UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

In the Matter of:	:	
	:	
LOWELL VOS	:	Docket No. CWA 07-2007-0078
d/b/a LOWELL VOS FEEDLOT	:	
WOODBURY COUNTY, IOWA	:	VOLUME II

Fourth Floor Courtroom
United States Courthouse
123 East Walnut Street
Des Moines, Iowa
Tuesday, September 16, 2008

The above-entitled matter came on for hearing at 9:25 a.m.

BEFORE: WILLIAM B. MORAN, Administrative Law Judge

ORIGINAL

KELLI M. MULCAHY - CERTIFIED SHORTHAND REPORTER

APPEARANCES:

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I N D E X

E X H I B I T S

P R O C E E D I N G S

THE ADMINISTRATIVE LAW JUDGE: Good morning. We are here for day two, today being September 16th, and we were continuing with the cross-examination of Mr. Pollard; is that right?

MR. McAFEE: Yes, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: All right. Are you ready, Mr. McAfee?

MR. McAFEE: Yes, I am.

THE ADMINISTRATIVE LAW JUDGE: Okay.

MR. POLLARD: Would it be all right if I take my coat off?

Is it all right if I take my coat off?

THE ADMINISTRATIVE LAW JUDGE: Yes, that's all right.

And, obviously, you know you're still under oath, yes?

MR. POLLARD: Yes. Correct.

STEPHEN POLLARD,

called as a witness by counsel for the Complainant, having been previously duly sworn by the Administrative Law Judge, was examined and further testified as follows:

MR. McAFEE: Thank you, Your Honor.

CROSS-EXAMINATION (Resumed)

BY MR. McAFEE:

Q. Good morning, Steve.

A. Good morning.

Q. I think we'll pick up where we left off, and that is with Complainant's Exhibit 28 Pollard. And I believe we were ready to start with taking a look at Photo No. 23.

A. Okay.

Q. All right. Thank you. Steve, I believe you testified yesterday that Photo No. 23, which you--just to set the stage a little bit for the people in the courtroom, I guess--I guess the record will be clear--but this was taken during a visit to Lowell Vos' feedlot on March 11, 2008; is that correct?

A. That's correct.

Q. Okay. And I believe you testified yesterday that this photo to you represents manure in the channelized flow path; is that correct?

A. Yes.

Q. All right. And would you tell me how you determined it was manure?

A. It's more just my experience in--in with these feedlots. I've just come to, unfortunately, be

very familiar with manure and its appearance, what it looks like, and basically made the determination based on my experience that that's manure.

Q. Okay. Did it look fresh to you?

A. No. This was not fresh manure.

Q. Okay. In looking at Photo 23, it has a brown color to it; is that correct?

A. It's a shade of brown, yes.

Q. Okay. And bear with me. As someone who is partially colorblind, I'll have to depend on you for that. Did you-- I believe in other photos you may have testified that you had noticed an odor to what you testified yesterday was manure. Did you notice an odor to what you saw in Photo 23?

A. I did get down and smell it, yes.

THE ADMINISTRATIVE LAW JUDGE: You did get down and smell it?

THE WITNESS: Yes.

BY MR. McAFEE:

Q. And what did you smell?

A. It smelled of manure.

Q. Did you take a sample of it?

A. No, I did not.

Q. Did you consider taking a sample of it?

A. Yes.

Q. And you chose not to?
A. Yes.
Q. And why did you choose not to?
A. I didn't have the proper sampling equipment with me.
Q. And what would the proper sampling equipment be?
A. Vials, preservatives, acids.
Q. Okay. Do you normally take that sampling equipment with you when you go on a site investigation?
A. It depends on the type of investigation.
Q. Okay. And did you make a conscious decision not to take it with you on this investigation?
A. Yes.
Q. And why was it you made that decision?
A. The purpose of this visit was to establish or further document the channelized flow path.
Q. And so the purpose of this visit was not to determine if manure was present?
A. That wasn't the primary purpose of the visit, no.
Q. Okay. But you are presenting these photos to depict that manure was present; is that correct?
A. That's correct.

Q. Anything else about Photo 23 that-- I know you testified to it yesterday, but anything else about that that you want to tell the Court?

A. No.

THE ADMINISTRATIVE LAW JUDGE: Well, but I have a question, even if he doesn't have anything else he wants to tell me, and that is with reference to Photo 23, just make it clear for me, Mr. Pollard, is it your recollection and your testimony, looking at this photograph, that the manure that you referenced, is that manure in the channelized stream which appears to be-- You correct me on anything I say that you feel is incorrect, okay?

In the channelized stream which appears to have frozen water, is the manure only in that, or is it on to the left of that on what I would call the bank? In other words, I want you to be more precisely identifying where the manure is.

THE WITNESS: This--the manure in this photo is present. This--this channel to the left in the photo that's filled with ice, frozen water, is--

THE ADMINISTRATIVE LAW JUDGE: The channel to the left? I'm--

THE WITNESS: I'm sorry. The channel to the right is a portion of the channelized flow path in

here. It's one channel within that, and the manure is located on the left and the manure was located on the right of it.

Given that the water was--or the liquids were frozen, I wasn't able to look or determine what was in the actual channelized portion.

THE ADMINISTRATIVE LAW JUDGE: Okay. Well, help me out further. Is it your testimony that there was manure to the left of the frozen material or only in the frozen material?

THE WITNESS: It's on the left of the frozen material.

THE ADMINISTRATIVE LAW JUDGE: Okay. On the higher ground, in other words?

THE WITNESS: Correct.

THE ADMINISTRATIVE LAW JUDGE: And is it entirely along that--that side that hugs the frozen material, or is it just in the bottom half, top half?

We see some sort of remnants of the former crop, correct, further over on the left?

THE WITNESS: Correct.

THE ADMINISTRATIVE LAW JUDGE: So there's this middle area where there's no crop and no frozen water, right?

THE WITNESS: That's correct.

THE ADMINISTRATIVE LAW JUDGE: Okay.

THE WITNESS: And the manure in this photo extends from the bottom to the top of the photo.

THE ADMINISTRATIVE LAW JUDGE: Okay. Thank you.

BY MR. McAFEE:

Q. Let's move now to Photo 25.

Excuse me. I just noticed something. Can we go back to Photo 23 for a second?

A. Sure.

Q. There appears to be debris or something on top of the frozen liquid water on the right-hand side of the photo. Would that maybe be something that you, on walking there, would have maybe kicked over on top of the frozen material?

Do you see what I'm pointing to?

A. It's possible, yes.

Q. Okay. Just wanted to clarify that. Thank you.

No. 25.

A. Okay.

Q. The caption to this photo says in--in part says "Photo shows manure solids within the channelized flow path."

In this photo, where is the channelized flow

path?

A. Well, it's--it's where the--it's where the manure is.

Q. Okay. This was right in the channel?

A. Yes.

Q. Okay. Because I--does that appear to you to be snow underneath what you have identified, I believe, to be manure?

A. It appears to be, yes.

Q. And so the snow was right in the channelized flow path also?

A. It appeared that there was some there, yes.

Q. Okay. And then there's something brown underneath the snow. Can you tell what that is?

A. That appears to be soil.

Q. Okay. So what we're talking about, then, as--that you've identified as manure is on top of the snow; is that correct?

A. Correct.

Q. And it appears to be broken off here. You know, we're looking at a side angle of it that shows how this material was deposited. Is this the way you found it?

A. I may have broken off a portion of that to get an idea of its profile. So I would say that's

probably not how I found it.

Q. Okay. Did you take a sample of this material?

A. No, I did not.

Q. And you testified that you didn't have the proper sampling equipment with you. With a material like this that appears to be fairly solid, would it have been possible to secure a sample in some way to take it back to a lab? Do you need specialized sampling equipment to take a sample of something like this?

A. Well, we have sampling protocols that the agency requires us to follow, and there would be one for solid manure, and I would have to follow that protocol, and that protocol would probably require proper storage and preservative techniques, chain of custody for me to take it, and I wasn't prepared to do that.

Q. Okay. Is it possible, Steve, that this is feed from the feedlot?

A. It's possible there is feed, yes, in that.

Q. Are you familiar with corn silage?

THE ADMINISTRATIVE LAW JUDGE: With corn what?

MR. McAFEE: Corn silage.

A. I'm aware of it, yes.

BY MR. McAFEE:

Q. And can you describe for the Court what corn silage is?

A. As far as I know, it is--it's corn that's been harvested along with the plant portion of it and is allowed to begin to ferment, and then it's either ground up or chopped and then fed.

Q. And so you have seen corn silage?

A. Yes, I have.

Q. Does this material here look like corn silage?

A. It doesn't look like the corn silage I've seen.

THE ADMINISTRATIVE LAW JUDGE: It does not?

THE WITNESS: It does not.

BY MR. McAFEE:

Q. And how does it differ?

A. This appears to be a finer, much finer material. There are corn kernels present, but corn silage isn't just the corn kernel, and so this is a much finer material.

Q. Did you see any corn silage at Lowell Vos' feedlot on this day when you were there?

A. I did not observe any.

Q. Steve, are you familiar with what--a feed material called wet distillers grains?

A. I'm aware of that, yes.

Q. And can you tell the Court what you know about that?

A. It's basically a byproduct of ethanol production. It's the leftover portions, I believe, of the corn kernel that the ethanol plant no longer uses, but it still has a high nutrient content, and therefore it is used as a feed for cattle.

Q. Have you seen wet distillers grains?

A. Yes, I have.

Q. And did you see any at the Lowell Vos feedlot on March 11th?

A. No, I did not.

Q. Does this material look like what you have seen-- Let me rephrase that.

Does this material look like wet distillers grains to you?

A. No, it does not.

Q. And tell me how it would differ.

A. Again, it's--it appears to me to be too fine of a texture for that, and it's--from what I've seen of it, the corn kernels don't look like what I've seen in distillers grains.

Q. Okay. So you made the determination, both that day and subsequently, that this was neither corn silage nor wet distillers grains?

A. I determined that it didn't appear to be solely feed.

Q. Okay. Did you notice an odor from this material?

A. Yes.

Q. And what was that odor?

A. It smelled like manure.

Q. Have you ever noticed an odor from feed such as corn silage or wet distillers grains?

A. Yes, I have.

Q. And is that odor different than what you noticed in Photo 25?

A. Yes.

Q. Let's move now to Photo No. 24. Can you tell me how photo-- Wait. I took those out of order. I apologize. I must have had them out looking at them and I put them in the wrong order. But the record will be clear as to which ones we were talking about.

We are now looking at Photo 24, which does that mean you took Photo 24 before you took Photo 25?

A. That's correct.

Q. Okay. This is a-- Is this of the same material that we looked at in Photo 25?

A. It's not the exact same material. It's in the same area. So it's not the same material that was in Photograph 25.

Q. Okay. So Photo 25 is a more close-up photo, but it is of a different material than we see in Photo 24?

A. I believe so, yes.

Q. Okay. We went through in a fair amount of detail about the material in Photo 25. Is it your testimony that Photo No. 24 depicts the same material; that is, manure?

A. Yes.

Q. And that it would not be the feed materials I've described and you have described for me in the testimony regarding Photo 25?

A. It's possible that there's some feed mixed in that.

Q. Now, in Photo 24, we see a channelized flow path to the right-hand side of the photo; is that correct?

A. There is a channelized path there, yes.

Q. And, again, the material that you have testified and depicted as manure is not actually

right in that channelized flow path, is it, or--
Well, I'll let you testify to that.

A. It is not present in the area that is covered by ice.

Q. Again, on the material that you have testified as manure, it appears that a portion has been broken off. We see a side view there; would you agree?

A. In Photograph 24?

Q. Yes.

A. Yes, I do agree.

Q. Did you do that or was it done?

A. I don't recall.

Q. And who was with you that day?

A. Don Hamera.

Q. And was Don present right when you took these photos?

A. No, he was not.

Q. Okay. He would have been in the pickup?

A. That's correct.

Q. Okay. So you were the only one right at this site in the immediate vicinity taking these photos?

A. That's correct.

Q. Okay. I'd now like to move to Photo 26. Is

there any material that you would describe as manure or pollutants from the Lowell Vos feedlot in this photo?

A. No.

Q. Moving to No. 27, I would have the same question for you.

A. Your question was is there any manure in this photo?

Q. Yeah. I'll be glad to ask the question. In Photo 27, is there any manure or other pollutants from the Lowell Vos feedlot in this photo?

A. I did not observe any.

Q. Okay. One general question here that we've seen in several of these photos. Of course, this one shows it very well. This is a cornfield, correct?

A. Correct.

Q. And the corn has been harvested?

A. Correct.

Q. And would you describe the material left as residue?

A. I would call these crop residues, yes.

Q. Okay. And would you consider this to be fairly normal crop residue from a corn crop as you see in your work?

A. For this, yeah, this is typical for after

harvest, yes.

Q. And does it appear to you that this ground has been tilled or worked in any way following the corn harvest?

A. That does not appear to have been.

Q. Okay. I just wanted to clarify that. Thank you.

No. 28?

A. Okay.

Q. And this is a photo where you have drawn in and depicted the channelized flow paths. Do you see any manure or other feedlot pollutants in this photo?

A. I did not observe any, no.

Q. Moving to Photo 30, please, Photo 30 is, I believe you testified, and it states in the caption that it is-- Well, maybe it-- Yes, it does state it in the caption, that it's of the unnamed tributary; is that correct?

A. That's correct.

Q. In this photo, do you see any evidence of manure or other feedlot pollutants from the Lowell Vos feedlot?

A. No, I don't.

Q. In any of these photos that follow, there's Photo 31, 32, 33, 34, 35, and 36, we have now moved

into Elliot Creek, Photo 37 and Photo 38--

THE ADMINISTRATIVE LAW JUDGE: Did you have a chance to look at each of those as counsel was mentioning them?

THE WITNESS: I have looked through them.

BY MR. McAFEE:

Q. And I would be glad to go through them one by one, but I thought in the interest of time I would just ask the question pertaining to all of these photos. Do you see evidence of manure or other feedlot pollutants from the Lowell Vos feedlot in these photos?

A. The only one that I would have concern with would be 38, and there's quite a bit of foam present, which typically is indicative of high nutrient levels and typically seen with feedlot runoff.

Q. Okay. Let's save our-- We'll talk about that in a minute. In the other photos, did you see anything that appeared to be manure or feedlot pollutants?

A. No, I did not.

Q. Now, Photo-- Let's back up a second. The photos that pertain to the unnamed tributary that you took, did you take any samples of the unnamed tributary?

A. I did not.

Q. Then we move to Photo 38, where you've identified some foam in this photo. Are you speaking of the-- Well, would you tell me where you see that?

A. There's foam present to the right portion of the stream. All throughout the--the point at which it flows out of the culvert and down, there's--there's foam present in there.

MR. McAFEE: Your Honor, may we go off the record for just a minute?

THE ADMINISTRATIVE LAW JUDGE: Yes.

(Discussion off the record.)

BY MR. McAFEE:

Q. Steve, could you-- We have now placed Photo 38 on the projector, and could you identify with the pen where you are seeing a foaming material that you have testified could be indicative of a feedlot material?

I probably didn't use the same words you used, but the record will be clear as to what you testified to.

A. I will circle all areas where I think where I see the foam.

Q. Okay. Thank you. Does the caption show any--indicate any-- Let me start over.

Does the caption-- Which you wrote, right?

A. The description?

Q. Yes.

A. Yes.

Q. I-- Yes. Photo 38 has a description. Did you author that description?

A. I did.

Q. And did you do that fairly soon after the photo was taken?

A. The day after.

Q. The day after. In that description, do you identify anything as looking like manure or something from the feedlot as you've described today?

A. I do not.

Q. Did you, at the time you prepared that description, believe that could have been a foaming material from a feedlot?

A. Yes.

Q. But you didn't describe it in the description?

A. No, I did not.

Q. Okay. When you noticed that material when you took the photo, did you notice any odor?

A. No, I did not.

Q. Did you check for odor?

A. No, I did not.

Q. Did you-- And I think I know the answer to this question, but I have to ask. Did you take a sample of this?

A. No, I did not.

Q. Was Mr. Hamera with you when you were observing this?

A. I believe he was.

Q. Okay. And was he out with you when you took the picture?

A. I can't recall if he was standing next to me, if we stayed in the truck. I'm right outside the pickup truck.

Q. Okay.

A. This is along a road. Actually, now that I think about it, I think I was sitting in the truck when I took this, so we were together in the truck.

Q. And so after you took this photo-- At the time you took this photo, did it then occur to you that that could be a--the foaming from the feedlot right when you took the photo?

A. No.

Q. Did that occur to you later?

A. It occurred to me when I was analyzing the photographs, yes.

Q. I see. So at the time you took the photo, you would have had no reason, then, to move closer and look at it closer?

A. That's correct.

Q. Okay. All right. Thank you.

A. We done?

Q. Well, we may use it--

MR. McAFEE: We'll go off the record.

(Discussion off the record.)

MR. McAFEE: We have what the witness has marked on Photo 38, which is from Exhibit--Complainant's Exhibit 28 Pollard. I would like to designate this as Respondent's Exhibit 16, and I would therefore move its admittance.

MR. BREEDLOVE: No objections, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Yesterday didn't we have this as-- Is that the correct number, 16, Respondent's Exhibit 16? Is that the next one in sequence? Are you sure?

MR. McAFEE: That's the number I have, unless I'm mistaken. We used our 15 yesterday.

THE ADMINISTRATIVE LAW JUDGE: Okay. You're right. That was the last one I noted. Okay. So Respondent's Exhibit 16, with no objection, is admitted.

(Respondent's Exhibit No. 16 was received in evidence.)

BY MR. McAFEE:

Q. After taking Photo 38, which is the last photo that you took that day, correct--

A. That's correct.

Q. --what did you then do during your visit on March 11th of 2008?

A. We drove home, back to Kansas City.

Q. Okay. I'd now like to move to Complainant's Exhibit 42 Pollard.

THE ADMINISTRATIVE LAW JUDGE: Let's just go off the record for a second.

(Discussion off the record.)

BY MR. McAFEE:

Q. Moving to Complainant's Exhibit 42 Pollard, you have that in front of you?

A. That's correct. Yes, I do.

Q. I would like to-- Well, first of all, setting the background here, since you testified to this earlier, this is a visit by you to the Lowell Vos feedlot on July 1st of 2008? These photos pertain to that; is that correct?

A. That's correct.

Q. And who was with you this day?

A. Sandy Doty and Dan Breedlove.

Q. Okay. And could you identify those individuals as to who they are and what they do?

A. Dan is an attorney, and Sandy is a contractor that we are using as a--to assist us in our modeling.

Q. And, in fact, she has been designated as an expert in this case; is that correct?

A. That's correct.

Q. Okay. And what was the purpose of your visit?

A. Again, the purpose of the visit was to further document the channelized flow paths from Mr. Vos' feedlot. We wanted to assess the channels at a different time of year.

Q. And is this the first time that, to your knowledge, Ms. Doty was at the feedlot?

A. Yes.

Q. And this would have been your third trip, roughly, considering the first trip you didn't actually go to the feedlot but did--took photos of the unnamed tributary and Elliot Creek, but this was your third trip to the area?

A. Yes.

Q. Did you talk to Mr. Vos this day?

A. Yes, I did.

Q. And could you tell me about those discussions?

A. I believe we contacted him to notify him we were coming. We then contacted him again to discuss the time of arrival. We arrived. He was waiting for us. We discussed, again, I think, why we were there, what we planned to do.

He talked a little bit about current status of his facility. I think we talked about the number of head he had at that time. We talked about the type of cattle he had at that time.

Q. How many head did he have at that time?

A. I believe he indicated he was right under a thousand, if I'm not correct.

Q. Okay.

A. Or I recall him saying he was just under a thousand.

Q. And, of course, Steve, we had this discussion yesterday regarding the March 11 visit, but I will have the same questions here. Since he was under a thousand, as he indicated to you, would that mean he was in compliance with-- Let me restate that.

Would that mean he is not a large CAFO for

federal regulatory purposes?

A. That's correct.

Q. So this visit then, because he was under the threshold for being a large CAFO, would not have been a compliance visit; is that correct?

A. It was not a compliance evaluation inspection.

Q. Okay. It was a visit, as you've testified, to prepare for this case, for this hearing; is that correct?

A. It was gathering additional information, yes.

Q. Okay. Let's look at Photo No. 1. And I know you've testified as to where this was taken. As I look at it closer, and I guess this is the first time I've seen this, there appears to be a person in the background there. Do you know who that is?

A. That's Mr. Breedlove.

Q. Okay. And is he in the feedlot?

A. I--I don't know. He's along the fence line there. I don't know if he's inside or outside.

Q. Okay. But that would be the direction of the feedlot; is that--

A. That's correct.

Q. Okay. And could you tell the Court your

opinion as to how tall the corn is here in these--in this photo?

A. It varies in the photo, obviously. I would say it was anywhere from 2 feet to 4 feet.

Q. Okay. Did you walk out in the corn that day, other than where you've taken these photos of the flow path?

A. Yes, I did.

Q. And where did you walk, just in general?

A. It was further down. I kind of walked back to determine if there was any additional flow coming in, so I was walking into the corn.

Q. And what did you determine?

A. Well, at that time I just was trying to identify where the upstream channels met up with the lower stream channels, so I was able to find where those channels were and then connect them.

Q. And were you able to do that?

A. Yes.

Q. Okay. What I need to do now, as you might suspect from my questions in the earlier photos, I just want to determine which photos in this set depict manure or other pollutants from the feedlot.

And I'll be glad to go through them one by one, and I want you to have ample opportunity to

examine each photo. Or if you can look at those and tell me so that we can move through them a little quicker, we can do it that way.

A. I'll do it however you want.

Q. Okay. Photo 1, do you see anything in Photo 1 that shows manure or other feedlot pollutants?

A. No, I do not.

Q. Photo 2, do you see anything that shows manure or other feedlot pollutants?

A. The only thing in Photo 2 that I see is the white material at the very bottom of the photo next to the cornstalk that's been knocked over.

Q. And tell me what you see and what you think that is.

A. That appears to me to be either a calcium or salt deposit from dried--from liquids that are dried there, and that's the--those materials left over as the water's dried out.

Q. And you believe that could be from the feedlot?

A. It's possible, yes.

Q. And did you make that determination when you were there that day?

A. I looked at it and I saw that-- I saw it there and I saw it in other points and considered it

to be potential feedlot residues.

Q. Did you take any samples of this material?

A. No, I did not.

Q. Did you have your sampling equipment with you?

A. No, we did not.

Q. And did you make a conscious decision not to have it with you that day?

A. I chose to not take the sampling equipment, yes.

Q. And why did you make that decision?

A. Because the purpose of the visit was to basically document the channel.

Q. Not to determine the existence of manure or other pollutants?

A. That was not the primary purpose, no.

Q. Let's move on, then, to Photo 3.

A. Okay.

Q. Do you see anything in that photo that shows manure or other materials, pollutants from the feedlot?

A. No, I do not.

Q. Photo 4, do you see anything in that photo that shows manure or feedlot pollutants?

A. Photo 4 has standing water, and the standing

water appeared to have manure in it.

Q. We're going to come to Photo 5. Is Photo 5 a close-up of what you saw in Photo 4 from a distance?

A. No, it is not.

Q. Okay. So Photo 4 is something different, and what you just described, is it at the point of the uppermost arrow?

A. That's correct.

Q. Okay. Tell me what you did when you-- Did you notice that when you took the photo?

A. Yes.

Q. And what did you do then?

A. I walked up and further observed it.

Q. How did you further observe it?

A. Got down, looked at it, smelled it.

Q. When you were taking these photos, was Ms. Doty with you?

A. Yes, she was.

Q. Right--right next to you, with you as taking these photos?

A. There were some times when she may have been some ways behind me. I--I can't recall, but I believe she was in the general area of my--of me when I took the photo.

Q. And I understand I'll have the opportunity to ask questions of her, but do you recall if Ms. Doty examined these--this material in Photo 4 that you believe is from the feedlot? Did she do that also?

A. I can't recall if she looked at that exact one. She did analyze the additional-- I mean, these pools existed throughout this channel, and, I mean, I know we both looked at them. I don't know if she looked at that one. I don't know.

Q. And so-- Okay. I won't need to ask that question again. I'll have the opportunity to take her testimony.

And I know the answer to this because you've testified to it, but I need to ask again, did you take any sample of the pool--the material in the pool in Photo 4?

A. No, I did not.

Q. Do you ever carry a field--what's called a field test kit by-- I know at least Iowa DNR calls it that.

A. No, I do not.

THE ADMINISTRATIVE LAW JUDGE: Never? You never carry one?

THE WITNESS: Never carry one.

BY MR. McAFEE:

Q. Moving to Photo 5.

A. Okay.

Q. Describe for me what you-- There's a pool and dark coloration in the middle of the photo. Could you describe this for me in more detail?

A. This is a depression in the channelized flow path that was holding water. The water appeared to contain manure, and there was a considerable amount of insect activity, flies on it, strong odor of manure.

Q. I believe you testified, and we can see it in the photo, part of it appears to be green; is that correct?

A. Yes.

Q. And do you believe that's related or--to being manure?

A. That appears to be algae.

Q. What part of this photo would you consider to be the manure that you noticed the strong odor from?

A. I would say it's mixed in with the water portion and there's probably some solids that have been deposited on the surface where it's dry.

MR. McAFEE: I believe we better crank up

the projector here.

BY MR. McAFEE:

Q. You now have Photo No. 5 on the projector. Could you mark the areas that you believe are manure that you noticed the strong odor from and that you've testified would be from the Lowell Vos feedlot?

A. (Witness complied.)

Q. So what you've just drawn the circle around is where your testimony is that is the material you believe is manure?

A. Yes.

Q. Okay. The green material, then, is within your circle, and you've testified that you believe that is algae?

A. Yes.

Q. Where did--where did you notice the strong odor? Was it when you got right down next to this pool?

A. I could--I could notice it just standing by it, but I did get down closer to it. And I could, obviously, notice it more standing right--or with my head down towards it, but you could--you could notice it just standing next to it.

Q. Did you see any solid material there, such as-- Well, you've testified earlier that in the

March 11 photo you noticed corn and some finely chopped material. Did you see any of that here?

A. No, I did not.

Q. So this was different than what you saw in the March 11 photos, where you identified it as manure?

A. Yes.

Q. You've also testified regarding the flies. Are they visible in the photo?

A. I don't think they came out, no. I don't see them in the photo.

Q. And I believe specifically your testimony was insects. Was there anything other than flies there?

A. Primary thing I observed was flies.

Q. Did you get close enough where they got on your arm or on your body, or anything, like flies tend to do?

A. They were agitated with--with me being there. I mean, as I-- Yes. They were flying around when I stood by it and when I got down by it, but...

Q. But you couldn't get a photo of them?

A. I didn't take a photo that has the flies in it, no.

Q. Okay.

MR. McAFEE: I would now like to move admittance of this exhibit, as Photo No. 5 from Complainant's Exhibit 42 Pollard, as marked on by the witness would be our 17.

MR. BREEDLOVE: No objections, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Respondent's Exhibit 17 is admitted.

(Respondent's Exhibit No. 17 was received in evidence.)

BY MR. McAFEE:

Q. Steve, regarding Photo No. 5, and I believe all of the photos in this packet that's--I'll go through them one by one if we need to, but the descriptions-- Well, there are no descriptions on these photos; is that correct?

A. That's correct.

Q. And why is that versus the photos that you took in March?

A. It's I--I just didn't do it for these.

Q. Okay. Photo No. 6--

A. Okay.

Q. --is this a different area than Photo 5 depicted?

A. Yes. It's further down.

Q. And do you see any evidence of manure or

feedlot contaminants, pollutants?

A. Again, the wet area appeared to have strong manure odor, which indicated the presence of manure.

Q. Did you see flies here also?

A. Yes.

Q. And did you follow the same procedure to make your determination that that was manure as you did in Photo 5?

A. Yes.

Q. Okay. And you did not take a sample, correct?

A. Yes. Correct.

Q. Correct you did not take a sample?

A. Correct, I did not take a sample.

Q. Okay. Photo No. 7, could you describe that for me, please?

A. Again, this is further down the channelized flow path. We have two pools similar in characteristics to pools in the previous--in Photograph 6 and in Photograph 5.

Q. And there is a green material here also; is that right?

A. That's correct.

Q. And would you identify that as algae?

A. It appears to be, yes.

Q. And would you say algae would have to be related to the manure, or could you find algae in a pool of water like this without manure present?

A. I wouldn't expect to see that amount of algae in a pool of water unless it has a strong nutrient source, phosphorus. Typically algae blooms--you get algal blooms with high nutrient levels, and so I would say algae's present here in this abundance, there's so much of it, because of the presence of the nutrients.

Q. To your knowledge, did the cornfield that surrounds these photos have fertilizer applied to it?

A. I'm not aware of it.

Q. If it did, could that be a nutrient source also?

A. Could be.

Q. And whether that fertilizer was manure or commercial fertilizer that had phosphorus in it, could both of those be a source for this algae?

A. It's possible, yes.

Q. Okay. Photo No. 8.

A. Okay.

Q. Do you see any evidence of manure or feedlot pollutants in this photo?

A. No, I do not.

Q. And do you notice at the point of your upper arrow the corn is yellow and shorter, it appears?

A. That's correct. Yeah, I see that.

Q. Did you make any observation regarding that area as to why that corn was that way?

A. I did not attempt to determine why that corn was that way.

Q. Did you walk in to that area at all?

A. I walked on down there, yes.

Q. Was it wet there?

A. There was a groundwater seep further down. I don't know if that's the exact spot, but that--that I'm getting close to that area where the groundwater seep was occurring.

Q. Are you familiar with the weather that this--that the area of Lowell Vos' feedlot experienced during the, let's say, month of June prior to you being there?

A. It was a wet, wet period, extremely wet period.

Q. And I know there are records, I believe, that have been produced that will show the amounts of rainfall, et cetera, but is it your understanding that Iowa, including this area, received an inordinate and record amounts of rainfall?

A. I don't know. They got a lot of rain, the state did, yes.

Q. Okay. In Photo No. 9, again, I have the question is there any evidence here of manure or feedlot pollutants?

A. Similar characteristics in--in where the water was present.

Q. And that would be just below the upper arrow; is that correct?

A. That's correct.

Q. And tell me exactly-- Well, did you notice an odor there?

A. It wasn't as strong--excuse me--but it was present. It would--it was appearing like the water was--the areas that were holding the water were releasing the manure, or something, in the channel that was producing the smell.

Q. And I see some--in the photo I see some water standing to the left of your two arrows, pretty much to the left of the base of the second arrow. Do you see that?

A. Yes.

Q. Did you notice any manure odor there?

A. No, I didn't.

Q. And so there is standing water there but no

manure odor?

A. I didn't notice it there, no.

Q. Okay. Is this where you noticed a--I think what you've described as a seep?

A. Yes. This is the point.

Q. And you can tell from this photo and from your inspection, of course, there is no corn planted in much of this area here; is that correct?

A. There doesn't appear to be any growing there.

Q. Yes. That's a better way to say it. Do you see any residue from a past corn crop?

A. Yes, I do.

Q. So it appears that maybe in the previous year or in--that corn was actually planted and growing there?

A. There was--there was corn growing there at one time, yes.

Q. Okay. Thank you.

Photo No. 10, I believe you testified yesterday that you used the words "brown water." Do you recall that?

A. Specifically related to this photograph?

Q. Yes.

A. It's--it's possible I said that. I'd have

to--

Q. Okay.

A. --refer back.

Q. Well, let me ask you, do you see any evidence of manure or other feedlot pollutants in this photo?

A. The very bottom of the--at the very bottom of the photo, where the--that's basically the channelized portion that we saw on Photograph 9, that area, I observed the same material and characteristics that I observed in the upstream ponds.

Q. And do you mean the very lower left?

A. Yes.

Q. Other than that, do you see any evidence in this photo of manure or feedlot pollutants?

A. No, I don't.

Q. And the water, then, that we'd see in the middle of the photograph just below the corn and what appears to be a--well, it's a round object that appears to be maybe a disc blade or something, do you see any evidence of manure or feedlot pollutants in that area?

A. I did not observe any there.

Q. Okay. Did you see any flies in this area?

A. Yes.

Q. Are they in the photo?

A. I don't see any in the photo, no.

Q. Okay. And you didn't take a sample of this area either, did you?

A. I did not.

Q. Okay. Moving to Photo 11, there are two individuals in this photo. Could you identify them for us, please?

A. The individual furthest to the left is Sandy Doty, and the individual standing next to her is Dan Breedlove.

Q. Okay. Do you see any evidence of manure or other feedlot pollutants in this photo?

A. Not in this photo, no.

Q. And so, again, the purpose of all these photos was to show the channelized flow path, and this is a photo right at the unnamed tributary; is that correct?

A. That's correct.

Q. And there is quite a washout there. Would that be indicative of heavy rains?

A. Well, not necessarily.

Q. Okay. What--tell me what--why not.

A. It could-- Generalization like that could

occur from long, chronic runoff or flow through that area just gradually eroding the soil away. If you look at the unnamed tributary, it's got a rather deep-cut channel. Elliot Creek's a deep-cut channel. It's just acute rainfall could cause it, the chronic flow could cause it as well.

Q. When you were at the site in March, you were in this same area; is that right?

A. I did not--I did not go down to this point in March.

Q. You did not go down to where the channelized flow path, as you've described it, meets the unnamed tributary?

A. I did not.

Q. So you don't know if this channel, deep-cut channel here, was present in March?

A. This was the only time I observed this--

Q. Okay.

A. --this portion.

Q. Moving to Photo 12, do you see any evidence of manure or feedlot pollutants in this photo?

A. No, I do not.

Q. And did you observe any while you were present?

A. No.

Q. And did you take any sample of the unnamed tributary that's shown in this photo when you were present?

A. No.

Q. Did you then go on--during your visit on July 1st, did you go on to Elliot Creek itself?

A. We drove by it, yes.

Q. And but you did not take any photos of it?

A. No.

Q. And did you get out and look at it?

A. I think we did, yes.

Q. And what did you observe?

A. It was flowing. The same observations I've seen the last--the previous two times I've been there. It was flowing. The channels were the same. That was about the extent of it.

Q. Did you see any evidence of manure or feedlot pollutants?

A. I didn't document any, no.

Q. Did you see any other evidence of any contaminants or pollutants from any other source?

A. I saw no evidence.

Q. Thank you. Is that the last time you were present at the Lowell Vos feedlot?

A. Yes, it was.

Q. Were you in your current position with EPA when the Iowa Plan was initiated?

You know what I'm referring to by the Iowa Plan?

A. Yes.

Q. Were you in your-- Well, were you with EPA at the time?

A. I was with EPA, yes.

Q. And were you--what position were you in?

A. That would have been 2001. I was working in a separate--a different area.

Q. Was it related to livestock and animal feeding operations?

A. I wasn't.

Q. What year did you-- And you may have testified to this. I apologize. But what year did you begin working in the livestock/animal feeding operations area?

A. I believe it was in 2004.

Q. And was your work related to inspections and enforcement? And maybe I used the wrong terms there. Was your work beginning in 2004 with animal feeding operations related to inspections of feedlots?

A. Yes, it was.

Q. During that time and from when you started

there till--well, I'll just--until, let's say, April 1 of 2006, which I believe is in the record as the indication of the end of five-year period for the Iowa Plan, do you recall working on any inspections of feedlots in Iowa?

A. Yes, I do.

Q. Okay. And tell me about that.

A. We performed inspections at a number--a number of facilities in Iowa between that time period.

Q. Do you recall, were they enrolled in the Iowa Plan?

MR. BREEDLOVE: Objection, Your Honor. This is beyond the scope of direct. Mr. Pollard testified to facts that he witnessed. He didn't--didn't testify to any Iowa Plan.

THE ADMINISTRATIVE LAW JUDGE: Okay. Do you want to respond to that, Mr. McAfee?

MR. McAFEE: Well, I understand, Your Honor, but this is, of course, a material fact in the case regarding the EPA's position on the Iowa Plan, and I'm just asking Mr. Pollard, as I did Mr. Sena yesterday, about their experience in conducting investigations during the Iowa Plan.

THE ADMINISTRATIVE LAW JUDGE: I'm going to

allow the question.

But let me also give you some guidance as to my perspective on this. Even if I were to accept your objection, Mr. Breedlove, it seems to me that that just delays the answer to that question, because I would not oppose if Mr. McAfee then decided to call Mr. Pollard as a hostile witness and ask those questions on direct examination.

So it seems to me it's relevant, one way or another it gets in. The question is the timing of it. So that's part of what my thinking is.

MR. BREEDLOVE: Thanks, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: And it will apply for you as well, both ways.

MR. BREEDLOVE: The point I'd like to raise is that we are bringing somebody in from IDNR to testify specifically to this plan.

THE ADMINISTRATIVE LAW JUDGE: Right. But this is counsel's choice as to the individual. It isn't that you have complete control over the individuals those questions may be asked. There may be some variance between people's interpretations of the Iowa Plan or other questions.

MR. BREEDLOVE: I understand, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay. So go

ahead and ask your question again.

MR. McAFEE: Thank you. Could the court reporter please repeat my last question?

(Question read by the reporter.)

A. Yes, they were.

BY MR. McAFEE:

Q. And do you recall, were they, for some reason, I'll use the term, kicked out of the Iowa Plan?

A. I don't recall whether or not they were officially removed from the Iowa Plan or not.

Q. And do you remember about how many feedlots you would have inspected prior to the end of the Iowa Plan?

A. Without looking at the actual lists, I would say it was four, four or five.

Q. And, again, you don't recall today whether they were actually still in the Iowa Plan; is that correct?

A. That's correct.

Q. Okay.

MR. McAFEE: Your Honor, may we go off the record for a minute?

THE ADMINISTRATIVE LAW JUDGE: Yes, we'll go off the record.

(Discussion off the record.)

BY MR. McAFEE:

Q. Steve, you've had some experience with doing some modeling; is that right?

A. I have, yes.

Q. And I believe the model you use in your work is called TR-55?

A. That's one of the models I use, yes.

Q. Have you used either of the models that have been used by Ms. Doty in this case?

A. I have not, no.

Q. Okay. When you were present at the site on July 1st of 2008, you've testified that was related to gathering information for the modeling purpose; is that correct?

A. Yes.

Q. I think sometimes the term "ground truthing" is used. Is that how you would describe it?

A. Yes.

Q. Okay. What about the term "calibration" of a model, would you describe your trip that way also?

A. I--I wasn't calibrating a model on that trip.

Q. And what about there's a term used in modeling called "validation," would you describe that

as what you did, you yourself, that day?

A. The visit was validating some of the parameters that we used in the model, yes.

Q. And did you validate some of the-- I know you didn't do the modeling, so I'm not trying to-- If this is an improper question and you don't feel comfortable answering it, that's fine, but did you--the work you did, did you feel it validated the modeling?

MR. BREEDLOVE: Objection, Your Honor. He's asking Mr. Pollard to testify to what Ms. Doty's going to testify. He's asking questions beyond the scope of his knowledge.

THE ADMINISTRATIVE LAW JUDGE: You can ask him a question about exactly what he did, and whether that was then interpreted by Ms. Doty later on is a different issue. But if he was out there measuring certain things, observing certain things for the purpose of validating, you can ask him exactly what he did.

MR. McAFEE: Okay.

BY MR. McAFEE:

Q. What you've described for us in the photos and your visit that day, was that for purposes of, number one, validating the model?

A. It was to validate parameters that we used in the model.

Q. Okay. I apologize for going back, but there is--if you could go back to the photos from July 1st-- And actually I need to bring it to you because it's the one you marked on. It's Photo No. 38, okay? Do you see that?

A. This is the March--

Q. Oh, I'm sorry.

A. --March '08 visit?

Q. You're correct. I have the wrong date.

MR. BREEDLOVE: Excuse me. Which exhibit are we looking at?

MR. McAFEE: It's from the March visit, Photo No. 38.

THE ADMINISTRATIVE LAW JUDGE: Okay. I'll tell you.

And you can correct me if I'm wrong.

This is Complainant's Exhibit 28 Pollard, Photo No. 38.

Is that correct, counsel?

MR. McAFEE: Yes, that is correct. Thank you, Your Honor. And this would be the Exhibit No.--would be our 16.

THE WITNESS: Do you want me to put it on

the projector?

THE ADMINISTRATIVE LAW JUDGE: That's up to counsel.

Why don't you show Mr. Breedlove the marked copy at least so he's literally on the same page.

BY MR. McAFEE:

Q. Steve, that's the exhibit that you marked some foaming areas in. Is that in the unnamed tributary, as I recall?

A. No. That is Elliot Creek.

Q. Okay. And those foaming areas you identified in your testimony as related to the feedlot and feedlot pollutants; is that correct?

A. I believe I stated that foaming is an indication of the presence of feedlot constituents.

Q. Are those foaming areas where there are rocks or other obstructions that would cause what some might call a rapids?

A. Yes.

Q. Okay. Would that also cause foaming?

A. That's typically what generates the foam is an aeration of the liquid to produce the foam.

Q. And could that occur without any feedlot pollutants or contaminants?

A. It's possible.

MR. McAFEE: Okay. I have no further questions, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay.

MR. BREEDLOVE: Your Honor, if you would give me just one minute to collect my thoughts?

THE ADMINISTRATIVE LAW JUDGE: Sure.

MR. BREEDLOVE: I'm ready.

THE ADMINISTRATIVE LAW JUDGE: Sure. Okay. If I didn't say, we're on the record.

Go ahead, Mr. Breedlove.

REDIRECT EXAMINATION

BY MR. BREEDLOVE:

Q. Mr. Pollard, I'd like to reference you back to the March 2008 site visit you had at Mr. Vos' facility. During those--while you were at the facility, can you give us--please give us some approximation of the number of cattle that were present, just a guess, please?

A. What I saw, it was probably two, three hundred.

Q. And compare that, please, with the number of cattle he had in 2006 when EPA inspected the facility.

A. In 2006 he had upwards--I believe the inspection report said 2,200.

Q. Would you expect to find much less manure within the pens based on the number of cattle you saw in 2008 versus what Mr. Sena saw in 2006?

A. Yes.

Q. Mr. Pollard, what was the purpose of your March 2008 visit to the facility?

A. It was to document channelized flow paths coming from Mr. Vos' feedlot.

Q. Was the purpose to document additional violations at the facility?

A. No.

Q. Was the purpose to go and take samples at the facility?

A. No, it was not.

Q. I'd like you to turn to Photograph No. 2 in Complainant's Exhibit 28 Pollard.

A. Okay.

Q. I believe you provided some testimony--it might not have been in relation to this particular photograph, but you noted that there were pollutants moving from the terrace. Is that correct?

A. There was a channelized flow path.

Q. Did you note any pollutants on the terrace while you were there?

A. No, I did not.

Q. Did you notice what was--what was behind that terrace?

A. Well, there were-- I looked at or observed the terrace from different angles, and so the area where the retention structure exists, you know, that's--that was one area I looked at, and there's--on around to the southern portion or southwest portion of the facility, I observed the terrace there as well. I mean, I'm not clear on where you're asking me to talk about.

Q. Let me follow up on that, Mr. Pollard. Was there a collection of water behind the terrace while you were there?

A. Yes, there was.

Q. Did you observe any irrigation equipment at the facility?

A. I did not observe any.

Q. Did you observe any means of dewatering that lagoon?

A. No, I did not.

Q. Would you please explain to us what would happen if rainfall came into that facility and raised that level of that terrace? Where would that water go?

A. Ultimately, it will overflow the terrace.

Q. And based on your observations of the flow path, where would that--would that water go?

A. At the point of the terrace where the retention structure was, where the water was being held, it would flow west directly into the unnamed tributary.

Q. Would that water contain pollutants?

A. The water--or the runoff that comes from the terrace, yes.

Q. And where would those pollutants come from?

A. They would have come from the feedlot.

Q. Mr. Pollard, when does EPA take samples during a compliance or during a site visit?

A. If we observe runoff coming off of the site while we are there or discharging, that we will sample, sample the runoff.

Q. Were there any discharges observed at the time of your site visit on--in March 2008?

A. No, there wasn't.

Q. Is there any particular--is there a reason why EPA doesn't sample except when there are discharges occurring?

A. It--it doesn't represent what's going on at that-- I mean, there's--there's no-- One, there's no runoff to sample, and, two, sampling of the stream

doesn't give us, really, any indication as to any impacts that the facility's going to have on it.

Q. So is it correct to summarize that you would take samples of the--the streams when discharges were occurring because that's a more accurate reflection of the stream characteristics?

A. That's correct.

Q. Now, Mr. Pollard, I'd like to focus your attention to Photograph 16 of Complainant's 28.

A. Okay.

Q. During cross-exam you spent quite a lot of time testifying as to this facility. Could you please identify any sources of manure in that photograph, particularly did you identify any stockpiles while you were there?

A. We did see some stockpiling that was occurring.

Q. So where--typically, where would that manure come from?

A. The feedlot.

Q. Would that be during scraping?

A. Yes.

Q. Now, in Photograph 16 of Complainant's Exhibit 28 Pollard, there is--there appears to be a stockpile in this photograph; is that correct?

A. I do see a stockpile in the photo, yes.

Q. Do you observe any controls in place to prevent runoff from this stockpile?

A. I don't.

Q. Now, Mr. Pollard, there appeared to be some resistance to answering Mr. McAfee's question with regard to manure in this lot. Could you please describe why you feel that there's still threats to water quality based on what you see in this photograph here?

A. It's a feedlot pen. It has contained cattle. It didn't the day I was there. It appeared to have been scraped. But scraping does not remove all the manure, does not remove all of the feed stocks.

And so I can't--I'm not going to make a statement that says there's no manure present in that pen because all manure--all feedlot pens have manure in it.

Q. Thank you. Mr. Pollard, could I focus your attention on Photograph No. 25 of Complainant's Exhibit 28 Pollard?

A. Okay.

Q. What impact would corn silage have on water quality if it reached the water surface?

A. Well, it's high in nutrients, high in BOD, biological oxygen demand. It would have a negative impact on water.

Q. Now, corn silage, if it was to come from a large CAFO, would that be allowed to discharge to the water in the U.S.?

A. No, it would not.

Q. Would it be considered a pollutant?

A. Yes, it would.

Q. Mr. Pollard, turning to Exhibit 42, Complainant's Exhibit 42 Pollard, I would like to talk for a moment or two about-- I apologize. I'd actually like to focus-- Never mind.

Yes. Again, I apologize for going back and forth. There are a lot of photographs.

Staying on Complainant's Exhibit 42 Pollard, I'd particularly like to discuss your visit in July of 2008. Again, I'd like you to reiterate, what was the purpose of that visit?

A. The purpose of the visit was to document the channelized flow paths coming off of Mr. Vos' feedlot.

Q. Was the purpose of that visit to establish additional violations by Mr. Vos?

A. No.

Q. Was the purpose of that visit to determine his compliance status?

A. No.

Q. Was the purpose of that visit to try and identify manure within the drainage pattern coming from the facility?

A. No.

Q. Mr. Pollard, you were asked about a field test kit. Does EPA use field test kits?

A. No, we don't.

Q. Why don't we use those test kits?

A. They're not part of the standard operating procedure for the inspection as well as the sampling protocols that we use.

Q. Mr. Pollard, focusing now on Photograph No. 7 of Complainant's Exhibit 42 Pollard, Mr. McAfee asked you about commercial fertilizer application to this field. In your experience, do you think commercial fertilizer would have caused this--the odors you observed?

A. No, I do not.

Q. What do you believe the source of those odors were?

A. The manure.

Q. Mr. Pollard, I'd like to break away from the

photographs for just a second. I'd like you to describe the characteristics of dissolved pollutants that are found in manures--in manure.

A. Well, nutrients, primarily, are what are--go into solution, organic compounds, organic materials and solutions. That would be nitrogen, which forms ammonia or nitrates, nitrites. You can have phosphorus in the solution.

Q. Are these--are these pollutants carried on without--or carried downstream without the solids?

A. Yes.

Q. So is it possible that dissolved pollutants could continue downstream without leaving visible signs of manure in the flow path?

A. Yes.

MR. BREEDLOVE: Can I have just one more moment?

THE ADMINISTRATIVE LAW JUDGE: Sure.

MR. BREEDLOVE: Just one last issue, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Sure.

BY MR. BREEDLOVE:

Q. On Photograph 16, you just testified--Photograph 16 of Complainant's Exhibit 42 Pollard--

THE ADMINISTRATIVE LAW JUDGE: Photograph 16?

MR. BREEDLOVE: Photograph 16, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay.

THE WITNESS: There aren't that many photos in the exhibit.

MR. RYAN: I believe this is Exhibit 28.

MR. BREEDLOVE: 28. I'm sorry. Complainant's Exhibit 28 Pollard.

THE WITNESS: This is the March 11th?

BY MR. BREEDLOVE:

Q. Correct. I would just like to clarify the record. Do you have that exhibit out?

A. Which photo?

Q. I would like to, if we could, grab--go to Photograph 16, Complainant's Exhibit 28 Pollard.

A. Okay.

Q. Which I believe already came--contains markings that you made and testified to earlier with the yellow lines. I would like you, if we could with a black Sharpee, if you could identify the location of the manure stockpile.

A. I think that's Respondent's exhibit.

THE ADMINISTRATIVE LAW JUDGE: See, you can't have this dialogue that's going on. Just

answer the question. Just say, "I can't answer that question," then he can say, "Why?" And then-- It has to be a format.

THE WITNESS: Okay.

A. I can't answer that question.

MR. BREEDLOVE: I would like to enter our own exhibit, unless, Your Honor, if we could go and mark the Respondent's exhibit and just make one copy.

THE ADMINISTRATIVE LAW JUDGE: Why don't you mark your own exhibit rather than getting it cluttered up with different markings from different sides, all right?

MR. BREEDLOVE: Will do, Your Honor.

BY MR. BREEDLOVE:

Q. Mr. Pollard, do you have a clean copy in front of you?

A. I do.

Q. Could you please, with a Magic Marker, please identify the location?

THE ADMINISTRATIVE LAW JUDGE: You don't want to put it on the screen? Then everyone can see what he's doing.

MR. BREEDLOVE: Yes, Your Honor.

BY MR. BREEDLOVE:

Q. Mr. Pollard, on Photo 16 of Complainant's

Exhibit 28 Pollard, could you please circle and identify the location of the manure stockpile, what you've testified to as a manure stockpile?

A. (Witness complied.)

Q. Would you please identify that with "manure stockpile."

THE ADMINISTRATIVE LAW JUDGE: Maybe you could just call it MS.

MR. BREEDLOVE: Could we please let the record reflect Mr. Pollard has circled what he has testified to as a manure stockpile in Photo 16 of Exhibit 28 and identified it with letters MS.

Your Honor, I move this be put into evidence.

MR. McAFEE: No objection.

THE ADMINISTRATIVE LAW JUDGE: And what are we calling this number, Mr. Breedlove?

MR. BREEDLOVE: I imagine we can call it Complainant's Exhibit 28 Pollard Photo 16 MS, for manure stockpile.

THE ADMINISTRATIVE LAW JUDGE: Okay. Complainant's Exhibit 28 Pollard Photo 16 subcategory MS is admitted, no objection.

(Complainant's Exhibit 28 Pollard Photo 16 MS was received in evidence.)

MR. BREEDLOVE: And, of course, Your Honor, we'll provide copies to everybody.

THE ADMINISTRATIVE LAW JUDGE: Thank you.

MR. BREEDLOVE: Your Honor, no further questions.

THE ADMINISTRATIVE LAW JUDGE: All right. Are you going to have some recross?

MR. McAFEE: Just a few questions.

THE ADMINISTRATIVE LAW JUDGE: Sure. Whatever you feel is necessary, you do.

MR. McAFEE: All right. Thank you.

RECROSS-EXAMINATION

BY MR. McAFEE:

Q. There's been a considerable amount of questions from me and then also from Mr. Breedlove on redirect about your testimony on scraping of feedlots, and you've testified that you still believe manure's present and scraping can't remove it all; is that correct?

A. That's correct.

Q. But scraping removes the manure that is most susceptible to runoff; would you agree with that?

A. It-- Possibly. No. I guess, no, I don't agree with that.

Q. Tell me why.

A. Because anything that's on the surface of the feedlot before or after the scraping would be most susceptible to runoff.

Q. Wouldn't the process of scraping remove the manure on the surface?

A. It removes the-- Yes.

Q. Okay. And wouldn't that manure be susceptible to runoff if not removed?

A. Yes.

Q. Okay. Now, again, I'm not trying to change your testimony, I'm just trying to understand. You're saying there is still manure left on the feedlot surface after scraping; is that right?

A. Correct.

Q. Would that be more compacted following the process of scraping or do you know?

A. Could-- No, I don't know that.

Q. Okay. That's fair. I just wanted to make sure I understand your testimony.

I don't want to belabor this issue regarding the samples, and Mr. Breedlove has asked you questions about your normal protocols and what you were there for during your two visits where you were actually out taking photos, et cetera.

Isn't the bottom line wouldn't samples tell

you for sure what you are observing, say, when you were there on July 1 in those pools that you observed in the flow paths that you testified was manure? Wouldn't samples tell you for sure if there were pollutants there?

A. It would provide additional information as to what was in there, yeah.

Q. And otherwise isn't there still some question as to what that was?

A. Yeah, there's some question.

Q. And regarding the material you saw on your March 1 visit, the solid material that-- And I could give you the exact photo numbers, but you know what I'm talking about; the solid manure that you testified to and the question was was it silage, was it manure, and you testified, in your opinion, it was manure? Wouldn't a sample have told you for sure what that was?

A. It's possible.

MR. McAFEE: No further questions, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Mr. Breedlove?

MR. BREEDLOVE: No further questions, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay. I just

have a couple of questions, and then we're going to take a little break before we start with the next witness. If there are other questions people have to ask in the wake of my questions, of course, you'll have an opportunity to do so that.

Mr. Pollard, my understanding is that you said it was not the-- You tell me if I'm right or wrong, okay?

THE WITNESS: Okay.

THE ADMINISTRATIVE LAW JUDGE: --that it's not the EPA protocol to be out there taking--using sampling kits, that's not part of what they do when they're out there in the field? They don't bring along sample kits and evaluate for pollutants?

THE WITNESS: The field test kit that was referred to, no, we don't.

THE ADMINISTRATIVE LAW JUDGE: Well, is there any sort of a field test kit that--

THE WITNESS: There's--

THE ADMINISTRATIVE LAW JUDGE: You say the one that was referred to, but, I mean, is there some sort of a field test kit that sometimes EPA brings out and analyzes either suspected manure or analyzes water to determine if there are pollutants in either manure present or pollutants present in water, either

of those situations? Do they ever do that?

THE WITNESS: Yes, they do.

THE ADMINISTRATIVE LAW JUDGE: They do? Okay. And have you ever done sampling like that yourself?

THE WITNESS: Yes, I have.

THE ADMINISTRATIVE LAW JUDGE: Okay. And this-- Do you remember when we were kids, maybe I'm reflecting on myself, but you asked a question whether something is--when you're trying to play a family game of "What is it?"

You know, "I have something in mind," you're guessing what it is. Well, no one can relate to what I'm talking about. Okay. "Is it bigger than a bread basket?" You know, there are a series of questions people ask to try and hone something down.

Now, with that long-winded prefatory remark, this sampling kit, how big is it? Is it, for example, in terms of its length and width, 8 1/2 by 11, or is it something that you have to carry on your back because it's onerous and large?

THE WITNESS: The sampling kit that EPA takes on their inspections?

THE ADMINISTRATIVE LAW JUDGE: Yes. To look for pollutants.

THE WITNESS: It is large. It consists of an ice chest--

THE ADMINISTRATIVE LAW JUDGE: An ice chest, okay.

THE WITNESS: --sampling bottles, preservative bottles. It's-- I would say it would take up a space probably 4 foot by 4 foot.

THE ADMINISTRATIVE LAW JUDGE: Okay. And in that protocol, is the ice chest something that you have to bring to the site, or do you bring some smaller amount of materials from the kit and then when you have your samples you deposit that in the ice chest?

THE WITNESS: Typically the ice chest will remain in the car. We would go out, collect the samples, preserve the samples, and then put the samples on ice.

THE ADMINISTRATIVE LAW JUDGE: Okay. So when you're actually out in the field, is it something-- You know, sometimes hikers use these things that are called a fanny pack. Have you ever heard of something like that?

THE WITNESS: Uh-huh.

THE ADMINISTRATIVE LAW JUDGE: It's a little zippered device. Is it something like that that the

sampling kit could fit in?

THE WITNESS: No.

THE ADMINISTRATIVE LAW JUDGE: No. Is it as big as a briefcase, a typical attache case?

THE WITNESS: Yeah. Could probably fit into-- The--the sample bottles and the preservatives, yes, could fit in those.

THE ADMINISTRATIVE LAW JUDGE: Okay. And so typically you would bring--you would carry that to the site where you would make your sample and then bring it back and put it in the ice chest; is that the way it works?

THE WITNESS: Typically, yes.

THE ADMINISTRATIVE LAW JUDGE: And so in this particular instance, just to make sure I understand this, there were no--was there at any time during any of EPA's visits, to the best of your knowledge, any sampling done with a kit, field kit, to determine, A, if there was actually animal waste, that is, manure or other forms of animal waste? Did EPA ever do that at any point in connection with Lowell Vos' feedlot?

THE WITNESS: No, we did not.

THE ADMINISTRATIVE LAW JUDGE: No. And did EPA ever do any sampling of the unnamed tributary to

determine what was in the water where there was water at any point along the unnamed tributary?

THE WITNESS: EPA did not.

THE ADMINISTRATIVE LAW JUDGE: Did some other group do this? You said "EPA did not." Sounds like a qualifier.

THE WITNESS: IDNR Fisheries did.

THE ADMINISTRATIVE LAW JUDGE: What's that?

THE WITNESS: The Iowa Department of Natural Resources did.

THE ADMINISTRATIVE LAW JUDGE: Oh, in connection with this case?

THE WITNESS: Yes.

THE ADMINISTRATIVE LAW JUDGE: Okay. And how about the sampling of the-- What's it, Elliot Creek?

MR. BREEDLOVE: Yes, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Was there actually-- Did EPA or, now, the Iowa Fisheries Department, or whatever the full name is, did anyone do sampling of either of those, either the unnamed tributary or Elliot Creek, that you know of?

THE WITNESS: They--they sampled it. I--I'm--

THE ADMINISTRATIVE LAW JUDGE: And let's be

more precise. Since you said "They sampled it," I named two different water sources; one was the unnamed tributary, the other is the Elliot Creek.

THE WITNESS: Yes. I'm concerned about what you-- Could you explain what you mean by "sampling"?

THE ADMINISTRATIVE LAW JUDGE: Well, what we've been talking about. Now you're doing the dialogue thing with me.

THE WITNESS: Yes, they sampled--

THE ADMINISTRATIVE LAW JUDGE: We just talked about sampling, right?

THE WITNESS: Yes.

THE ADMINISTRATIVE LAW JUDGE: We talked about sampling kits, and we said the sampling kits were for the purpose of determining if there are pollutants and either the presence of manure or other animal excretions, or, as you noted, there are other types of pollutants, other dissolved types of pollutants that can enter water bodies.

So now focusing on the unnamed tributary and Elliot Creek, did EPA or some other government authority, or someone who was contracted by the government, take any sampling of the water to determine the presence of those things?

THE WITNESS: No, they did not.

THE ADMINISTRATIVE LAW JUDGE: They did not, okay. And did you actually ever-- When you're out on these sites--you were there in July and you were there in March and you were there in December--did you file written reports? Did you then have a formal report?

Refresh my recollection if there was any reference or not. Did you actually-- The report of-- Your first name's Stephen?

THE WITNESS: Yes.

THE ADMINISTRATIVE LAW JUDGE: --Stephen Pollard dated da, da, da?

THE WITNESS: No, I did not.

THE ADMINISTRATIVE LAW JUDGE: No? And so then it would follow from that that since you had no report there's no report where you ever noted, for example, or any other notes that you might have made, inspection notes, referring, for example, to the observation of foam? Did you ever write that down?

THE WITNESS: No, I did not.

THE ADMINISTRATIVE LAW JUDGE: No, okay.

All right. That's all I have to ask you. Thank you.

Now, any questions, Mr. Breedlove first and then Mr. McAfee?

MR. BREEDLOVE: By my count, I had four questions, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: That's fine. There can be any number.

FURTHER REDIRECT EXAMINATION

BY MR. BREEDLOVE:

Q. Mr. Pollard, does EPA do any samples that's not pursuant to a QA/QC plan, quality assurance/quality control plan?

A. No, they do not.

Q. Do you have to have a sampling plan in place to do sampling?

A. Yes, you do.

Q. Now, the use of these field test kits, something that's easy to use, now, would that meet EPA's requirement for QA/QC in sampling protocols?

A. No, it would not.

Q. Is that why we don't use the field test kits?

A. That's correct.

Q. In regard to the sampling, how far is Kansas City from Mr. Vos' feedlot?

A. In terms of miles?

Q. Hours would work.

A. It's approximately five to six hours.

Q. Now, how useful would sampling be of a stream four or five days, a week after discharges have occurred?

A. I don't understand the question.

Q. Sampling Elliot Creek or the unnamed tributary, how useful would that sampling data for those two streams be if EPA was not able to inspect and sample that facility for days to weeks after a rainfall occurred?

A. It wouldn't be of any use.

Q. And why not?

A. Because it's just a snapshot, one-time snapshot, of what the stream looked like that day.

Q. So the characteristics of the stream would be different after days to weeks after a discharge?

A. Sure.

Q. And, Mr. Pollard--

MR. BREEDLOVE: This is the last question, Your Honor.

BY MR. BREEDLOVE:

Q. The three inspections you did, you've testified that none of those were--were compliance enforcement inspections. Does that have any relation to--for not filing reports associated with them?

A. They were not compliance evaluation

inspections. That's a specific term that we use as an inspection type, and as a compliance evaluation inspection, you generate a report for that. These were not CEIs. That's why I didn't generate a report.

Q. Less formal visit?

A. Correct.

MR. BREEDLOVE: I know I went more than four, Your Honor. I apologize. But thank you.

THE ADMINISTRATIVE LAW JUDGE: No. I didn't set any limit.

Okay. Mr. McAfee.

FURTHER RECROSS-EXAMINATION

BY MR. McAFEE:

Q. Steve, your testimony about the QA/QC-- Is that correct? Did I say that right?

A. You said that right, yes.

Q. The second or third time I said it right. Okay. And then a sampling plan, is that what you testified to also?

A. That was-- Yes.

Q. These are new to me, so I apologize, but I've got a few questions. Are you saying that you, as a--with EPA cannot take a sample unless it's pursuant to a sampling plan?

A. Well, I can take one.

Q. Okay.

A. But agency policy and procedures require us to follow specific protocols, and in order for those samples to meet those standards, we have to follow those procedures.

Q. Okay. I just wanted to make sure I was clear that you don't have to have a plan in place ahead of time before you go out and take a sample--

A. Oh, we do.

Q. Okay. And that's what you mean by a sampling plan? Or maybe I'm using the term wrong. If I am, please correct me.

A. There's a sampling-- Well, there's--there's various documents we're referring to here. We're referring to the quality assurance/quality control plan, we're referring to a sampling plan, and I've mentioned an SOP or standard operating procedure.

The standard operating procedure for compliance evaluation inspections establishes that sampling, if needed, will be done in accordance with an approved QA/QC plan, sampling plan for whatever sampling you--type you--method you want to do. So that's--that's what we're discussing.

Q. I guess what I'm trying to fully understand

here is when you were going to the Lowell Vos feedlot, both on March 11th, 2008, and July 1, 2008, to gather data for this case-- I'll say it that way. Is that correct?

A. That's correct.

Q. And I understand you said you weren't there for a compliance evaluation, but if you--you have taken photos of what you believe is manure and you have presented those photos in this case, right?

A. That's correct.

Q. And, essentially, wouldn't it have been-- Let me start over.

Wouldn't it have been incumbent upon you to see that if you may see manure that you were going to take a photo of, why wouldn't you have a sampling kit with you to sample that so we have some results to take a look at and, in my words, anyway, know for sure what it is?

MR. BREEDLOVE: Objection, Your Honor. I think he's asked this question. We've talked about the SOPs.

THE ADMINISTRATIVE LAW JUDGE: I'm going to allow that question to be asked.

A. I made a decision before I went up that I didn't need to take a sampling kit.

BY MR. McAFEE:

Q. On both July 1-- After you'd been there in March and observed the solids, as you have said, in the flow path, you made the decision on July 1 not to take one with you?

A. That's correct.

Q. Okay. You've also testified on redirect in response to Mr. Breedlove's questions about how far it is to Kansas City, et cetera. Haven't you--as an agency, to your knowledge, have you ever called or contacted DNR and asked them to take samples on your behalf?

A. IDNR's been present with us and they have taken samples.

Q. So you could call DNR and--because they're much closer to a site and they're the delegated authority for EPA in this state, you could call DNR and say, "There's been a runoff event. Go take a sample"?

A. We could do that, yes.

MR. McAFEE: Okay. No further questions, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay. Mr. Breedlove?

MR. BREEDLOVE: No, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: All right. Thank you, Mr. Pollard. And the same limitation applies, that you're not to talk about this case with anyone until after we are done with the hearing and you're on your way, wherever you--wherever your home base is. Then you can talk.

THE WITNESS: Okay.

THE ADMINISTRATIVE LAW JUDGE: All right. And so we are going to take a five-minute break now, and that will give us about 55 minutes before I break for lunch, all right?

Thank you.

(Short recess.)

MR. RYAN: Yes, Your Honor. I would like to call Sandy Doty to the stand, please.

THE ADMINISTRATIVE LAW JUDGE: Okay. Come on up over here and raise your right hand, please.

SANDRA DOTY,

called as a witness by counsel for the Complainant, being first duly sworn by the Administrative Law Judge, was examined and testified as follows:

THE ADMINISTRATIVE LAW JUDGE: Have a seat. And then you weren't here to observe, but just state your name and then spell it for us.

THE WITNESS: Okay. Sandra Doty,

S-a-n-d-r-a D-o-t-y.

DIRECT EXAMINATION

BY MR. RYAN:

Q. Ms. Doty, who is your current employer?

A. Science Applications International Corporation.

Q. And how long have you been with-- Is that also referred to as SAIC?

A. Yes, it is.

Q. And how long have you been with SAIC?

A. For 26 years.

Q. What are your primarily responsibilities at SAIC?

A. I'm a senior engineer.

Q. And what do you do--what do you do as a senior engineer?

A. Yeah. I'm a consultant for--for hydrologic analyses, for site investigations--

Q. Okay.

A. --you know, water problems.

Q. And have you been working in the area of hydrology for your 26 years at SAIC?

A. Yes, I have.

Q. What's your educational background?

A. I have a bachelor's of science degree from

the Colorado School of Mines in Golden, Colorado, and then I have a master's degree from the University of California at Berkeley.

Q. And what is your master's degree in?

A. My master's degree is in mineral engineering.

Q. And did you do any thesis work for your master's degree?

A. Yes. I wrote a computer code that simulates the stoping process for the Star Mine up in the Coeur d'Alene district of Idaho.

Q. Do you have any professional certifications?

A. Yes. I'm a professional engineer in the state of Colorado.

Q. And are you a member of any professional societies?

A. Yes. The International Erosion Control Association.

Q. And have you published at all?

A. Yes, I have.

Q. And approximately how many publications and in what area?

A. You know, a few in geological engineering, hydrology.

Q. And you mentioned your modeling in grad

school, so when did you graduate from--when did you get your master's degree?

A. In 1979.

Q. Okay. And so you mentioned you did a modeling effort. Would that be a computer model?

A. Yes, it was.

Q. And in 1979. Have you been doing computer modeling--

A. Oh, yes, I have, ever since then.

Q. Just as a point of order, make sure you let me finish my question before you--

A. Sorry.

Q. --answer, so it will keep the court reporter happy.

A. Sorry.

Q. So since 1979, you've been continuously doing computer modeling of natural environments, one sort or another?

A. Yes. It's a part of the work that I do.

MR. McAFEE: I'm sorry. I apologize for interrupting. I couldn't hear that.

THE WITNESS: Yeah. I'm sorry. I'll go back up. Yes. It's a part of the work that I do.

BY MR. RYAN:

Q. And within your work in hydrology, could you

give us--describe a little bit better what your primary concentrations are? What do you do most of your work in?

A. I do hydrologic and hydraulic analyses; surface water flow; groundwater flow; site investigations, meaning geological investigations of site, what are the soil conditions, what's the flow pattern, what's happening at the sites.

Q. And you've been doing this for how long?

A. For 26 years at SAIC.

Q. And during that 26 years, how many modeling efforts, computer modeling efforts, have you undertaken?

A. I've done over a hundred. You know, I've looked at hundreds of sites and evaluated them hydrologically.

Q. Have you testified before?

A. Yes, I have.

Q. Do you remember what case that was?

A. The Service Oil case.

Q. Was that an EPA administrative enforcement action?

A. Yes, it was.

THE ADMINISTRATIVE LAW JUDGE: Not my case, however. You were not in front of me?

THE WITNESS: No.

THE ADMINISTRATIVE LAW JUDGE: No. I would have remembered you.

MR. RYAN: I believe that was Judge Biro, Your Honor.

Now, at this point, Your Honor, I'd like to have Ms. Doty recognized as an expert in hydrology and hydrologic modeling and analysis.

MR. McAFEE: No objection.

THE ADMINISTRATIVE LAW JUDGE: Okay. She is so designated.

BY MR. RYAN:

Q. Are you familiar with the Vos case, Ms. Doty?

A. Yes, I am.

Q. And how are you familiar with it?

A. I was retained by EPA to determine if there were any discharges occurring at that site.

Q. Okay. There's a bunch of binders in front of you. Could you--

MR. RYAN: May I approach, Your Honor?

THE ADMINISTRATIVE LAW JUDGE: Yes, you may.

So your last answer, that you were retained by EPA to determine if there were any discharges at the site, correct?

THE WITNESS: Yes, sir.

THE ADMINISTRATIVE LAW JUDGE: Okay.

BY MR. RYAN:

Q. Ms. Doty, in the binder I just set in front of you, I opened up to Exhibit 43. Do you recognize Exhibit 43?

A. Yes, I do.

Q. What is that?

A. This is the report that I wrote for the manure discharge report for the Lowell Vos feedlot.

Q. Is that your expert report for this case?

A. Yes, it is.

Q. And did you reach a conclusion in your expert report regarding the discharges from Mr. Vos' site?

A. Yes, I did. I had concluded that the site had discharged 45 times over the five-year period of interest, which was 2002 to 2006--or 2007, and that 2,410 tons of manure was discharged to the unnamed tributary during that period.

Q. Now, is this your--is this a second expert report you filed in this case? Was there another one?

A. This-- Yes, it is the second one.

Q. And would you look at Complainant's Exhibit

29, which I believe might be in a different binder? It's the March 25, 2008--

A. Do I need to find it? I remember it.

Q. That's okay. Do you recall the March 25, 2008, report?

A. Yes.

Q. What's the difference between those two reports?

A. In the first report, the--let's see, the manure scraping function wasn't turned on, and I needed to do some adjustments to turn that on, which made a difference in the results.

Q. Okay. And we'll get into the manure scraping function a little bit later, but other than changing the manure scraping function, which-- Did that have any effect on the results you came up with?

A. Yes, it did.

Q. Other than changing manure scraping function, again, which we'll go into later, did you--was there any difference between the March 25 report and the August 11 report?

A. No, there wasn't.

Q. Now, referring to-- We'll be talking henceforth only about your most recent report, the August 11th report, the one where you had made the

scraping function change. How did you reach your conclusion you just mentioned a minute ago about 45 days of discharge and 2,410 tons of manure? How did you come to that conclusion?

A. I visited the site and I ran a hydrologic model to assess the--to quantify the discharges.

Q. Let's talk about your site visit first.

MR. RYAN: Excuse me one minute, Your Honor, while a grab a binder.

BY MR. RYAN:

Q. Ms. Doty, well, do you recall when you visited the site?

A. Yes. It was July 1st of this year, 2008.

Q. And who were you with when you visited the site?

A. I was with Dan Lovebreed and Steve Pollard.

Q. Was it Dan Breedlove?

A. Dan Breedlove.

THE WITNESS: Sorry, Dan.

A. And Steve Pollard.

BY MR. RYAN:

Q. So during your site visit, did you-- You did the modeling before you did the site visit; is that correct?

A. I did do the modeling before I visited the

site.

Q. Yeah. Okay. And did your site visit confirm the results that you reached in your modeling?

A. Yes, it did.

Q. Okay. And can you-- Setting aside the modeling for a second, just your site visit, based on your experience as a professional engineer and as a hydrologist, tell me what you saw at this site.

A. When I got to the site, we were at--we were near the feedlot, which is at the top of the hill.

Q. Uh-huh.

A. And Mr. Vos walked us through one of the pens down to the south edge of the feedlot, and at that point there was a gully that was well formed, you know, that had headed down the hill, and you could see this gully feature that was continuous all the way down the hill.

One of the reasons it was so visible, that all along the flow path, there was no vegetation. And so we-- And actually, the dimensions of the gully were about a half-foot to a foot deep at the edge of the feedlot and a foot wide, about, and it kind of widened out as you walked down the flow path.

But also, as I was walking down the flow

path, it was a well-defined feature, and it undulated, you know, it had sinuosity like a stream channel, which to me would indicate flow had moved down that path.

And as I was walking, initially there was some, you know, unconsolidated material under my feet, you know, the--

Q. If I may interrupt for just a second, there is an exhibit with some photos, I think, that were taken during your site visit. Why don't we discuss those.

A. Okay.

Q. Can you turn to Exhibit 42, please, in your--in the folder in front of you.

Can you find that?

THE ADMINISTRATIVE LAW JUDGE: 42? Not the expert report?

MR. RYAN: No. Exhibit 42.

THE ADMINISTRATIVE LAW JUDGE: Before you ask that, let me-- So I am fully up to speed here, Ms. Doty, you are here, you were at the site, and one time?

THE WITNESS: Yes, sir.

THE ADMINISTRATIVE LAW JUDGE: One date? And what was that date again that--

THE WITNESS: July 1st, 2008.

THE ADMINISTRATIVE LAW JUDGE: And that was your only visit? Two reports generated, one visit?

THE WITNESS: That's correct.

THE ADMINISTRATIVE LAW JUDGE: Okay. Thanks.

BY MR. RYAN:

Q. Actually, let's turn to what's been marked 42 Pollard, which should be right after 42. That's the one we've been mostly talking about up till now, so let's stick with that one.

THE ADMINISTRATIVE LAW JUDGE: 42 Pollard?

MR. RYAN: Yeah, 42 Pollard.

May I approach, Your Honor?

THE ADMINISTRATIVE LAW JUDGE: Yes.

MR. RYAN: It's the-- Yeah. That's it. You're in there.

THE WITNESS: Okay.

BY MR. RYAN:

Q. There was testimony earlier-- We're looking at Photo 1 in 42 Pollard. There was testimony earlier by Mr. Pollard that he placed these yellow arrows in these photographs. And at the top right-hand corner of Photo No. 1 of 42 Pollard, it has the date July 1st, 2008. Is that the date you

were--you visited the site?

A. Yes, it is.

Q. Okay. And were you with Mr. Pollard when he took these pictures?

A. Yes, I was.

Q. So you have personal knowledge of all of these photographs?

A. Yes, I do.

Q. Okay. And leafing-- Yeah. There are 12 photographs here. Did you personally see everything in these 12 photographs?

A. Yes, I did.

Q. Okay. So I interrupted you a moment ago. You said you started at the feedlot and you walked downhill, I believe it's towards the unnamed tributary. Are these photos a documentary evidence of what you saw that day when you were walking down that flow path?

A. Yes, they are.

Q. Okay. We don't need to talk about each of them in length, but I would like to highlight--use them to highlight some of the statements you made prior to me interrupting you.

So, for example, Photo No. 1 of Complainant's Exhibit 42 Pollard, at the top of the

corn--at the interface between the corn and the sky, is that the edge of the pens that we see there?

A. Yes, it is, at the fence line.

Q. Yes.

A. Yes.

Q. Are those cows in the picture there just to the right of the person walking?

A. Yes, they are.

Q. So that would be the pens?

A. I think that's Dan.

Q. Okay.

A. Isn't it?

Q. I believe that is Mr. Breedlove.

So using these photos, why don't you walk us down and tell us what you saw.

A. So continue from where I left off? So I was walking down the hill, and I-- Can I just--

Q. Yes.

A. And so it was a well-defined pathway, as you can see here, and initially there was some unconsolidated material under foot up near the feedlot, but as I walked down this hill, on down where Photo 2 was taken, as you head down that hill, I noticed that the ground surface beneath me got hard, that there was no longer, you know, silty loam

underneath, that it was cemented material.

And I was surprised at that. I was surprised that the soil wasn't loose and able to keep moving, and when I looked down, I noticed the scouring that was occurring, and you can see it in Photo 2.

And I just wanted--at that point I realized that there was a lot of flow velocity that had to have come down this channel because it takes a lot of flow velocity to exceed the critical shear strength of the material, and in this case this was cemented soil, and so you had to exceed the critical shear strength of the cemented soil to actually pick it up and move it and actually scour the surface, which is what I was looking at here. So it just told me that a lot of water had run down that hill.

Q. Is this--is Photo No. 2 taken closer to the pens or is it taken farther down the hill closer to the unnamed tributary?

A. It was-- Yeah. It's a photo that's taken right after Photo 1. These are in sequence walking down the hill. So it's--it's farther down the hill.

Q. Okay.

A. Maybe another 100 yards. I can't tell you how much farther down the hill, but a little farther

down the hill. Not a lot.

Q. And so is it your testimony that there was significant flow velocity just below the--coming off the pens just below the pens?

A. Yes, there was.

Q. Okay. So preceding down, continue to tell us what your observations were. And we don't have to go through all of these pictures. Just if you see something that--

A. Right. So we continued down the hill, which was to the south, and then we veered a little bit, you know, we went around a little bit more to the southwest.

And along this flow path, other things that I saw were pockets of water, you know, puddles. And it hadn't rained, it was a beautiful day, and so that told me that the infiltration capacity of the cemented soil was--was low and that flow was not being absorbed by the soil and going down as much as it was being transported down the hill.

Q. Okay.

THE ADMINISTRATIVE LAW JUDGE: And then it would help me if, as you're giving this narrative response, if you--

THE WITNESS: Cite--

THE ADMINISTRATIVE LAW JUDGE: If you're making a point like you just made, which was instructive to you that it was--water was not seeping into the ground but instead was traveling in your estimation, for instance, I assume that you're talking about Photograph 4 when you're mentioning that? Is that what you're referring to go?

THE WITNESS: Yes. When I was referring to the scouring, I was referring to 3.

THE ADMINISTRATIVE LAW JUDGE: Uh-huh.

THE WITNESS: 4 has one puddle at the base there.

THE ADMINISTRATIVE LAW JUDGE: Yes.

THE WITNESS: And then 5 has another puddle.

THE ADMINISTRATIVE LAW JUDGE: Okay. So just occasionally, just to sort of tie us up, because there are a lot of photographs here--

THE WITNESS: Definitely.

THE ADMINISTRATIVE LAW JUDGE: There's 12 in this particular group. But just sort of note where you are when you make-- Because as I observe, you're looking at these photographs as you're speaking; isn't that correct?

THE WITNESS: Yes, I am.

THE ADMINISTRATIVE LAW JUDGE: Go ahead,

Mr. Ryan.

MR. RYAN: Thank you, Your Honor.

BY MR. RYAN:

Q. So is it your testimony that the--there's a reduced infiltration rate in this--of the water seeping into the ground in this flow path?

A. Yes, it is.

Q. Would you expect to see the same reduced infiltration rate outside the flow path, say in the corn?

A. No. There was more infiltration in the areas of the corn where they had unconsolidated soil that the plants were growing in.

Q. Okay. So--

A. Just what I'm observing here, when I look at the scouring effects--

Q. And which photo are we looking at?

A. Yeah. It shows best in 4, but 5 and 6 is the fact that the unconsolidated soil has been removed, it's been flushed down that slope in that particular area, and we're looking at the cemented material underneath it.

Q. Okay. Okay. So proceeding down the hill, what other observations did you make during your site visit?

A. Well, we went down and we headed off to the southwest, and I considered--you know, I continued to see the flow path was widening a bit. But then when we got down, we're getting pretty close to where it drops into the unnamed tributary.

Q. And what photo are you looking at?

A. Right now I'm looking at Photo No. 9. And at that point we start to see standing water. That water was actually flowing. That water was generated from seepage.

Q. So just for the record, we're looking at Photo No. 9 in Exhibit 42 Pollard, and what seepage do you see there?

A. Well, you see the water in the gully near the top of the bottom arrow.

Q. Approximately right in the center of the photograph?

A. Yes. Approximately right in the center of the photograph. And that water was flowing and it was continuous down to where it dropped into the unnamed tributary.

Q. And do you know where that water was coming from?

A. It was--it was definitely, you know, coming as sublateral flow. It was not surface flow that was

standing in there. It was moving in to the surface.

Q. So the water we see in Photo No. 9 is not coming down off the feedlot, necessarily; it's coming out of a seep?

A. Yes, it was.

Q. Okay. And looking at Photo 10, is that the seep you're referring to?

A. Oh, yes, it is.

Q. Okay. So it is--is that seep area in Photo No. 10 the same one we see on the left center of Photo No. 9?

A. Yes, it is.

Q. What's the significance of the presence of a seep down near the unnamed tributary? Why did you take this photograph?

A. I was interested that at that point the channel was--was receiving water on a regular basis--or on some basis, you know. There was a seep there. So it was either a high groundwater table or it was sublateral flow following a storm event, but that it was coming into the channel as something other than rainfall and, you know, surface flow.

Q. And--

A. And therefore it would be classified potentially at that point as, you know, an

intermittent channel versus an ephemeral channel.

Q. Let's turn to Photo No. 11 in 42 Pollard. Do you have it there in front of you?

A. I do.

Q. And is that you in the picture there?

A. Yes, it is.

Q. Can you tell us what you see in this photograph?

A. I--I see the continuation of the gully or the--you know, the small channel that we're talking about with-- It's flowing, in this picture, down. It hits the knick point, which is another name for a vertical drop in the channel section, you know. A significant drop in the channel section is called a knick point.

THE ADMINISTRATIVE LAW JUDGE: Would you spell that word?

THE WITNESS: Yes. It's k-n-i-c-k p-o-i-n-t.

A. (Continuing) And then it drops into the unnamed tributary at that point at the bottom of this photograph.

BY MR. RYAN:

Q. And what's the significance of a knick point?

A. It's a point that geomorphologists are very interested in because it shows a location where the channel is actually eroding actively and starting to migrate up farther up its course.

Q. Is this also referred to as head cutting?

A. Yes, it is.

Q. And what does the presence of a knick point or head cut tell you about the hydrology of this area?

A. It says that the channel network is expanding, that erosion is occurring, and that it's--

Q. And what's causes--

A. --evolving.

Q. What's causing the erosion?

A. A lot of runoff.

Q. This feature we see here where the yellow arrow is in the center of Photo 11, is that the one you walked continuously down from the feedlot?

A. Yes, it is.

Q. Okay. So was there anything between the feedlot at the point where this picture was taken, Photo No. 11, that would--that broke this--this flow path?

A. No.

Q. So were there any crops growing in the flow

path?

A. No, there weren't. That whole area had been--seemed to have been washed clean all the way down to the unnamed tributary.

Q. As a hydrologist, if it were to rain on the day you were there--it was obviously a sunny skies or mostly sunny skies, but if it had rained on the day you were there on July 1st, 2008, heavy rain, would you expect to see water flowing from the feedlot down into this area we see here on Photo No. 11?

A. Yes, I would.

Q. Now, I'm going to turn you quickly to your expert report while we're on this subject, which is the next exhibit, which is Exhibit 43.

Do you have that there in front of you?

A. Uh-huh.

Q. And do you have there as an attached-- Your expert report is 16 pages long, and after the 16th page there is an area map. Do you see that?

And then there's a topographic map, and then the third page after that is a map which we've seen before through a previous witness, which says--in the lower left-hand corner it says "USGS." In the upper left-hand corner, it says "Lowell Vos Feedlot." And then it has some yellow, red, and blue markings on

it.

Do you see that aerial photograph?

A. Yes, I do.

Q. Now, the path we just spent a few minutes talking about from the feedlot down to the unnamed tributary, is that visible on this page of your expert report?

A. Yes, it is.

Q. And could you describe where that would be?

A. We walked--it looked like we walked through the pen numbered 3. We might have been in Pen No. 2, I'm not sure. But the location where the--at the southern boundary of the feedlot where we started to walk on the flow path is where you see a circled 5 and a circled 6.

Q. Okay. And then from the circled 5 and the circled 6, did you follow that red line?

A. Yes, I did.

Q. And is that red line a fair--you think is a fair representation of the flow path you identified that day?

A. Yes, it is.

Q. And did you-- And I believe you testified you walked that red line all the way down to where the red line meets the blue line, which is identified

as the unnamed tributary?

A. Yes, I did.

Q. Okay. Based on your site visit on July 1st, did your observations as a professional engineer and hydrologist, did they--did those observations tell you that your modeling was--was accurate or was it consistent with what you had modeled for around the site?

A. Yes, it was.

Q. Now, so let's talk about the modeling. Which models did you use in this case?

A. I used the APEX model and the SWAT model.

Q. Okay. You used two different models. Where did you use one and where did you use the other?

A. I used the APEX model in the vicinity of the feedlot, from the feedlot down to the entrance of the unnamed tributary and that small subwatershed. And then I used the SWAT model for the watershed that--the complete watershed for the unnamed tributary.

Q. So you used two different models for two different areas?

A. Correct.

Q. And we'll get into a little bit later why you used which one where. Let's start at the feedlot

working down. So I believe you just testified you used the APEX model for that. Do you remember what APEX stands for?

A. APEX, Agricultural-- Let's see. APEX, Agricultural Policy-- No.

THE ADMINISTRATIVE LAW JUDGE: Well, anyway, just give us the letters for APEX, the acronym.

THE WITNESS: I'm sorry. It's A-P-E-X.

THE ADMINISTRATIVE LAW JUDGE: Just hold on for a second.

(Discussion off the record.)

BY MR. RYAN:

Q. Okay. The APEX model, A-P-E-X?

A. Right. Sorry. We always just call it APEX.

Q. And how long has APEX been around?

A. It was developed in the mid-1990s.

Q. Okay. And so you used the APEX model to do what?

A. I used the APEX model to determine the flow and nutrient discharges from the feedlot to the unnamed tributary.

Q. And is that-- You testified earlier that we had--that you had--excuse me--that you had concluded there were 45 days of discharge and 2,410 tons of manure over five years. Is that--was that-- Were

those numbers generated by your work with the APEX model?

A. Yes, they are.

Q. Okay. And did you look at anything other than just manure? Did you look at, say, other pollutants such as nitrogen or phosphorus?

A. Yes. What I'm referring to is nutrients, nitrogen and phosphorus.

Q. So you actually generated results which would show how much nitrogen and phosphorus would be expected to come off this feedlot?

A. Yes, I did.

Q. So how many models are out there, in general, to be used?

A. For?

Q. In hydrology.

A. In hydrology?

Q. Yeah.

A. There are over a hundred models that are available for surface water and groundwater combined, you know, meaning one or the other or both.

Q. And how long have hydrologists been using models to estimate the real world?

A. Well, the models that hydrologists still use today, extensively use today, were developed in the

1970s and 1980s.

Q. Okay.

A. And now they have--some of them have different names because with computer technology evolving, there's been a lot of advances in speed and storage space so that the interfaces are changing, and so they have broader applications, and so sometimes they're changing the names.

For example, the APEX model is actually just a--it's just an extension of another model that's been used since the early 1980s called EPIC, and it's just been extended to take into account these kinds of analyses at a watershed level instead of at a field scale level.

And so these models are always evolving based just like computer technology is. Computer technology continues to expand. So do these models' capabilities.

But they all use-- Can I continue just a minute?

Q. Yes.

A. They all use equations, or, you know, we could call those models as well, that were developed in the seventies and eighties.

APEX is using widely-accepted and

widely-used equations that were developed through the research of the USDA Agricultural Research Service, such as the use of the SCS curve method technique or whatever, the SCS curve technique--curve number technique.

TR-55 is used for-- And the SCS curve number technique is used to determine flow volumes, whereas TR-55 is also incorporated into the APEX model, and that gives you peak flows, the universal soil loss equation. And, you know, its modified universal soil loss equation and revised version are all incorporated into this code.

So this code uses the science that hydrologists have been using every day since the seventies and eighties. This is what we use, these tools.

Q. So you testified there are over a hundred models out there. How did you choose APEX to use in this case?

A. I choosed APEX because it was designed to do exactly what I needed to do. It was designed to look at flow and nutrient discharges from farms and animal livestock areas, specifically feedlots. It incorporates a manure equation that will give me direct manure yields, in addition to giving me the

nutrients of nitrogen and phosphorus. So it was designed specifically to look at this type of a problem.

Q. Okay. Did you consider it the best fit for this site?

A. Yes, I did.

Q. You talked quite a bit about the development of these models and they've been around--some of the subparts of them have been around since the seventies. Are they considered today trustworthy?

A. Yes, they are, and they're used around the world. They're widely used and they're a standard tool for this type of analysis.

Q. And, for example, the APEX model, has that been peer-reviewed?

A. Yes, it has.

Q. And--

A. I know for SWAT there's over 100 peer-reviewed papers that describe that model and studies that have validated that model. APEX has studies too that are described in Gassman 2006. And it's a direct descendent of the EPIC model, and that paper talks about the historical development of EPIC and APEX and talks about the studies that have been done to validate those models.

Q. And do hydrologists such as yourself routinely rely on models such as SWAT and APEX?

A. Yes, definitely.

Q. So let's talk about your application of APEX here. Now, when you read--when you ran the APEX model using an assortment of data, I take it, and you came up with the result which we talked about a minute ago, 45 days and 2,410 tons of manure, and I believe your expert report also mentions other pollutants other than manure, such as nitrogen and phosphorus, did you reach that conclusion to a reasonable degree of scientific certainty?

A. Yes, I did.

Q. So let's talk about how. In general, what parameters do you look at when you're doing modeling of this sort?

A. Well, there are four general categories of parameters. There's the weather, weather parameters; there's the soil parameters; there's the cover parameters--

Q. What do you mean by cover?

A. I mean what's--what's on the land surface. Is there anything on the soil? Is it barren or are there--is the corn--is, you know, crops growing, meadows. Whatever is covering--

Q. Okay.

A. --it is taken into account in that category.

And then there's topographic data that you need to look at.

Q. Okay. So you look at what's falling out of the sky, you look at whether it's hilly or flat, you look at what's growing on top of the land, and you look at the type of soil?

A. Yes.

Q. Okay. And so when you were looking at these four major parameters, what specific evidence did you look at in the Lowell Vos case?

A. I had--I looked-- Well, first I had photographs, aerial photographs, of the area. I had an inspection report that had been generated from an inspection that also had ground photographs in it. I looked at the NRCS soil survey for Woodbury County and Plymouth County. I looked at the National Land Cover Database map for this area. I looked at the surrounding weather stations, the NOAA data for this area.

Q. Uh-huh.

A. Oh, I looked at the crop yields that were generated by the ARSS, and also they have crop yields

that are generated as part of the NRCS soil survey for the soil types in the area. And I think that's about it.

Q. Did you look at the topographic maps for the area?

A. