BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

OF THE STATE OF ILLINOIS

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| RICHARD AND WILMA SALYER, Petitioners, | ) PCB No. 98-156 ) UST Fund Reimbursement |
| vs. | ) Appeal |
| ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent. | ) ) ) ) ) |

The PROCEEDINGS taken before KATHLEEN CROWLEY, the Hearing Officer, stenographically recorded by CARYL L. HARDY, CSR, a notary public within and for the County of Cook and State of Illinois, at the City of Wood Dale Village Hall, 404 North Wood Dale Road, 2nd Floor, City Council Chambers, Wood Dale, Illinois, on the 24th day of November, A.D., 1998, scheduled to commence at 10:00 o'clock a.m. commencing at 10:02 a.m.

A P P E A R A N C E S:

ILLINOIS POLLUTION CONTROL BOARD
100 West Randolph Street
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(312) 814-6929
BY: MS. KATHLEEN M. CROWLEY

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Appeared Pro Se;

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,
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P.O. Box 19276
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(217) 782-5544
BY: MR. JOHN J. KIM

Appeared on behalf of the Illinois
Environmental Protection Agency.

ALSO PRESENT:

Mr. Brian P. Bauer
Mr. Robert A. Mehrens, P.E.

I N D E X



E X H I B I T S

HEARING OFFICER CROWLEY: Good morning. This is a hearing being conducted by the Illinois Pollution Control Board, docket PCB 98-156, an underground storage tank reimbursement appeal brought by Richard and Wilma Salyer versus the Illinois Environmental Protection Agency. My name is Kathleen Crowley, and I am acting as the board's hearing officer today.

The Salyers are acting pro se today. The agency is represented by John Kim. There are no members of the public present at this point.

The purpose of the hearing today, as we have explained, is to develop a record for the Pollution Control Board to review in determining whether the Salyers are entitled to the reimbursement from the underground storage tank fund that they were denied by the Illinois Environmental Protection Agency.

There were two issues initially in the petition as it was filed July 8th. There was a question of whether paving costs were reimbursable and whether landscape costs were reimbursable.

The Illinois EPA filed a motion for summary judgment. That motion was granted in part

by the board on November 19th of this year, and so the sole issue that we are dealing with today is the paving cost issue. The board has held that the landscape costs are not reimbursable.

All witnesses will be sworn. As I have explained to Mrs. Salyer when Mr. Kim was out of the room, the order of proceedings is the normal one in board cases. The Petitioner, the Salyers, will make an opening statement if they have one. The EPA may make an opening statement if it has one. Then that would be followed by testimony from the Salyers' witness, testimony from the Illinois EPA's witness, closing remarks, if either side has them. And then before we leave, we will also determine whether written closing remarks will be filed, and we will set a schedule for the same if that's going to be necessary. The statutory decision date is still February 3rd.

I think that is really all I have at this point, unless there are any questions or preliminary matters.

MR. KIM: No questions.

HEARING OFFICER CROWLEY: Okay. I will turn it then over to the Salyers.

Do you have any opening remarks you would like to make?

MRS. SALYER: Yes.

Do I have to be sworn in?

HEARING OFFICER CROWLEY: I would suggest that you be sworn in, yes, just in case anything that you say turns out to be the kind of facts the board feels should be sworn. It will just make things go a little easier if you are. Okay.

(The witness was duly sworn.)

MR. KIM: Before you begin, I have a question. I haven't done too many matters with pro se litigants, so I'm just a little unclear on something.

If Mrs. Salyer makes certain, as you alluded to, factual statements in her testimony -- or in her opening statement which the board might take as testimony, would I get an opportunity to cross her or ask her about those questions?

HEARING OFFICER CROWLEY: I would say yes.

MR. KIM: Okay.

HEARING OFFICER CROWLEY: If you could give the latitude, though, of saving anything until after --

MR. KIM: Certainly.

HEARING OFFICER CROWLEY: -- the Salyers' witness -- if Mrs. Salyer says anything that her consultant doesn't --

MR. KIM: Okay. That's fine.

HEARING OFFICER CROWLEY: -- state, then yes, you are certainly able to ask questions.

MR. KIM: Thank you.

HEARING OFFICER CROWLEY: Okay. Go ahead.

MRS. SALYER: My husband and I are here today representing ourselves because nobody knows the soil vapor extraction system or the property at 551 South York, Elmhurst, Illinois, better than we do.

Since 1990 when we found out that the property was contaminated, we have worked at doing whatever was necessary to ensure clean up. We have done soil tests, drilled monitoring wells, and installed a pump and treat system.

After years of running that system with less than marginal results, we were offered a ray of hope. A system called a soil vapor extraction system could hopefully give us better results. Since my husband and I are nearing retirement age, anything that hastened the clean up was exciting.

The system was approved and has been installed. The first test results are better that we could have ever hoped for. We are here today to determine whether a part of the system, namely the placement of paving over horizontal piping, is a corrective action. We intend to prove that it is.

HEARING OFFICER CROWLEY: Thank you.

Mr. Salyer, do you have anything you want to say?

MR. SALYER: No, just call our first witness.

HEARING OFFICER CROWLEY: We will let Mr. Kim then make any opening remarks he wants to make.

MR. KIM: The agency waives its opening remarks.

HEARING OFFICER CROWLEY: All right. Fine. That allows the Salyers to call their witness then, please.

MR. SALYER: I would like to call Bob Mehrens.

(The witness was duly sworn.)

ROBERT A. MEHRENS, P.E.,

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

DIRECT EXAMINATION

BY MR. SALYER:

Q Bob, would you state your name?

A Robert Mehrens.

Q Your education?

A I have a bachelor of science degree in civil engineering from Montana State University.

Q And are you licensed by the state?

A I'm a licensed professional engineer in the state of Illinois, in the state of Wisconsin, and in the state of Connecticut.

Q Who do you work for?

A I have my own consulting business, RAM Engineering, Limited.

Q And approximately how many underground storage tank sites have you worked on?

A Approximately 135 sites since RAM Engineering was started in 1989.

Q And when did you start working on the site at 551 South York in Elmhurst?

A 1990.

Q And what type of work was performed at this site?

A I have done both soil and groundwater investigations, designed and installed a groundwater pump and treat system. I have done a pilot test for a soil vapor extraction system, designed the soil vapor extraction system, and have installed the soil vapor extraction system.

Q What technologies were recommended in the CAP?

A The corrective action plan that was submitted in 1997, which was the second plan for the site, was to install a soil vapor extraction system.

Q Explain how the soil vapor extraction system works and how it applies to my site.

A Well, the soil vapor extraction is -- the concept is actually fairly simple. It just involves pulling vapors through the soil.

The application of that concept is a bit more complicated. The way this system is normally installed, a slotted pipe is placed below the surface, either vertical wells or horizontal piping. A blower is attached to the slotted pipe,

and vapors are pulled through the contaminated soils.

You are basically addressing three phases of contamination. You are removing the vapors from the soil pore space, you are volatilizing the absorbed contaminants on the soil particles, and you are volatilizing -- if there is free product at the site, you are volatilizing the free product that is on top of the groundwater. All of those vapors are then pulled through the piping and in some cases treated and discharged to the atmosphere.

Q Okay. Does this system have to be sealed from the surface in any way?

A The whole idea is to pull vapors through the area of contamination, so you install your slotted piping either in that contaminated soil or as close as possible to the contaminated soil with -- the idea is to pull from the area of contamination. Any air that you pull that is not through the area of contamination is counterproductive to the process.

So if your piping -- especially if your piping is close to the surface, it's going to pull more air from the surface than it is through the

contaminated soil. Thus, you are not reaching out into the complete area of contamination, and basically you are going to be pulling clean air from the surface and not pulling the contamination through the soil. So it's -- the closer your piping is to the surface, the more important it is to have it sealed from the surface.

Q Okay. If you drill a monitoring well or anything along that line, does the EPA require that that be sealed from the surface?

A Yes. Any well, whether a monitoring well or a vertical soil extraction well or point or any other type of well, needs to be sealed from the surface. And the EPA does have a requirement that wells are sealed from the surface, and typically on a monitoring well or a vertical vapor extraction well you use concrete to seal that soil.

Q Concrete, do they reimburse the cost of that?

A It's been my experience that sealing wells from the surface has always been reimbursed, yes.

Q What information do you rely on in coming to the conclusion about sealing horizontal piping?

A Well, in addition to my experience in

installing these systems, I have read technical documents, two of which I referenced in the corrective action plan that was submitted to the Illinois EPA in 1997.

MR. SALYER: I would like to submit these as evidence.

MR. KIM: What is being submitted?

MR. SALYER: Instructions on the well.

THE WITNESS: They are basically the two documents.

MR. KIM: Do you have enough copies for everybody?

THE WITNESS: Yes.

MR. SALYER: Yes.

MR. KIM: Okay. I'm sorry. That's just -- this is the book?

THE WITNESS: That's the portion of the book.

MR. KIM: This is just an excerpt from the book?

THE WITNESS: Yes.

MR. KIM: Okay. Can I please take a look at the excerpt before we agree on -- I believe there are two documents that are being referred to. One is an article, and one is a book. And I believe

that as far as the book goes, the document that's being offered into evidence is an excerpt from the book, and I would just like to take a look at the excerpt just to make sure -- because we don't have the entire document just to make sure there is not going to be a problem with that.

THE WITNESS: I do have the entire document if you would like to look at it.

MR. KIM: Well, what I am saying is since the entire document is not being offered into evidence but rather just a portion of it, I would just like to make sure that the portion that is being offered into evidence is not misleading or not -- could not potentially be taken out of context.

HEARING OFFICER CROWLEY: That's fine.

Let's go off the record.

(Whereupon, a discussion was held off the record.)

(Petitioners' Exhibit Nos. 1 and 2 marked for identification, 11-24-98.)

HEARING OFFICER CROWLEY: We are back on the record after a short discussion.

There are two documents which we have discussed off the record that the Salyers will be

seeking to have entered into evidence.

The first of these is an article entitled -- and we will mark this Exhibit 1 if you don't mind. Petitioners' Exhibit 1 is an article entitled A Practical Approach to the Design, Operation, and Monitoring of In Situ Soil-Venting Systems by P.C. Johnson, C.C. Stanley, M.W. Kemblowski, D.L. Byers, and J.D. Colthart from the Spring 1990 Groundwater Monitoring Report that is pages 159 through 178. The Salyers had brought with them a copy that had some excerpts from this. The Illinois EPA had copies of the entire article available, and so that entire article is what we are entering into the record as evidence.

Excuse me. That has been moved. There is no objection. We are accepting Exhibit 1 as evidence.

The second document is an excerpt from a book entitled Modeling of In Situ Techniques for Treatment of Contaminated Soils, the subheading Soil Vapor Extraction, Sparging, and Bioventing. That is by David J Wilson, Ph.D., published by Technomic Publishing Company.

Could I have the year on that, please?

THE WITNESS: 1995.

HEARING OFFICER CROWLEY: 1995. Thank you.

What we have here is chapter 1 from the book which is pages 1 through 9. This is a book which we have a copy of the original but not for presentation to the board. Mr. Kim has examined that during our recess. Mr. Kim does have an objection.

Mr. Kim?

MR. KIM: The objection that the EPA has on this document is that it is nine pages taken out of what looks to be an approximately 560-page book, and actually to correct a statement made by the hearing officer, I think, looking in the table of contents, that is not even chapter 1. Chapter 1 is much longer than just the nine pages. That's simply the introduction or the opening pages to chapter 1. There are 11 chapters in the book --

HEARING OFFICER CROWLEY: That's correct. Thank you.

MR. KIM: Thank you.

There are 11 chapters in the book, seven of which appear to discuss soil vapor extraction to some extent. It's unclear exactly how much.

Because we are offering -- because what is being offered is just a tiny fraction of what could be additional information that would be very relevant and possibly conflicting or possibly leading to the nine pages being offered here to be taken out of context, the Illinois EPA feels that the document would not be of any use to the board and would, if anything, potentially cause confusion or misapplied reliance upon that document.

HEARING OFFICER CROWLEY: Is there anything you would like to say in response to what Mr. Kim said?

MR. SALYER: Yes, but I'm not sure what. Can we go off the record for a minute?

HEARING OFFICER CROWLEY: I will allow it.

(Whereupon, a discussion was held off the record.)

HEARING OFFICER CROWLEY: We are back on the record.

MR. SALYER: We just didn't make copies of the whole book because most of it doesn't pertain to our site, and we just tried to make copies of what pertained to our situation. That's all.

MR. KIM: Well, unfortunately, without benefit of the entire book in the -- in evidence, your

representation of what is relevant to your site might not necessarily be what the board or the Illinois EPA would argue would be relevant to the site. So there may be other information within the other 450 some odd pages in that book -- or 550 some odds pages in that book that might be relevant to the case and might, in fact, be something more comprehensive or more substantial other than the first nine pages, which I think are very introductory in nature.

HEARING OFFICER CROWLEY: The question that I would like to ask before I make a ruling is would you be prepared to give us the whole book as an exhibit?

THE WITNESS: Certainly.

MR. SALYER: Yes.

MR. KIM: Well, here again, the problem is we have made efforts to try and find this book, but this is a difficult book to track down. It's my understanding that there are only two libraries in the state that have this book in their collections, both of which are -- one of which is Southern Illinois University in Carbondale, and the other is Southern Illinois University in Edwardsville. I do

not have a copy at this time. I don't know if I can get one. I can certainly try, but again, it would pose, I think, an extreme hardship upon the Illinois EPA to attempt to base any kind of arguments either responsive or assertive in nature without benefit of the entire book.

HEARING OFFICER CROWLEY: Did you have anything you want to say?

MR. SALYER: Just a comment. You mean the Illinois EPA does not have a copy of this book?

MR. KIM: Not that I'm aware of, no.

MR. SALYER: Brian?

MR. KIM: I'm sorry.

MR. SALYER: I'm sorry.

HEARING OFFICER CROWLEY: That's all right.

I am -- since the Salyers are willing to provide us with the entire book, I will take the entire book in as Exhibit Number 2. If we have to make arrangements for copying, I will pledge the board to copy for the use of this proceeding only, and that, I think, is the best I can do. So we will accept as Petitioners' Exhibit 2 the entire volume that we have previously identified and which we will refer to as Modeling of In Situ Techniques. That's

Wilson, 1995.

MR. KIM: I think, just for the record then, the agency would make a continuing objection to any references to this document. We will work the best we can off the nine-page excerpt that we have at the hearing, but we would simply pose a continuing objection to any reference or reliance upon that book.

HEARING OFFICER CROWLEY: I appreciate the continuing objection, and that just means that rather than stopping every time something would come up, we just note for the board and the board will be aware of the fact that the agency objects to reliance on this document, that they have not had a chance to look at, and apparently they did not look at it before they made their decision to deny your reimbursement request.

Okay. Now, Mr. Salyer, you can go back to questions now that we have got both of these entered into the record.

BY MR. SALYER:

Q Would a system work if paving wasn't over it?

A Well, as I stated before, in my mind, it's

very necessary to seal soil vapor extraction piping from the surface. And looking at the document that was just entered into evidence, Modeling of In Situ Techniques for Treatment of Contaminated Soils, there is an exhibit on page 3 -- this is the introduction to this book which gives examples of typical soil vapor extraction systems.

Included on that exhibit -- figure on page 3 is a drawing showing a typical horizontal vapor extraction trenching, and it shows as a portion of that system a surface seal over the trench.

There is a second figure in this introduction to the book on page 8. Again, it shows an example of a typical soil vapor extraction system, including the equipment that is normally installed in this type of system, again, a portion of that figure that shows the actual vapor extraction piping. In this case, it's a vertical well. It shows an impermeable surface seal.

The second document that was entered into evidence was the article by Mr. P.C. Johnson. This article is very often referred to in discussions of soil vapor extraction systems. It's been used by

the USEPA to develop a computer model or a computer technique for evaluating soil vapor extraction systems, so it came from the groundwater monitoring review, which is a peer-reviewed publication, and it's very well recognized in the industry.

On page 171 --

HEARING OFFICER CROWLEY: Again, this is Petitioners' Exhibit 1, page 171. Go ahead.

BY THE WITNESS:

A On page 171, it talks about the necessity for placing a surface seal over shallow treatment zones. Mr. Johnson describes shallow treatment zones as less than five meters. The piping that we installed the surface seal over at the Salyers' site is four feet, just a little over one meter. So both of these documents point out the necessity for placing a surface seal over vapor extraction piping, especially shallow horizontal vapor extraction type.

BY MR. SALYER:

Q Have you ever installed a system without sealing the surface?

MR. KIM: Objection. When you say system, are you referring to a soil vapor extraction system?

MR. SALYER: Yeah, a soil vapor system.

BY THE WITNESS:

A There is one case where we excavated contaminated soils at a leaking underground storage tank site. A large portion of the sited soils were removed. We felt that it was possible there may have been some soils left that were still contaminated, so when we backfilled the site, we did install some slotted piping with the thought that we could attempt to do soil vapor extraction if that was necessary in the future.

We did go back to that site, and we did not seal the surface. You would have had to have sealed probably a quarter acre of the area to seal that particular site. We went back and did a pilot test for a soil vapor extraction system and had very unfavorable results.

MR. SALYER: Okay. That's about it for me right now.

HEARING OFFICER CROWLEY: Mr. Kim?

MR. KIM: Yes. I have some questions.

CROSS EXAMINATION

BY MR. KIM:

Q Mr. Mehrens, in Mrs. Salyer's opening

statement, she commented that the first set of test results from the soil vapor extraction system were better than they had hoped for.

What test results was she referring to?

HEARING OFFICER CROWLEY: If you know, and if you don't, please answer that you don't know.

BY THE WITNESS:

A We have collected groundwater samples from the monitoring well both on and off site since the soil vapor extraction system was started.

BY MR. KIM:

Q And what have those results shown?

A A significant reduction in the contaminants in the groundwater.

Q Have those results been submitted to the Illinois EPA?

A Yes.

Q Do you know what the dates were that those results were submitted?

A No. The samples were taken in mid-September.

Q September of what year?

A Of 1998.

Q So the samples and any results that would be taken and submitted to the EPA would have

postdated April 10th of 1998?

A That's correct.

Q Thank you.

You stated in your testimony that you have been involved with approximately 135 lost contaminated sites; is that correct?

A Yes.

Q And when you say you were involved with, does that mean that you were responsible for designing and installing remediation systems at those sites?

A Well, some of those sites aren't yet to that point, and there is a portion of those sites that -- a minority of those sites that I did not design the remediation. But the majority of the sites that have gone to remediation, yes, I was involved in that.

Q Of all those sites, how many -- I'm sorry.

Of all those sites in which you have been responsible for designing and installing remediation systems, how many of those sites employed soil vapor extraction systems?

A About 15.

Q And of those 15 sites, how many involved

the use of concrete or asphalt as an impermeable surface liner or surface seal?

A All except for the one I spoke about where we ran a pilot test and it did not have favorable results. So we have not installed the system.

Q And of those 15 sites which you used concrete or asphalt as a surface seal, how many of those have you requested and received reimbursement for from the underground storage tank fund?

A I'm not sure.

Q Let me put it to you this way.

Have any of those sites ever received reimbursement for the cost related to concrete or asphalt for use specifically as a surface seal?

A Yes.

Q Can you tell me what the site is?

A Martin Oil site in Aurora.

MR. KIM: Can I take just a moment?

HEARING OFFICER CROWLEY: Certainly.

(Brief pause.)

BY MR. KIM:

Q Do you know if that site was the subject of a reimbursement appeal?

A No, it was not.

Q It was not.

Do you know when it was you sought reimbursement for that site, what point in time?

A Do you mean what year?

Q What year. I'm sorry.

A Well, it's an ongoing project. There's probably still reimbursement being requested. But as far as installing the system, it was done in two phases. The second phase was probably 1995, the first phase maybe '94.

Q So sometime in either 1995 or 1994, you received reimbursement for concrete costs?

A I didn't receive reimbursement. My client did.

Q The owner/operator received reimbursement?

A Yes.

Q Okay. Thank you.

Where is that Martin Oil site located?

A In Aurora.

Q Do you know a street address or location?

A 359 West Galena.

Q Thank you.

I would like to turn your attention to the exhibits that have been offered up. I would like to

turn you first to Exhibit 1.

You stated in your testimony that it was necessary to have a surface seal employed in conjunction with a soil vapor extraction system; is that correct?

A Yes.

Q When you say necessary, does that mean it's optional or that it must be used in your opinion?

A Could I refer to the Salyers' site to answer that question?

Q No. I'm asking in your opinion, when you say a component of a treatment system is necessary, does that mean it is optional or that it is -- it must be used?

MR. SALYER: Can I object to that question?

HEARING OFFICER CROWLEY: What is the grounds for the objection?

MR. SALYER: He's referring to everything in general. We are here about my site, what pertains to my site only as far as I'm concerned.

MR. KIM: I'm asking the witness about his understanding of the word necessary.

MR. SALYER: But you are in general of everything,

and we are not here for that. We are here for my site. Would it be necessary for my site? Then we can answer it.

HEARING OFFICER CROWLEY: Mr. Kim -- I'm going to overrule the objection. Mr. Kim can ask questions that go to general expertise. I myself had some difficulty with the form of the question that you posed because I was unsure whether you were referring back to specific testimony about the Salyers' site or what, so if you could please rephrase your question.

MR. KIM: I can do that.

HEARING OFFICER CROWLEY: Thank you.

BY MR. KIM:

Q Let me break this up a little bit, Mr. Mehrens.

In general, not necessarily talking about the Salyers' site, but just in general, is it necessary to always use an impermeable surface seal when you are employing a soil vapor extraction system?

A I believe it is if you expect the system to clean up the site in a reasonable amount of time.

Q Well, given the reasonable assumption that

everybody wants to clean up the site in a reasonable amount of time, your statement is it is necessary as -- when I say the word necessary, I'm using the generally understood meaning of that word. It is a requirement, an indispensable component of a system to have an impermeable surface soil when using a soil vapor extraction system regardless of the site-specific characteristics; is that correct?

A You could put in a lot more piping and additional equipment, and so it's not absolutely necessary. There are other things you could do such as put in more piping, more equipment, and be able to clean up the site without a surface seal.

Q So if your testimony under direct examination was that it is necessary to have -- to use a surface seal when you are implementing a soil vapor extraction system, you would expand that statement to say necessary in the sense that you might be able to alter other components of the system to make that surface seal unnecessary; is that correct?

A You might be able to add additional components, not alter.

Q So when you say it is necessary, it is not

necessary as in it must be employed with every system? Some systems might be able to be used without a soil -- without a surface seal; is that correct?

A Yes. Again, referring back to my previous explanation, yes.

Q Okay. I would like you to look to page 171 of Petitioners' Exhibit Number 1, and I would like you to read the first sentence of the second full paragraph in the left hand column.

A It's starts off "For shallow"?

Q No, the next paragraph down.

A "Surface seals such as polymer-based liners and asphalt, concrete, or clay caps are sometimes used to control the vapor flow paths.".

Q Okay. Could you skip the next sentence and then read the sentence after that?

A "For shallow treatment zones (less than five meters), the surface seal will have a significant effect on the vapor flow paths, and seals can be added or removed to achieve the desired vapor flow path."

Q Doesn't that first sentence of that paragraph state that surface seals are sometimes

used? It doesn't say that they are necessary or that they must always be used, does it?

A It says they are sometimes used to control the vapor flow paths.

Q Does it say anywhere in that -- let me change this.

Does it say anywhere in this article that a surface seal is a necessary component of a soil vapor extraction system using your terminology?

A I would have to read the whole article to tell you if it said that in those exact words.

Q I would be willing to give you plenty of time if you would like to do that because I'm pretty confident, Mr. Mehrens, that nowhere in this article does it state that a surface seal is a necessary component of a soil vapor extraction system. In fact, I'm offering that the only statement that's ever made in this article about surface seals is in the two -- the one paragraph that you have just referred to -- or that I have just referred you to and in the figure accompanying that paragraph, and aside from that, there is no other reference made in that article to the use of surface seals. But if you would like, you can read the entire article.

A I'm not going to read the entire article, but I will take a couple minutes.

HEARING OFFICER CROWLEY: We will go off the record.

(Whereupon, a discussion was held off the record.)

HEARING OFFICER CROWLEY: We are back on the record after a short break.

MR. KIM: I believe the question that I had posed to Mr. Mehrens before we took a break was if he could find any other reference in Exhibit 1 which stated that -- or any reference in Exhibit 1 which states that a surface seal is a necessary component of a soil vapor extraction system.

BY THE WITNESS:

A I haven't found the word necessary in my review of this article.

I would like to direct your attention to page 170 of the article under the heading choosing well location, spacing passive wells, and surface seals. The first sentence in that section states to be able to successfully locate extraction wells, passive wells, and surface seals, one must have a good understanding of vapor flow behavior.

So in my mind, this whole article gives you an understanding of vapor flow behavior and soil vapor extraction systems, and from that, you can deduce when it's necessary to install a surface seal. But I have not found the word -- I have not found a statement in this article stating it is necessary --

BY MR. KIM:

Q You just stated --

A -- to install.

Q -- that this article would lead one to be able to deduce when it is necessary to use a surface seal?

A Yes, yes.

Q So you would agree that use of a surface seal is not always necessary?

A Yes.

Q And, in fact, the statements in this article that you are relying upon for your statement -- or for that conclusion even is the first sentence under the -- on page 170 under the paragraph heading choosing well locations, spacing passive wells, and surface seals and the paragraph that's found on page 171 at the bottom of the left hand column; is

that correct?

A Maybe you misunderstood me. I read that sentence to point out that you really need to know the whole concept before you can make that decision. It's not relying on those couple of sentences to make that decision.

Q What I am saying is in this article, are those the only comments that you are relying upon when you say that from those statements, you are able to deduce when a surface seal is necessary or not necessary?

A No, no.

Q You are saying there are other comments in this article that speak to the use of surface seals?

A No. I'm saying you need to understand the whole concept to understand the surface seal portion of it.

Q Let me rephrase this.

In this article, in Exhibit 1, what are the statements found in this article that you are relying upon for your statement that a surface seal is necessary or that this article allows you to make a determination when a surface seal is necessary?

A I'm saying the whole article does. I'm

saying you need to understand the concept of vapor flow paths and soil vapor extraction to be able to determine when and where a surface seal should be placed.

Q Do you think --

A You can't just read a paragraph out of this article and make that decision. You need to understand the whole concept, and this article goes a long way in explaining that to you.

Q So for me to just pick a few sentences out of this article is a little bit misleading? I have to take everything in context? Is that what you are saying?

A I'm saying, yes, that you need to understand the concept and the system.

Q Okay. We will keep that in mind when we get to the other exhibit then.

Do you think this article contemplates that a surface seal might not be necessary for a site or that a site might not require a surface seal?

A It probably does.

Q All right. In this article, it references different types of surface seals that -- or different

types of materials might make up a surface seal; is that correct?

A Yes.

Q Does this article give any kind of standards or any kind of requirements in terms of how impermeable that particular material has to be?

A No, it does not.

Q In fact, this article simply states different types of materials that might commonly be used as a surface seal due to their generally impervious nature to -- as you said surface air; is that correct?

A Yes.

Q Okay.

HEARING OFFICER CROWLEY: And what page were you referring to again, please?

MR. KIM: I'm sorry. That was on page 171.

BY THE WITNESS:

A Could I expand on that answer?

You said impervious to surface air? Was that your question?

