothing needed any earlier than that and if there is, we'll contact the parties and let you know when we will be getting together to sign an order in this case.

If there is nothing further, then, we'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of this portion of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR