STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

EXAMINER HEARING

IN THE MATTER OF:

Application of Sunco Trucking Water Disposal for a permit to construct and operate a commercial wastewater evaporation pond, San Juan County, New Mexico — Case 9955

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
June 15, 1990

A P P E A R A N C E S

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I N D E X

E X H I B I T S

EXAMINER STOGNER: This hearing will come to order. This is a continuation of case number 99-55. Before we get started this morning, I'll have our general counsel, Mr. Stovall, make a statement.

MR. STOVALL: Gentlemen, in reviewing this thing over the past 36 hours, I have come to the conclusion that it will be helpful to the examiner if I place one of the environmental bureau staff people on the stand at the conclusion of the parties' testimony. The purpose of that will be to enter his comments and testimony -- get it into the record regarding some of the proposals that have been made here. That does not modify my statement the other day that the decision will be placed upon the record made in this case, and anything that was generated in previous discussions with the environmental bureau and the applicant will need to be put in the record by a party today. We will have one of the environmental bureau technical staff on the stand to clear up any ambiguities and complete the record and put some of their technical recommendations into the record so that information will be available for the examiner.

EXAMINER STOGNER: With that, I believe we had Mr. Frank on the stand. Let the record show that Mr. Frank was previously sworn in.

Mr. Horner, you may continue with your cross-examination.

CROSS-EXAMINATION (Continued)

BY MR. HORNER:

Q. I'd like to start by referring to the April 19th, 1990, letter -- I guess that's Exhibit Number 4 -- from Mr. Frank to the OCD where you were talking about using bleach to mitigate the hydrogen sulfide problem.

MR. DEAN: Is that the April 17th letter that you're referring to?

MR. HORNER: I wrote April 19th. Maybe it is April 17th. Yes, April 17th.

Q. (By Mr. Horner) I understand that you intend to have a 1,000 gallon tank on-site for bleach; is that correct?

A. That's correct.

Q. Is that indicated on the drawings?

A. No, it's not.

Q. So we need to amend the drawings to show that tank?

A. We'll submit an as-built when the facility is completed, and it will indicate the location of the bleach tank.

EXAMINER STOGNER: Mr. Frank, do you have

that today?

WITNESS: No.

Q. (By Mr. Horner) Now, what are the requirements going to be for the use of bleach to mitigate this hydrogen sulfide problem on this site?

A. As we indicated in the document here, we anticipate that we'll be treating a pond with a thousand gallons of bleach monthly, just as a matter of prudence. Once again, the requirement for any quantities greater than that would be indicated in our treatment plan.

Q. Now, you also state in here that you may be using up to 5,000 gallons per day; isn't that correct?

A. That is the deliverability rate of CDI.

Q. But you anticipate that you may be using that much?

A. No, only in the presence of elevated concentrations of H2S.

Q. With conditions of elevated concentrations of H2S, you may be using 5,000 gallons per day?

A. Pursuant to our treatment plan, yes.

Q. 150,000 gallons of bleach a month?

A. If that's required, but I don't believe that that will ever be necessary.

Q. So you were concerned that you may have a

significant hydrogen sulfide problem at this site; is that correct?

A. No, it's a contingency plan. And if, in fact, there would be elevated H2S levels, we would be able to bring that amount of chlorine to the facility at those given timeframes.

Q. What is the maximum capacity in gallons of this one pond?

A. The capacity curve indicates -- I'm looking at Exhibit 2-B -- appears to be 19.7 acre feet of water. And I have to get a conversion to tell you what that would be in gallons.

Q. If, in fact, you run into a hydrogen sulfide problem, you're going to have a significant portion of that pond built up with just bleach, aren't you?

MR. STOVALL: I want to take just a moment here, Mr. Examiner. I'd like to talk to a couple of staff people.

EXAMINER STOGNER: Are you requesting a recess?

MR. STOVALL: I'm requesting about a one-minute recess.

EXAMINER STOGNER: So be it.

(Recess, 8:28 a.m. to 8:30 a.m.)

EXAMINER STOGNER: This hearing will come to order. Mr. Stovall.

MR. STOVALL: We're ready to proceed, Mr. Examiner.

EXAMINER STOGNER: Mr. Horner.

Q. (By Mr. Horner) So it looks like with all this bleach you may be adding in it, you're going to have quite a brew there. I mean, you're going to have -- if I understand it, you're going to have hydrochloric acid, sulphuric acid, sludges, salves, chlorine, hydrogen sulfide, all in this pond; is that correct?

A. At one point in time, yes, that would be correct.

Q. Now, at what concentration of the hydrogen sulfide do you intend to notify the OCD?

A. Once again, pursuant to the document I submitted and is of record here, their concentrations of H2S reaches one PPM at the fence line for two consecutive monitor readings; or if dissolved sulfides in the pit water reach 15 PPM, the OCD will be notified immediately.

Q. Now, that is air concentration with regard to the one part per million; isn't that correct?

A. Yes.

Q. That's at the fence line?
A. That's at the fence line.
Q. At what concentration level do you intend to actually take some action?
A. The way I read this, at one part per million.
Q. And that action is simply to notify the OCD?
A. And to implement the treatment plan.
Q. At what concentration level do you consider you are creating a danger to surrounding residences and property owners?
A. With the distance involved of property owners and the residences, one PPM at the fence line is noticeable. The -- you can't quantify the concentration at a distance because you just don't know the wind directions and velocities, but at one PPM we will start the implementation of the treatment plan.
Q. You talked about distances. Are you assuming that any residences are a certain distance away from this facility?
A. There are no residences within any close proximity to the facility at this time.
Q. Currently?

A. Currently.

Q. Now, you stated, I believe, in here that when the concentration levels reach ten part per million you intend to evacuate all residents within a quarter mile; is that correct?

A. That's correct.

Q. In fact, there are no residents within a quarter mile; is that correct?

A. That's correct.

Q. So, actually, you haven't really committed to doing anything; isn't that correct?

A. That's not correct. We committed to evacuating the residents within a quarter mile.

Q. Are you aware of any EIB hydrogen sulfide standards?

A. I'm not aware of those at this time.

Q. Would you be surprised to know that they limit the air concentrations to .01 part per million?

MR. DEAN: I'm going to object for the record that that's outside the jurisdiction of this hearing.

MR. STOVALL: The answer is correct; we do not have jurisdiction over air quality, as such.

MR. HORNER: Maybe this is a good time to go into that. I do have a significant concern with

regard to that, and several exhibits that I would like to introduce -- I had not planned on introducing them at this point, but I would like to discuss in detail this problem with the jurisdiction and the EIB air quality standards that seem to be not being regarded here and need to be regarded here. If I could reserve this whole discussion for a little bit later, I'd appreciate it; otherwise, we'll go into right now.

MR. STOVALL: You can reserve it, yes. I guess you can reserve it for later, if you want to. I'm just stating as a jurisdictional matter, OCD does not regulate air quality. If there is evidence which you wish to put in, you're certainly welcome to do so if it's competent, relevant evidence.

MR. HORNER: I'll do that in a little bit then.

Q. (By Mr. Horner) Now, do you know how many residents there are within a radius of, say, a mile-and-a-half?

A. No, I do not.

Q. Could there be a significant number?

A. Would you define "significant"?

Q. Two thousand.

A. I doubt there's 2,000 homes within a mile-and-a-half of the facility.

Q. How about 2,000 residents?
A. I would -- I don't know.
Q. But it's possible.
MR. DEAN: I'm going to object. He's answered the question; he doesn't know.
MR. STOVALL: I'll sustain the objection -- I recommend sustaining the objection, excuse me, on the grounds that he has answered that he doesn't know. And there are other grounds for sustaining it.
EXAMINER STOGNER: Thank you, Mr. Stovall. The motion is sustained. Please continue, Mr. Horner.
Q. (By Mr. Horner) If I could go back over one thing we touched on yesterday for the benefit of Mr. Anderson who's here today and was not here the other day. If you encounter a leak in your first pond, what is the maximum time that you could envision for draining that pond?
A. Once again, as I stated previously, it would be close to four months. That would give us time to construct the second pond and to drain the first pond into the second pond completely. In the meantime, evaporation during that process would continue, so four months.
Q. But we went through on Wednesday that, in fact, the lining of your second pond was not part of

your contingency plan; isn't that correct?

A. That's correct.

Q. And, therefore, it actually may be as long as nine months?

A. That's the number you threw out. I didn't believe it would be that long.

Q. I thought you said it would take nine months to evaporate the pond.

A. It could be evaporated in nine months.

Q. Therefore, the maximum length of time that it would take would be nine months to drain the pond.

A. Okay, the maximum length it could be would be nine months.

Q. Now, I believe you stated in your documents here someplace that you intend to measure the sulfides in the pond once a month; is that correct?

A. That's correct.

Q. Now, is that adequate, in your opinion, if you start generating hydrogen sulfide?

A. Yes.

Q. Even though if you have a hydrogen sulfide problem, you may need to add 150,000 gallons of bleach a month?

A. Once again, if you'll read in our treatment plan, you'll determine the chlorine demand for

sulfides H2S in organics.

Q. Now then, you also stated that you intend to measure your hydrogen sulfide levels in the air in tenths of a part per million; is that correct?

A. That is correct.

Q. Basically, you would not be monitoring anything less than one-tenth of a part per million.

A. That is correct.

Q. And where would you be monitoring this?

A. As it states in the document here, the sampling points will be located on the northeast side of the ponds and tanks.

Q. Would this be at the fence line, basically?

A. No, we are going to measure it on the dikes of the ponds.

Q. On the dikes of the pond itself?

A. This would be the sampling points.

Q. Are you going to have additional monitors on the fence line, or is that your whole detection system is the monitors on the dikes?

A. We will -- as a daily record, we will monitor the H2S on the dikes. Our requirement to be met is at the fence line. So what I'm saying is that if we have one PPM at the pond, it should be something less than that at the fence line.

Q. Where does your requirement that you talk about come from that you should be monitoring at the fence line?

A. Through correspondence with the OCD.

Q. And where is that?

A. This is the OCD letter dated November 3rd, 1989, on page three.

EXAMINER STOGNER: What exhibit is that?

MR. DEAN: 7.

EXAMINER STOGNER: Thank you.

MR. DEAN: I made a list of the order that they went in; it's a little easier to deal with.

EXAMINER STOGNER: I'm sorry, what pages of that exhibit are you referring to, Mr. Frank?

WITNESS: Three.

MR. HORNER: Where are we on page three?

WITNESS: The second 7-A, about halfway down.

Q. (By Mr. Horner) So you have agreed to comply with this then; is that correct?

A. That is correct.

Q. Now, I believe you testified that in the facility, the southwest facility that you own, that it is constructed using compacted clay rather than lime; is that correct?

A. That's correct.

Q. Now, in fact, the facility being considered here for STWD does not use clay; is that correct?

A. There is clay in the subgrade, yes.

Q. It's not designed like yours where you have sufficient amounts of clay, or theoretically sufficient amounts of clay, to make the soil impermeable and therefore retain all the substances in the pond?

A. The liner of this pond is two plastic liners, two synthetic liners.

Q. That's what you're relying on rather than a clay-type design here.

A. That's correct.

MR. HORNER: At this time, Mr. Examiner, I would like to offer to this forum for consideration a document entitled Court's Amended Findings of the Fact in the case of Payne versus Basin Disposal. I'd like to ask this forum to take judicial notice of this document. It's a case involving the Basin Disposal site where they had evaporation pits for the evaporation of produced waters, and the surrounding residents sued them for personal injuries due to the hydrogen sulfide created and won a million-dollar judgment against Basin Disposal for the injuries that

these people had sustained.

I don't know what you would like to number that. I had started out numbering some of these as I had some stickers that said Plaintiff's Exhibit on them, and I've numbered several of mine with Plaintiff's Exhibit stickers. I don't know how you'd like to number these.

MR. STOVALL: Mr. Examiner, I do recommend that we take this into the record, which -- I don't know how.

EXAMINER STOGNER: I can take administrative notice of -- is this judgment number CV-875691102, Mr. Horner?

MR. HORNER: That is correct, Mr. Examiner.

MR. STOVALL: Do you know what the status of this judgment is in the judicial process at this time?

MR. HORNER: Yes, I do. I do have a final judgment that I do intend to submit next. And as I understand it, there is an appeal ongoing. Also, as I understand it, Mr. Dean is representing the defendants in this case.

MR. DEAN: That's incorrect, Your Honor. That's not true.

MR. HORNER: You did represent the

defendants in this particular case, did you not?

MR. DEAN: Uh-huh, for about a week.

MR. STOVALL: You're not intimately familiar with it, Mr. Dean?

MR. DEAN: No, I am intimately familiar with it. I also, for the record, object to it being admitted as irrelevant. There's no foundation to show that the Basin pond is anything similar to what's proposed here, other than that they hold produced water, which really hasn't even been introduced as proper evidence.

Realizing the rules of evidence are not strictly adhered to, we're trying to go for fair play, that should also apply to the applicant who has nothing in common in terms of ownership, location, design, operation, maintenance, negligence or anything else that's found in that lawsuit. There's really damning findings of fact in there as to the operation, none of which are proven in this record today, none of which are even hinted at in this record today, except by Mr. Horner's questions, and he has no evidence to show that that's going to be done. They're totally irrelevant. There's been no foundation to show that they have any symbolence of relevance that would be helpful to this hearing examiner. They're also

extremely prejudicial; it's already been prejudiced by Mr. Horner's statement about them because it goes into lengthy damages about plaintiffs we have no evidence about here, who don't live around this pond and who have nothing to do with this pond. So I think it's extremely outside even the lax rules of administrative hearings about evidence and, therefore, for the record, I, at least, strongly object to them being admitted.

MR. STOVALL: There's no need for further argument on that, Mr. Horner. I think, again, the examiner is taking administrative notice of this. The weight and significance and importance of it in terms of the facts of this case will be evident from the document itself, I believe, provided sufficient evidence is made in this record.

And, Mr. Dean, you certainly have the opportunity to respond to anything in specific in this case, in the basic case, if you feel it's necessary to help clarify this record.

One thing I am concerned with, Mr. Examiner, and I'm going to take this opportunity to do so -- I think Mr. Dean has touched on that -- is that the cross-examination, at this point I am concerned that perhaps it is going to not help us establish the

standards that we need to establish if this pit facility is going to be approved.

And, Mr. Horner, I would really appreciate it if you would concentrate your -- do you have any witnesses that you're prepared to present to establish standards and present scientific, technical evidence either in support of denial of the application or in establishing adequate standards for the pit?

MR. HORNER: If you will allow me to continue, I do intend to do that. I intend to not with witnesses but with these documents. These issues were litigated in this particular case. They have come up with recommendations regarding the operations of these types of pits, and I do intend to address those and show how they are similar in the Basin case to this particular case. And, further, I do intend to address standards that are on the books by the EIB with regard to hydrogen sulfide levels that need to be considered here that were considered in the Basin case. And the court found in that Basin case that they should be complied with by the Basin Disposal operators. And in that regard, they should be complied with here. And so I do intend to try to get to levels and standards that need to be adhered to in this particular proceeding with respect to this

specific permit.

MR. STOVALL: What types of documents are you offering?

MR. HORNER: I have the court's amended findings of fact, the final judgment. I have --

MR. DEAN: Were those not the findings of fact that you just put in?

MR. HORNER: Yes, yes.

MR. DEAN: If they're admitted once --

MR. STOVALL: This is titled Amended Findings of Fact.

MR. HORNER: And then I also have several of the EIB air quality standards that I would like to submit. And they directly address hydrogen sulfide levels and air quality hydrogen sulfide levels.

MR. STOVALL: Is this witness necessary to admit EID documents?

MR. HORNER: What I would like to do is admit these documents and then use this witness to compare what he intends to do with what was actually found in the Basin case, and the problems, and to demonstrate that, in fact, the operation and design of this facility proposed by these people is entirely inadequate.

MR. STOVALL: Mr. Horner, Mr. Dean, let's

address a couple of things here at this point. We've already admitted the amended findings of fact in the Basin case, with the proviso that we'll review that document and determine the relevancy and significance of that with respect to this situation.

You have, you say, the final judgment in the Basin case?

MR. HORNER: Yes, I do.

MR. STOVALL: And, again, that's a document of record in the district court of San Juan County; is that correct.

MR. HORNER: That's correct.

MR. STOVALL: Mr. Dean, based upon what we've already said as far as admitting that, taking notice of it, a judicial decision --

MR. DEAN: You have everything that's in the judgment in the conclusions and findings, and the judgment has no -- I think it just sets out the amount of money and whether or not they can continue the pond, as I recall. I'd have the same objection, but I see your point.

MR. HORNER: In addition, the restrictions on the operation of the facility are again spelled out in the final judgment.

MR. STOVALL: Again, I think we can take it

into the record, Mr. Examiner, with the understanding that -- recognize that it's not necessarily binding on this division, and it is a matter of information which will be used to make a final decision here.

Now, the other items you have are EID standards; is that correct?

MR. HORNER: That's correct.

MR. STOVALL: Have you shown those to Mr. Dean yet?

MR. HORNER: Yes, I have.

MR. STOVALL: Have you had a chance to review them, Mr. Dean?

MR. DEAN: Yes.

MR. STOVALL: May I see them, please?

MR. HORNER: This is the final judgment I was talking about. I noticed last night I inadvertently somehow missed page two. I didn't stable it together. Although in reviewing the most original I have, there was nothing relevant in page two to what I wanted to discuss here. But I do have a copy of page two if you'd like to refer to it.

In addition, I'm handing you -- may the record reflect that I'm handing you a document that I had labeled Plaintiff's Exhibit Number 3, which is the EIB Air Quality Control Regulation Number 201; and

Plaintiff's Exhibit Number 4, which is EIB Air Quality Control Regulation Number 627 and Number 628; and Plaintiff's Exhibit Number 5, which is Air Quality Control Regulation Number 702; and Plaintiff's Exhibit Number 6, which is Air Quality Control Regulation Number 705; and Plaintiff's Exhibit Number 7, which is Air Quality Control Regulation Number 707.

MR. STOVALL: These are regulations adopted by the Environmental Improvement Board of the state of New Mexico; is that correct.

MR. HORNER: That's correct.

MR. STOVALL: Let me look at those documents.

MR. HORNER: Here's a whole set. Actually, if I could have that amended findings of fact back, I'll give you one that is marked Plaintiff's Exhibit Number 1 and a final judgment that is marked Plaintiff's Exhibit Number 2 that does have page two, and at least they will be marked and indicated for the record.

MR. STOVALL: I don't think there's any doubt that this division can take administrative notice of an act of regulations of other state agencies. Do you understand that these regulations are not -- first, they're not binding on the OCD;

second, that the OCD would have no authority to enforce those regulations? And I note again that we do not have jurisdiction to enforce air quality standards, nor do we have the capability.

MR. HORNER: In that regard, there are several concerns I'd like to address at this point, and that is the regulations that I have just given you indicate that this type of facility does need a permit from the EIB and, therefore, the EIB would be charged with enforcing these regulations, as I understand it, would regulate this facility through the permit process in requiring the applicant to demonstrate that they would comply with these EIB regulations in the permit process.

As I understand, the problem that arises is for some reason there is some sort of understanding between the OCD and the EIB that the OCD will be the entity that regulates and permits this facility, to the exclusion of the EIB; and, therefore, the EIB will not be required to permit this facility because the OCD is apparently going to take that role. And, therefore, the way it stands, the EIB, not issuing their own permit, will not be in a position then to seek compliance with their own regulations. Therefore, it's going to be incumbent upon the OCD,

since they are assuming the permit process, to insure that this particular applicant complies with the EIB regulations.

Either that, or this proceeding would be bifurcated at least to the extent that this applicant should be required to go before the EIB and obtain a permit there. What we have here is a significant potential for air polluting contamination in this particular area from this facility that, as I understand Mr. Stovall's comments, said is not within the jurisdiction of OCD, although by the OCD assuming jurisdiction, they are eliminating the EIB from insuring that the air quality will be protected in the facility.

So we've got a problem that needs to be addressed. And it looks like to me like the appropriate way to do it is for the OCD, in this particular case, or in the case of these evaporation pits, is to assume responsibility for the air quality control regulations.

MR. STOVALL: Mr. Horner, apparently your understanding of the law and ours is somewhat different. I understand actually these facilities are not required to be permitted by EIB. And EIB -- I assume the regulations will speak for themselves, I'll

have to review them and determine that. And, again, it would -- they would only be advisory in nature as far as this agency is concerned. But my understanding is that those standards are recommendations and not mandatory standards, nor do they require any sort of permitting or formal approval by EIB or by OCD acting on behalf of EIB.

MR. HORNER: If I may direct your attention to the document marked as Plaintiff's Exhibit Number 5, which is --

MR. DEAN: Is there a copy of these that I could have?

MR. HORNER: Yes. As a matter of fact, here's a whole stack.

MR. HORNER: Again directing your attention to Plaintiff's Exhibit Number 5, which is Air Quality Control Regulation Number 702-A, if I may read to you, the title of 702 is Air Quality Control Regulations 702 Permits. "A" states, "Any person constructing or modifying any new source of an air contaminant, which source, if it were uncontrolled, would result in an emission of a contaminant greater than ten pounds per hour or 25 tons per year, or would result in the emission of a hazardous air pollutant, must obtain a permit from the department prior to the construction

or modification." So this is requiring in the case of hydrogen sulfide emissions that a permit be obtained.

MR. STOVALL: Do you happen to have the regulation relating to the definition of contaminant?

MR. HORNER: Well, I have as Plaintiff's Exhibit Number 3, I believe, Air Quality Control Regulation Number 201, which would be C-2 on page 2, "A: For the state, except the Pecos Permian Basin Intrastate Air Quality Control Region, one hour average, not to be exceeded more than once per year, .01 parts per million." That's for hydrogen sulfide.

MR. STOVALL: I think, Mr. Horner, what I'm going to recommend at this time with respect to the air quality issues and the applicability of the air quality regulations of the Environmental Improvement Board and the relationship between OCD and EIB, I'm going to ask you subsequent to this hearing to provide us with a legal briefing on this issue. Otherwise, we could spend a lot of time here and take a shotgun approach and would not edify us adequately on this issue. If these regulations are going to be implicated in our decision, I want to know under what legal authority we're going to do so. And so at this time, that's my recommendation to the examiner, is that we will ask you to brief that subsequent to this

hearing. We'll discuss briefing and submission schedules at that time.

MR. HORNER: If I may just quickly address a couple of the pertinent points in this information -- I totally understand that you would like to have the whole thing briefed, and I will do that. But Plaintiff's Exhibit Number 6, Air Quality Control Regulation Number 705-A requires that "no person shall operate a stationary or immobile source of an air contaminant to which applies an air quality control regulation and imposes an emission limitation or other requirement upon the source on a specific date which occurs after January 1, 1974, and more than one year from the effective date of the regulation unless the source is operating under a schedule of compliance adopted by the board pursuant to this section or unless the person operating the stationary or immobile source has certified to the board that the source is complying with the requirements of the regulation."

So, basically, again, that is saying that anyone who is operating some sort of a source with respect to which there is an air quality control regulation must certify to the EIB that they are complying with the specific air quality control regulation, which, in this case, is Air Quality

Control Regulation 201, which requires .01 parts per million.

MR. STOVALL: We do not enforce EIB regulations, unless you can educate us -- and it's quite possible to demonstrate -- under what authority we are responsible for enforcement of these EIB regulations. If, in fact, your interpretation is correct, we may have an EIB issue that you have to deal with.

MR. HORNER: That's correct. I would also like to quickly address your attention to that document marked as Plaintiff's Exhibit Number 2, the final judgment in the Basin case, on page three, under the order portion of that, item number eight. And it is under the order part it says, "It is further ordered, adjudged and agreed and the defendants may operate their produced water disposal facility only under the following conditions;" of which number eight states, "Continue monitoring emissions of hydrogen sulfide and limit such emissions to .01 parts per million in compliance with the ambient air quality standards as promulgated by the Environmental Improvement Board of the State of New Mexico under its Air Quality Control Regulation 201 dated June 15th, 1981."

MR. STOVALL: Again, I don't know that that imposes a standard on the OCD for approval of this permit. Again, I think that's something you can include within your brief.

MR. HORNER: It definitely did impose a standard on the Basin operators.

MR. STOVALL: No doubt about that.

MR. HORNER: And so the court, after listening to all the testimony, decided that was the appropriate standard to be using with regard to these produced water facilities.

MR. STOVALL: What I'm trying to do is I'm trying to make sure that we get the focus of this hearing back on what we have jurisdiction over. I'm concerned about spending substantial time addressing something that we can't do anything about anyway. District court, of course, is a general jurisdiction court. They don't have limitations on their authority. They had jurisdiction over Basin, there's no question about that. Basin was a defendant in the case. And this order was issued, I assume, based upon evidence presented in the Basin case.

MR. HORNER: That's correct.

MR. STOVALL: If there is to be any imposition of the standards imposed by the court in

the Basin case by this division in this proceeding, I need to know two things; one is what jurisdiction do we have to impose those standards -- and that's the issue that we've already discussed your briefing; and the second is then what evidence do we have to support the imposition of those standards upon this application. Which leaves us with a bit of a procedural difficulty. We're at the evidentiary hearing today, and if -- but if we don't have jurisdiction, why should we spend our time taking evidence?

The second part that I'm a little bit concerned with, because I think it could be a very protracted process and complicate rather than aid the examiner in making a decision, is the use of Mr. Frank to introduce that evidence.

MR. HORNER: Well, I'm not asking, obviously, Mr. Frank to introduce this evidence. I have introduced this evidence standing on its own, seeking administrative notice. From there, what I would like to do for a few minutes is I'd like to go through the findings of fact in this Basin case to demonstrate what they actually found there and the problems that were created -- and you're going to see the similarities between the Basin operation and what

they're proposing here today -- and from that perspective, then ask Mr. Frank simply to address how the present facility is going to be operated with respect to how the Basin facility was operated. I'm not asking Mr. Frank to be an expert on this Basin facility or on what happened in this Basin case.

MR. STOVALL: Correct me if I'm wrong, was there some discussion Wednesday with Mr. Frank regarding his knowledge of Basin and their operations?

MR. HORNER: There was; and I believe that he said he had some knowledge of what was going on, but he was not involved in the design of that facility; is that correct?

MR. FRANK: That's correct.

MR. HORNER: And probably not involved in the operation of the facility; is that correct?

MR. FRANK: None whatsoever.

MR. HORNER: And not involved in the ownership of that facility; is that correct?

MR. FRANK: No.

MR. STOVALL: I think, Mr. Horner, what I would prefer to see you do is, if there's some way you can do it, get us more directly to assist in the development -- I don't want to go through this

decision which is now in the record, and we can read it.

MR. HORNER: What I would like to do before we go directly to the standards is go more specifically to the problems these facilities create which are addressed in the Basin findings; and then what we can do is, if you'd like, let Mr. Frank and Mr. Dean try to demonstrate how that doesn't apply here, and I will demonstrate how it does apply here. But it has been fully litigated in this case after a few years of operation, and it does demonstrate the problems that these facilities create, and therefore it can give this forum a very good perspective of what you're actually dealing with here. Rather than dealing blind with what may happen in a few years, this demonstrates what actually occurs with these facilities.

MR. DEAN: May I speak for a minute?

MR. STOVALL: Please, Mr. Dean.

MR. DEAN: I'm sitting here thinking I'm in a district courtroom somewhere with a judge who has a standard to decide things; and we're not. This is a hearing to determine facts on this application to see whether or not and under what conditions it should be granted.

Mr. Horner is treating it as though it's a suit. He doesn't want the pond there, his clients don't want the pond there. I appreciate that. There hasn't been one fact that he's elicited that has anything to do with whether or not this pond is technically designed right. He's simply cross-examining my witnesses, asking them the same questions that are in evidence over and over and listening to the same response, wasting this body's time, our time and our money while we sit here while he does it.

It would be a simplier matter to ask Mr. Anderson of staff if he took the Basin case into consideration when he wrote these letters back and forth. And I think I can safely say that he certainly did.

There's been no foundation that this pond has anything to do with the Basin pond. In fact, if the Basin case hadn't happened, we wouldn't have to do any of these things that are all set out on these disgrams and stuff. If Mr. Horner had spent the time to prepare his case, he'd know that; and he would have some witnesses to say maybe what the design should or shouldn't be. As I understand it, he doesn't anything like that. He's simply trying, in my opinion, to

delay this whole proceeding and waste our time while he asks the questions that are in evidence, the answers are in evidence of this witness, and I assume the other two witnesses I intend to call over and over and over. Quite frankly, that's not fair. If he has some evidence and he has some design things he wants to present, fine, I'm willing to listen to him. Quite frankly, my client is willing to comply with them if they're shown that they'll do better. I don't have a problem with that.

I am intimately familiar with the Basin case, and I know that the things that I read in that judgment which has nothing to do with this case except perhaps in a very small condition that what they found that caused the problem might have some relevance here, that they didn't monitor the loads, that they took any load -- they didn't test any loads until they had a problem -- they didn't even have a tester out there until they had a problem, sure, I think that's what's taken into consideration in our application and Mr. Anderson's and this commission's recommendations. We should get to that.

And if we continue to diverge off and waste hour after hour, I'm going to be up and down objecting. Quite frankly, we're wasting time. And

it's not fair to the applicant to sit here 200 miles from their business, paying expert witnesses to sit here while Mr. Horner prepares his case and tries to find some point which he can hang his hat on. If he has an EIB problem, I suggest he go to EIB. The initials here are OCD. And, quite frankly, I don't think he can brief that issue that OCD has anything to do with that. If he thinks we're supposed to get a permit, then there are certainly civil remedies available to him to make me do that. That's something he should do. I don't have a problem with that. This isn't the place to do it. We're just sitting here on dead center. We're not really getting anywhere.

MR. STOVALL: Mr. Horner.

MR. HORNER: If I may respond. Mr. Dean just picked specific items from this court's finding and tried to indicate how they didn't apply. If you would allow me, I will go into this particular finding and demonstrate how the majority of it does apply and how these facilities are dangerous to surrounding residents, and not within a quarter mile radius that these people talked about, or a half mile radius, but within a one-and-a-half mile radius, which does encompass Flora Vista and all these other people around, and that these facilities make people sick,

that hydrogen sulfide kills people.

MR. STOVALL: Mr. Horner, let me cut you off right here. I can assure you that the division is well aware that hydrogen sulfide is a dangerous substance. I will say -- and we will have Mr. Anderson as a witness on the stand to discuss the awareness by this division and the environmental bureau in the Basin case. I will say on the record now that we knew that Basin Disposal got sued and that they lost in the district court.

My understanding that our bureau had not, prior to this time, been able to obtain a copy of the court's judgment. In the course of this proceeding I'm going to ask some of our bureau staff to look at the judgment and the findings of fact and review that. And I think, to a certain extent, I agree with Mr. Dean that perhaps through the use of the division technical staff we can address those concerns better than with Mr. Frank.

The real concern with -- let me back up and retract that. I would very much like your assistance in helping us to define and establish scientifically sound standards. And the question is -- one of the issues that has to be looked at, I think, is that we do have some concern about the H2S, other procedures

which can prevent dangerous concentrations of H2S. And I'd like to go into that with technical people. We want some help developing standards on that issue. I don't think we're getting it through this cross-examination at this point.

MR. HORNER: Well, I need to get through the cross-examination to demonstrate the problems and to demonstrate what we're looking at in this particular case, and then I do intend to address those things; but I need to build a foundation to get there. For instance, one of the things I would like to bring to your attention here is on the findings, page three, item number ten says location, design, construction, operation of the facility were approved by the OCD, were in compliance with all applicable permits, rules, regulations and criteria of the OCD, and it still injured the surrounding people because they weren't looking at the air quality, they weren't requiring any kind of restriction on H2S emissions or compliance with any regulations, and they injured a lot of people. And so, as I understand it here, and what's going on here, we can have compliance with the OCD regulations on the design of waste disposal pits and still injure a lot of people.

MR. STOVALL: I don't believe that -- if

the factors causing the injury are outside the jurisdiction of the OCD that may be an issue, and I think we've addressed the question of whether EIB may be properly involved in this or not. And I'm asking -- that's a legal issue which we need to be addressing subsequent to this hearing.

MR. HORNER: This is what you want briefed, as I understand.

MR. STOVALL: That's correct.

MR. HORNER: But in the meantime, we do have a considerable amount of evidence here that we can look at with regard to how these facilities are operated and the dangers they pose to surrounding residents. And in this particular case, it was all litigated, they came up with their limitations on the operation of this facility in order to try to make it safer. I have problems with the fact that they cannot do that.

MR. STOVALL: Let me stop you right there for just a moment. I think you've hit a very significant point, is that it was litigated. That means there was factual evidence presented before the district court. Again, for the sake of preserving this record and making it somewhat useful to the examiner, I'm wondering if, to the extent that we can

make any analysis and comparison, that the proper way to do so is with the use of the OCD technical staff reviewing their establishment of standards, based upon the knowledge that they might have of the Basin case. And I'm concerned -- to the extent that we don't have the factual information which the district court had before it, it's going to be very difficult for us to evaluate information which isn't there.

MR. HORNER: What I've tried to do is provide you with a finding which is the bottom line of the sifting of all the information that they obtained and what the court found was the case. And I do agree that you need the OCD staff involved. This is what I was complaining about on Wednesday. I'm glad to see them here today because I do want their input.

But one of the things that you're talking about here is the OCD staff is also handcuffed to only looking -- only able to look at this particular permit within the guidelines of the OCD regulations, which as is demonstrated in this particular Basin case that the OCD regulations were not sufficient to protect the public. And these types of issues I would like to get to and just show you what's in here. And I think it's going to be very enlightening for you. You may still have your problem with your jurisdiction and the

relationships or inter-relationships between the OCD and the EIB, that's entirely possible, and needs to be worked out. But I would like to demonstrate that these facilities do cause problems in the area, significant problems.

MR. DEAN: I object. The Basin facility caused problems in the area.

MR. HORNER: And I will demonstrate how what they're planning on doing here looks like what the Basin facility was doing when it was causing the problems. And I would like to demonstrate that, if you'll let me go into it.

MR. DEAN: The Basin judgment is on appeal, it's not final. It's bonded, it hasn't been collected, and it's basically just sitting there as a stay. No one's done anything else to enforce it. And there are letters of credit, substantial letters of credit, to prevent the enforcement of that judgment, the monetary part of it. It's on appeal in the court of appeals in the state of New Mexico and has been briefed. I'm not sure you can even use it as a guideline, not that I really care. I think if you ask Roger Anderson, "Did you know the problems at Basin and did you take those into account when you wrote these letters," I think his answer is yes.

MR. HORNER: I think he should be put on the stand, and we should ask him those questions.

MR. DEAN: I think that's pretty clear in the record already. These findings now, even over my objection, it's all there, it's in the record. If we're in civil court, the rules of evidence do apply here, it's already there. I've heard judges for 15 years tell me, "The evidence speaks for itself, Mr. Dean, sit down and shut up." That's the deal. I can read this, I'm going to read it. That's what you guys are here for. Here's the evidence, take it into consideration.

MR. STOVALL: It's exactly my point. The one issue that from the standpoint of conduct of this hearing for the rest of this day -- and I would hope that that's all we're talking about is the rest of this day -- is I would like to focus on the standards and the concerns which you have, Mr. Horner, because I think there's no doubt in my mind that they're valid and that we need to address them. I am concerned that by using Mr. Frank as the vehicle to do so, we could go very circuitously through some cross-examination which might not get us to where we want to be. He's not on your side, quite frankly.

MR. HORNER: Oh, yeah?

MR. STOVALL: And I'm wondering -- I'm going to recommend to the examiner after my little speech here that we take a ten-minute recess and that you do some thinking, and perhaps -- unless you have some very specific questions with respect to his direct testimony and some of the credibility issues, that perhaps some of the concerns that you have might better be addressed when Mr. Anderson is available.

MR. HORNER: If you would allow me, for instance, 15 or 20 minutes just to demonstrate the analogy between the Basin case and what Mr. Frank is proposing in this facility -- and I will just -- I mean, we need to look at it. We've kicked this around for I don't know how long now just talking about why we shouldn't do that.

MR. STOVALL: I'm not saying that we shouldn't do it. I'm saying that perhaps Mr. Anderson is the one to do it. We don't even have in the record that Mr. Frank is familiar with the Basin case.

MR. HORNER: I'm not asking Mr. Frank to be familiar with the Basin case at all. I'm not asking him to be familiar with the facility, only with respect to what they have found here, what does the design and operation of his facility look like. For instance --

MR. STOVALL: Mr. Examiner, I'm going to recommend we take a ten-minute break and have some discussion on this.

And, Mr. Horner, if we do decide to limit this discussion, I will do so -- I will recommend that we do so, with the understanding that Mr. Frank will still be in town and available to be recalled to the stand, if it's necessary. I just want to get to what you're concerned with more directly.

MR. HORNER: That's what I'm trying to get to.

MR. STOVALL: I also want to give our staff a chance to look at this because they're familiar with the case, but they've never seen these findings. I'm going to recommend a ten-minute recess at this time, Mr. Examiner.

MR. HORNER: This is the meat of what I wanted to present. What I've done so far is basically try to set out what the Sunco operation is going to look like, and now I would like to compare it with what they did at Basin and to demonstrate the flaws. And so this is the meat of what I came to talk about, and I very much want to talk about it. And with that --

MR. STOVALL: I don't deny you the right to

talk about it. Let's figure out how best to do it.

EXAMINER STOGNER: Let's take a 15-minute recess at this time.

(Recess, 9:30 a.m. to 10:53 a.m.)

EXAMINER STOGNER: This hearing will come to order.

Mr. Stovall.

MR. STOVALL: Mr. Examiner, I've expressed some concern that we've not helping to focus on the standards which must be met before this facility can be approved. The discussion is currently centered on the Basin Disposal case, which the OCD is familiar with; I believe all the parties are familiar with it. It's certainly something of interest today. But I'm going to recommend that we not use Mr. Frank -- not allow further cross-examination of Mr. Frank with respect to the Basin case and the impact of the Basin case. We want to address and are prepared to address with Mr. Anderson of OCD what has been learned and developed in terms of standards from the Basin case, and we want to allow Mr. Anderson to address that issue when he is on the stand.

There's some other issues which Mr. Horner is bringing up in terms of a number of issues which, if, in fact, they were likely to occur, they would be

very serious and very significant. However, based upon the correspondence which is already admitted in the record -- and then I suspect there will be additional evidence on the issues, for example, dealing with the volumes of water implicated in any leaks and what will happen, concentrations of chlorine or volumes of chlorine used to treat the sulfides are issues, the H2S standards, specific standards. There's a limit which I believe Mr. Anderson can properly address as to what OCD staff feels are totally unacceptable and what is acceptable. And I believe perhaps Mr. Anderson -- the use of Mr. Anderson to provide some technical evidence on some minimum standards which must be satisfied is perhaps more efficient than the more indirect approach of cross-examination of Mr. Frank. I'm going to recommend at this time that unless there are some very specific questions with respect to Mr. Frank's testimony that this cross-examination terminate at this time, that we proceed -- that the applicant proceed with their additional technical witnesses, that Mr. Anderson will then be called to discuss some of the technical criteria which the OCD environmental bureau would require for these types of facilities and, hopefully, these will address many of the

concerns which Mr. Horner has. And then at that time, if he is not satisfied that acceptable criteria can be met, then we'll proceed to recall whatever witnesses are necessary to establish that, in fact, either those criteria are unacceptable or that they can't be met by the proposed facility. But from my part, I need to see, and I believe it would be most helpful for you to see, what are the criteria which must be satisfied and can this facility satisfy that criteria. And I think we can approach that more directly than we have been so far.

EXAMINER STOGNER: Thank you, Mr. Stovall. And I concur.

Are there any other questions of Mr. Frank not related to the Basin Disposal system?

MR. HORNER: Yes, right. As I understand what we're talking about then, we will be --

EXAMINER STOGNER: Mr. Horner, do you have any questions for Mr. Frank?

MR. STOVALL: Get the focus clear.

MR. HORNER: Let me understand where we are. I understand that then some of my concerns with the Basin case and the limitations and standards it puts out, we can talk to Mr. Anderson about it?

EXAMINER STOGNER: That is correct.

MR. STOVALL: Mr. Horner, I guess to make it very clear, what I've suggested -- and what I think the examiner concurred in -- is what we want you to focus on with any questions you ask from this point forward of Mr. Frank is the acceptable standards, not the disasterous worst case, but what acceptable standards should be imposed as conditions of a permit that's issued and can this facility meet those standards.

MR. HORNER: I'll tell you what I'll do is address those questions to Mr. Anderson. And at this time then, what I'd like to do is -- there's a few more aspects of this particular design that I would like to inquire of Mr. Frank, and then that will essentially lay the foundation for how this facility is designed. And then we can discuss the adequacy of the design, or the standards, or whatever, with Mr. Anderson. That would be fine with me.

EXAMINER STOGNER: Thank you. You may proceed.

Q. (By Mr. Horner) I'd like to talk to you a little bit then, first off, about the spray system you've got designed. Now, you were talking about having a design where you had some sort of a spray system around the perimeter of the pond. Is this all

four sides or just two sides?
A. Perimeter being all four sides.
Q. Now, this is something that was not addressed in the correspondence between yourself and OCD; isn't that correct?
A. That is correct.
Q. So this is a later development; is that correct?
A. That is correct.
Q. And so we have no design submitted for that system at this point?
A. No, we do not.
Q. Now, as I understand in the correspondence between yourself and the OCD, you had stated that this spray system would not be operated in conditions of excessive wind; is that correct?
A. It -- the portions of it that would permit mist to go outside of the pond would not be operated during excessive winds. If the winds were to the point in which all spray were going outside the pond or none of the legs of the facility could be worked, the whole spray system would be shut down for that period of time in which the winds were in excess of allowable.
Q. So, basically, now you're talking about the

redesign system that hasn't been submitted, correct?

A. That's correct.

Q. So the system that you were talking about previously that you had submitted to -- I don't know that you ever submitted any drawings -- but that you had talked about with the OCD just had some sort of spray nozzles in the center of the pond, right?

A. It had two sprayer islands in the center of the pond.

Q. Floating islands?

A. Float islands.

Q. And so the concept there is when the wind was too high, you'd shut down the spray system.

A. The concept there is we would slow the pump down. In this case, we'd have a bypass on the pump, relieving the pressure on the nozzles, therefore creating less spray; and at such point in time that the spray was going outside the pond, we would just recirculate the pond.

Q. Your concern was that the mist carry over on to surrounding property; is that correct?

A. That's correct.

Q. Now, in fact, isn't hydrogen sulfide stripped out of the water as it's blown into the air so that the hydrogen sulfide will carry over to

surrounding property, even if the mist falls back in the pond?

A. If there was hydrogen sulfide in the water, it would be liberated at that point in time, yes, and it would carry, if there is hydrogen sulfide in the water.

Q. Now, in fact, you have redesigned this system because Mr. Cheney has found that the spray system is a critical part of aerating this pond; isn't that correct?

A. No, we put the spray system in to enhance evaporation. This is a backup. It's a redundant system; it serves two purposes.

MR. STOVALL: Mr. Horner, I'm going to ask that if there are questions which are within Mr. Cheney's area of expertise with regard to his recommendations, he will be a witness.

MR. HORNER: Right. That's reasonable.

Q. (By Mr. Horner) But at this point you are anticipating using the stray system just about at all times, correct?

A. At such point in time that the pond is full enough to justify its use, yes.

Q. If the spray system were operated in conditions where the mist did blow outside the pond,

you would have salts landing on the surrounding property, would you not?

A. If we operated it. But as I've stated quite clearly several times now, we will shut the system down if it starts going outside the pond.

Q. If it were operated in high wind conditions, this is what would happen?

A. Yes.

Q. Do you intend to have an operator on duty at all times when the spray system is operating?

A. As I've stated several times, yes, an operator and attendant will be on duty at all times when we're operating the facility. "Operating the facility" would mean operating the spray system.

Q. With the instructions to shut down the spray system in conditions of high wind?

A. Correct.

Q. Now, when the spray blows up in the air and the water evaporates, the salts will precipitate out and hopefully fall back into the pond, correct?

A. They will fall back into the pond.

Q. The way you are suggesting that the system will be operated?

A. Correct.

Q. Do you know what the makeup of those salts

will be?

A. The principal constituents would be that of sodium chloride, sodium bicarbonate, calcium carbonate and some other salts; but the principal constituents are those as outlined above.

Q. Now, do you know what other produced water disposal pits are in the area?

A. Yes.

Q. Available for people that are looking for such facilities?

A. Yes, I know who they are.

Q. Would you describe them, please?

A. There would be Basin Disposal and Southwest Water Disposal and T&T.

Q. Do you have any idea what their capacities are; how much they can take per day, for instance?

A. At this point in time, I believe Basin Disposal's capacity is in the neighborhood of -- I believe with their new pump -- close to 60, 70 loads a day. Southwest Water Dispoal, we're in the process of finishing our sprayer system; right now we're at the capacity of 25 loads a day. I expect to get up to 50 loads a day. T&T, I would expect those to be similar to ours. I don't know what their design is, but they would the capacity, if they were to retrofit their

pond similar to ours, of 50 loads a day.

There's one other commercial disposal facility, but you didn't ask me to address that. It's a disposal well at Hicks Disposal, and their capacity at this time, I believe, is 1300 barrels a day; so that would be -- divided by eight -- roughly 15, 16 loads a day, 20. I don't know, you know.

Q. And how much is a load?

A. Eighty barrels.

Q. And gallons, how much is that?

A. Eighty times 42 would be 3320.

Q. Now, the water that's brought in here, you say, sometimes may contain hydrogen sulfide?

A. Yes.

Q. Now, is this generated from a well that they call -- or that is dealing with sour gas?

A. In most instances, yes.

Q. Now, are there significant numbers of these wells in the area?

A. No.

Q. Are there any wells in the area?

A. In the San Juan Basin there are a few on the periphery of the basin.

Q. And where are those located?

A. Over northwest -- north of La Plata, in

that general area, and up into Breen, Colorado, that general area.

Q. Called the Barker Dome area?

A. In the Barker Dome; this is in addition to Barker Dome. It's close to Barker Dome.

Q. And you would anticipate possibly taking loads from those areas?

A. Yes.

Q. So it's entirely possible that you could get loads with hydrogen sulfide in them?

A. That's correct.

EXAMINER STOGNER: At this point, Mr. Horner, could you hang on just a second?

(Sub rosa conference between the examiner and Mr. Stovall.)

EXAMINER STOGNER: Mr. Horner, you may continue. Thank you.

Q. (By Mr. Horner) Now then, in the correspondence that I've looked through here, I have not seen a plan to the removal of the sludge from the pond; is that correct?

A. If you read this, we do not intend to remove the sludge as it will be permitted, if we get what we like, to be buried on site. Those objectionable things will be removed, if, at that

point in time, they are objectionable.

Q. So the operation scheme for this facility though is not to remove the sludge from the bottom of the pond as it accumulates?

A. That is correct.

Q. Now, also in looking through the correspondence, I haven't found where you have actually acknowleged that there will be sludge. Now, in fact, will there be sludge accumulations?

A. Yes, there will be sludge accumulations mixed with salt. I don't know what you determine sludge to be, but for sake of continuing our discussions with the OCD, I just assumed it to be a combination of wind-blown dirt and salts that precipitate in the pond.

Q. There may be something in there other than the salts that are precipitating?

A. Yes. As I told you earlier, wind-blown dirt is the other thing that I believe would be there.

Q. And you have no intention of putting any type of cover or net over this pond; is that correct?

A. We do not over the main ponds, no.

Q. Now, in your correspondence you've referred to artificial evaporation. Just to make it clear to me and these people, what is artificial evaporation?

A. Rather than -- I put that in there as a differentiation between passive evaporation which would just be the pond sitting there evaporating. What I meant by artificial evaporation actually should have been termed enhanced evaporation by spraying.

Q. Now, are you aware of whether the owners of this facility ever intend to install injection wells on the site?

A. At this point in time, I am not aware as to their intentions of an injection well.

Q. Can you state that they intend to --

MR. DEAN: I object. Injection well requires a separate permit, obviously not covered by this permit.

MR. HORNER: Still, they may have an intention of installing one at some future date. I'm trying to find out if that is part of the plan.

MR. DEAN: I object; I think it's totally irrelevant.

MR. STOVALL: I think the question has been answered. Mr. Frank has stated he doesn't know what the plan is.

MR. DEAN: Do you know?

WITNESS: I do not know whether they intend to drill an injection well.

Q. (By Mr. Horner) But it is possible that they may come back and --

MR. DEAN: I object again.

EXAMINER STOGNER: Sustained.

Mr. Horner.

Q. (By Mr. Horner) In your application it's stated that the groundwater most likely to be affected by any accidental discharges is at a depth in excess of 80 feet; is that correct?

A. I don't know if I stated that or if it was part of the notice of hearing that the OCD prepared. But that would, in fact, be the case.

MR. HORNER: You may be correct. It looks like it was in a notice of publication. Maybe I should address Mr. Anderson with that question.

I have no further questions of this witness at this time.

MR. STOVALL: Thank you, Mr. Horner.

EXAMINER STOGNER: Redirect?

MR. DEAN: Very briefly.

REDIRECT EXAMINATION

BY MR. DEAN:

Q. Mr. Frank, let me hand you what you've already identified and is now marked as Applicant's Exhibit 9, and ask you if you signed that affidavit.

A. Yes, I did.

MR. DEAN: I'd like to move for the admission of Applicant's Exhibit 9, which is simply proof of notice. And I have copies for everyone.

Q. (By Mr. Dean) If you detect a leak in the sump, can you pump liquid from the sump back into the pond?

A. Yes.

Q. How would you do that?

A. It would be either by centrifugal pump, or we could vacuum it up with a water truck and transfer it from point to point.

Q. In your opinion, would that alleviate some of the risks to the soils outside if, for some reason, the secondary liner also failed?

A. Yes, it would. The water is going to take the most direct, most permeable route to the path of least resistance, which in this case would be our geotech style and/or the leak detection system.

Q. In the event that the primary liner completely failed and the secondary liner failed, is there anything inherent in the construction and the compaction of the soil that would help prevent risk to the groundwater?

A. Yes. The geologic nature of this soil,

there is a clay content, which I analyzed or described in my first letter, varying degrees of clay; and it will be compacted to certain a percentage of proctor, which in this case is going to be 95 percent.

Q. And that helps its permeability or resistance to the fluid going through it?

A. It helps its impermeability.

Q. Do the questions about how long it would take to empty the pond in the offhand chance there's a leak depend on how full the pond is?

A. Yes.

Q. Does it depend on where the leak is?

A. Yes.

Q. And do your reservations and concerns about how quickly you can empty that pond have anything to do with where you would take the water to, if you were required to truck it? Where would you take it to?

A. We would take it to one of three different disposal facilities, which would be --

Q. Is your pond full?

A. It is currently at this time.

Q. Is Basin full, to the best of your knowledge?

A. It's pretty close.

Q. Are you getting loads from Basin?

A. We were.
Q. What about T&T?
A. I don't know.
Q. Are there any other ponds?
A. No other ponds.
Q. What about the injection well you mentioned? What do you know of their capacity?
A. Their capacity over what they're getting right now would be, as quoted to me by their manager, would be roughly six to 700 barrels of water a day, currently.
Q. Assuming you had to empty the pond and tructk it off, first of all, would be the number of trucks you'd have to have if it was full and you were going to have to empty it, and where you would take it.
A. Correct.
Q. Does that kind of water have to be put in a certified facility?
A. Yes, it does.
Q. Whose regulation is that?
A. OCD's.
Q. If it's required to have a 32-horsepower or greater motor on the areation system that you described that had a half horse or a third horse

motor, are you willing to modify the plan to that extent?

A. Yes, it could be.

Q. Is it possible after construction to add to the sprayer systems in the pond?

A. Yes.

Q. Is that something that would also help if there was an offhand chance that there was a problem with H2S?

A. Very much.

Q. What does spraying actually do that helps the operation of this pond?

A. Quite frankly, all it does is increase your surface, which increases your evaporation area.

Q. You think there's enough demand from the industry that exceeds the capacities of the ponds that you know about?

A. Without a question.

Q. If sludge builds up in the perforation holes in the areation system on the bottom of the pond, can you treat that problem?

A. Very simply what we would do with the number one system would be to introduce an acid at the recommendation of the manufacturer -- and I'm not quite sure, I believe it's a mild muriatic acid that

would clean the rock diffusers. The second system would be cleaned by, quite simply, a roto-rooter type of operation. The laterals will extend out to the sides of the pond to where they can entered and cleaned.

Q. And, once again, for purposes of clarifying the record, these spray systems and areation systems, they're completely separate, aren't they?

A. They are.

Q. Separate motors?

A. Separate motors.

Q. Separate intake and out-take?

A. Separate plumbing.

MR. DEAN: I don't have any other questions.

MR. HORNER: I have one other one.

RECROSS-EXAMINATION

BY MR. HORNER:

Q. You mentioned yesterday if you got oil on the top of the pond you would take it off by what you called a scooper truck?

A. Vacuum.

Q. Who in the area operates that type of truck?

A. There's a host of companies that operate

vacuum trucks.

Q. In the area?

A. Yes.

Q. And can you name a few?

A. Sunco Trucking, Ladd Tankers, Chief Transport, Three Rivers, Dawn Trucking; there's a couple more, I can't think of their names right now.

Q. So how long does it take to get one of them to your facility if you need one?

A. Well, the water is transported to the facility in one of those types of trucks, so very, very short.

MR. HORNER: I have no further questions of this witness.

EXAMINER STOGNER: Thank you.

(Sub rosa conference between the examiner Storner and Mr. Stovall.)

EXAMINER STOGNER: Mr. Stovall, I believe you have some questions.

EXAMINATION

BY MR. STOVALL:

Q. Mr. Frank, it is your intention, as I understand, to limit the matter to be disposed of as produced water from oil and gas production; is that correct?

A. That's correct.

Q. So do you have any intention of taking any other types of disposal material?

A. No. The produced water, that is the only thing that we will take. If there is a request of us through various other agencies to accept something, we would run it through the OCD first to get prior approval.

Q. You were referred to -- these questions are going to be a little scattered, I'm afraid, because I made notes as we went along on Wednesday, but in discussing the water issue, the groundwater issue, you identified the bank -- there's a record -- I believe a state engineer's record showed that there was a water well somewhere in the vicinity. Is that on your site?

A. No, it is off our site.

Q. And you never actually found the well that was --

A. I did not find it.

Q. And on the water table issue, you made a comment as to the -- basically the highest fresh water being at the high water level of the Animas?

A. That would be an assumption. It's not been quantified.

Q. How high is this facility above the high

water level of the Animas?

A. I don't have the exact measurement, but I'd say a minimum of 150 feet, otherwise we'd be in the vulnerable area.

Q. How far is it to fresh water down in the ground, in the water table? What would be your estimate is the highest --

A. I believe the reason that the 80 feet came about is there's about 60 feet of elevation change between the facility and the reported water depth of this unknown well, so...

Q. That water depth in that well, the reported depth was 25 feet?

A. Correct.

Q. So by the time you get down to the well and then 25 feet down, it's about 80 feet?

A. Eighty feet.

Q. Nearest reported fresh water?

A. That's correct, to the lowest elevation of our facility.

Q. Again, with respect to your closure plan, had you reached any final -- I'll say agreement for lack of a better word -- with OCD staff with respect to that plan?

A. Yes. What we committed to do was at that

point in time when we abandoned the facility, a sample would be taken and analyzed for objectionable constituents, whatever those may be at that time. At that time, if they are present, we will extract them by some means to be determined at that time and haul them to an improved facility which -- for lack of a better word, let's call it a hazardous waste facility.

Q. When you're talking about objectionable constituents, you mean constituents which have been identified by EIB or EPA or other such government agency as being a hazardous waste?

A. Correct.

Q. Have you developed any procedures to insure that no hazardous wastes as defined by any of those agencies are disposed of in this facility?

A. They're inherent in the fact that all we're going to take is produced water. And by the exclusions of the current EPA policies and guidelines, there are no hazardous wastes at this time that are not excluded currently, any wastes that are not excluded.

Q. In other words, under EPA standards, produced water from oil and gas operations does not contain hazardous waste by definition.

A. Correct.

Q. And, therefore, by only taking produced water, you will prevent the introduction of hazardous wastes into the facility.

A. Correct.

Q. Do you have any proposed sampling methods to periodically sample or retain samples of the material which is disposed of in your facility?

A. What we intend to do is to monitor each sample for H2S, pH, resistivity and temperature; and those are the only records that we intend to keep.

Q. Do you intend to keep any load samples?

A. Correct.

Q. Do you intend to rely on the hauler's certification that that is produced water?

A. That's correct.

Q. In your -- I've forgotten which exhibit we're referring to -- with regard to H2S, you set out notification procedures when H2S exceeds -- I believe it's ten parts per million; is that correct?

A. I believe that's correct.

Q. And have you included the Environmental Improvement Division Air Quality Bureau within that notification? Let me put it this way: I didn't see it in the letter.

A. No, then we did not intend to notify them.

Q. Was that an intentional omission, or was that an oversight, would you say?
A. It was an oversight.
Q. You would have no objection to a requirement that EIB Air Quality Bureau be notified?
A. I would not have that objection.
MR. DEAN: Are you saying if we notify pursuant to that plan, we should notify?
MR. STOVALL: Correct.
Q. (By Mr. Stovall) Do I understand you correctly to say that -- I assume that as a businessman you're building this facility because there is a need for such a facility, there is more water being produced in the San Juan Basin than current facilities are able to deal with?
A. That is most definitely the case.
Q. Mr. Horner spend quite a bit of time and had some apparent concerns about what to do with the water, particularly in the first phase of your operation when you only had one lined pond to begin with. One of your answers was that sometime when market conditions dictated, you would proceed to line the second pond and place it into operation to take on the additional water; is that correct?
A. That's correct.

Q. What are the sort of conditions that would lead you to make that decision to proceed with the lining of the second pond and then similarly to the construction and lining of the third pond?

A. Once again, as demand exceeds availability of services, one would expand their facility as a matter of prudence. And that would be something that can be determined only after we've started operations. Right now, there's definitely demand, most definitely, for that first pond; and I wouldn't hazard a guess that there's a demand for the second pond.

Q. Are you going to wait until the first pond is full before you line the second pond?

A. That would be Mr. Coleman's decision, but I would assume that he would proceed with the second pond based upon his market research and also how rapidly his first pond fills.

Q. So you'd look at rate of intake, rate of filling of the first pond as one of the factors that would determine --

A. Number of wells drilled, number of wells completed and not hooked up, number of wells not hooked up to a water disposal system and completed and producing, those types of things.

Q. I believe you also testified that one of your concerns about having the time limit imposed about emptying a pond in the event of a leak being detected was what do you do with what you're taking out; is that correct? Where do you take it when you take it out of the pond?

A. You mean the transportation to other facilities? Yeah, that is a concern.

Q. And an alternative method of alleviating that concern as part of a contingency plan, what would be your response if it were suggested that the second pond be prepared to accept fluids at let's say, for example, when the first pond reached a certain level of fluids in the pond, or some such thing, as to make that pond, in effect, available for contingency planning?

MR. DEAN: I'd just state it might be better to address that to Mr. Badsgard, who might make that decision. Mr. Badsgard is the one who writes the checks.

MR. STOVALL: Let me -- I understand that, Mr. Dean -- rephrase the question.

Q. (By Mr. Stovall) Are you an advisor to Mr. Badsgard and the owners of the pond?

A. Yes.

Q. What would your recommendation be to them if such a standard were imposed or if you were asked what standard should be imposed to create a condition that you'd be required to line the second pond as part of, if you will, a contingency disposal plan?

A. My opinion would be based on experience, is once the pond is approximately four to five foot deep, go ahead and start the spraying operations. And it can be a phase type of spraying operations. In other words, we could put the two items out there to start with, and then the perimeter of the pond, and then determine an actual rate of evaporation. And then you'll know, based on market research, when you should reach your pond maximum height. At that point in time, once you've determined the rate, you know, I would assume that if the pond got to be roughly three-quarters full, one would implement construction and lining of the second -- well, implement lining of the second pond. There's fluctual variations as well, due to seasonal matters. This time of year, one can evaporate much more water than one can evaporate during the winter.

Q. Even I, as a lawyer, understand that concept. Well, I guess my concern here -- and I think Mr. Horner has raised it in a worst case scenario

setting -- is that you basically have got a full pond with a leak somewhere near the bottom, and what do you do to get the fluid out of there to prevent water from flowing to the water table and contaminating fresh water? And I'm asking you now that let's assume that worst case scenario; that you have a full pond or nearly full pond and you discover a leak. You've already stated, I believe, that if it's in the secondary liner, you're not going to know about it, but you are going to know there's not going to be any water going through that unless there's water going through the primary liner, and you're going to be able to identify that because there will be water in the sump. What are we going to do when -- what are you going to do when that pond, first pond, is nearly full, the second pond -- I won't even put that on -- and there's a leak in the primary liner and a possible leak in the second liner?

MR. DEAN: We don't have a second pond usable; is that right?

MR. STOVALL: I'm not saying that.

Q. (By Mr. Stovall) What are you going to do about that situation? What is your recommendation to Mr. Badsgard as far as writing the checks to get to the problem and minimize -- and by "minimize" I mean

virtually eliminate the probability of contamination of fresh water supplies?

A. To eliminate the contamination of fresh water supplies, I would recommend that we cease accepting fluids immediately, circulate the sump into the main pond, and at the same time continue with our evaporation process and start hauling water off to the other available commercial disposal facilities. We would lower the pond until such time as the sump dries up; and that would be to determine the level at which the leak is, repair the leak, put the pond back into operations by commencing to take fluids again.

Q. Let me see if I understand the process that's going to happen here correctly, because I think probably this is one of the major concerns we've got to address, is you're going to have water, disposed water, in this pit, this pond. If there's a leak in the primary liner, water is going to flow down -- I think I got to this on Wednesday -- to the bottom to that PVC perforated pipe, which will then take it to the sump. What volume of water will move through there -- let's assume a leak towards the bottom of a full pond -- how much water will actually go to this sump? And what's the flow rate per day or per hour?

A. That would all depend on the variable

pressures involved and the size of the hole which the water is going through the liner.

Q. What's the maximum the sump could handle, the system to get the water into the sump?

A. I don't have the exact calculations here, but you'd be looking at the capacity of a two-inch PVC line, which I would imagine is pretty close to four or 500 gallons a minute.

Q. Do you know if Mr. Cheney has made that kind of calculation?

A. I don't know if he has.

Q. Four or 500 gallons per minute -- let's assume that's correct for the moment -- can flow into the sump. How much volume can the sump itself hold?

A. The sump would be limited only by the pump that would be placed into it, which pumps can very easily be put into that to handle more than four or 500 gallons.

Q. In other words, the water is not going to stay in the sump tank, it's going to be pumped out immediately. Where is it going to go?

A. Back to the pond to be recycled.

Q. In other words, the sump does not become a useful vehicle to help drain the pond?

A. Yes, it does. At those rates, we will put

it back into the pond. We would also be putting it into the trucks to haul off because we've determined that we have a leak, and that's part of our contingency plan. But at those rates, four or 500 hundred gallons a minute -- and that might be on the high side -- we would have to put it into the pond just to recycle it.

As I think back on it, four or 500 gallons a minute for an unpressurized two-inch line is quite high. I would put it more at about 100 gallons a minute, at the most.

Q. A hundred gallons a minute then could be more easily hauled away?

A. Yes.

Q. You're a geologist by training, but you're not a hydrologist; is that correct?

A. Correct.

Q. Are you able to testify at all as to the effect of time and impact of the flow of water -- let's assume it does get through the secondary liner to the ground -- what volume of water it would actually take and how long to get to the water table and contaminant fresh water supplies?

A. Other than a rather simple answer based upon the geology of it, I can't quantify it. But it

would take a very long time to get to the water, and that would be under constant head pressure, at which point in time that we fix the pond, the head pressure would be released, therefore, there would be no driving force. And the water that had already saturated the subgrade below would be bound by capillary action. So I can't give you a flow rate because that would have to be measured. And I don't know that a hydrologist could do it unless he measured it either. I can just tell you that based on the subsoils and the geology of the area that it would take a very long time for it to get even 80 feet down if it went straight down.

Q. Did you testify as to the nature of the subsoils?

A. It's in the driller's record on the first application, I believe.

Q. Are there any permeable-type areas that you know of that would keep water above the water table, or semi-permeable that would retard the flow even?

A. Yes. The formation that we are occupying, granted, on the surface is an erosional surface. I've testified to that. Even just below the surface to a depth of 19 feet there's an erosional surface. It's part of an erosional surface. But underneath that is

what one would construe as bedrock. And it is at that point in time either the Nacimiento formation or the San Jose formation. They are both very similar in geologic nature. There are sandstone members interbedded with clay members with shale members, and those clay and shale members are very impermeable. So to answer your question, yes, there are impermeable members -- there should be impermeable members in between the pond bottom and the water table.

Q. And I assume if water were flowing through and there actually was sufficient head on the water to get to those layers, that would then cause a horizontal displacement of the fluids.

A. Correct.

Q. I understand that you're unable to determine the time or volumes of concentrations, if you will, of water that could get to the water table from a full pond. But I believe in your testimony in your response to Mr. Horner's questions about the worst case scenario he discussed was that it could take as long as nine months to empty a pond in the worst case scenario, using evaporation; is that correct?

A. That's correct. That is the worst case scenario.

Q. I understand that you're not claiming any expertise in this area; but, in your opinion, as a geologist, you believe that the volumes of water that would enter the soil through this worst case leak at the bottom of the primary and secondary liners, given all other factors, and assuming that there's no water hauled, would be a sufficient volume to breach and contaminant groundwater supplies?

A. No.

Q. You discussed also, I think, in the context of Mr. Horner's cross-examination, I think there was some issue about surface area and depth and the relationship and how that affects evaporation of the water. To the best of your knowledge, is there any sort of maximum efficient size? Do you have to have a certain depth to have any place for the precipitates to come out or to get efficient evaporation? What would be the optimal design of a pond of, say, the capacity of Pond 1 in terms of surface area and depth?

A. Am I allowed to take into account economics?

Q. Let's talk strictly science to start with.

A. Strictly science, once again, you want to maximize surface area. You will need a certain amount of volume to hold precipitated salts. In my opinion,

based upon the amount of water to justify running your sprayer systems and having the required freeboard, the pond would need to be a minimum holding capacity, minimum freeboard of ten feet.

Q. Vertical?

A. Vertical.

Q. Whatever size pond it took in a service area to take in as volume. So, in other words, this pond is something less than that optimum ten feet, because it's 13 feet.

A. And that's where the economics comes in.

Q. How much more would it cost to build the pond of the same volume that was only ten feet deep?

A. See, by building the pond deeper, you're not -- you're increasing its holding capacity. You're not squaring its area. So your costs come into play as to the cost of the liners. Each foot that you move that pond, you square that footage. You know, I can build a pond to hold -- just as -- for example, if I were to build a pond ten foot deep, to add another 10,000 barrels capacity, I could either make the pond -- the pond would be 300 by 300 -- to add another 10,000 barrels capacity, I could either go ahead and make the pond 325 by 325, or I could lower it three inches. It's cheaper to lower it three inches to get

the holding capacity. That maximizes your return on your initial investment.

Q. In your opinion, what compromise do you make in terms of the efficiency of the evaporation process of the pond by doing that?

A. More than anything, your efficiency is enhanced by the spray system. So your passive evaporation rate for this pond is 175 barrels a day. If you put the sprayers on there, you're up to a minimum of ten-fifty. And we're still, at my facility, determining what exactly is the maximum amount of sprayers. The more surface area you can cover with the sprayers, the maximum amount. So, in theory, you could have a pond 50 by 50 by 50 foot deep on one sprayer, and it might evaporate as much as a pond that's 100 by 100 by two foot. This is just for sake of argument.

Q. Am I correct then that what you're saying is that you can overcome any drawbacks to reducing the surface area of the pond by installing the enhanced evaporation system?

A. Correct. You said that much better than I did.

Q. I work with words. I don't always know what they mean.

MR. DEAN: Is that on the record? Never heard a lawyer admit that before.

Q. (By Mr. Stovall) When you said the current facility; you're talking about the Southwest facility is at 1,050 barrels evaporation?

A. No. We're still in the learning period there with the systems that we have on hand. We're covering roughly a quarter of the surface area of our pond. We're at 21, 2200 barrels of water a day being evaporated right now, based on incoming versus pond depth. As we move to cover the rest of our pond with sprayers, I anticipate that our evaporation rate could get up to the five- to six- to 8,000-barrel-a-day range. However, our passive evaporation rate for that pond, extrapolated over a year, is only 300 barrels of water a day. So there's a substantial increase in evaporation rate due to spraying.

Q. What's the input volume into the pond?

A. We've limiting our facility right now, because we are at freeboard capacity, to that which we can evaporate to safely lower the pond. So right now we're at a standstill. We're limited by the fact that we don't have all of our sprayers operating yet.

Q. So you're not taking in any more water than you can evaporate?

A. Correct. We're taking in something less than we can evaporate.

Q. How long would it take you to line the second pond to get it into the operation? If somebody said start right now, get this pond lined and going.

A. Weather permitting, and availability of a contractor and his schedule, I would guess that the whole pond could be lined within 35 days.

Q. Thirty-five days?

A. Uh-huh.

Q. In other words, if you had a situation where you had to empty the first pond, or an uphill pond, I'll call it, you could have the second pond, provided the construction was completed, lined and available to take the water within 35 days?

A. Weather permitting.

Q. With respect to the issue of taking water which is, in fact, contaminated with H2S, if I understand what you've said, is that you will put a volume of chlorine in the receiving tank and then you will dispose -- start unloading the truck into the receiving tank and adding additional chlorine as necessary to eliminate the H2S, the bacteria that causes the H2S?

A. That is what I testified, yes. There are

other options.

Q. What are those options?

A. The other option would be to have a closed tank in close proximity to the unloading tank, unload it into the closed tank -- put the chlorine into the closed tank first, unload the load into the closed tank, have that truck that is unloading mix the tank, pick it back up, treat it -- well, treat it, pick it back up and put it into the skimmer pond and into the big pond.

Q. Would that alternative substantially reduce the risk of the escape of H2S into the air?

A. Yes, it would.

Q. Why have you not chosen that alternative?

A. It's not been my opinion nor my -- our practice out there at the disposal facility that it's actually necessary. The H2S that we get is generally in the range of about -- and this is in the tanks that are transported to us -- are in the range of about, oh, the highest we've had has been 22 parts per million. The lowest that we've had -- well, we've had a lot with no H2S -- but it's been our experience that it can be mixed in the tank prior to being dumped into the disposal facility. There's a release of H2S, yes, but it's a minimal amount.

Q. Would the personnel responsible for this be required to wear breathing equipment?

A. At those concentrations, no.

Q. Again, I'm not a technical person in this area. Is there any method by which you could actually add chlorine to the water either in the truck itself or through some sort of feeder into the hose as it's being discharged into the tank so that by the time it actually hits the air it has been treated, to a certain extent?

A. It can be done. The chlorine can be directed directly into the truck by popping the top off of it and pouring it into the truck. In most instances where we have -- we've informed operators that have H2S problems, continuing H2S problems; i.e., those up in the green area, that if we are to accept their produced water that they must treat it at their facility prior to bringing it to us because they're in pretty high concentrations of H2S up there. By the time it gets to us, you know, it's in the neighborhood of, like I said, the highest that we've gotten from those folks is 22 parts per million. I don't know what it is at their facility, but I know what it is when it gets to our facility. And then we further treat it.

Q. Is there a maximum concentration which you would recommend accepting at your facility with your current proposed design?

A. The most that I would recommend would be 50 PPM, and then you're dealing with some pretty high concentrations of H2S. And if it's anything more than that, I would not like to have it at the facility.

Q. So perhaps as a condition of a permit we could impose a standard which says you will not accept water above a concentration, the concentration being 50, as you recommended it. There may be other evidence that would support a different concentration.

A. That's a viable option.

Q. Let me make sure -- again, I demonstrate my lack of scientific knowledge -- you talked about the sludge which you've defined as blow dust and various types of dirt and some precipitates that will eventually accumulate on the pond over a period of time on the bottom. Is there any likelihood or possibility that you can get anaerobic bacteria developing in this sludge because it's not being properly aerated and moved?

A. My answer was that -- and based upon the fact that the pond is aerobic to start with, so as the

precipitates and the sludge accumulate on the bottom, it is accumulating through an aerobic system, a system that is aerobic, so there should not be the cause for any bacteria to ever have the ability to live in that aerobic environment, therefore, it would not accumulate in the sludge. That was the basis for my answer.

Q. How deep would you anticipate this sludge becoming?

A. With the 11.9 years that we intend to operate the facility which I testified here, I would imagine that the sludge would be in the neighborhood -- once again, depending on the types of salts that we get and evaporation rates that we get, that we would probably end up at some point in time with close to five to six feet of sludge in the bottom of the pond.

Q. With five to six feet of sludge, is there an aeration process going on? We're talking about mud, right, sloppy mud?

A. Salt and mud.

Q. Will it be anaerobic towards the bottom of that sludge?

A. It could be anaerobic. But the basis of my answer was based upon the fact that it's in an aerobic system to start with. I would prefer that maybe

someone else answer this question; but the basis for mine was that the pond is aerobic to start with as the sludges are precipitated, therefore, there's no bacteria, therefore, it wouldn't accumulate in the sludge.

Q. Wouldn't form in the sludge?

A. No. If it's not able to live prior to being deposited in the sludge, it can't be in the sludge that's the basis for my...

MR. STOVALL: I have no further questions of this witness at this time.

EXAMINER STOGNER: Are there any other questions of Mr. Frank?

MR. HORNER: I have a couple, if it's my turn.

EXAMINER STOGNER: Mr. Horner.

RECROSS-EXAMINATION

BY MR. HORNER:

Q. You were talking about depth to groundwater, I believe, and something about the geography of the area. Somehow you were saying that you thought that this pond is 150 feet above the river; is that correct?

A. Correct.

Q. And you were talking about some sort of --

if it wasn't 150 feet, it would be in a vulnerable area?

A. Correct.

Q. What is the vulnerable area?

A. The vulnerable area is an area in the San Juan Basin as defined by the OCD -- I might not have the terminology exactly right -- in essence, anything that is less than 150 foot.

EXAMINER STOGNER: Mr. Horner, I believe maybe that question might be better asked of Mr. Anderson when he gets up on the stand. He is familiar with the vulnerable area. Would that be sufficient with you?

MR. HORNER: Well, maybe for details, but I'm trying to figure out what, in concept, the vulnerable area is, not necessarily where it is, but what is the concept of a vulnerable area.

MR. STOVALL: Mr. Horner, let me just tell you on the record that the basic concept of a vulnerable area is it is the area -- it's measured in terms of depth and location with respect to the river -- Mr. Anderson can clarify this -- water which is particularly vulnerable to contamination by -- in our case, oilfield operations and, therefore, additional protection requirements are imposed on certain types

of operations within that vulnerable area. That is more fully defined within an OCD order, and during a break we can find that order for you.

MR. HORNER: Those areas are laid out?

MR. STOVALL: They are specifically defined by -- I don't know if they're defined in a township range or whether it's in terms of measurement. And if I'm not mistaken, that measurement is based upon a vertical relationship to a water line on the river channels themselves.

MR. HORNER: So this would be something defined on a topographic map?

MR. STOVALL: Yes, based --

MR. HORNER: Within an area of so many feet around a river, that's a vulnerable area; when you get higher above that --

MR. STOVALL: Then it's not a vulnerable area, as defined by the order.

MR. HORNER: So that has been looked at here?

MR. STOVALL: Absolutely, yes; that order is part of our records and requirements.

MR. HORNER: All right. Is that part of this record? Because I haven't seen that.

MR. STOVALL: The vulnerable area, it is an

OCD order. And we, of course, take notice of our orders and are aware of our orders. We'll provide you with a copy of that during the break and proceed from there if you have any questions.

MR. HORNER: All right.

Q. (By Mr. Horner) I believe you testified that currently there's more water being produced than there is capacity in these existing ponds. Where is that water going?

A. I don't know. I would suspect that at this point in time -- we just reached our capacity, and I would expect that one of two things is happening, one of which I don't really like the thought of; the other one being that the wells are being shut in by the operator until a disposal site can be found.

Q. What is the one you don't like to talk about?

A. I wouldn't know where it would be going. There's any -- maybe they're using it for production purposes, frack water; might be using it for drilling purposes, I don't know.

Q. Now, you talked about, again, the soil in the area as being some sort of an erosional surface. What are we talking about there?

A. The formation was deposited -- the

formation being either the Nacimiento or the San Jose, I'm not quite sure right there which it is. It was deposited, subsequently brought to the surface and eroded through the process of natural erosion. The way I can tell that is that there are cobbles mixed in with clay, there's pebbles mixed in with silt and that type of thing.

Q. Is the distinction between this erosional surface and the bedrock that you're talking about for purposes here the fact that erosional surface is permeable?

A. No, that is not true. I stated that the erosional surface has a mixture of clays and sand and silt and cobbles. In the instances in which we found the cobbles, it was at the very southern northernmost part of Pond Number 3 at a depth of about, I believe, 11 to 12 feet. I don't know how laterally continuous it is. But to answer your question, they are not permeable when compacted.

Q. Now, you found the erosional surface at this one location. Is that what you said?

A. I found the cobbles at that location.

Q. Does that mean you found the erosional surface, or is the whole thing erosional surface?

A. The whole thing is an erosional surface.

Q. Now, in fact, the likelihood that you're ever going to get this thing compacted over and above the compaction that exists in its natural state is highly unlikely, correct?

A. Incorrect.

Q. You can compact over and above the natural compaction?

A. Correct.

Q. By how much?

A. I don't know. It would have to be quantified. As I stated earlier, we would determine the maximum density at which that material can be compacted, and we would be at 95 percent of that.

Q. Now, for the benefit of these individuals that have not been to this site, this site is actually located on a mesa, is it not?

A. Correct.

Q. And what is the name of that mesa?

A. Crouch Mesa.

Q. And, in fact, this particular location is located not very far from a wash that runs off this mesa; isn't that correct?

A. I don't know how far, and I don't know which wash you're talking about.

Q. Well, I mean, can't you see it on your

topographic map there within just a few hundred yards, if that far, that wash that runs off to the northwest?

EXAMINER STOGNER: I believe you're referring to Exhibit 2-A; is that correct?

MR. HORNER: That's correct, Mr. Examiner.

A. Which map are you referring to?

MR. HORNER: 2-A, the topographic map there in the center.

EXAMINER STOGNER: That shows the six sections?

MR. HORNER: That's correct.

A. Judging from it from here, it would be that there would be a wash roughly, I believe, a quarter of a mile to the northeast, looks like from here.

Q. (By Mr. Horner) Well, that would be northwest, as I see it.

A. Northeast, northwest; looks like it starts northeast and runs to the northwest of the facility. Is that what you're asking?

Q. Possibly, possibly. So if, in fact, there was any contamination of the soil and you got a horizontal movement and that contaminating water moved to the northwest, as you testified on Wednesday, it would likely surface in that wash, would it not?

A. No. As I testified, the driving force

would be the head pressure. First off, it has -- X amount of water has to come through the primary liner. Then what isn't siphoned through the detection system, that excess water would have to go through the secondary liner, which further restricts flow. This further restricts flow is the compaction of the subgrade. So during this time we can't quantify anything without knowing the size of the hole and the leak. But once we determine that there was a leak, we could lower the pond within -- just by evaporation alone, in no more than nine months, empty the pond, no more than nine months, just by evaporation on it. It would be sooner than that because we would start trucking. At that point in time, whatever volume of water that has escaped has to go through these various impermeability blockages, and once that pressure is released from the driving pressure, the head pressure is released, there's no driving force on that water. And due to the nature of these soils, it would be bound by capillary action. So that's my answer.

Q. Unless your leak is bigger than the capacity of your two-inch line.

A. And that would be the excess that I testified as to earlier.

Q. And in that case, the water could enter the

soil, move to the northwest and surface in the wash.

A. It could under sustained conditions, but we have limitations as to how long we're allowed to operate this way, with the leak.

Q. Nine months, as I understood.

A. Right. It could not reach that wash in nine months. Is that the answer you're looking for?

Q. No, that wasn't the answer I'm looking for. How did you determine just now that it could not reach that wash in nine months?

A. Because of the subsoils I can't quantify, nor can anyone else at this time.

Q. So you can't say that it won't reach the wash.

A. Based on my experience -- and that's what we're testifying, and my background -- that it cannot reach it because of the nature of the subsoils.

Q. Based on a permeability rate of what?

A. I would guess that that permeability rate is in the neighborhood of probably ten to the minus seven centimeters per second.

Q. Which would give you a movement of how far in a month?

A. Maybe ten inches. I don't know, it depends.

Q. But you're not really sure what the permeability of the soil is?

A. That's correct.

Q. Now, you were talking about, as you design these pits that -- I believe you said excluding the economics, if you were looking at just strictly optimizing the design, that you would want a minimum freeboard of ten feet; is that correct?

A. No, with the freeboard of a foot-and-a-half and allowing for a sludge to build up and then having the pond -- enough water in the pond to utilize the -- aerate the spray system, that I would like to see a pond a minimum of ten foot deep.

Q. Now, why would you want a pond ten foot deep?

A. I just said to compensate for the freeboard which would be a foot-and-a-half and the sludge buildup in the bottom and then to have X amount of water to be able to spray.

Q. So you would have basically eight-and-a-half foot of water that you're talking about?

A. Exclusive of the sludge soil.

Q. Exclusive of the sludge. Now, why do you want eight-and-a-half feet of water? I'm having

difficulty with that. I'm not following why you want that much water.

A. I want that much water so that my facility, my spray system that I would have would be capable of moving a minimum of 50,000 barrels of water a day.

Q. So basically then you're not talking about optimizing the evaporation rate from a pond without sprays, you're talking about the system, as you are conceiving it to be, with maximizing capacities, utilizing sprays and this sort of thing, you would want eight-and-a-half feet of water.

A. I would want to have enough water to operate the facility, which, in my opinion, is eight-and-a-half feet of water.

Q. You're talking about operating the spray system, right?

A. The facility which consists of the spray system, the aeration systems, everything else.

Q. If you looked at a system without sprays, that was purely and simply an evaporation pit, you pour the water in and you let it evaporate, what would that system look like?

A. It would be about an inch-and-a-half deep and seven miles off square on each side.

Q. I believe that's what Mr. Stovall was

trying to get to a while back. Now, you stated that the highest level that you're aware of that you had received H2S in an incoming load -- I'm assuming this is from the Breen area -- was 22 parts per million; is that correct?

A. Correct.

Q. Had that previously been treated, or was that a totally untreated load?

A. I don't know. There was a point in time there where they were bringing us water from two different wells, and one was substantially higher than that. And when it got to us, I told them, "We don't want it at that concentration. It would be much more economic for you guys to treat it at your facility and bring it to us." Some of the water that we got from that operator came in at 22 parts per million, some came in at zero, so I don't know if they treated it or not.

Q. Do you charge for receiving this water based on the hydrogen sulfide content?

A. We charge to treat the water.

Q. So there is an additional charge over and above just the acceptance of the water for the treating?

A. Correct.

Q. Now, what, in your estimation, is the highest likely concentration of hydrogen sulfide in the water in the area that might be received if it were not treated before you receive it?

A. All I can speculate on is that, once again, it's pure speculation that -- hearsay, if you will, I have heard upwards of 150 PPM from some of that water up there.

Q. Upwards above that or --

A. Up to 150.

Q. Now, at what level in the pond will the aeration system be located, the pipes with the holes and the diffusers and that sort of stuff?

MR. DEAN: I'm going to object. This has been asked and answered and discussed.

MR. STOVALL: I certainly have a good idea of where the area of the spray system --

MR. HORNER: No, I'm not talking about the spray system.

Q. (By Mr. Horner) Do you know what depth the aeration system is going to be in the pond?

MR. STOVALL: You can answer that question.

A. The very bottom.

Q. (By Mr. Horner) Right on the bottom? So if

you've got five to six feet of sludge, it's going to be covered up?

A. No. As I testified earlier, the continual action of the air coming from the aeration system will keep it clean. The areas in between the laterals will fill up with sludge, but the aeration system itself will not ever be buried.

EXAMINER STOGNER: Is that because of the agitation around the pond?

WITNESS: Correct.

EXAMINER STOGNER: When you say four to five feet of sludge, we're talking about an average throughout the pond?

WITNESS: Exclusive of that area immediately above the holes of the aeration system, yes.

EXAMINER STOGNER: Thank you. I'm sorry, Mr. Horner.

Q. (By Mr. Horner) What is the distance between your laterals?

MR. DEAN: Same objection.

MR. STOVALL: Just answer the question, and then let's move on.

A. I believe they're 40 feet.

Q. (By Mr. Horner) There's 40 feet between

your laterals?

A. Between each set of laterals? Between each set of laterals, I believe there's 40 feet.

EXAMINER STOGNER: Are we referring to Exhibit Number 2-B?

WITNESS: No. It would be through correspondence, in a letter.

EXAMINER STOGNER: These are in the exhibits; is that correct?

WITNESS: Yeah. In my copy of this, it doesn't have the document that I submitted with this, for some reason. Yours might not either.

MR. DEAN: Which one is this? What letter is that?

WITNESS: August 18th, 1989. No, it's not.

Q. (By Mr. Horner) Now, you're going to have two aeration systems, correct?

A. Correct.

Q. If one of the systems is shut off for a period of time and the other system is still moving the water around, won't it bury the second system, or the first system?

A. If it was shut off.

Q. So these systems will be operated continuously, 24 hours a day, for the life of this

facility?

A. Yes.

MR. DEAN: You're talking about the aeration systems?

MR. HORNER: Yes.

A. The aeration systems will be operational from start-up through abandonment.

Q. (By Mr. Horner) I'm assuming there's a possibility that you may have to do some maintenance or something and shut it down for a little bit. If, in fact, your laterals are covered over, is it going to mess up the operation of these systems?

A. The period of time which they're shut down, it shouldn't cause a problem.

Q. Now, also then, it looks like that if, in fact, there was an attempt to remove this sludge, if -- I understand, at this point you are saying you don't intend to, but if, in fact, OCD came to you and required you to remove the sludge, how would you go about even doing that? With a pumper truck?

A. It would be done by a -- for lack of a better word, I'm going to use a super sucker, which is actually a heavy-duty vacuum truck. There's one in Farmington operated by Riley Industries.

Q. Could that be operated then without

damaging the aeration system or the liner?

A. Yes.

MR. HORNER: I have nothing further of this witness at this time.

EXAMINER STOGNER: If there's no other questions of Mr. Frank, he may be excused.

MR. STOVALL: Mr. Frank -- before we let him go completely, I understand, Mr. Dean, that Mr. Frank has some sort of commitment this afternoon?

MR. DEAN: I'd really ask for the indulgence of the body to let him go. We drug him back here today. He does have an important meeting this afternoon, and I think I can still get him there if I give him my car and let him go to the Santa Fe Airport, he can catch the 12:30 plane and go home. I'd make him available some other time, if you would allow us that indulgence.

MR. STOVALL: Where we cut Mr. Horner off was in the area of the H2S matters. Is Mr. Cheney going to be prepared to address a lot of those issues?

MR. DEAN: Yes, Mr. Cheney is an expert in waste water management, that's his specialty, sewage treatment plants; and I think he's much better able to testify than Mr. Frank is. Mr. Frank's practical

experience in designing these ponds and not having the problems is in the record, and that's really all I foresee from him. I know what you're going to say, and I don't want to obtrude on anything that you want to do. I think Cheney is much better able to technically answer those questions and their effect.

MR. STOVALL: I think we're going to spend some time on it, as I discussed, particularly with relation to the impact of the Basin case, we're going to rely on OCD staff, to a large extent. But I want to be sure that you have a witness here who is capable of responding to our questions, as well as Mr. Horner's, with respect to methods of dealing with H2S.

MR. DEAN: I think I do.

MR. HORNER: You might want to ask Mr. Cheney if he feels enough comfortable with it.

MR. DEAN: I've prepared my case. I think he's pretty comfortable with it.

MR. STOVALL: Counsel's statement on that is sufficient on that issue.

MR. DEAN: I just tell you that's his specialty, he designs sewage treatment plants. I think he's looked at this one. He's familiar with permeability of rock, permeability of soils. He's familiar with how you treat it, how you keep the lines

open, the sludge, the oxygen and the effect on that, how it gets transferred. And he's won awards for designing plants in Clovis and all kinds of thing.

EXAMINER STOGNER: Mr. Dean, who would be best suited to answer any site security type questions?

MR. DEAN: Mr. Badsgard.

EXAMINER STOGNER: Are there any other questions of Mr. Frank? If not, he may be excused. And let's take about a 30-minute recess.

MR. STOVALL: Mr. Frank, you may be recalled some day, but we'll let you go home for now.

(Recess, 11:15 a.m. to 11:48 a.m.)

EXAMINER STOGNER: This hearing will come to order.

Mr. Dean.

MR. DEAN: Mr. Examiner, applicant calls Chuck Badsgard at this time.

EXAMINER STOGNER: Let the record show that Mr. Badsgard -- or reflect that Mr. Badsgard was sworn on the 13th.

Mr. Dean.

CHARLES BADSGARD

the witness herein, having been previously sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DEAN:

Q. Would you please state your name for the record?

A. Charles Badsgard.

Q. Where are you employed, Mr. Badsgard?

A. Sunco Trucking, Farmington, New Mexico.

Q. How long have you been so employed?

A. Approximately ten years.

Q. Would you briefly describe for the examiner your duties at Sunco?

A. I'm vice president of Sunco Trucking; handle all the operations as far as trucking, finance, overall operations.

Q. What's the primary business of Sunco at this time?

A. Primary business is the oil and gas industry.

Q. And they're in the trucking business?

A. Yes. They're in the trucking, heavy hauling, water trucking, moving of rigs, pipe, so on down the line.

Q. In connection with that business, are they in the business of picking up produced water from well locations in the San Juan Basin?

A. Definitely.
Q. How long has Sunco been in this type of operation?
A. Since 1974.
Q. Are you authorized to speak on Sunco's behalf in the application process that this hearing concerns?
A. Yes, sir, I am.
Q. Would you be in charge of the operation of the Sunco disposal pond if it is approved?
A. I will be over it. When you say "in charge," I will be over the project and will be hiring the personnel that would manage that.
Q. What does Sunco see as the employee situation at the pond?
A. As far as people?
Q. Yes.
A. I think at this point in time we're still doing some evaluating, but our position is going to be that there will be a personnel or people, at least one, management person at all times at the pit when the evaporation pond is open.
Q. Would there be a supervisor then separate from you that would be in charge of those personnel?
A. Definitely.

Q. Would you consider yourself fairly experienced in oilfield operations?

A. Pertaining to --

Q. The general field of oil and gas.

A. Yes.

Q. Who is the owner of Sunco Trucking?

A. George Coleman is the owner and president of Sunco Trucking.

Q. And at that same site of Sunco, are there other operations owned by Mr. Coleman?

A. Yes, there is. He also owns a company called Big A Well Service, which is a sister company of ours, that owns approximately 25 rigs. So, in my opinion, we've been in business, like I say, since 1974. We do have a sister company with 25 rigs. We have a multi-million-dollar business that we operate. I feel very proud of our organization. We've come a long ways. We're stayers. There's been some hard times, as everybody knows, in the oil and gas industry in 1980 and '81. Again, like I say, I'm partial, but I'm very proud of our organization. We employ over 200 employees at this time. We're not looking at this as something -- a fly-by-night type situation. We're here to stay. We intend to work with the OCD. We'll work through their regulations and their efforts. And

we want to do an extremely justified and good job with this project.

Q. Does your work experience with Sunco include compliance with environmental and government regulations?

A. Yes.

Q. And cooperation with government regulatory agencies?

A. Yes, sir, it does.

Q. Have you reviewed the application and various letters that have been changed between Sunco's representative Bob Frank and the OCD?

A. Yes, I have.

Q. To the best of your knowledge, is the information contained in those, as far as it concerns the representations of Sunco, true and correct?

A. Yes, it is.

Q. Do you intend to comply with those representations and any other subsequent orders of this regulatory body?

A. Yes, we do.

Q. I'm going to hand you what's marked for purposes of this hearing as Applicant's Exhibit 10, and ask if you caused that to be prepared?

A. Yes. With the initial application to the

OCD, they require us to write the adjacent property owners, and we did carry that out on the initial application.

MR. DEAN: At this time, Mr. Examiner, I'd like to move for the admission of Applicant's Exhibit 10. I hand you a copy so marked and one for Mr. Horner.

EXAMINER STOGNER: Are there any objections?

MR. DEAN: I'm asking that it be admitted at this time.

MR. HORNER: I have no objection.

EXAMINER STOGNER: Exhibit Number 10 will be admitted into evidence.

Thank you, Mr. Dean.

MR. DEAN: Thank you, Mr. Examiner.

Q. (By Mr. Dean) Have you been part of the process that we'll outline, the setup of the Sunco pond, if approved, as to fences, security and that type of thing?

A. Yes, sir, I have.

Q. Would you, please, for the examiner, describe what Sunco intends to do in that regard?

A. Well, we definitely will have it fenced off with an eight-foot fence, chain link type, barbed wire

on top, one entrance where we can control any truck coming into the location itself. It will have to go by our -- what we call an office and check in. Our procedure will be that, as Mr. Frank has stated, that we will test each truck that comes in and make the decision as to whether we take the produced water. And also we are wanting to put it in an open container to make sure that what we take out of our test kit or whatever, that once we drop it into the open container that it doesn't have a lot of oil or whatever that we do not want in our evaporation pit. And we feel that's a good check on our part.

Q. You would be agreeable though, if that's not acceptable, to have a covered pit for that purpose?

A. Definitely.

Q. Do you intend to keep records as a part of this business?

A. Definitely.

Q. Do you intend to keep records of where the loads come from, what well locations?

A. Yeah. That's already a common practice in the oil and gas industry, or as far as the water trucks go. Every location, when the driver brings his truck in, he has on his driving ticket what location

he came from, what company it came from. And all the documentation is there, so we will definitely keep records.

Q. And does Sunco, in its related companies, have people experienced in well locations, their location and whether or not they might be H2S problems?

A. Yes, we're very familiar with the area.

Q. Are you and Sunco and the related companies' employees familiar with the water haulers and the people that might be using your pit?

A. Yes, sir.

Q. You're familiar with their reputations and character and you have good working relations with them?

A. Yes, we do.

Q. Does Sunco intend to operate the pond without an attendant there at any time?

A. They do not.

Q. Does Sunco intend to use the second pit that will be constructed before it is approved by OCD for any purpose?

A. No way.

Q. Before it's lined?

A. We will not use the pit before it is lined,

or without equipment, we do not plan on using it.

Q. What other methods are you aware of to insure that the closure plans, the treatment plans and stuff that have been described in the application and the testimony that you've heard will be complied with by Sunco?

A. Going back through our consultants, again, like I say, what Mr. Frank has stated at this point in time, that's the way we'll work it as far as the communication between the OCD and, you know, our engineering staff, so on, down the line.

Q. Do you have sufficient supervisory capabilities at Sunco to make sure that these employees do what they're told and will be sufficiently trained to operate testing procedures and that kind of thing?

A. Yes.

Q. That's something that you've gone through in other operations at Sunco as far as compliance with DOT regulations and that kind of thing?

A. Exactly.

Q. Does Sunco have a drug testing program in in place?

A. Yes.

Q. Is it actively followed?

A. Yes, it is.
Q. Does Sunco or any of its related companies have a safety engineer?
A. Yes.
Q. Who does that person report to it?
A. George Coleman.
Q. And he is in charge of making sure that things are complied with, rules, regulations, this kind of thing?
A. Exactly.
Q. He would be involved in this pond?
A. Yes, he would.
Q. What was his former employment?
A. He was a police officer for the City of Farmington for about 15 years.
Q. How much land does Sunco own at the proposed site?
A. I believe it's 160 acres.
Q. If you would, would you briefly describe the site location for me?
A. Again, it's a mesa that is in the center of the Bloomfield-Aztec-Farmington area. And it's at this point in time sagebrush, flat.
Q. Are there any residences visible from your location?

A. No, sir, there's not.

Q. How far is your property line from the edge of the pond?

A. I would say from the closest point, it would be the south and west corner, would be approximately eight to 900 feet within our property.

Q. Could you show us on what's marked as Exhibit 2-A that area again?

A. You can't see it on the map. Our property line would be -- trying to project this on out -- would be out in about here. BLM land is to the south of us. We have approximately 800 feet that this corner here, the pond, would be.

Q. You're pointing at Exhibit 2-B, the pond closest to the bottom of that exhibit?

A. Right, the initial Pond 1.

MR. STOVALL: Are you saying that your property line is 800 feet in which direction from what point?

WITNESS: Towards the west.

MR. STOVALL: From what point?

WITNESS: From this point here.

MR. STOVALL: From the corner of the pond?

WITNESS: Southwest corner of the pond, it would be approximately 800 feet to our property line.

Q. (By Mr. Dean) What about in the other directions?

A. Well, the pond goes -- it would go -- the way this is going, I'm going to say probably 1500 to 1600 feet to the other end of our property line.

Q. Which direction is that?

A. That would be to the east.

Q. What about the other two directions?

A. North and south, they would be -- like I say, this would probably be maybe 500 feet from the BLM property to the south. And we would have another 15, 1600 feet to the north.

MR. DEAN: Thank you.

EXAMINER STOGNER: For clarification, Mr. Badsgard, you said Sunco owns 160 acres?

WITNESS: Yes.

EXAMINER STOGNER: Is that properly described as being the northwest quarter of Section 2?

WITNESS: I believe so, sir.

EXAMINER STOGNER: Thank you.

Q. (By Mr. Dean) Is the site located -- is it located in a valley, on a mesa? What kind of topography exists --

A. It's up on a mesa, as we've stated before, very flat mesa.

Q. Does Sunco -- or, I guess, Mr. Coleman have sufficient financial abilities to meet the requirements that you put forth in your application?

A. Yes, we do at this time, you bet.

Q. You have an estimate as to the construction cost of these three ponds, approximately?

A. We're probably looking at in the neighborhood of 300,000 to approximately 500,000 to build this facility.

Q. Would that include just the first pond?

A. The first pond, yes, would be the 300,000. Again, as we go on, we're looking at a venture of probably half a million dollars to construct the other two.

Q. In your employment at Sunco and your familiarity with the oil and gas industry, do you think there's sufficient demand in the industry to support this pond?

A. Yes, sir, there is a need and necessity in our area.

Q. You listened to the testimony of Mr. Frank about the loads that were being delivered or the capability of the ponds that are in place now. In your familiarity, are there more loads than that needing to be dumped?

A. I would say at this point in time, yes, this is compounding the problem. And there's going to have to be more facilities or the wells will be shut in eventually.

Q. Is that demand likely to go up in the near future?

A. I would say yes, it is. There's continuous drilling up there. In fact, I believe they have 16 drilling rigs going now. They're all coal gas related. Takes them about three days to drill a well. Most of the companies up there have an indication of drilling maybe 1,000 wells this year.

Q. Do thcse wells produce any water?

A. Tremendous amounts of water on some.

Q. Is most of the demand in the oil and gas business now these coal steam wells?

A. Right now in the Farmington area it's, I would say, 99 percent coal gas.

MR. DEAN: That's all the questions I have.

EXAMINER STOGNER: Thank you, Mr. Dean.

Mr. Horner, pass the witness.

CROSS-EXAMINATION

BY MR. HORNER:

Q. You say you currently are involved in a trucking operation that trucks produced water?

A. Yes.

Q. And what is the nature of the records that you keep for each load?

A. For each load, what we do, for example, if you take Meridian Oil and Gas, the tickets are made out on an 80-barrel run. In other words, our tickets, if you had a chance to see them, Mr. Horner, they document the time that we haul a load, where we haul it from, where we haul it to, and the company name. And these tickets are submitted back to the oil company as a bill.

Q. Then do you attempt in any way to monitor what's in the load, I mean, for instance, hydrogen sulfide levels?

A. As far as Sunco Trucking?

Q. Right.

A. No, sir, we do not.

Q. Do you try to obtain from the entity that you're picking up the load from what's in the load?

A. Yes, sir, we do.

Q. So you ask them what the hydrogen sulfide levels are?

A. No. We ask them if the produced water -- if it's drilling water, this type. We have not ever hauled it, to my knowledge, any H2S water.

Q. But you haven't asked; is that correct?
A. This is true.
Q. So you may have hauled it and not known it?
A. This is possible.
Q. Now, you talk about a distinction between produced water and drilling water. I think I've got a pretty good understanding now of what the produced water is. What is the drilling water?
A. Well, the drilling water would be just lake water, river water, this type of water.
Q. That has been used in the drilling process?
A. It has not been used in it. We have points of diversion that we've authorized to haul out of, say, Navajo Lake, or even the San Juan River or the Animas River, and we go get the water from those sources there.
Q. And you take it to a drilling site then?
A. Yes, sir.
Q. So then any water that you would actually pick up from the drilling site would be considered a produced water?
A. Not necessarily a drilling site. After the well is completed, they have tanks that are installed, and the coal gas wells separate the water from the gas, and they're stored in these storage tanks. And

we haul from the storage tanks to either a disposal or Southwest or Basin or whatever.

Q. Now, would there ever be any time when you would put water or anything else in this facility other than the produced water that we've talked about that comes from the coal gas drilling and the separation of the water that's covered in that process?

MR. DEAN: Into the pond, the proposed pond, you mean?

Q. (By Mr. Horner) Well, into the facility, into the holding tanks, or proposed pond, or anything there.

A. I think that there's times where we pull what they call separator pits and so on that have to be pulled on occasion, yeah. It would be produced water, same thing.

Q. What is the separator pit?

A. Well, it is a pit that separates the -- if there's any oil, whatever, that the well makes, the separator on the location separates the oil. And there's a small pit -- I don't know what size they are, probably Roger can tell us about that -- they're a plastic-lined pit. And once they contain so much water, you have to pull them and take them into these

disposals.

Q. The separator pit would be something that's located at the drilling site then?

A. No, it would be at the actual well that is producing.

Q. At a producing site then?

A. Yes, sir.

Q. Now, are you aware of any permits required for this facility from the EIB, Environmental Improvement Bureau?

A. To be honest with you, not until we got down here, Mr. Horner. And I still don't know whether it's actually a fact or not.

Q. Have you had any contact with the EIB to check on whether or not there's a permit required?

A. No, sir.

Q. Now, in the operation of this facility, I believe you stated you're going to keep records of each load?

A. Yes, sir.

Q. Then on an incoming load, would you monitor each load for hydrogen sulfide?

A. We'll monitor that load as Mr. Frank, our consultant, said. I don't remember all the details, but H2S was one, and there were several other items.

It was -- you know, like I said, he referred to it yesterday, or the day before, this morning or whatever.

Q. So each load will be monitored?

A. Yes, sir.

Q. And records kept?

A. Yes, sir.

Q. And what, in your opinion, would be a hydrogen sulfide level that would be too high for you to accept at this facility?

A. Again, I want to refer back to Mr. Frank, who is our consultant, and the expert. I don't remember what the setup would be, Mr. Horner, but that would be the guidelines we would go by.

Q. So, basically, levels of hydrogen sulfide that cause you problems or that you would refuse to accept or that you would have to treat in one form or another, you're deferring all those types of questions to someone like Mr. Frank?

A. That's right, sir.

Q. Now, you've stated that you will not use this pit two before it's lined. Why then would you construct the pit when you construct pit one if you don't intend to use it for some period of time?

A. I think the way it's set up, according to

my engineer, or my consultant, again, is the way he designed it, was that when you pour that one side, and his reasoning, I guess, he explained it before, was that the secondary pit will go in when it's feasible to put water in it, and we will line it and go accordingly.

Q. Would you be willing, if the OCD should require you -- and I understand this is hypothetical at this point -- to have constructed on your facility and lined the capacity of one pit empty at all times to be able to pump the entire contents of one pit into that empty pit, should a leak occur in the full pit?

MR. DEAN: I'll going to object because it is hypothetical, and I don't think it's incumbent upon the witness to promise things, to make those things based on questions from Mr. Horner. If there's an order promulgated that requires him to do it, I guess they have to make a decision about it.

MR. STOVALL: It's a hypothetical question, and I'm not sure that Mr. Dean addressed it, but I'm not sure there's a foundation for the basis of question, Mr. Horner. If you'd like to go back and work your way into it, we might get back to that point.

Q. (By Mr. Horner) We've discussed here quite

at length, I think, in other testimony -- I think you were here for the other testimony -- that if a leak should develop in, for instance, your Pond Number 1, if you only had Pond Number 1 completed, that would require removal of the fluids and substances from the pond to below the leak level, and without an additional place to put this, it may take up to nine months, basically letting the pond evaporate. The OCD at one point had taken the position that this pond should be drained below the level of the leak within seven days. Now, if, in fact, the OCD should determine that nine months is not adequate and that you have to find some place to put these substances from this pond -- and we've had testimony that there is no other place to put substances from this pond -- would Sunco be willing to complete Pond 2 and subsequently Pond 3 in order to provide a place to put the water from a leaking Pond 1?

MR. DEAN: I'm going to object because that's not the evidence. There wasn't any evidence that there was no place else to put the water. The evidence was that there was some concern whether there would be enough room to put the water, that they were willing to start trucking immediately, but they didn't think they could commit to seven days, given the

availability. Therefore, it's a hypothetical question based on improper evidence.

It's also not correct, as characterized by Mr. Horner, that it may take up to nine months. I think all he ever got from Mr. Frank was that if you sat there and did nothing, it could take nine months, if the pond is full and you have a catastrophic leak. It's just an unfair hypothetical question.

MR. STOVALL: I think I'm going to recommend, Mr. Examiner, that the objection be sustained. For one thing, I will assure you that if it's a requirement of the OCD, Sunco will comply with it. So whether he will comply with the requirement from the OCD is not -- doesn't help us in the fact finding process or not.

EXAMINER STOGNER: Thank you, Mr. Stovall. Sustained.

Mr. Horner.

Q. (By Mr. Horner) You stated that you intend to train your employees that work at this particular site. Do you intend to train them with respect to the hazards of hydrogen sulfide?

A. Yes, sir.

Q. Are you yourself aware of the concentration levels of hydrogen sulfide that can cause problems?

A. Probably not to the extent that I can sit here and be a -- you know -- no, I guess would be my answer.

Q. Do you have in mind some sort of a plan or training course that you would suggest that these individuals take in order to become familiar with the hazards of hydrogen sulfide?

A. Yes. There are safety inspectors already with our well servicing units that we have out there. We have an H2S school that these employees go to. And he has certified himself, I'll put it that way, in many respects to the H2S or safety type situations.

Q. He's certified himself?

A. Well, I'll say he's gone through schooling to certify himself, okay?

Q. And has he received a certification of some sort or just obtained some level of education?

A. Probably both. He probably has some certification. I am not aware of his credentials. I'm assuming this. But I know he has gone to some schools and attended some classes on H2S and has worked with our well servicing crews to certify them and to the extent that oil and gas companies require this from our well servicing crews.

Q. The individual you're talking about, why

don't we just go ahead and name him?

A. Richard Collins.

Q. And is he an employee of Sunco then?

A. He is an employee of Sunco.

Q. Now, this individual you're talking about now the safety engineer that you referred to earlier?

A. Yes, he is.

Q. Now, this safety engineer, in fact, is not a degreed or a professional engineer; is that correct?

A. That is correct, he is not.

Q. So he has had just some level of training in safety matters through various courses and things.

A. Yes, sir.

Q. Now, I believe you've testified that the location here, the subject location, is on Crouch Mesa, and that there are no residents in the immediate vicinity. Do you know how much distance there is between this particular location and the nearest resident?

A. At this time I do not know the exact distance. I would say probably Flora Vista, if you wanted --

Q. I'll take an approximate distance at this point.

A. I'd say that's, what, a couple of miles, a

mile and three-quarters, two miles.

Q. And I'll also take an approximate estimate of the number of people in that area.

A. I would have no idea, sir. There is housing down there. I have no idea how many.

Q. Are we talking a couple of hundred people, or 20,000 people, just to get a ballpark number?

MR. DEAN: He doesn't know. I'm going to object.

EXAMINER STOGNER: Sustained. He's answered the question, Mr. Horner.

Q. (By Mr. Horner) Now, we've had some testimony from Mr. Frank that in the event of a significant leak in Pond 1, one of the options would be to line Pond 2. And it looks like the decision whether or not Pond 2 would be lined in that eventuality would be yours rather than Mr. Frank's. So in that regard, if, in fact, you do have a significant leak in Pond 1, would that be the course of action that you would take, line Pond 2 to handle those fluids?

A. I would say it would be a considerate matter as far as financial, what the OCD directed us to do. It would be -- at that date I guess we would make that decision.

Q. So that is not necessarily part of your contingency plan at this point then?

A. I would say that it was not.

Q. Mr. Frank testified that there was a County Road 3500 in the vicinity of this facility, but he was not able to testify as to whether or not that road is paved for its entire length. Can you testify to that?

A. Yes, sir, I can. The road from Flora Vista, it goes to Flora Vista, comes out on the Bloomfield highway -- I don't know the form -- I mean, these locations. It is paved down to actually all the way. The new highway comes from the north to the south, and there is a -- probably a -- I'm going to say a mile, mile and a quarter, that is not finished yet. But the road that offsets it is all paved and comes out by the fair grounds and hits highway -- you know, highway -- what is it, 64?

Q. So it is a continuously paved road between two highways?

A. Yes, sir.

Q. Now, Mr. Frank testified that the closure plan in this particular case is basically to cover up what's left in the pond and bury it. Is that your understanding of the intention of Sunco at this point?

A. I think that the point being was that it

was going to be monitored and go with the communication with the OCD as to what was in the pit at that time, scrutinized and make a decision at that time as to what direction we would have and what would be requested. We will comply with the OCD.

Q. But the closure plan submitted and the concept so far, unless additional requirements are placed, unless there's something in there you can sell, to cover it up and bury it?

A. That is true.

MR. DEAN: That's not the testimony. I object. If there was hazardous material, they would remove it to a proper location.

MR. STOVALL: Mr. Horner, in the line of questions with respect to Mr. Frank's testimony, is it your intent here to get Mr. Badsgard to confirm that Mr. Frank spoke accurately?

MR. HORNER: There's just a few questions here that I've asked that are just basically allowing Mr. Badsgard to speak for Sunco rather than the consultant saying what he thought Sunco should do. As I understand it, Mr. Badsgard is in the position of committing for Sunco that "our intention is thus and such" rather than Mr. Frank's saying "I am recommending that they do thus and such."

MR. DEAN: There's a record, Mr. Examiner. And if I haven't made it clear, it was my intention to have Mr. Badsgard testify that they were going to do what was in the record.

MR. STOVALL: Let's not restate Mr. Frank's testimony. We are assuming Mr. Frank has the authority to speak for Sunco.

MR. DEAN: He so testified.

MR. STOVALL: If you need to clarify anything or if you need something specifically of Mr. Badsgard, please do so.

Q. (By Mr. Horner) Now, are you familiar with the other disposal locations in the area?

A. I'm familiar with the locations, that's all, not with any practicality as far as operations.

Q. So then are you not familiar with the problems they've had at some of these other locations?

A. Other than what I read in the papers.

Q. For instance, the Basin site, some of the the problems involved in their lawsuit?

A. Whatever -- like I say, not in detail. I mean, you know, other than the H2S factor and so on down the line which was in the papers.

MR. HORNER: I believe that's all I have of this witness at this time.

EXAMINER STOGNER: Mr. Stovall.

EXAMINATION

BY MR. STOVALL:

Q. Mr. Badsgard, you have stated that Sunco is a water hauling company, among other things; is that correct?

A. That is true. That is part of Sunco Trucking. We have 47 trucks; out of those 47, 23 of them are 80-barrel water trucks.

Q. They have a certificate of convenience and necessity from the State Corporation Commission?

A. Yes, sir.

Q. Are you familiar with OCD Rule 1133 and OCD Rule 709?

MR. DEAN: Those are the produced water, 709?

MR. STOVALL: I'm sorry, Rule 709 is removal of produced water from leases and field facilities. I'd be glad to provide you a copy to look at, if you want to make sure before you answer.

Q. (By Mr. Stovall) 1133, actually it refers to their requirement to file form C-133, authorization to move produced water.

A. Right.

Q. You are familiar with those rules?

A. Yeah. I'm familiar with filing the form, yes, sir.

Q. Has Sunco filed the form for the water which it transports?

A. Yes, sir.

MR. STOVALL: Mr. Horner and Mr. Badsgard, take a look at Rule 709.

MR. DEAN: He's got 709 in front of him.

MR. STOVALL: For the record, that requires permission before produced water is removed from any facility.

Q. (By Mr. Stovall) In your opinion, as an executive of Sunco, is it subject to these rules?

A. Yes, sir.

Q. And you comply with them?

A. Yes.

Q. But Sunco's current operation is actually only as a transporter of the water at this time; is that correct?

A. That is correct.

Q. So you will take water under contract from a production, drilling or production facility, and haul it to a disposal facility?

A. That is correct.

Q. And do you know whether or not you have any

obligation to test the constituents of that water as a transporter?

A. To my knowledge, we do not.

Q. What you're applying for here adds a new activity to Sunco's corporate enterprise; is that not correct?

A. That would be a new entity, yes, sir.

Q. And so while you may not test the composition of water as a hauling company, you are prepared -- and I think here I am now getting into Mr. Frank's testimony -- that you're going to test the water that's delivered to the facility? The facility will be responsible for the testing.

A. That is absolutely right, the facility will.

Q. So my point in asking these questions is to separate the two functions. It may, in fact, be Sunco Trucking which hauls water from an operator to Sunco to the disposal facility; is that correct?

A. That is correct.

Q. The disposal facility will conduct such tests as it feels are necessary and as are required by the OCD.

A. Exactly right, sir.

Q. Now, in terms of record keeping, Sunco

Trucking currently maintains load tickets, I believe you said --

A. Yes, sir.

Q. -- of every load? So you know where the water came from and where it went?

A. Yes, sir, we do.

Q. Sunco water disposal facility will, I assume, receive a copy of the load ticket from Sunco Trucking or any other trucking company that brings water to the disposal facility, or the information contained therein?

A. The information will be there, yes, sir.

Q. And in addition, do you have any plans in place at the present time with respect to record keeping, additional record keeping of the water that's brought to the facility; i.e., for example, rather, the testing of the water for the H2S and other components that Mr. Frank talked about?

MR. DEAN: Are they going to keep track of that?

A. Yes.

Q. (By Mr. Stovall) Are you going to keep records of that?

A. Yes.

Q. I asked Mr. Frank whether he was going to

keep any actual samples of the fluids brought to the facility and identify them in such a way that you could trace them back. And I believe he stated that he was not planning to keep a sample of every load. Would your answer differ from his in that?

A. At this point in time, no, it would not.

Q. Do you have any knowledge of any reason why the OCD should or should not require you to maintain a fluid sample, at least for a period of time, from each load?

A. No, I really -- like I say, at this point in time I could go either way, I guess; but I don't know why it would help that much or hurt that much. Just have to be something that would be evaluated between OCD and Sunco water dispoal, and go from there, I guess.

Q. Mr. Badsgard, I assume you are not an expert in EPA regulations with respect to hazardous waste materials.

A. That is very true.

Q. But I think you can probably answer the question that other than the load information provided by the driver bringing the load to you, do you have any method by which you could verify the source of the fluid brought to the facility?

MR. DEAN: Are you asking him to think if there's a method or whether they're going to?

Q. (By Mr. Stovall) I'm asking him whether they're going to at the moment. Is that going to be the source of your information?

A. At this point in time, that is the way it works.

Q. And Mr. Frank testified that there would be no testing for hazardous materials as waste is defined by EPA. Do you have any proposal -- or how would you respond to a requirement that there be some sort of testing to determine that, in fact, you were getting produced water that did not contain hazardous waste? Bearing in mind -- I understand that Mr. Frank testified that, by definition, produced water and water from oilfield operations is not and does not contain hazardous waste. The question is to insure that that's what you're taking into the facility.

A. Well, like we previously stated, that we're going to test the water from the truck before we even offload it. I guess I'm confused as to your question.

MR. DEAN: Can I talk to him for just a second?

MR. STOVALL: Yes.

(Sub rosa conversation between Mr. Dean and

witness.)

MR. DEAN: I understand the question to be that rather than, as Mr. Frank positively assumed, that if they say it's produced water, it's produced water, that you're asking his opinion about what if we have to negatively prove that each load is one or the other, if that's a requirement, what is their view of that.

MR. STOVALL: I think it's the same point. Mr. Frank testified that they can only accept produced water and drilling fluids, which are, by definition, not hazardous wastes.

Q. (By Mr. Stovall) And my question is: Is there a concern that you could get other types of fluids into the facility without your knowledge?

A. Definitely, you could.

Q. And do you have any recommendations as to what could be done to prevent that from occurring on a reasonable basis?

A. I guess you could come up with a situation where you monitor every 20 loads, whatever it is, you know, the oil and gas companies who you get your direction from, the other transporters who you work in close association with. We don't have this problem now. I'm not saying -- you know, hypothetically, you

could have this problem. I don't think you could check every truck and keep records on every load that is hauled in. You'd have to have a pretty good-sized courthouse after a while because, you know, it's pretty regular, I'll put it that way.

Q. How many truck loads a day would you anticipate would be delivered?

A. I don't know. You know, they're talking in the area of 50 when their facility is properly exercised and the evaporation system is working properly. I would say close to that area.

Q. Fifty a day?

A. Yes, sir.

MR. STOVALL: I have no further questions.

EXAMINER STOGNER: Are there any other questions of Mr. Badsgard?

MR. DEAN: I just one, Mr. Examiner.

REDIRECT EXAMINATION

BY MR. DEAN:

Q. Whatever the regulations are, rules that OCD might promulgate in this order that results from this hearing, you're certainly not going to open the pond without complying with them, are you?

A. No. Like we stated before, we definitely will comply with the OCD.

Q. Your intent in hiring Mr. Frank and going through this exercise is to -- and being willing to do that is -- reflects what attitude on your part in operating this pond?

A. We have a very positive attitude towards this pond at this time, and we intend to operate it according to all the rules and regulations and -- well, we feel we can do the job very well.

MR. DEAN: That's all I have.

RECROSS-EXAMINATION

BY MR. HORNER:

Q. Now, you have said that each load, when it comes in, will be tested. What will it be tested for?

MR. DEAN: Mr. Frank has answered that question.

MR. STOVALL: I believe he has, that's correct.

EXAMINER STOGNER: Sustained.

MR. HORNER: That's all I've got.

EXAMINER STOGNER: Let me clarify one thing. In your testimony you stated that it would cost about 300 to $500,000.00?

WITNESS: That's what we're anticipating. Again, like I say, from an engineering standpoint, I do not have total figures, but that is our estimate at

this point in time.

EXAMINER STOGNER: Are there any other questions of this witness?

MR. DEAN: None from me, Mr. Examiner.

MR. HORNER: None from me.

EXAMINER STOGNER: You may be excused at this time.

MR. STOVALL: Mr. Dean, I assume Mr. Cheney is your next witness?

MR. DEAN: Yes, he is.

MR. STOVALL: What would work better, do you think, to start with Mr. Cheney and take a break or to take a few minutes --

MR. DEAN: It's up to you. We're flexible.

MR. STOVALL: What kind of testimony are you going --

MR. DEAN: He's going to testify as to the exhibit and how much horsepower it takes to turn the pond over. And he has some familiarity with the exchange of oxygen that produces H2S and can answer -- we've discussed it during the breaks about the permeability of the rocks and can be the groundwater move. I really don't think it would be that long.

MR. STOVALL: I mean in terms of direct, whether to take a break now or at the end of his

direct. I'm sure the cross will take some time.

MR. DEAN: The direct might take 30 minutes, maybe.

EXAMINER STOGNER: Let's go ahead and call him.

MR. DEAN: All right. Call Richard Cheney.

EXAMINER STOGNER: Let the record show that this witness was sworn on Wednesday.

RICHARD CHENEY

the witness herein, having been previously sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DEAN:

Q. Would you please state your name?

A. Richard Cheney.

Q. How are employed, Mr. Cheney?

A. I'm employed by Brewer Associates, Incorporated, a consulting engineering firm in Farmington.

Q. How long have you been so employed?

A. About 14 years.

Q. Would you briefly describe for the examiner your educational background?

A. I'm a graduate of New Mexico State University with a bachelor of science degree in civil

engineering.

Q. And you've received a degree? Are you certified in your profession?

A. I'm a registered professional engineer.

Q. With the state of New Mexico?

A. New Mexico, Texas, Arizona, Colorado and Utah.

Q. Have you worked in that field since the time of your graduation?

A. I have.

MR. DEAN: I move that he be qualified as an expert professional engineer for purposes of this hearing, Mr. Examiner.

EXAMINER STOGNER: Are there any objections?

MR. HORNER: I have no objection.

EXAMINER STOGNER: Mr. Cheney is so qualified.

Q. (By Mr. Dean) Within your profession, your chosen profession, do you have any areas that you might call expertise, an area of expertise or speciality?

A. Speciality primarily in waste water, primarily sewage water design of treatment facilities for waste water treatment plants.

Q. Do those waste water treatment plants have H2S problems and concerns?

A. Yes.

Q. Have you been present during all of the testimony except for Mr. Badsgard?

A. Most of it, yes.

Q. I'm going to call your attention to your report that has been entered into the record here, which is the last three pages, I believe, of Applicant's Exhibit Number 4, Mr. Examiner. I think that's where it is.

EXAMINER STOGNER: That's correct, Mr. Dean.

Q. (By Mr. Dean) And ask if you have that document in front of you?

A. Yes, I do.

Q. Did you prepare that document?

A. Yes.

Q. Tell us what steps you took in order to gather information to prepare that document.

A. What -- we reviewed the proposed design submitted by Mr. Frank. And what we did was assume or base our design on what we term the course bubble diffusion system, which would be primarily the laterals, the pipes, plastic PVC pipes, I believe it's

with the 1/32nd inch holes to be used as the diffusion system. What we attempted to do was to show what horsepower would be required to develop a certain level of oxygen within the pond. You don't know exactly what the oxygen demand is of the waters that are being delivered. So we assume that what we wanted to try to do was to be able to at least maintain some level of dissolved oxygen in the ponds and arbitrarily chose half a part per million. We operate waste water treatment facilities with newer technologies and proper mixing as low as 2/10ths of a part per million up to about one part per million of dissolved oxygen. Not knowing what the demand is here makes it a little bit more difficult. We ran through a series of calculations to determine the amount of horsepower that would be required to place a dissolved oxygen residial of point five milligrams per liter in the pond, assuming that the oxygen demand is very low.

Q. Do you think that that assumption makes your calculations reasonable?

A. I think that they're reasonable. I think it shows that the 32 horsepower would be required. Obviously, nobody makes 32 horsepower motors. The next step would probably be 35 or 40. And so you're going to have some redundancy. I think in our letter

also we stated that we feel like that mixing is a crucial part of providing oxygen, maybe even mixing is more important even than the amount of oxygen that's supplied to make sure that all portions of the pond come in contact with an oxygen supply. And I think that the recirculation and spray system that Mr. Frank has designed for this is an integral part of the oxgenation part of the system. In addition, that that spray system will impart oxygen back into the pond, as well as the oxygenation system that we analyzed. It's a little bit more difficult to predict how much oxygen that the spray system is going to put back into the pond, but surface aerators, generally you can assume that you get at least a pound to a pound-and-a-half of oxygen per horsepower per hour. And I think it would be a reasonable assumption to assume that with the spray system that you've got, that you'd probably get about one pound of oxygen per horsepower per hour, and you've got a rather large horsepower pump operating there, so I think that the availability of the oxygen to the pond with all of the systems operating, I think that there would be a sufficient amount.

Q. Which of these systems as you've heard them described to us lay people should this 35 horsepower motor be put on?

A. That's to the PVC pipe system and the system with the laterals distributed throughout the pond and that has the 1/32nd inch holes.

Q. And the gains of eight, I think they described it.

A. I don't remember.

Q. Why is all of that necessary in controlling? How does that apply to controlling H2S?

A. Well, the oxygen would work -- it's a reducing agent that combines with the hydrogen sulfide in the same way that chlorine does. Chlorine is a reducing agent where you're using CL2 rather oxygen, which is O2, as a reducing agent.

Q. And the goal of all this is to maintain the pond in an aerobic condition?

A. Yes.

Q. Given the dimensions of the pond that you reviewed in these systems and your calculations, do you think that they would be able to maintain the pond in an aerobic condition if they operated it as has been described in the last couple of days?

A. I think that they will be able to maintain it in an aerobic condition if they operate the air supply and the mixing and spraying operation in a -- together.

Q. There's been some discussion about the spray system on the perimeter being put in later, or at least the sprayers themselves being put in later. Does that play into how you would operate this pond?

A. We didn't evaluate that. I think that those sprayers would certainly add some oxygen to the pond; they may, that particular type of spray. We just didn't evaluate that one. I'm not sure.

Q. It certainly would help though?

A. Yeah, it would enhance it, if there's a large amount of hydrogen sulfide present. And both spray systems are going to tend to strip it from the waters and put it in the air. So what you want to do is maintain the pond in an aerobic condition or be able to inject enough material in there so you get a complete reduction of the hydrogen sulfide prior to the time that you create a problem.

Q. So it's more important to worry about this as there won't be a problem rather than after the problem?

A. That's correct. And if they begin to develop a problem, I think they have several options. They have the option to inject chlorine, which is a further reducing agent; to turn on -- to operate the air system longer and to continue the spraying

operations. And I believe that with the proper mixing and the amount of air that they have available -- they have also have the force bubble diffusers; I would put a larger horsepower motor on that. With the larger horsepower motor, then they have additional capacity for injecting air.

Q. What would you recommend?

A. Well, I'd have to analyze those diffusers, but I think probably about the same. We'd want to see what they were doing and what their capabilities were, but I'd think that probably somewhere between a 20 and 30 horsepower motor blower on these.

Q. Is the redundancy of the systems that are designed into this pond favorable to controlling and preventing an H2S problem?

A. Certainly.

Q. That is, if they operate separately and that kind of thing. When you say "treat the pond," would they -- you had some calculation that they could turn the pond over in 36 hours?

A. I think that was based on --

Q. If they had a 32 horsepower motor they could turn it over in 36 hours?

A. That was also assuming that they would operate the recirculation system in spraying

capacity. I think they could do it even quicker than that. I think that was based on the flow rates of the pumps that were developed on it.

Q. So if they increased those horsepower as you've recommended, that would even be quicker, possibly?

A. Yes.

Q. How would that help in the prevention of an anaerobic state that would tend to create H2S or in the treatment of an H2S problem?

A. Well, I think that, as I've said before, that mixing is a critical part of controlling hydrogen sulfide in any of these situations because the mixing provides contact with the available oxygen; and so if you have an opportunity to keep it mixed, maintain the mix and have an oxygen supply, then you're a lot more likely to reduce the hydrogen sulfide.

Q. There's been some discussion today, and perhaps your expertise would lend itself to answering this; the salt or sludge buildup in the bottom of the pond and how that would affect the -- what I would call the bubblers from the PVC pipe. Do you see that as a problem that needs to be addressed further?

A. Well, I think that that's something that will be an operational problem that they'll have to

continue with, but they have methods to clean those out. And I don't foresee that -- those bubblers are going to be operating continuously, and I don't foresee that as being a problem.

Q. You were here for the discussion about the buildup of salt or sludges to five to six feet over the life of the pond, 11-and-a-half years, I think it was. Do you have any testimony that lends itself to that problem? How much do you think they will build up?

A. Without running a calculation -- there could be some calculations made if you had an idea of the amount of salts that were in the water. That sounds a little bit excessive to me, but then I would be afraid to say without running calculations on it.

Q. There was some additional testimony while you were present today about if the pond was full and if there was a leak in the bottom of the primary liner which then leaked through the secondary liner and through the compacted soils underneath and that the fresh water source was 80 feet down, that that might be a problem if in the wildest of circumstances you couldn't empty the pond for 90 days. Does your field of expertise allow to you calculate how long it would take for that water to reach the fresh water source of

80 feet?

MR. HORNER: Objection. I believe the testimony "in the wildest of circumstances," it was nine months, not 90 days.

MR. DEAN: I'm sorry, nine months.

A. Yes, it does. We've done a considerable amount of work with soils before perculation and permeabilities.

Q. (By Mr. Dean) Do you have an opinion as to how long it would take, even with a head on it?

A. If they maintained a constant head and the permeability was somewhere between one times ten to the minus fifth, one times ten to the minus seventh, which I think certainly are safe assumptions for the type of soil out there, it would take somewhere between seven and eight years for it to -- that would be at one point ten and one point one times ten to the minus fifth, I believe it would take eight years. Permeability is one point one times ten to the minus seventh, you're probably looking at 15, 20 years for it to move 80 feet vertically; that is, if you maintain a constant head on it.

Q. If that was removed after nine months, what would that do to that number?

A. I don't think that will move down any

further if you remove the head. I think it's highly unlikely that the nature of the soils out there, that that's going to move much further.

Q. In your area of specialty, I guess, is H2S a manageable problem? Is it something that you can control?

A. Yes.

Q. In these waste sewer treatment plants, is it a big problem?

A. Yes, it is. It can be a substantial problem in the waste water treatment facilities, and that's the reason you just make every effort that you can to maintain them in an aerobic condition, unless it is a plant that's designed to operate anaerobically, and there are those types of facilities around too; but even then, the H2S is manageable.

Q. Do you think that the H2S is manageable and that this pond will be able to be maintained in an aerobic condition, first of all? Will they be able to maintain it in an aerobic condition, based on what testimony we have?

A. I think they have the capabilities there to maintain this in an aerobic condition.

Q. If for some reason it does start to produce some H2S, do they have the capacity to treat it and

have a reasonable chance of returning it to an aerobic state and controlling the H2S problem?

A. Yes.

Q. Does your written report that you're looking at that's admitted into evidence reflect these opinions, and are they based on your expertise as a professional engineer?

A. Yes.

Q. Were they performed according to the standards of your profession?

A. Yes.

MR. DEAN: I don't have any other questions.

EXAMINER STOGNER: With that, let's adjourn until about 1:35.

(Recess, 12:52 p.m. to 1:42 p.m.)

MR. EXAMINER: This hearing will come to order. Mr. Horner, are you ready for cross-examination?

MR. HORNER: I believe so.

CROSS-EXAMINATION

BY MR. HORNER:

Q. Mr. Cheney, I believe you stated that you had used in your figures here an oxygen requirement of point five milligrams per liter; is that correct?

A. No.
Q. What did you use?
A. We used -- we assumed that we would try to maintain a half a part per million residual in the pond. That's point five milligrams per liter residual dissolved oxygen in the pond.
Q. How is that different from what I just asked?
A. I'm not sure what you asked me.
Q. I thought I asked you if you used a figure of point five milligrams per liter of oxygen.
A. I thought you said 45. I'm sorry.
Q. Now, as I understand it, based on what you've written here in your report, that quite often in waste water systems you use two milligrams per liter; is that correct?
A. That's correct.
Q. And so you stated that you arbitrarily chose the point five milligrams per liter?
A. That's right.
Q. Now, it appears then it's quite possible that you may be putting only 25 percent of the oxygen into this pond that you need then; is that correct?
A. Well, it's possible that we might be putting in less than that, but -- I'm not sure whether

we discussed it here -- I think in the report I say that add two milligrams per liter, it was assumed that that level of dissolved oxygen would also provide the mixing. And oxygen was utilized for mixing as well. And in this particular instance, we didn't calculate the oxygen requirement for mixing because of the capability of the mix utilizing recirculation pumps.

Q. Now, the mixing you're talking about is just boiling the water up a little bit?

A. No. It's maintaining a velocity in the water so that the pond is mixed.

Q. Then is your primary concern the mixing of the water rather than the oxygen level you put in the water?

A. I'd say that they're equal concerns.

Q. Now, I tried to ask Mr. Frank this, and I think he got a little confused. But, in fact, isn't most of the oxygen coming into the water at the surface of the pond rather than through the bubbles?

A. No.

Q. What is the relationship, in your mind, of how much oxygen comes into the pond from the bubbles versus at the surface of the pond, ignoring for the moment the spray system?

A. Our calculation here was that you get all

of the available oxygen demand from the bubbles.

Q. Then what is the purpose of the mixing?

A. To make sure that all of contents in the pond have equal access to oxygen.

Q. So the purpose is not to move the water across the surface of the pond?

A. Well, the purpose of the mixing is, as I previously stated, is to make sure that all of the contents of the pond come in contact with available oxygen, not necessarily at the surface of the pond, but throughout the entire length of the pond.

Q. Now then, the residual oxygen though inside the pond may be required to be higher than this point five milligrams per liter?

A. No, the residual, I don't think, would be required to be higher than that, but the actual demand may be higher than that.

Q. That you would have to meet on a continuing basis with your aeration system.

A. I guess on a continuing basis would depend on the incoming waters, as to whether or not it was required on a continuing basis. There might be periods of time when the actual oxygen demand -- the oxygen demand throughout this system is going to vary on the quality of the waters that are introduced into

the system.

Q. Let me back up then. There's one thing that I don't have totally figured out that may be part of the problem, and that is in your analysis here when you start doing the calculations, you start off with an assumption that 6.5 milligrams requires 27 pounds of oxygen per day?

A. No, that's 6.5 million gallons of water in the basin. In order to have half a milligram per liter residual requires 27 pounds of oxygen.

Q. Then you work from that 27 pounds of oxygen back through your air flow capacities and requirements to determine your horsepower rating; is that correct?

A. That's correct.

Q. So if, in fact, you started off with a number of two milligrams per liter of oxygen required, then you would have to quadruple the size of your pump?

A. That's reasonably accurate. It's not a straight line equation, but you could run through the calculation and figure out what it is.

Q. If the point five milligrams per liter is a residual, but the actual amount of oxygen that you need to be putting in the water is based upon the oxygen demand in the water, then that may be a number

that has little relationship to the point five milligrams per liter; is that correct?

A. If the demand was ten milligrams per liter; but in these particular waters, the oxygen demand is extremely low going in.

Q. And what do you base that on?

A. Well, I base it on the observations unless -- and also what we were given as the operational criteria for the pond, that they were going to pretreat with chlorine before they dumped into the pond. And assuming that they drive the reaction to completion before they dump the waters in the pond, then the oxygen demand in the pond is going to remain relatively low.

Q. How long does it take to drive that reaction to completion?

A. Instantaneous if you have complete mix.

Q. And so you're saying that the chlorine and the hydrogen sulfide are reacting to eliminate hydrogen sulfide instantaneously?

A. That's correct; if the chlorine -- if there's a proper amount of chlorine to react with the hydrogen sulfide, the reaction -- and it's mixed properly, and it has available -- the hydrogen sulfide has availability of the chlorine, then it's -- the

reaction would be instantaneous.

Q. How does the relationship of the anaerobic bacteria fit into this equation? I was under the impression that the chlorine also killed anaerobic bacteria. Is that not the function of chlorine?

A. I think that the dosages of chlorine that would be required to kill the anaerobic bacteria would be excessive. It will kill them, but the chlorine is primarily to react with the hydrogen sulfide in water.

Q. So the chlorine is reacting with the byproducts of the anaerobic bacteria rather than killing the anaerobic bacteria?

A. In my opinion, that's the primary objective.

Q. So if you have an environment of -- or a community of anaerobic bacteria, you're going to need elevated levels of chlorine in order to eliminate that community?

A. Well, you'll need levels of -- no, that's not correct.

Q. Well, I'm confused then. I thought you just said that the chlorine didn't necessarily kill the bacteria at this level.

A. That's what I said.

Q. If you have a community of anaerobic

bacteria, how do you get rid of it?

A. Make it aerobic.

Q. And the aerobic condition will simply kill the anaerobic bacteria?

A. That's correct.

Q. Now, if, in fact, there is a buildup of sludge on the bottom of this pond, I'm assuming that the water that is mixing will not be kicking up the sludge on the bottom of the pond. Would that be a reasonable assumption?

A. No, I don't think so.

Q. So you think the mixing conditions that you're talking about here will keep the sludge moving in the pond?

A. I believe that it will.

Q. And keep the sludge suspended in the pond?

A. Well, I'm not sure what your concept of sludge is here. This sludge is basically a liquid -- in a liquid condition. It's heavier than the rest of the contents in the pond, so it's going to be down on the bottom. But I believe with the amount of water that they've moving here, that they're creating velocities in the pond that will move that sludge around.

Q. So that there will be no settling of sludge

in the bottom of the pond?

A. There won't be a problem unless they turn everything off.

Q. If for a period of time it were turned off and it settled, would that sludge create an environment for the growth of anaerobic bacteria?

A. Probably.

Q. An environment that would propagate this anaerobic bacteria at a rate in excess of what it would be propagated in the water itself?

A. Well, the anaerobic bacteria is propagated in the water. If you don't move it and the bottom of the pond becomes anaerobic, then bacteria growth is the bacteria growth.

Q. Now, it is going to be necessary to be constantly moving -- I mean to prevent the accumulation of sludge on the bottom of the pond to prevent a growth of anaerobic bacteria in that sludge?

A. I don't think it's necessary to keep it constantly moving.

Q. But to keep it moving to an extent somehow?

A. No, but to have the capability to move it.

Q. And, in your opinion, how often would it need to be turned over?

A. It probably needs to be mixed daily.

Q. That's assuming you're maintaining an aerobic condition in the water itself at all times?

A. That's true.

Q. Now, you've stated that you have significant experience with waste water systems?

A. That's correct.

Q. Have you ever dealt with evaporation ponds such as these before?

A. Yes.

Q. Which ponds were those?

A. Well, we've done some retrofit to the Basin ponds, and we've also done sewage lagoon systems which are similar to evaporation ponds.

Q. You're familiar with the problems then that were found at the Basin?

A. Most of them.

Q. In fact, normally, in the waste water systems you're not evaporating all the water off, are you?

A. No.

Q. And you're not accumulating sludge over a period of time, are you?

A. Yes.

Q. I mean, you clean it out periodically, do you not?

A. No.

Q. So the systems that you design, the sludge accumulates until it fills up and then you bury it?

A. There's different methods. Generally you design the system for a 20-year life, 25-year life. Sewage solids are a little different from the solids that we're talking about here. And over a period of time they reduce, and you don't have the buildup in a sewage lagoon that you have here.

Q. By reducing, are you meaning that they combine with something and lose whatever negative characteristics they have, or reduce in size and --

A. Reduction in volume.

Q. Now, talking about the spray system, when you spray this water from this pond up into the air, there will be stripping of any hydrogen sulfide that might be in the water; is that correct?

A. If there's hydrogen sulfide in the water and you aerate it, it's going to be stripped.

Q. And so for the record, the stripping means it's being released to the air and will go wherever the air goes; is that correct?

A. That's correct.

Q. Now, the concept of the spray system is to increase the evaporation rate; is that correct?

A. That's correct.
Q. So also with this spray system, salts that may be in the water will end up in the air; is that correct?
A. No.
Q. And why is that not correct?
A. The salts solids will concentrate in the pond. Depending -- there's a lot of variable factors here; humidity and air temperature. A certain amount of the salts probably are going to end up in the water, in the air, yes.
Q. Now, as the water evaporates away, it's going to leave the salt in the air, I mean, until it falls to the ground.
A. Oh, yeah, if the water lands on something, it will deposit the salt that's in that water there.
Q. So if the wind is blowing while the spray system is operating, it's going to blow the salts wherever the wind goes; is that correct?
A. The salts that are in the spray will travel with the spray.
Q. Now, any chlorine that may be in the water from the bleach, will that also be stripped?
A. Probably there's going to be a reduction -- I'm talking about a reaction of compounds so that the

chlorine will reduce whatever compound it comes in contact with. And I doubt that you will see a significant amount of chlorine in any of the spray. That depends on how much chlorine they put in too, how many parts per million, and whether or not they've got a chlorine residual in the pond.

Q. If they're talking 5,000 gallons per day?

A. That doesn't necessarily mean there's going to be a chlorine residual in the pond.

Q. I believe you stated that the operation of the spray system was critical to the success of the aeration of this pond, did you not?

A. I'm not sure that's the exact words, but we believe it's a significant part of the aeration system.

Q. Well, let me use your words from your letter of March 26th attached to the April 17th letter -- I'm not sure which exhibit that was labeled as -- from Sunco to the OCD. "For this reason we believe that the recirculation slash spray evaporation system will be critical to the successful operation of the facility."

A. That's exactly right.

Q. Now, in correspondence between the OCD and Mr. Frank it was initially set out that the spray

system would not be operated during periods of windy conditions such that the spray would not blow over on to neighboring properties. Now, are you saying that the spray system, in order to keep this pond under control, is going to have to be operated all the time?

A. No.

Q. For what period of time?

A. I think that it has to be operated enough to maintain the pond in an aerobic condition.

Q. And how long is that? Is that going to be 12 hours a day?

A. It could be; it could be one hour.

Q. And so what is the variable there?

A. The oxygen demand in the water.

Q. Now, is your average everyday operator that's going to be running this system likely to be trained to oxygen level demands and this sort of requirement, or is it going to take an engineer to be able to comprehend these things?

MR. DEAN: I'll object to the question in the sense that it asks Mr. Cheney if people at Sunco were going to be trained. I don't object to that part of the question that asks him if it takes an engineer to determine the oxygen content.

EXAMINER STOGNER: Restate your question,

Mr. Horner.

Q. (By Mr. Horner) If the successful operation of this pond requires an ongoing monitoring of the oxygen demand in the water, an ongoing monitoring of the hydrogen sulfide levels in the water, an ongoing monitoring of the residual oxygen in the water, and an ongoing monitoring of the mixing rate and turn-over in the pond itself, won't this require a very highly trained person and probably an engineer to operate this facility?

A. No.

Q. And how do you come to that conclusion?

A. Well, it just doesn't require that. There are all sorts of kits that are available to monitor a -- DO probes that nearly anyone can be trained to operate it.

Q. How often will this pond have to be monitored, these different conditions, in order to insure a successful operation? An hourly basis or a daily basis or a weekly basis?

A. Perhaps daily.

Q. Now, you touched on in the direct examination here the horsepower requirement of the first aeration system that Mr. Frank had submitted. Talked about a one-third horsepower motor. But do I

understand you to say that that one-third horsepower motor is quite probably going to be inefficient in size?

A. If you're going to depend on that particular system for aeration, there's no question but what it's too small.

Q. And so that motor would have to be on the order of the motor that you were talking about for your system?

A. That's correct.

Q. So that would be two motors on the order of 30 to 40 horsepower?

A. That's correct.

Q. Now, how about the motor on the sprayer system?

A. Well, I haven't done calculations on that. But I think that I heard testimony that that was about a 150 horsepower motor, which I think that certainly depends on the pressure that they intend to operate the spray system at, and the volume of water that they intend to move.

Q. Now then, there's been some discussion about the bubblers becoming clogged and the system, therefore, becoming inefficient. Now, as this pond evaporates, the solidity of the water is going to

become increasingly greater; is that correct?

A. Probably to some point, to some saturation point.

Q. And at that saturation point, what happens?

A. Salts precipitate.

Q. Now, at that point when the air comes through the bubbler system, will not the salts precipitate out where that air tends to possibly evaporate a little bit of the water at the bubbling holes and tend to clog the bubblers?

A. That's a possibility.

Q. And if the holes are clogged, will not the pressure increase on the system?

A. That's correct.

Q. And decrease the efficiency of the aeration system?

A. That's correct.

Q. And possibly significantly so?

A. That's correct.

Q. Now, if all these sludges and salts are moving through this water suspended, precipitated out, not in solution but suspended, as I understand it -- that will be their condition, correct?

A. To some extent, yes.

Q. And they are taken into the spray system

through the intakes of the spray system, will not those solids, the salts and the sludges, tend to clog up the spray nozzles?

A. It depends on the nozzle size and pumping pressures, pumping rates; but they could tend to clog them. I think we've made that statement earlier, that it could tend to decrease the efficiency of the system.

Q. So over a period of years, the salts and the sludges suspended in the pond, as you stated, not in solution, is going to increase dramatically unless they're blown over on the neighboring property, correct?

A. No.

Q. Well, if you reach the saturation point and more water is added and evaporated but the salts remain in the pond, will not there be more salts in the pond over a period of time?

A. There would be more in the sludges, yes, that is correct. But that's been allowed for in the design and has been discussed previously that that's what the accumulation of sludges in the bottom of the pond consists of.

Q. Now, are we accumulating sludge on the bottom of the pond, or are they going to be suspended

in the water?

A. Again, I want to go to your definition of sludge. These sludges are in a highly liquid state. They are on the bottom of the pond. But unless you stop all movement in the pond, they're not going to compact in the bottom of the pond where you can probably reach down and grab a handful of them and pull them out because the water is going to fall through your hands.

Q. But if they're accumulating on the bottom of the pond, they're not going to be mixing well, are they?

A. Again, that depends on the velocities that you maintain in there. You don't want those solids up on the top. They're different types of designs, partial mix systems, total mix systems; and essentially, to my way of thinking, this is a partial mix system.

Q. Based on the design of your aeration system?

A. Based on the design of the aeration systems and the spray systems.

Q. Now, where was the criteria that you felt you needed to meet in order to keep those solids suspended in the water?

A. Well, I don't think --

Q. Or moving?

A. -- that we discussed the solids in our report. What we discussed was the availability of oxygen, and we felt like that in order to have an opportunity for the entire pond to come in contact with oxygen, that the system that was provided for mixing would provide that. That's the reason we stated we felt like it was critical to the operation.

Q. Well, I'm assuming that getting the solids suspended or mixing is going to require a certain velocity of the water; is that correct?

A. That's correct.

Q. Where in your design did you start or meet a criteria of velocity in the water to keep those solids suspended?

MR. DEAN: I'm going to object because Mr. Cheney didn't design anything. Mr. Horner keeps referring to Mr. Cheney's design. I don't know what he's talking about. Mr. Cheney evaluated the design; he didn't design anything.

A. We evaluated the oxygen requirement.

Q. (By Mr. Horner) Did you evaluate whether or not solids would be --

A. No.

Q. -- mixed?
A. No.
Q. So then your statement that, in fact, the solids and sludges would be moving and mixed is actually without foundation then?
A. That's not correct. It's based on experience and the amount of volume of water that they're moving.
Q. I'm trying to figure out what that criteria is. How do you come to that determination?
A. Well, I would tell you if I were going to make a calculation, which I haven't here, but I would consider the amount of volume that's being moved and the configuration of the pond to see what velocities might be developed.
Q. But you haven't done that?
A. No.
Q. In your initial assumptions that you were using, I believe in your evaluation of this system that you're talking about and trying to reach the appropriate oxygen residual level in the pond, you used a figure here, a percent efficiency per foot of emersion depth is equal to 1.0. What is that all about?
A. The efficiency multiplier that you use

there per foot of depth, the greater depth you have, the more efficient transfer you have.

Q. So in 12 feet you're 12 percent?

A. That's correct.

Q. Now then, does this require an increased volume of air?

A. That's how the calculation is made, that's correct.

I want to back up there just a little bit. Not necessarily an increased volume of air, but that percentage is used to calculate the volume of air.

Q. Now, I believe Mr. Dean has talked about you being reasonably familiar with hydrogen sulfide generation and problems; is that correct?

A. That's correct.

Q. Are you familiar with the EIB ambient air quality standards with regard to hydrogen sulfide?

A. Only really what we've heard here.

Q. Now, I thought you stated that you designed waste water systems.

A. I do.

Q. And that they quite often have hydrogen sulfide problems.

A. Not the ones I design.

Q. But you're trying to come up with designs

that eliminate hydrogen sulfide problems?

A. That prevent them from occurring.

Q. Then you must be looking at some sort of design criteria with regard to hydrogen sulfide.

A. No, sir.

Q. I'm confused. Elaborate, please.

MR. DEAN: I'm going to object. That's not a question.

EXAMINER STOGNER: Restate your question, Mr. Horner.

Q. (By Mr. Horner) If, in fact, you design systems that don't have hydrogen sulfide problems; is that correct?

A. That's correct.

Q. Is it your testimony then that you design systems that have zero hydrogen sulfide generation in them?

A. We design systems that are maintained in an aerobic condition.

Q. Such that there is zero hydrogen sulfide?

A. Not that there's zero hydrogen sulfide, but they are in an aerobic condition and the hydrogen sulfide that might be produced is reduced.

Q. Well, when do you know that you have reduced the level of hydrogen sulfide to a level that

is not a problem?

A. Well, if you maintain a system in an aerobic condition, you basically are not going to create any hydrogen sulfide at all; there's no anaerobic bacteria that will develop. I'm not saying that there are not some pockets throughout a system entirely, and that's the reason that mixing is critical.

Q. Do the facilities that you design require permitting or approval or compliance with regulations of the EIB?

A. Yes.

Q. Are you familiar with their requirements on hydrogen sulfide?

MR. DEAN: Asked and answered.

MR. HORNER: If he answered it, I don't know what the answer is.

MR. DEAN: No.

A. We haven't had any that we've designed where we have had -- you have to have a known source of hydrogen sulfide before it becomes critical. We haven't had any that's produced a known source. So we haven't had that problem.

Q. (By Mr. Horner) Well, it may not have become critical, but, in fact, are there not

guidelines that have to be met?

MR. DEAN: I'm going to object. That's the third time he's asked the question. I think he's answered it. If Mr. Horner doesn't like his answer and wants to argue with the witness, I object to sitting here and listening to him argue with the witness.

MR. HORNER: He has yet to elaborate on the criteria set forth by the EIB with regard to hydrogen sulfide levels that are acceptable.

MR. DEAN: He doesn't know what they are. He said he's not familiar with them, except what he's heard here today.

MR. HORNER: That's your testimony.

EXAMINER STOGNER: Gentlemen, I'm going to sustain your motion. Carry on, Mr. Horner.

Q. (By Mr. Horner) Well, having dealt with the EIB, would it be your understanding that this particular facility would require a permit from the EIB?

A. No.

Q. Why is that?

A. I don't think it's a known source producer. It hasn't produced a quantifiable amount of hydrogen sulfide to this point. And it's my

understanding that the EIB regulations come in when you have a known production of contaminant, and we don't know that this facility is producing that.

Q. Basically, if you don't put any hydrogen sulfide monitors around the facility, therefore you never know that there's a hydrogen sulfide problem, you will never have to comply with the environmental regulations?

A. You're going to smell it if there's problems.

Q. So if you smell it, then you've got to comply with the EIB regulations?

A. Then you may have a known source of production, and if they come in, then you're going to have to comply.

Q. Well, with your waste water systems, are you required to get an EIB permit?

A. Yes.

Q. And demonstrate that you are complying with their regulations?

A. That's correct, but not for air.

Q. Not for air?

A. It's water quality.

Q. In your waste water systems, is there anybody that regulates air quality?

A. Not that I'm aware of. I'm assuming that, again, going back to if it produces a known contaminant that causes a problem, then EIB is going to regulate it.

Q. So far then you have never had to deal with the EIB on your systems? I mean, you're gotten permits, but --

A. I deal with them on a regular basis for water quality. There are different bureaus over there, water quality, air quality, groundwater section, surface water division, maybe some others that I'm not aware of.

Q. So to date on your waste water systems or other systems you've designed, you've never had to get an air quality permit from the EIB?

A. That's correct.

Q. Now, at one point I believe you were talking about oxygen demands in this pond of point five parts per million; is that correct?

A. No, that's not correct.

Q. I think you stated that maybe you were misstating it. Is there any relationship where point five milligrams per liter is equivalent to point five parts per million of oxygen in the water?

A. Milligrams per liter and parts per million

are identical terms.

Q. So they're used interchangeably then?

A. Well, they're identical terms.

Q. So then you may have stated point five parts per million?

A. Demand?

Q. Residual levels.

A. Residual.

MR. HORNER: I have nothing further of this witness at this time.

EXAMINER STOGNER: Mr. Dean.

MR. DEAN: Nothing else, Mr. Examiner.

EXAMINER STOGNER: Mr. Stovall.

MR. STOVALL: I can't let Mr. Cheney go yet.

EXAMINATION

BY MR. STOVALL:

Q. I just want to make sure that I understand some of the things that you're talking about. As I tell our oilfield folks, I sometimes venture into geology because I have a little bit of understanding of that. Engineering is really dangerous for me, but I'm going to give it a try.

A. It's dangerous for everybody.

Q. Now, the starting point of my inquiry is in

your report you're talking about maintaining a dissolved oxygen content of point five milligrams per liter. Is it your opinion that that level of oxygen content is sufficient to -- assuming all the mixing standards that you've talked about and it's pervasive throughout the water system -- is that sufficiently aerobic to prevent the growth of bacteria we're concerned about?

A. Yes, if you maintain a residual in the pond of point five, it will be an aerobic pond.

Q. Mr. Horner asked you some questions -- I'm not sure where he got the numbers -- somehow you got into a two milligram per liter number. What was that number that he was alluding to?

A. I had mentioned in the discussion here, there's very little knowledge about the actual oxygen demand. In waste water systems, for years the rule of thumb was if you could maintain a dissolved oxygen level of two milligrams per liter, then you had sufficient mixing of the system. It had nothing to do with the demand, but it had more to do with the mixing of the system. What I was trying to point out here in this system that we have a mechanical mixing system, so that I think that you can safely say that you can utilize a lower residual in this pond due to the

mechanical mixing methods that are there.

Q. What you're saying is that the point five milligram per liter oxygen content is the necessary oxygen saturation of the water to maintain the aerobic state, and anything in excess of that isn't necessary to prevent the growth of anaerobic bacteria, but it may be necessary in design purposes for other factors, such as mixing?

A. That's correct.

Q. And then based upon an evaluation of their system, are you satisfied -- and I believe that's what you said, but correct me if I'm wrong -- that the proposed system design will provide sufficient mixing, that you don't need to have this higher oxygen content to insure that the mixing is adequate; is that correct?

A. That's correct.

Q. Now, the last question I've asked is based upon your engineering analysis that, in fact, this system will provide sufficient mixing and will maintain the adequate oxygen level.

A. That's correct. Again, that has to be qualified some as to the oxygen demand that might be in the water. And that's assuming that in their operation of the system that they maintain a low

oxygen demand of the waters that they place into the system.

Q. When you say low oxygen demand in the water, you're talking about the water that comes off the truck and goes into the receiving tank?

A. That's correct.

Q. How do you maintain that low oxygen demand?

A. Well, they've said that if they have certain levels of hydrogen sulfide in the incoming trucks, then they're going to treat it with chlorine. The chlorine and the oxygen do the same thing, they're both reducing agents. And the chlorine then will substitute that oxygen demand so that there's not as high an oxygen demand going into the pond as there was coming right off the truck.

Q. Is it your recommendation then that if there is any identified H2S in the truck coming in that there be some treatment of that to eliminate the H2S before it hits the pond?

A. I think that there would be some level there that would be acceptable. I would say that if you have a detectable level of H2S that you have to treat it, H2S. And then again, depending on the detectable levels -- H2S is a gas that you can smell and at levels as low as maybe 500ths of a milligram

per liter. But if it's in water and it's as low as 500ths of a milligram per liter, you can detect the presence of the H2S in the water.

Q. In other words, if you smell it, you ought to treat?

A. No. If you have a truck that's coming in there, say, that's less than half a milligram per liter, then I think you're safe in putting that truck into the pond because the pond has such a larger volume that just 3,000 gallons going into the pond at half a milligram per liter is not going to raise the entire amount of hydrogen sulfide in that level beyond the half a part per million residual that you have. If you have a truck that comes in maybe with one part per million hydrogen sulfide, then I think you should probably treat it before you put it in the pond.

Q. Mr. Cheney, I'm asking these questions to help us develop these standards.

A. I understand.

Q. Is it your engineering opinion then that if we were to write a standard with respect to acceptable H2S contamination that the half milligram per liter would be an appropriate standard to put in, that above that level it should be treated?

A. I think, again, there's some variables

there I think maybe that you might want to assume before you do that. Say that we're going to assume that there is a one part per million oxygen demand in all incoming waters, and that you must -- is my client helping pay for writing these regulations? Is it all right if I give my opinion on that?

Q. I'm asking for it.

A. I think that there needs to be some kind of criteria because nobody knows exactly what the oxygen demands in these waters are, particularly in New Mexico. I think maybe you say, "Okay, we're going to assume that the oxygen demand of all waters is one part per million."

Q. You're talking about the water coming in because it's -- for some reason it doesn't have sufficient oxygen in it coming out of the ground and into the truck to prevent the anaerobic state and growth of bacteria?

A. That's correct. So for some reason that oxygen demand is one part per million, and we want you to then maintain a half a part per million residual in the pond. So actually what you've got to do then is you've got to put in one-and-a-half parts per million of oxygen because you have to supply the demand and maintain the residual. At that point then you'd say

if you have any trucks that come in that have an oxygen demand in excess of one milligram per liter of hydrogen sulfide, then you have to treat it, because you're going to have the oxygen, you're going to be supplying the oxygen in the pond itself, at that level. At the one part per million level, if you make that kind of a regulation, then you will be supplying the oxygen demand in the pond itself, plus maintaining a residual. And then above that level -- and this could be -- you could pick whatever levels you want. And I don't know, maybe from some experience here you can develop what levels might be reasonable.

Q. This is what I'm trying to do is draw upon your technical expertise. And the answer is yes, your client is paying to develop these standards.

A. I would think that a -- I would think -- we haven't done this here. If you say, "Okay, we're going to assume that the demand is one part per million, and we want you to maintain a one part per million residual," then you have to have more blowers or larger horsepower blowers to do that.

Q. But you've already testified that you believe that point five parts per million is a sufficient --

A. Residual. I'm not sure what's a reasonable

assumption for the demand.

MR. DEAN: If I can interject. What I hear is that the residual needs to be the point five, but what he doesn't know is what oxygen demand the water coming in has, and that perhaps that's where some testing needs to take place is to determine that.

Q. (By Mr. Stovall) When you're talking about demand, you're talking about the demand of the incoming water, not of the pond itself.

A. That's correct. But essentially then the incoming water, if you just dump it into the pond, that's going to become the demand of the whole pond as well.

Q. If the water in the pond is at point five residual, and you dump in 3,000 gallons of one part per million demand, it's not going to raise the whole pond to one, it's going to raise it to something above point five.

A. No, it will reduce the point five.

Q. Reduce the residual?

A. Yes.

Q. But not to zero or minus point five?

A. Again, that one truck won't, no.

Q. Let's go back to how do we prevent this problem from occurring if our target is to maintain a

residual of point five, and we assume a demand on an incoming truck of -- is there a way to measure the demand of any given truckload?

A. Yes.

Q. How would you do that?

A. You could test it for -- probably hydrogen sulfide is going to be the largest contaminant that's going to provide a demand on the oxygen. And I think probably at that point, the best thing to do, if it's above a certain level, I don't know whether it's -- I'd want to think about that, maybe do some calculations a little bit -- but if it's above a half a part per million or one part per million, then you treat it before you put it in the pond.

Q. You're saying somewhere between a half a part per million and one part per million, H2S, in an incoming truckload is a level at which it would be appropriate to require treating that water before disbursing it into the pond?

A. I'd want to be a little bit careful about that because I certainly don't want to do an overkill. You don't want odor escaping from it. At the same time, you don't want to pick a level that just is an unnecessary burden on anyone. Where that level might be on incoming waters, I think it depends

on the volume of the pond, on the time of year that you do it, maybe. There's just so many variables that it's hard to pick one out and say -- and I'd want to do some study on that before I said this is absolutely the cutoff that you don't do any treatment before you turn it into the pond.

Q. In other words, you're not prepared to make a recommendation that we could use as a condition of the permit that would say any water coming in above this level of H2S concentration must be treated before it is put in the water?

A. I think I would want to really take a look at that just a little bit and do some calculations.

Q. Is that something you're capable of doing here? If we take a break, is that something that you could do some quick calculations and come up with a recommendation?

A. I don't think so. I think that there's just too many variables that you have to consider, things like temperature and pH and the pond volume. And you can just go right on down the line. There's just a lot of variables there that you have to consider. And it may be that you may just have to make an arbitrary, empirical decision and say "this is what we're going to do."

Q. Mr. Cheney, I think that's where we are. In the terms of a permitting process, what we have to do, of course, is to set a standard, which standard requires some action. It would seem to me that I understand what you're saying about the different variables can affect the oxygen demand. Obviously, the volume of water in relation to volume of the pond is one of the most obvious to me as a non-engineer. However, in order to issue this permit, I think we need to keep it as simple as possible and come up with an absolute level that once it exceeds this level under any conditions, there is going to be some treatment required. Now, in setting that level, we can look at two things; the potential impact upon the pond in total, and the impact upon the operator in conducting the treatment operations. How expensive is it to, say, treat a 3,000 gallon truckload of water?

A. That, again, I don't know, and that depends on the amount of H2S that would be in the water because, obviously, the more it is in there, the more chlorine required.

Q. How much does chlorine cost?

A. Probably 60 cents a pound, depending on how you buy it.

Q. Let me go to another question. I believe

you heard Mr. Frank yesterday discuss a level at which they would not accept and treat H2S, and I think he used 22. He recommended 50, said they had never gotten any higher than 22, but anything higher than 50 they would definitely turn away and require the oil operator or the trucking company to treat that before they could accept it to reduce it below that 50 level, or whatever that level is. Do you have a recommendation with respect to that level, the level of H2S concentration in a truckload of water above which they should not accept the water?

A. I think that depends, again, on the design of your system and what the person that's taking the water is capable of doing. If he designs a facility that could put the amount of chlorine that's required into a 3,000 pound load to reduce 50 parts per million to an acceptable level, then maybe he'd want to go ahead and take it. So I think that's a design situation that you'd have to review on an as proposed basis and see -- make the determination whether they had that kind of capability or not.

Q. Somehow out of this hearing we're going to come out with a level that's required to be treated and a level which cannot be accepted. I think we're probably going to lean towards a conservative approach

to that. Bear in mind that part of your testimony here, which I find most helpful and valuable, is that you've stated that in your design concepts where you design a design, it is your design concept to prevent the creation of an anaerobic condition which can result in the facility becoming a source generator of H2S.

A. That's correct.

Q. And it seems to me essential that one of the elements of that design has got to be the source of fluid coming in. We're talking about an oil produced salt water disposal facility in the oil industry, and so we're going to narrow this design and say we want to prevent this facility from becoming an H2S source generator. And one of the elements that we've got to put into that is a standard for the incoming water going into the facility. If I understand your testimony correctly, as long as we keep that level of potential source generation at a low enough level, then the facility itself does not become a source generator; if we allow it to exceed a level, then it has a potential to become a source generator.

A. That's correct.

Q. What I'm asking you now to do -- granted,

I'm putting you on the spot -- but I'm asking you to help us come up with these levels which we are going to impose and make them reasonable so that we eliminate the source problem but not overkill the treatment situation. Can you help me with that?

A. I think that I probably can; but, again, I want to be a little bit careful. What if you have an operator that came into you and said, "Look, we want to design a facility and build one in which we can take hydrogen sulfide levels of 50 or 75 milligram per liter."

Q. When we're defining this standard, we are defining the standard for this specific facility. It's not going to be a generic rule-making. Anything I'm talking about here is very site specific to this facility.

A. I misunderstood that then.

Q. I'm sorry.

A. It is site specific.

Q. Absolutely; and this site, this facility that you've actually done work on is the one we're concerned with.

A. I think probably 25 to 30 milligrams per liter should be acceptable.

Q. As far as the treating, you've thrown out

the number of one NGL. Above that would you suggest that the treatment be done to the truckload before it's put in the pond?

A. I think I'd want to visit a little bit -- I think that would depend a little bit -- I'd like to talk to my client about that.

Q. When we take a break, certainly I would ask that you do that. I've got a few other things I'd like to go through first.

Mr. Cheney, I want to make sure we now have -- I think you've identified the goal for us at this point is to prevent this facility from becoming an H2S source. And now I want to make sure that -- we're talking now about the pits themselves, the ponds themselves in terms of -- if I understand you correctly, what we need to do is maintain an oxygen content of half a milligram per liter in the ponds -- what's the proper term to describe that?

A. Residual.

Q. Residual. And part of your -- what you were asked to do was insure that the oxygenation system that they've designed will maintain that level of oxygen in the pond; is that correct?

A. Well, not exactly. Assuming that there is very little oxygen demand on the waters going in,

that's correct.

Q. We've addressed that -- we're going to address that with the standards you're going to talk with your client about. We're going to talk about the residual standards that are in the pond, assuming we don't create a burden on the oxygen, so to speak. So you've said that this 32 -- is it a 32 horsepower circulation system, is that alone adequate to maintain that standard?

A. No.

Q. Assuming the mixing, assuming the adequate mixing?

A. The aeration system, not circulation system. But I think that with the mixing -- and if you have a demand, oxygen demand, basically at less than a half part per million, then that you will be able to maintain that residual with this -- keep in mind too, if I might, one other thing; I don't know that there's a good way to quantify it exactly without some -- the mixing system and the spray system is also going to provide oxygen to the water. Let me tell you a little bit about that. Are you familiar with the surface aerator that just pulls water up and throws it out and lets it go back in?

Q. I'm familiar with the Amaco system up on

the Cedar Hill area.

A. That's an evaporation. What I'm talking about is you have a floating aerator out in the pond that it's essentially a propeller type pump that pulls water in, throws it up three or four feet in the air and lets it fall back in. And the general rule of thumb is there that you will get two pounds of oxygen transfer per horsepower per hour. Now then, what makes it a little more difficult with this spray system that's for evaporation is that you have a lot smaller droplet size, your nozzle's a lot smaller because in evaporation you're interested in the surface area. So the more droplets you have, the more surface area you're going to have, and the easier it is to evaporate it.

But even assuming -- I think this was a 150 horsepower pump? If it puts -- if it puts in a tenth of a pound of oxygen per horsepower per hour, that's what? A tenth of 150 is 15 pounds. You're going to be putting 15 pounds of oxygen per hour in the water. And the total oxygen demand on the entire system per day for a half a part per million residual was 27 pounds. So I think, really, that with the spray system that you're going to be providing oxygenation as well as mixing. And so I think you have quite a

redundancy here for oxygen supply.

Q. One last question then. The entire system as it's designed, including the aeration system that you've reviewed here and their spray system which is primarily for evaporated purposes but would have some oxygenation benefit, is it your opinion as an engineer that the combined system will provide sufficient oxygen in the water to maintain the level necessary to avoid an anaerobic condition from developing?

A. Yes, if --

Q. If all the conditions that you've specified are met?

A. If the initial demand is low.

Q. And that's the part you're going to discuss with your client during the break?

A. That's right.

MR. STOVALL: I have no further questions on that issue at this time.

EXAMINER STOGNER: Let's take about a 15-minute recess at this time.

(Recess, 2:45 p.m. to 3:02 p.m.)

EXAMINER STOGNER: This hearing will come to order.

Mr. Stovall.

Q. (By Mr. Stovall) Mr. Cheney, I assume

you're now prepared to answer the questions regarding the levels above which -- above what levels should the facility operator treat incoming water before it goes into a pond?

A. In light of your explanation that this is site specific, I don't think I'm prepared to answer that, for several reasons: Number one, without further study, I'm not prepared to make it because I don't want to make my client's pond the least competitive since this is -- in addition to providing a benefit to society, it's also a capitalist-type project. I don't want to make them less competitive, and I'm afraid that if we do that and that criteria applies only to my client, then I may have decreased their competitiveness in the market.

Q. And you say that with the understanding that if you don't put your input into it, we may have some OCD staff people, for example, that may set a level that would be required?

A. I think I'm willing to do that input, and I think my client is willing to let me do that input, but I think we need to review the costs and the various options at what levels that we might be able to operate in and then give you what we would feel like would be guidelines at that point. Just to sit

here today and do it without some further research into it, I'm not prepared to do that.

MR. DEAN: Mr. Stovall, we're willing to pay him to do that. We're not saying that we don't agree with your theory. In fact, I do agree with it, so does my client. But they would like to have the time to try to come up with the most effective, both cost and treatment-wise to do that.

MR. HORNER: May I make a comment? It's not in the framework of an examination, and I'm obviously not --

MR. STOVALL: You're address it to us and not the witness; is that correct?

MR. HORNER: Yes. It looks like here what we need is a system that's designed by an engineer, areation systems, incoming load systems, sprayer systems, and just the whole concept like you would design a waste water system. With all of these factors taken into consideration, what we have here, I think it's being done just piecemeal. And Mr. Cheney's only involvement to date has been in sizing one aspect of this system, an areation system; and so you don't have a system that has been designed properly.

MR. STOVALL: Mr. Horner, let me stop you

right here. At the moment, basically what you're doing is you're making an argument that would go to the granting of this permit or the evidence of this point. I think it's an inappropriate time to do it.

MR. HORNER: I would like -- if I could make one further comment -- and that is I understand their concerns about imposing restrictions on this facility and not the others. And it looks like what you do need is a separate proceeding to look at the standards regarding these disposal pits from this type of system perspective.

MR. STOVALL: Let me address the last point. We did just discuss with the environmental staff, that if, on the basis of evidence gathered at this hearing, we determine some standard on these issues, the other facilities in the San Juan Basin have been approved administratively, and we have the authority to impose those standards on the other facilities. And that would, in fact, be -- developing this record is helpful in that regard.

With respect to your comments regarding the design of the system, whether it's engineer design or engineer reviewed, that becomes an evidentiary matter, and there is some legal argument that can be made at the close of the evidentiary portion of this case. It

is my feeling right now, although I'm not telling you that's the requirement, that we're going to ask each side to present written closing argument, if you will, supported by legal authority, and that is -- I think that's a point to raise in that argument.

The question is coming up at a procedural point right now. I want to look through -- just look through my notes for a minute, Mr. Cheney. But our feeling is we're probably not going to go beyond 4:30 this afternoon with this case. I suspect we're looking at maybe another -- we're not going to go beyond four o'clock this afternoon with this case. It's my intention at this time to give both Mr. Boyer and Mr. Anderson from the OCD technical staff -- I think they've got some input that can be given at this point. Mr. Cheney has testified that he would like to do some calculations, and I think point out that there may be some engineering reviews which you may want to, Mr. Badsgard, ask your engineering expert to extent the study of his review and some of his questions. That's your choice; I'm not telling you that that's necessary.

What would be the reaction of counsel and the parties here at this time to adjourning this hearing now? I don't think we're going to finish by

four o'clock.

MR. DEAN: I'm through with him. Whenever you're through, I'm through. I have no objection to the continuation. If I can instruct Mr. Cheney to try to answer your specific question and whatever extension of that, and perhaps do it by report with a copy to Mr. Horner, and maybe avoid bringing him back down here at the cost of my client. And I understand Mr. Horner would have the right to cross-examination, I appreciate that. And maybe not -- I don't know mind, and I don't think my client would mind that I come back down here and listen to Mr. Anderson and Mr. Boyer with Mr. Badsgard at a different time. If that's what you're asking, I don't have any objection to that. I feel like we're finally getting somewhere with where you went with these questions, and I certainly want to answer them, and my client wants that question answered too.

MR. STOVALL: This is a unique case. It's the first time we've had a hearing to permit one of these facilities. We're developing a lot of useful information. On one specific issue, the information that we're developing may be applied administratively to the other permitted facilities in the basin, because if it's sound for one, it should be sound for

the others.

MR. DEAN: My client appreciates hearing that. One of my other clients though may not appreciate it.

MR. STOVALL: Recognizing Mr. Cheney's expertise in the area and his understanding, I believe you stated that you do have the ability to make some calculations in this area, I would like to have your guidance on those issues. I think they're important to prevent the harms that we're trying to prevent.

MR. DEAN: We have no problem with that.

MR. STOVALL: Trying to think if there's anything else. I've raised the issue of a design criteria which Mr. Horner has addressed. And whether you need to take further review, that's your option. I'm not expressing an opinion one way or the other for the division on that. I'm looking to see if there are any other engineering issues which might be -- no committees meetings next week or anything bringing you to Santa Fe, Mr. Cheney?

WITNESS: No committee meeting.

MR. DEAN: We're not totally adverse to bringing him back down. I'm just saying that's something that I'd like to have the opportunity to try to avoid, if I could.

MR. STOVALL: Now, as far as the scheduling of the reconvening of this hearing, is there --

MR. HORNER: I'd like to make a couple of comments. It sounds to me like what really would be required here to do this job properly, especially if we're going to recess and go away and let Mr. Cheney do some work on this system here, it looks like the system needs to be designed with some criteria, such as minimum residual oxygen in the pond, what levels are going to be accepted into the pond, what levels of water must be treated before being put in the pond, what levels will be refused, the design of the aeration system and the spray system to accomplish these ends, the number of loads that will be accepted. We're talking about what would happen if you put 3,000 gallons in the pond. Mr. Frank was talking about possibly 50 loads a day; that's 150,000 gallons in the pond. And the impact --

MR. STOVALL: On these comments, let's not -- we're talking about the example of 3,000 gallons of -- containing H2S.

MR. HORNER: We're talking about a possibility of 50 loads a day though, and maybe they don't all contain H2S. But what I'm saying is if we're going to go away and Mr. Cheney is going to be

doing some work on this, that it looks like all of these things need to be considered. But where you're headed then is to come up with some standards and some restrictions for this particular application, looking at applying these same standards and restrictions to the other facilities. But in that regard, it looks like you're beginning to promulgate rules for the industry which needs a whole review process and input by everybody involved.

MR. STOVALL: No, this is a very site specific application. If the information there is deemed relevant by the staff, the other facilities have been permitted administratively, and they have the authority within the scope of their permit to modify the standards, based upon information which becomes available. This is not a rule-making proceeding; this is a permitting proceeding. I'm making no promises that that will occur. We are designing this specific facility.

You're correct, the purpose of this hearing -- we've got two steps in the process. We are designing, if you will, permitting conditions based upon the factual scientific evidence taken here, what conditions must be satisfied in order for this facility to be permitted. The items you've identified

are factors which will be considered as possible conditions for permitting. The second part of that is then does the facility satisfy those conditions that we are establishing.

As pointed out previously, in previous cases, these have been established administratively through correspondence and communication between applicants and the environmental bureau outside the hearing process. It's an administrative issue. By bringing in the hearing process, it's somewhat more formal. It's more detailed and beneficial, but it is still a proceeding in which we establish the standards, decide if they're met. The applicant has the burden of going forward and showing that -- providing evidence of what standards should be established and whether they can meet them. You have the opportunity, representing interested land owners in the vicinity, to present evidence on those same issues. And how you do so is entirely up to each of you. Based upon the record then, we will decide whether to permit this facility or not.

The next step of that process, which is totally outside the scope of this hearing, and I'm just advising that our bureau has the authority to go and revise permit standards for administratively

approved facilities. We don't have a set of rules that specify facilities will be constructed in accordance with these standards. They are all site specific. Every single one that's approved by us is site specific, for a reason, because site conditions are different, facilities are different, their purposes are different.

I will tell you and will make available to you this afternoon a document entitled "Guidelines for Permit Application Design and Construction of Waste Storage and Disposal Pits." This has been developed by the Oil Conservation Division. And it is nothing more than guidelines. It's what they use as a starting point in the review of specific facilities. Mr. Boyer or Mr. Anderson will testify more fully into these when they are called to the stand. Some of the guidelines may be inapplicable to specific facilities, in some cases they may apply some additional standards outside the scope of the guidelines.

MR. DEAN: Is that the revised 888?

MR. STOVALL: Yes.

MR. DEAN: I have a copy.

MR. STOVALL: Mr. Horner, do you have a copy?

MR. HORNER: I believe I do.

MR. STOVALL: This is the tool that is used, but it's not a regulatory requirement that must be satisfied. This is a technical hearing, and the decision will be made based upon the record that's made here. So I think it's up to the applicant. They've heard what you've said. If they feel it necessary to satisfy their burden of, you know, establishing that this facility is permittable and under what conditions, they're welcome to do so, and if, given this time, you wish to develop a record, however you wish to do it, you're welcome to do so as well. That's what this process is about, is developing a record.

Any further comments with respect to procedural matters?

MR. DEAN: I technically rest my part of the case except for this additional information that we want to submit. It's my understanding that the protestors have no witnesses or evidence other than their exhibits they've already introduced, and that you, as staff, want to present some testimony at the end of all of that from Mr. Anderson and Mr. Boyer, which I don't mind. My concern about when the continuation may occur is twofold: Mr. Cheney informs me he would like at least a week to do it, to do the

numbers. And I'm sure my client is sitting in Farmington going "when am I going to hear what I have to do or not to do." And I don't want to delay that process any longer than I have to. Then I don't want to rush into it either, but I also don't want to delay it past that. So Mr. Cheney needs about a week. I'm available. I'm not scheduled out of town any time within the next three or four weeks, two or three weeks.

EXAMINER STOGNER: I'm sure Mr. Horner doesn't object to any delay in this proceeding.

MR. HORNER: My clients are having to pay for me coming down here too, and so we're looking at a date hopefully not very far away.

MR. STOVALL: We're talking about not if but when at this point. There will be a day three.

MR. DEAN: It may not involve all the players, if I can maybe work around that.

MR. HORNER: Now, Mr. Dean did allude to the fact that at this point I don't have any witnesses; but as I have previously stated, I did want to go over this Basin case with Mr. Anderson. I thought that was what we were going to do. And Mr. Dean may want to demonstrate how what's in this case is not what's going on here. But this Basin case will

demonstrate that these sites do have a very significant potential for creating problems. Maybe they have adequately addressed those, but, you know, that sort of thing I think does need to be discussed. So it's not to say that I have no case to present from here, and there are things that are going to take some time when Mr. Dean finishes. And so, you know, there's more to coming back than just listening to Mr. Cheney.

MR. STOVALL: Yes, quite a bit more. If it were only to listen to Mr. Cheney, we would continue here and have him submit a report.

MR. DEAN: I thought I said I knew Mr. Anderson and Mr. Boyer were going to testify, but maybe I didn't.

EXAMINER STOGNER: At this point, gentlemen, may I offer -- you want to go off the record at this point so you can discuss it?

MR. STOVALL: Let me advise the examiner and the parties that as of this time, I will not be here the week of the 25th of June, through that entire week. So that knocks out that week.

MR. DEAN: That would certainly speed up the hearing a lot.

EXAMINER STOGNER: At this point, why don't

I suggest that we take a five-minute recess so that you can discuss it amongst yourselves informally?

(Recess, 3:21 p.m. to 3:20 p.m.)

EXAMINER STOGNER: We're back on the record, Mr. Horner.

RECROSS-EXAMINATION

BY MR. HORNER:

Q. I believe you stated here a little bit ago that the 32 horsepower aeration system that you had evaluated or designed would be sufficient to maintain the required oxygen level demand in the pond. Is that what your testimony was?

A. With the mixing that's available.

Q. Now, the mixing that's available, is that from the aeration system, or is that also requiring the use of a spray system?

A. Requires the use of a spray system.

Q. So the 32 horsepower areation system, in your opinion, then is not sufficient in and of itself to maintain the required oxygen levels in the pond?

A. That's correct.

MR. HORNER: That's all I have.

EXAMINER STOGNER: Are there any other questions of Mr. Cheney at this time?

MR. STOVALL: I don't have any.

MR. DEAN: None from me, Mr. Examinaer.

EXAMINER STOGNER: He may be excused.

Mr. Stovall, do you have anything further?

MR. STOVALL: I have nothing further, except I recommend that this hearing be reconvened on the 22nd of June.

EXAMINER STOGNER: If there are no objections from the counsel in this case, it will be continued. We'll reconvene at 8:30.

MR. DEAN: If you would make it nine, we can all fly in that night.

EXAMINER STOGNER: Nine o'clock, Friday, June 22nd, in that case. We will see you gentlemen then.

(Proceedings concluded at 3:30 p.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9955, heard by me on June 13, 15 and 22 1990.

Michael E. Stogner, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
:
COUNTY OF SANTA FE)

BE IT KNOWN that the foregoing transcript of proceedings was taken by me; that I was then and there a Certified Shorthand Reporter and Notary Public in and for the County of Santa Fe, State of New Mexico, and by virtue thereof, authorized to administer an oath; that the witness, before testifying, was duly sworn by me to testify to the whole truth and nothing but the truth; that the questions propounded by counsel and the answers of the witness thereto were taken down by me, and that the foregoing 215 pages of typewritten matter contain a true and accurate transcript as requested by counsel of the proceedings and testimony had and adduced upon the taking of said deposition, all to the best of my skill and ability.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto, and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 5th day of July, 1990.

FREDA DONICA, RPR
Certified Shorthand Reporter
Notary Public

My commission expires:
January 26, 1991