BY MR. KIM:

Q I think I inartfully said something like impervious to surface air, yes.

A I mean, it's drawing that surface air that is important.

Q Preventing the drawing of surface air by the soil vapor extraction system?

A Right. We are not just talking about surface air permeating. We are actually pulling the air.

Q Right. Agreed. Thank you.

Okay. Let's move to Petitioners' Exhibit 2. Let's first review the comment that you made that it's misleading or incorrect to take a few sentences out of a --

MR. KIM: Just a moment.

(Brief pause.)

BY MR. KIM:

Q You stated that it's misleading for me to take just a few sentences out of the article which is Petitioners' Exhibit Number 1 and try and place any kind of significance upon those statements, and you stated earlier that you have to take the entire article in context; is that correct?

A I don't remember using the word misleading. I was answering your specific question. But I don't remember using the word misleading.

Q Let's go back to Petitioners' Exhibit Number 1 then.

Is it incorrect for me to look just to those two reference points that I was talking about for me to draw conclusions about surface seals and what that article says about surface seals?

A Yes.

Q Why is that?

A Because you need to understand the concept, which this article explains.

Q And how do I understand the concept that this article explains?

A By reading the entire --

Q The entire article?

A Yes.

Q Now let's go to Petitioners' Exhibit Number 2. You referenced in Petitioners' Exhibit Number 2 certain information found within the first nine pages of that book; is that correct?

A Yes.

Q So here, again, in order for us to really understand the statements that are made in these first nine pages, it's necessary for us to read the entire 563 pages before we get an understanding of

what this book is trying to tell us; is that correct?

A No, but it would be necessary for you to read a good portion of it, but much of that book would not be pertinent.

Q How much of the book would not be necessary?

A Well, first of all, there are chapters that don't talk about soil vapor extraction.

Q Okay.

A But then again, much of the book talks about modeling, which is beyond what we are talking about here today.

Q Does Petitioners' Exhibit Number 1 refer to modeling -- I'm sorry -- Petitioners' Exhibit Number -- that's right, Number 1, the article.

Does the article refer to modeling or to any other aspects of soil vapor extraction systems that we are not talking about today?

A I don't believe it refers to modeling, or if it does, it's just in passing or -- but it's not -- that's not the purpose of the article.

Q Does the article --

A The purpose of the book -- the purpose of the book is to give an in-depth discussion of

modeling. That is not at all part of the article.

Q What I am saying is this. Let's just go with the seven out of the 11 chapters that I described that have -- in Exhibit Number 2 that make some reference to soil vapor extraction in the chapter headings.

Is it necessary to read all those chapters before we can take the references you made in the first nine pages in context?

A I don't believe so, no. I mean --

Q And you are saying that because you think there is information in those seven chapters which does not relate to the necessity for a surface seal?

A Yes.

Q Are there portions of this article in Petitioners' Exhibit Number 1 which do not relate to a surface seal -- to a discussion about surface seals?

A There may be some portions. I'm sure there are some sentences or paragraphs in there that probably you wouldn't consider in discussing surface seals.

Q So what you are saying is I don't necessarily need to read the entire article, do I?

A No. I'm not saying that. I'm just saying that there are -- certainly there are some sentences in here or even paragraphs that don't -- would probably not come up in the discussion of a surface seal but to understand the necessity of it, I believe to read this whole article is a way for you to do that.

Q But you are saying that I don't need to read the seven chapters in your Exhibit Number 2 to get an understanding of it?

A No, no. That happens much more expansive than this article is. Much of it has nothing to do with that concept.

Q All right. Let's flip to the statements that you made within those first nine pages.

On page 3 of Exhibit Number 2 is found figure 1.2; is that correct?

A Yes.

Q And specifically, there are four different design options which are listed in that figure; is that correct?

A Yes.

Q Looking to option (b), can you describe what that option depicts?

A Well, it's entitled trench. It's showing horizontal vapor extraction piping.

Q Is this a cross-section of what you would see if you were to essentially look down the length of the horizontal piping?

A Yes.

Q Is that trench cross-section similar to the installation and design of the system that's employed at the Salyers' site?

A It's not a good cross-section of the portion of the piping that we placed the asphalt surface seal over because there is no clay above the horizontal piping at the Salyers' site that we placed asphalt and concrete surface seal over. Because there was a limited space, that piping is only four feet deep. It is a good cross-section of the piping we placed behind the station at the Salyers' site where this horizontal vapor extraction piping was ten feet deep, and we were able to put eight feet of clay as a seal above the piping.

Q Okay. Let's look to page 8 of that exhibit. That is figure 1.3; is that correct?

A Yes.

Q Did you state in your direct testimony

that the presence of an impermeable surface seal on this figure demonstrates this reference source's position that a surface seal is a necessary component of a soil vapor extraction system?

A I believe I said that this figure showed a typical system and included on the figure an impermeable surface seal.

Q Are there components of this system that are not employed at the Salyers' site?

A We do not have a muffler. We do not have a water cooled heat exchanger. And the submersible pump -- there is a groundwater pump at the Salyers' site, but it's not tied into the system the way this is shown.

Q So it's safe to say that there is some design differences between what is shown in figure 1.3 of this exhibit and the system that you installed at the Salyers' site; is that correct?

A Yes, as I stated. There are -- I pointed out the things that are not included at the Salyers' site.

Q And the fact that you don't have those components that are shown in figure 1.3 at the Salyers' site, does that mean that your system is

inconsistent with the general principles that you are relying upon when you refer to Exhibit Number 2?

A No, if I understand your question right.

Q Okay. Do you not understand my question?

A Could you state it again?

Q Sure.

A Okay. This is Exhibit 2, right?

Q This is Exhibit Number 2, that's correct.

There are differences, are there not, between figure 1.3 and the system that was installed at the Salyers' site?

A Yes.

Q And do you think those differences in design diminish or detract from the reliance that you're placing upon this exhibit for the principles that you are describing for us today?

A No.

Q Okay. Would you turn to page 9 of that exhibit, please?

In the middle paragraph of that page, the paragraph that begins after the system is turned on, could you read the second to last sentence in that paragraph?

A Impermeable plastic caps are occasionally

used to reduce the volumes of soil in which air flows -- excuse me -- in which airflow is excessively sluggish or wastefully fast.

MR. KIM: I just need a moment here.

(Brief pause.)

BY MR. KIM:

Q I could be mistaken, Mr. Mehrens. I might have drawn your attention to the wrong section, but when this article uses the term impermeable plastic caps, is that the same when we are talking about impermeable surface seals? When they say a cap, are they referring to essentially a seal?

A I believe they are.

Q Okay. Actually, bearing that in mind, let's turn away from page 9. Could we look instead to page -- the bottom of page 4? The very last paragraph there -- actually, the very last sentence of that paragraph -- there are only three words that are on this page, and then you have to skip over two pages of tables, but could you read that sentence that begins with those two words that begins on the bottom of page 4?

A An SVE system consists of; number one, vacuum extraction wells; two, inlet or injection

wells possibly; three, piping headers; four, vacuum pumps or blowers; five, vacuum gauges and flow meters; six, sampling ports; seven, an air water separator usually; eight, a VOC control system usually; and nine, impermeable caps possibly.

Q The reference made to what an SVE system consists of, as you just read, states that impermeable caps, or as we were referring to earlier impermeable surface seals, might possibly be used with an SVE system; is that correct?

A That's what it says.

Q It does not say that impermeable caps are necessary components of an SVE system, does it?

A No, it does not.

Q You said that there was -- you said that there was another site that you used that you installed a pilot system at, and this was over a fairly large area, I think you said, and you installed the slotted pipes more as an option so that if down the line you wanted to actually operate an SVE system, the piping would be in place; is that right? I might have misunderstood.

A That's right. We did. I should say we didn't install a pilot system, but we did do a pilot

test on that piping, but that's generally correct.

Q And you said you did not seal the surface at that location; is that correct?

A That's correct.

Q And you said part of the reason was it was too big; it covered approximately a quarter acre?

A Right, because we didn't get to the point where we were actually going to run the system there, so that's correct. We didn't seal that whole site without getting to the point to actually operate a soil vapor extraction system there.

Q The fact that it was about a quarter acre and the fact that you did not seal the surface, even to perform the pilot the test, why didn't you seal the surface?

A It was just an economic decision to do the test. We did the test in the winter and hopefully -- hoping that the soil was frozen enough to seal the piping --

Q So one of the considerations -- I'm sorry.

A -- but we didn't -- so we didn't go and pave that whole site or place a liner over that whole site just to do the test.

Q So as you said, one of the considerations that you did take there was the economies or the cost involved in installing a surface seal of that size at that site; is that correct?

A To conduct a pilot test.

Q And I meant to ask you this when we were still on Petitioners' Exhibit Number 2. I'm sorry. I'm getting these numbers confused.

Petitioners' Exhibit Number 2, which is the Wilson book, do you know if in those nine pages that you have offered as your exhibit or that you referred to if there is any reference as to -- what I asked you about before, standards or requirements that you should use in determining how an impermeable surface seal or cap should be?

A No, there is not.

Q Do you know if there is any kind of reference to that -- to those sort of standards or those requirements in the book itself, the entire book?

A I don't believe there is, but I'm not positive.

Q Let me ask you this.

When you were designing this system and

you were feeling that there was a need for an impermeable surface seal, were you looking to this book for any kind of standards or any kind of requirements as to how impermeable that seal would need to be when you designed your system?

A No, I did not.

MR. KIM: Can I have just a minute?

HEARING OFFICER CROWLEY: Sure.

MR. KIM: I just want to make sure I have exhausted my questions.

(Brief pause.)

MR. KIM: I have a few other questions that I would like to ask, but they might be slightly outside the scope of the direct, so I would -- I could ask him simply -- I could simply recall him as a direct witness when the state presents its case.

HEARING OFFICER CROWLEY: I think that would be a better idea.

MR. KIM: That's fine. I have no further questions at this time.

MRS. SALYER: Do we get to cross examine Mr. Mehrens again, or can we --

HEARING OFFICER CROWLEY: You can -- anything that he has answered in response to Mr. Kim's

questions you can ask him about that, but you can't go wider than that.

MRS. SALYER: I understand that.

REDIRECT EXAMINATION

BY MR. SALYER:

Q Mr. Kim was beating around the bush about everybody --

MR. KIM: Objection.

MR. SALYER: Okay.

BY MR. SALYER:

Q He was asking you questions about the seal and this and that. Let's get to 551 South York.

The four-foot down, 30-foot long section that we put in that is in pea gravel around the tanks, was that necessary to have a seal on in your opinion?

A Yes.

Q Will you explain to them why the piping is only four foot down?

A Because the area we are addressing in that section of the site is the underground storage tank backfill material -- I should say the main area we were addressing -- as opposed to behind the station where the area we were addressing was a layer of

sand ten feet below the surface.

Q Okay. If we did not put a seal over that piping, four foot down, 30-foot long, would we have accomplished much of anything on drawing contaminants out that are below the piping and further out than where the piping is?

A In my opinion, you would pull some contaminated vapors with that piping without a surface seal, but it would -- not having the surface seal would have greatly limited the area from which you would pull the contamination.

Q And since the state EPA wants this done, I think, it was within five years or six years --

A I don't remember the time limit. I know there was.

Q If we wouldn't have put the seals on, would we have gotten the job done in that amount of time in your opinion?

A I don't believe you would have got it done in near the amount of time that you will with the surface seal --

Q Okay.

A -- if even, in fact, it would work. I mean, you may -- without a surface seal, you may

have to install additional pipe.

Q Okay. When designing a system for any area, any project, do you read the book and follow the guidelines, or do you use -- how would you say it -- some common sense that this isn't going to work here; I have got to do it this way here or something like that?

A Well, I definitely rely on my experience in previous systems I have been involved with in addition to reviewing technical documents.

MR. SALYER: Okay. I think that's about it.

HEARING OFFICER CROWLEY: Thank you. There are just a couple questions before --

MR. KIM: I think they may have --

HEARING OFFICER CROWLEY: I'm sorry?

Do you have anything else?

MR. SALYER: No.

HEARING OFFICER CROWLEY: If I might ask a question again. As hearing officer, my job is to put together a record that's as complete and easy for the board to work with as possible.

I have here a copy of the agency's administrative record that was filed shortly after your petition was filed. Could you point out to us

a diagram of the site that shows exactly what we have been talking about? Can you pinpoint it for us? I don't know if this is the best. Go off the record while you take a look.

MR. KIM: I'm going to suggest that maybe page 31 of the record, which is figure 6 --

HEARING OFFICER CROWLEY: That was what I had open also.

THE WITNESS: That's a very good depiction of the piping that's been installed. I mean, it doesn't, of course, give you details on the equipment, but that is a good depiction of where the piping has been installed.

HEARING OFFICER CROWLEY: Okay. We were earlier looking at Exhibit 2, figure -- excuse me -- the figure 1.3 on page 8 that did have piping, and you, in response to what Mr. Kim was asking you, indicated some things that were not in the system that we're dealing with here.

Do you recall that?

THE WITNESS: Yes.

HEARING OFFICER CROWLEY: Would you -- it would be easiest, I think, if there is no -- all right. Back up.

Is there in the administrative record an equivalent diagram to what I see on page 8 of Exhibit 2 that does show what the components of the system are?

THE WITNESS: Figure 7 on page 33 shows the equipment.

HEARING OFFICER CROWLEY: Fine.

THE WITNESS: Figure 8 on 34 is a schematic of the equipment.

HEARING OFFICER CROWLEY: Great. Fine. I just wanted to have this pinpointed so that if the board wanted to compare them that it was easy for them to find it. So thank you.

MR. KIM: I just have a few questions on recross.

RECROSS EXAMINATION

BY MR. KIM:

Q Mr. Mehrens, you decided that at this site, at the Salyers' site, it was necessary to have a seal; is that correct?

A Yes, I did.

Q How impermeable did that seal have to be, to what standard?

A If you are asking me if I did any

calculations on the impermeability of the seal, I did not. I relied on my experience of installing seals in the past.

Q Would you say that the eight feet of clay was comparable to the concrete and asphalt that you placed at the other portion of the site?

A I would say that they are both good seals.

Q Would seven feet of clay have been sufficient?

A Probably.

Q Would six feet?

A Probably.

Q Would five feet?

A You are probably pushing it.

Q Why would five feet of clay not be sufficiently impermeable?

A Well, if you were to put five feet of clay and do a very good job of compaction and a good seal with the sidewalls of the trench, maybe it would, but the thinner you get, the more likelihood that there is going to be -- that you are not going to get a good seal.

Q Have you ever tried to use a one-foot clay liner or one-foot clay cap?

A No.

Q Why?

A Again, because I think in constructing that, there is a very good chance that you would not get a good seal just because of the difficulties in constructing it.

Q What types of difficulties?

A Just the practical things of getting a good compaction seal with the sidewalls and the trench making sure there is no rocks in your clay, all of the things that you run into out in the field actually constructing such a --

Q Have you ever tried to install a one-foot clay liner?

A No, I haven't.

Q Have you ever used a polymer-based liner as a surface seal?

A No, I have not.

Q Why did you choose concrete and asphalt?

A It seemed to me to be the most economical way of doing it at that situation.

Q Would a polymer-based liner have been less expensive than concrete and asphalt?

A I'm not sure. I didn't come up with an

estimate for the cost of doing that, but it would -- I would say it would be comparable, if not more. I don't know.

Q You don't know, though?

A Not for certain.

Q So there are some types of surface seal materials that these articles reference as being possible candidates for usage that you did not research; is that correct?

A That I did not come up with an estimate of the cost for, that's correct.

Q Let's say you had -- let me ask you this.

Could this site operate as a surface station if you used a clay cap there instead of a concrete or asphalt cap?

A I don't know why not.

Q Could it operate as a surface station if you installed a polymer-based liner instead of concrete or asphalt?

A I don't -- I don't know why it wouldn't.

Q Is this -- looking to figure 6 of page 31 of the administrative record, does the -- looking at that schematic of the site, does the area of the piping that's north and northwest of the service

station building extend into the parts of the site where there is automobile or truck traffic?

A Yes.

Q If you installed a polymer-based liner as a cap and you had truck traffic at the site, would that impact the integrity of the liner?

A It could depending on how you did it.

Q So it might not?

A It might not.

Q Do you know if it would be possible to operate a service station without concrete and without asphalt at all portions where an automobile might be traveling over?

A I don't know why you need concrete at a service station or asphalt.

Q Okay. You also said in your redirect that the piping that you -- that's on the north and northeast portion of the -- north and northeast of the building, that it was addressing the underground storage tank backfill area, and then you said that's the main area that it was intended to address.

What were the other areas that it was intended to address?

A Well, there are contaminated soils outside

the backfill in that area also.

Q Okay. And so it was also intended to address those contaminated soils as well?

A Yes.

Q Does the site geology that you described in your corrective action plan such that there is a medium stiff clay below the surface areas to a depth of approximately ten feet?

A That's a general description of the geology that -- the corrective action plan does not go into detail on geology of the sites. The previous document the EPA has does.

Q Okay. But on page 13 of the administrative record, which is page 5 of the corrective action plan, on the third paragraph there, there is a statement, is there not, that says generally there's a medium stiff clay below the surface materials to a depth of approximately ten feet?

A That's correct.

Q And what does the backfill material consist of?

A Pardon me?

Q What does the backfill material consist of?

A It's sand.

Q All right. If you look on page 21 and 22 of the administrative record -- I'm sorry -- page 29 and 30 of the administrative record, that's 21 and 22 of the corrective action plan, the last paragraph on page 29 of the record continuing over to the top paragraph on page 30 of the administrative record, does that paragraph describe the site geology and address -- and describe the type of soil that's going to be addressed by the soil vapor extraction system?

A It's a general description of the geology, yes. As far as the soil being addressed by the system, yeah, it is -- does discuss that also.

Q What does it say?

A The whole paragraph?

Q No, just the portion that addresses the soil is to be addressed by the soil vapor extraction system.

A There is a sentence that reads the soils to be addressed by this vapor extraction system are uniform fine to medium sand.

Q Is there any other statement in the corrective action plan that you are aware of that

elaborates or describes other types of soils that the soil vapor extraction system is intended to address, or is this statement that you just read a definitive statement?

A It's not a definitive statement in the fact that it doesn't talk about the backfill material. I'm not sure if this -- in the corrective action plan, it talks about the backfill material. I mean, that's -- that paragraph is -- was placed in the plan to -- as a discussion on whether or not soil vapor extraction is applicable to this site.

Q Doesn't that sentence say that the types of soils to be addressed by the soil vapor extraction system at the Salyers' site are a uniform fine to medium sand?

A Yes, it does.

Q Does that statement also state that there are other types of soils that will be addressed by the soil vapor extraction system?

A No. It doesn't say that there are other types of soils.

Q But there are other soils that exist at the site; is that correct?

A There are other soils, yes.

Q For example, the medium stiff clay that I read earlier -- from an earlier portion of the corrective action plan?

A Yes, but the sentence states that the soils to be addressed by the system are uniform. It doesn't mean that there is not additional soils at the site.

Q So this vapor extraction system was not intended to address all those soils; is that correct?

A It was not designed to address the non-contaminated clay, no. It was addressed -- it was designed to address the contaminated sand and the tank backfill material.

Q Is there any contaminated clay at the site? You say the non-contaminated clay, so I'm asking, is there any contaminated clay at the site?

A I'm sure there is a small amount of clay, that clay-sand interface, that's contaminated.

Q But this was not intended to address any soil-clay interface; is that correct?

A No. Hopefully it will address that, but I mean, the main contaminating is the sand.

Q But this corrective action plan does not

state that anything other than uniform fine to medium sand will be addressed by the vapor extraction system, does it?

A No, it doesn't discuss the clay, just above the sand.

Q It only says that the sand will be addressed; is that correct?

HEARING OFFICER CROWLEY: You have made your record, Mr. Kim.

MR. KIM: I'm just trying to make that clear. Okay.

BY MR. KIM:

Q So again, going back to the statement that you made on redirect where you said the main area to be addressed by the piping was the underground storage tank backfill area, what were the other areas that were intended to be addressed?

A Well, again, there is contaminated sand in that area that is not backfill material.

Q So backfill material and contaminated sand are the only materials intended to be addressed by the vapor extraction system?

A The only soils?

Q The only soils. I'm sorry.

Is that correct?

A Yes.

Q Okay.

A Although, again, I should say if there is indeed contaminated clay just above the sand, I'm hopeful that that also will be addressed.

Q But your corrective action plan doesn't note that, does it?

A It doesn't talk of that, no.

Q When you were -- you said that -- you were asked that if you did not use a seal what types of results would you accomplish, and you stated that some contaminants would be pulled out but with some diminished results; is that correct?

A Yes.

Q So when you designed the system, did you take into account that you were going to use a surface seal?

A Yes.

Q And that would have impacted the radius of influence, design characteristics of the system; is that correct?

A That's correct.

Q Is there any mention in the corrective

action plan of the use of a surface seal as part of the design criteria or that a surface seal would impact the radius of influence?

A No.

Q The last question that I wanted to follow-up on was that you were asked -- there was a statement made that the state wants the site cleaned up in a certain amount of time and that -- but for the use of this surface seal, would it not be possible to accomplish the clean up in that time. I would just like to correct that.

Did the state impose a time requirement on when this site has to be cleaned up by?

A I believe they have.

Q Or is that something that's found in the application?

A The application?

Q When did the state make a statement that the site had to be cleaned up in X number of years?

A That may be a question better asked the state, but...

Q Well, I'm asking you because you made the statement that the state did impose that upon you.

What's your basis for that statement?

A I believe in a -- there is a suit which the Attorney General has filed in which, I believe, in the proposed consent order there is a time limit.

Q Is that suit resolved?

A No.

Q Okay. Do you know of any statutory or regulatory requirement outside of that pending litigation that imposes a time period upon you for clean up of the site?

A No.

MR. KIM: Okay. I don't have anything further on recross.

HEARING OFFICER CROWLEY: Thank you. Did you have any additional documents or whatever that you wanted to present?

MR. SALYER: No.

MRS. SALYER: I don't think so.

HEARING OFFICER CROWLEY: You can still make closing remarks after Mr. Kim is done, if you care to.

MR. KIM: I believe they may have another witness, though.

HEARING OFFICER CROWLEY: Were you going to call Mr. Bauer? Go ahead then.

MRS. SALYER: No. We were just going to cross examine him when you --

MR. KIM: So you are not calling him as a witness?

MRS. SALYER: No.

MR. KIM: Okay. I'm sorry. I misunderstood that.

HEARING OFFICER CROWLEY: So you are resting your case at this point?

MRS. SALYER: Right, yes.

HEARING OFFICER CROWLEY: Fine. Thank you.

You were going to call who first, Mr. Kim?

MR. KIM: While we have Mr. Mehrens so conveniently located, I just had a few questions I would like to ask him.

HEARING OFFICER CROWLEY: Okay. Let's go off the record for a minute.

(Whereupon, a discussion was held off the record.)

HEARING OFFICER CROWLEY: We are back on the record after a short break. The Illinois EPA will begin questions for Mr. Mehrens who is now speaking as the agency's direct witness.

MR. KIM: Thank you.

ROBERT A. MEHRENS, P.E.,

called as an adverse witness herein, having been first duly sworn, was examined upon oral interrogatories, and testified as follows:

DIRECT EXAMINATION

BY MR. KIM:

Q Mr. Mehrens, aside from the corrective action plan, what documentation did you submit to the agency that contained a description or a discussion of the soil vapor extraction system?

A I believe that was the only document that had a discussion of the soil vapor extraction system other than I did have a letter that I submitted with the -- when the reimbursement request was made that spoke of the surface seal.

Q But that letter -- did that letter predate or postdate the approval letter that the EPA sent concerning approval of the corrective action plan? In other words, did that -- did that second reference you made, did that come before or after the EPA approved the corrective action plan with conditions?

A After.

Q Okay. What -- can you point to any description in the corrective action plan that states where a -- that contains a statement that surface seal will be used at the site with a surface seal as necessary at the site?

A No. The corrective action plan does not state that a surface seal would be used at the site.

Q Following the submittal of the corrective action plan, did the Illinois EPA, as I said before or referenced before, issue an approval of that corrective action plan?

A Yes.

Q And I think that's found on page 60 of the administrative record. If you look at that document, is that the approval letter that was sent in response to the corrective action plan we are talking about today?

A Yes.

Q Is there information in that approval letter that suggests to you that the EPA was confused about any kind of design aspects or installation aspects of the soil vapor extraction system?

A No. The EPA never asked me for any

additional details other than what was submitted in the corrective action plan even though the corrective action plan didn't list every single component of the system.

Q Did the approval letter that was sent on August 15th of 1997 place certain conditions on the approval of the corrective action plan?

A Yes.

Q And are those conditions listed in parts 1 through 7 of the approval letter?

A Yes.

Q Can you tell me which portions of those conditions have been satisfied -- or which portions of those conditions were satisfied as of April 10th of 1998?

A I don't believe I should answer that question being that there is another case involving this site, and that has nothing to do with the question before the board here today.

Q Well, I think that's nonresponsive. I'm going to ask the hearing officer to direct you to answer that question.

HEARING OFFICER CROWLEY: We will ask you to respond in that how is that relevant to the -- how

is your question relevant to the issue we have before us today?

MR. KIM: Because in the response filed to the motion for summary judgment, there was a statement or a characterization that the EPA; one, did not apparently understand all aspects of the soil vapor extraction system; and two, led the Petitioner to believe that we did understand all aspects of the soil vapor extraction system.

The EPA's only statement on this matter was the August 15th, 1997, approval letter. There are some conditions which are tied to that approval letter. Those conditions could have allowed the Petitioner to more fully inform or educate the EPA on what they felt we did not understand.

Specifically, there is a provision, condition number 7, that states that a revised corrective action plan was to be submitted to the EPA within a certain period of time if there was any kind of belief on the part of Petitioner that the EPA did not understand what that soil vapor extraction system was intended to -- how that was intended to be designed or installed. Then certainly they could have so informed us or so

corrected us in the revised corrective action plan. And I'm simply asking if they have satisfied any of these conditions and acted upon what they feel was the EPA's misunderstanding of this system.

HEARING OFFICER CROWLEY: With that explanation, is there any response you care to give, or do you --

THE WITNESS: My response is that I never --

MR. KIM: I object. I don't think the witness is really intended -- allowed to make a response to a question like that.

HEARING OFFICER CROWLEY: I appreciate what you said.

I ask you if you have any response to the question that he asked you, or do you stand on your refusal to answer the question based --

THE WITNESS: I stand by my refusal to answer the question based on ongoing litigation.

BY MR. KIM:

Q Are you the subject of that ongoing litigation, Mr. Mehrens?

A No.

Q So why is it that you feel you can't answer that question?

A Because I don't understand that -- how

it's applicable to this question before the board today --

Q Do you think the EPA misunderstood --

A -- and I represent the Salyers in that litigation.

Q Not as an attorney, though; is that correct?

A No, not as an attorney.

Q Do you think the EPA misunderstood the soil vapor extraction system that was described in your corrective action plan?

A No.

Q You do not?

A No.

Q Do you think the EPA, based upon what you have in your corrective action plan, understood how the system was to be designed, installed, and operated?

A Yes. They gave me approval to install it with this letter.

Q Do you think that approval was based upon the information found within the corrective action plan?

A Yes.

Q Do you think that information was found or was based upon anything outside of the information found in the corrective action plan?

A I assumed it was based on their knowledge of soil vapor extraction.

Q What knowledge would that be?

A I assumed the person that reviewed this plan understood what was involved in soil vapor extraction systems.

Q Are there certain --

A And I assumed that if he did not understand what was involved in this particular system, he would have asked me questions.

Q For example, through conditions in the approval letter; is that correct?

A I saw no conditions in this approval letter that related to installing the vapor extraction system.

Q That's what I'm saying. So since we didn't have any conditions which asked us -- but is what -- sorry.

Are you saying that since we did not place any conditions in the August 15th, 1997, approval letter that asked for further details about the soil

vapor extraction system that we were -- that we understood how the system would be designed and how it would be installed?

A Yes.

Q Did you state during earlier testimony that in some types of applications of a soil vapor extraction system an impermeable surface seal is not necessary?

A Yes.

Q What information should the EPA have been using to determine that an optional component of a soil vapor extraction system would, in fact, be utilized at a site when there is no specific mention of that in the only information that was submitted on that extraction system to the EPA?

A The EPA has a much larger file than was presented here as the administrative record that they could -- would have given them information about this specific site.

Q But I have asked you earlier, was there any information aside from the corrective action plan which described the soil vapor extraction system?

A No, but it described the site, and you

need to know the conditions of the site to understand what is necessary for that particular soil vapor extraction system.

Q Did your information in the corrective action plan reference those other materials?

A Yes.

Q Where?

A On page 9 of the administrative record, second paragraph refers to previous submittals to the agency including a subsurface investigation report, a phase II investigation report, and an off-site investigation report, all of which were previously submitted to the agency.

Q Does Petitioners' Exhibit Number 1, which is the article on the groundwater monitoring review publication, I believe, state that surface seals are used to control vapor blow paths?

A Yes.

Q Is it a fair statement to make that surface seals are an optional element of a soil vapor extraction system which would be used to control vapor flow paths?

A Yes. I believe -- I mean, one concept they are trying to point out --

Q I'm sorry. Can you not answer that as a yes or no?

A Yes. The answer is yes.

Q Is it also a fair statement to make that as part of the design criteria for a soil vapor extraction system you might not employ a surface seal?

A Yes, depending on the site.

Q I'm sorry?

A Depending on the site.

Q This article states -- Petitioners' Exhibit Number 1 states that surface seals are used to -- are sometimes used to control vapor flow paths. How does that -- and you also stated, I think, earlier that a surface seal is used to prevent the system from drawing surface air?

A That's correct.

Q Can you just explain for me how -- when the statement is made that vapor flow paths could be controlled how that interacts with the prevention of surface air from being drawn by the system just sort -- I know the two concepts are related, but if you could just sort of maybe link the two together, it might be helpful for the board and for us.

A On page 171 of the article, there is a figure that gives you a good explanation or gives you the concept.

Q Is that figure 12 of Petitioners' Exhibit Number 1?

A Yes, effect of surface seal on vapor flow path. Part (a) of that figure shows extraction piping which is, in this case, a vertical well. Without a surface seal, it shows vapor flow paths emanating from the surface directly down to the slotted portion of the pipe. Part (b) of that figure shows an impermeable seal over a portion of the site but not across the whole area. And again, the flow paths are from the surface where the impermeable seal does not exist down to the extraction piping.

So the concept they are trying to show here -- one of the concepts is that you could put a seal on only a portion of the site if you wanted to draw air from the surface through the contaminated soil to the piping as opposed to part (a) of the figure where the air is drawn straight from the surface basically bypassing the contaminated soil.

Q Okay.

HEARING OFFICER CROWLEY: Excuse me. Was it your testimony that in figure 12(b) the design is to bypass contaminated soil?

THE WITNESS: No. In 12(a), without a surface seal, you could be bypassing the contaminated soil. 12(b), the reason you would design a system that way was to draw the vapors through the contaminants.

HEARING OFFICER CROWLEY: Okay. I'm sorry. I just misunderstood.

THE WITNESS: I would like to add that the reason you would do something as depicted in 12(b) is if -- the one reason was if you had less permeable soil. If you were trying to pull vapors through clay, you may install a system like 12(b). You want to have some air from the surface because you have limited air in the subsurface. That's not the case at the Salyers' site.

BY MR. KIM:

Q When you are saying 12(b), doesn't 12(b) depict the use of a seal?

A Yes, but the seal is not over the whole site. That seal is just above the extraction piping.

Q Oh, I see what you are saying. Okay.

A So that what they are trying to do is pull some surface air.

Q Right. My misunderstanding in looking at (a) and (b) was that (a) was simply if no portion of the affected area was being -- was used with the surface seal and (b) was the entire affected area, but you are saying that, in fact, (b) shows -- it just shows how you can control the flow paths?

A That's correct.

Q I understand now. Thank you.

Did you take these types of control considerations into account when you designed the soil vapor extraction system?

A Yes. At the Salyers' site, I did not want to be pulling any air from the surface because the soils I was addressing were permeable.

HEARING OFFICER CROWLEY: I'm sorry. Because the --

THE WITNESS: Because the soils that were being addressed were permeable and also because the pilot test showed that it indeed worked well without pulling air from the surface.

BY MR. KIM:

Q Was this soil vapor extraction system ever

intended to -- ever intended to operate in the portions of the site that contained medium stiff clay?

A No.

Q So if -- you are saying that if this system were designed without a surface seal -- set aside the material that would be used, but if it were designed without a surface seal, that would negatively impact the desired performance of the soil vapor extraction system?

A Yes.

Q Are there portions of the piping -- let's look to page 31 of the administrative record. Again, this figure, I think you stated earlier, depicts the location of the piping used for the vapor extraction system?

A Yes.

Q Okay. What portion of this piping was used in conjunction with the concrete and asphalt cap?

A The piping that is northwest of the building, the four-inch slotted pipe four feet below grade.

Q And the slotted pipe is obviously

indicated by the hatched line?

A Yes.

Q Or hyphened line, dashed line, whatever it is.

What does the solid line depict?

A That connects the slotted pipe to the equipment.

Q Is that slotted -- or is the solid line, the four-inch piping -- the four-inch PVC pipe, located in any soils that were intended to be addressed by the soil vapor extraction system?

A No, no.

Q Is that in the medium stiff clay that was described in the other portion of the corrective action plan?

A Well, actually, there is some old backfill material in that portion of the site.

Q Okay. What portion of the two sets of pipes here -- if you can describe this based on this schematic -- were covered by concrete and what portions were covered by asphalt? Can you make that kind of delineation on this map, on this figure?

A Not really. I mean, most of it is asphalt. There is some concrete -- well, if I --

it's probably near the end of the solid pipe, and at the start of the slotted pipe there is some concrete.

Q You said earlier that the -- you said just now that the four-inch PVC pipe was not intended to be addressed by the system; is that right?

A Yes.

Q I apologize. My train of thought is just leaving the station left and right here.

Actually, I think that's all I have on that.

I'm sorry. The question I was going to ask you was when I asked you about where the concrete and asphalt would have begun and ended, is it -- using this map, can you roughly tell me where the contaminated soils that were intended to be addressed would end and where the other soils that were not intended to be addressed would have begun using that -- the pipeline there?

A It's difficult on that drawing. I don't believe there is a better drawing in this plan, though. In previous submittals to the agency, I think there was a better depiction of where the contaminated soils are, but the area of the

underground tanks that is contaminated extends below the station into the area where the piping is east of the station. The southwest portion of the property we have not found contamination, and the north -- very northeast corner of the property we have not found contamination.

Q Okay. Do you know what the radius of influence was supposed to be designed as?

A Thirty feet. That was from the pilot test.

Q Is that what you intended -- is that what you designed the system to be used for, the piping that's north and northwest of the building here?

A Yes.

Q Okay. Can you just explain for me -- if we are talking about a radius of influence, where would you measure -- I mean, are we talking about literally like a circle with a 30-foot radius, that type of thing?

A Well, it wouldn't be a circle because we have horizontal piping. If you had a vertical well, it would be a circle, but it would be 30 feet in every direction from the slotted pipe.

Q So essentially oval going around the

horizontal pipe that's slotted; is that right?

A Kind of an oval, yeah.

Q Well, if you were --

A It would have straight sides 30 feet long, and then it would be semicircle on each end with a radius of 30 feet.

Q In other words, each point along that horizontal line could be a center point of a circle, and I think if you drew those out with your handy dandy spirograph, you would get something that would look like an oval, like you said, a semicircle on one end, semicircle at the other end, and a straight line in between?

A That's correct.

Q But at some point at the end of the slotted pipe and where the four-inch PVC pipe begins, the contaminated soils conclude and uncontaminated soils not intended to be addressed by way of treatment would begin?

A At some point. I mean, it's definitely not right where the slotted pipe ends.

Q Somewhere towards --

A At some point towards the equipment building the contamination ends.

Q Okay. So I think you said earlier -- I could be mistaken, but I think you said earlier that the four-inch PVC pipe was located in uncontaminated soil. Is that not right?

A That's right. There is -- there is some contaminated soils below that pipe.

Q That were intended to be addressed?

A Yes.

Q Is there a --

A But it doesn't end. I mean, the solid pipe doesn't end exactly where the contamination ends.

Q Is there -- in this area of the site, is there deviation from the soil characteristics that were described earlier in the corrective action plan where it says that there is stiff clay to a depth of, I think, approximately ten feet?

A Yeah. As I previously stated, there is some backfill material in that area where that four-inch solid pipe is. There is also the backfill material around the tanks which, of course, is not the medium to stiff clay. And north of that slotted pipe, there is more sand than there is in the majority of the site and less clay.

Q And just to clarify something, the corrective action plan states that the system was intended to address those uniform fine to medium sands that are found at the site, and you are saying that's not necessarily the same thing as the backfill material?

A The backfill material also is sand.

Q Okay.

A But I think when I made that estimate, I was talking about the native sand.

Q Okay. As opposed to the backfill sand?

A Right.

Q And the native sand would be found, as you stated, intermixed with the otherwise medium stiff clay?

A No. It's below the clay.

Q It's below the clay?

A Yeah.

Q Okay. And there is native soil below the clay that is contaminated that extends from the location of those three tanks to underneath the surface building; is that right?

A Yes.

MR. KIM: Okay. I don't think I have anything

further.

HEARING OFFICER CROWLEY: Did you have any questions that you wanted to ask to clarify what he was just into?

MRS. SALYER: Yes. I just have a couple of things. Can I ask this time?

HEARING OFFICER CROWLEY: Whoever.

CROSS EXAMINATION

BY MRS. SALYER:

Q Do the soils at 551 South York not vary as you go around the property? If you took a soil sample, would you come up with something different at each location, or is it a consistent material there?

A The depth of the clay isn't consistent across the whole site.

MR. KIM: I'm sorry. Is or is not?

THE WITNESS: Is not.

BY THE WITNESS:

A The reason or -- one of the reasons the piping was placed behind the building was because there is -- the clay is not as deep, and we were able to put piping above the groundwater but below the clay. The clay is a little bit thicker west of

the building.

BY MRS. SALYER:

Q Was the house at 112 East Vallette that's pictured on diagram 31 not at one time located at 551 South York?

MR. KIM: Objection. That's outside the scope of direct.

MRS. SALYER: Okay.

BY MRS. SALYER:

Q The water flow at 551 South York goes from which location to what location?

A It goes from northwest to southeast.

Q So if it goes from northwest to southeast, having the four-foot -- the pipe -- the four-inch piping four foot below, the contaminants are naturally moving in that direction anyway because there are contaminants as far out as 30 feet from the end of the piping, isn't there?

A Yes.

Q Okay. And it's naturally moving towards the piping?

A Towards the other piping, correct.

Q Right. So the piping -- the piping will pick it up -- pick up the vapors?

A As they move to the southeast, the piping that is east of the building would pick up those vapors.

Q Okay. But the piping from -- by the tanks will not pick up any of that? It will just pick up the contaminants around the tank?

A It will pick up the contaminants within that radius.

Q The 30-foot radius?

A Correct.

Q Would that 30-foot radius be compromised if there was no surface seal?

A Yes, definitely.

Q And are not asphalt and concrete two of the seals that are recommended by USEPA?

MR. KIM: Objection. There has been no foundation laid as to any information from the USEPA.

HEARING OFFICER CROWLEY: Can you rephrase that?

MRS. SALYER: Did we bring the book? Do we have the book from USEPA with us today?

THE WITNESS: We do have the book.

HEARING OFFICER CROWLEY: The problem is what

he was asking didn't get into that, so...

MRS. SALYER: Okay. All right. I understand. Okay. I'm not an attorney, so just -- okay.

BY MRS. SALYER:

Q But asphalt and concrete are recommended surface seals?

A Yes.

Q Okay. And so as not to compromise the system as it was designed and adapted and modified to this particular site, we used a seal that was -- that is readily used by people who are installing a soil vapor extraction system?

A That's correct.

MRS. SALYER: Okay. I think that's all.

MR. KIM: Can we go off the record for a moment?

HEARING OFFICER CROWLEY: Yes.

(Whereupon, a recess was taken.)

HEARING OFFICER CROWLEY: We are going to go back on the record.

We had some discussion about the question that the witness declined to answer relative to the EPA's CAP approval letter and its conditions.

Mr. Kim, please go ahead and ask the

question that you were going to ask in lieu of that unanswered question.

REDIRECT EXAMINATION

BY MR. KIM:

Q Mr. Mehrens, what I wanted to know was aside from the information found within the corrective action plan and aside from the statements made in the cover letter to the reimbursement request, was any other information submitted to the EPA before April 10th, 1998 -- which is the decision of the reimbursement application that's at issue here, was any information submitted before that date which would have described or elaborated upon the soil vapor extraction system or which would have described or elaborated upon any kind of results which had been generated by that system?

A No. The system hadn't been started until after that April date, so I don't believe I submitted anything else between those two submittals.

Q And do you know what? I think you might have, but I want to bring this to your attention because I think this is the only other document.

If you look at page 102 of the administrative record, that's a letter that's dated January 20th of

1998 which I think was sent to -- after the CAP -- after the corrective action plan was sent in, after the corrective action plan approval letter was sent in, and I think after the reimbursement request was sent in as well, but this letter was before we made our decision on the reimbursement request, so this might also in some fashion address the soil vapor extraction system.

But aside from this letter then, is there anything else that you can think of?

A Not that I can think. I mean, this letter was an update of the installation. Your -- no. I don't remember that there were any other submittals that discussed the system, no.

MR. KIM: That's all I have.

HEARING OFFICER CROWLEY: Thank you.

MR. KIM: I have no further questions of Mr. Mehrens.

HEARING OFFICER CROWLEY: Thank you.

THE WITNESS: Thank you.

MR. KIM: I don't have any other witnesses.

HEARING OFFICER CROWLEY: You are not calling Mr. Bauer?

MR. KIM: Mr. Bauer made a trip for nothing.

MRS. SALYER: Can we call Mr. Bauer?

HEARING OFFICER CROWLEY: No.

MRS. SALYER: We were told that Mr. Bauer was going to be called.

MR. SALYER: We were going to cross examine him.

HEARING OFFICER CROWLEY: Well, you can't cross examine if he isn't called as a witness.

MR. SALYER: But they said they were going to call him.

MRS. SALYER: Now we find out when we're here that he's not going to be called.

MR. KIM: We are not required to call him as a witness. We are required to tell you who we may call as a witness so you are not surprised by anybody we would bring to the hearing.

MRS. SALYER: It's a bigger surprise that he's not going to testify.

MR. KIM: I don't know what to tell you other than Mr. Bauer -- we have made the decision that we don't have any further information we need to elicit for our case, and we don't have any need to call Mr. Bauer as a witness.

HEARING OFFICER CROWLEY: We did ask you if you

were going to call Mr. Bauer before you finished your case, and you did say no. So since Mr. Kim is not going to call Mr. Bauer, there is nothing that you can ask Mr. Bauer about.

MRS. SALYER: Okay.

MR. SALYER: Okay.

HEARING OFFICER CROWLEY: So the next thing that we have to decide is whether you want to make closing statements on the record or whether you don't want to, and then the next point after that would be whether you want to file written closing statements.

MR. KIM: Can we go off the record again?

HEARING OFFICER CROWLEY: Yes. We may go off the record.

(Whereupon, a discussion was held off the record.)

HEARING OFFICER CROWLEY: Back on the record.

Both the Petitioner and the Respondent are waiving putting closing arguments on the record today. We have determined that the February 3rd decision date is firm as the board's first February meeting is February 4th. That would mean that the board's decision then would be due at its second

January meeting, which is January 21st.

Based on the desire of the board in all cases to have all documents in its hands at least 30 days prior to the scheduled decision date, we have agreed upon a briefing schedule based on the board's receipt of the transcript on December 7th.

The Salyers' written closing comments are due in the board's hands December 14th, and the EPA's written closing comments are due in the board's hands December 21st. I am authorizing faxing of both of those briefs, of course to be followed up by hard copy. I have also stated that I will make a request that the clerk's office expedite putting the transcript on to the board's Internet site.

Obviously, if there is any slippage in this schedule, we have problems, so I am definitely requesting that everyone adhere to this schedule.

I find that there -- I'm required to make this statement about credibility in all cases.

I find that there is no question of credibility with the sole witness that was presented today. I will be issuing a closing report that puts that in writing and notes which exhibits were

admitted. If that doesn't go out tomorrow, it would go out the Monday after Thanksgiving.

I don't think that there are any outstanding matters.

Mr. Kim, am I forgetting any?

MR. KIM: None that I am aware of.

HEARING OFFICER CROWLEY: Mrs. Salyer, Mr. Salyer, anything else?

(No audible response.)

HEARING OFFICER CROWLEY: There doesn't appear to be anything else, so we will adjourn the hearing. Thank you all very much and have a happy Thanksgiving.

MR. KIM: Thank you.

MRS. SALYER: Thank you.

(Which were all the proceedings had at the hearing of the above-entitled cause on November 24, 1998.)

STATE OF ILLINOIS )
) SS.
COUNTY OF COOK )

I, CARYL L. HARDY, a Certified Shorthand Reporter doing business in the County of Cook and State of Illinois, do hereby certify that I reported in machine shorthand the proceedings at the hearing of the above-entitled cause.

I further certify that the foregoing is a true and correct transcript of said proceedings as appears from the stenographic notes so taken and transcribed by me.

CSR No. 084-003896

Subscribed to and sworn to before me this _____ day of _____, 1998.

_____
Notary Public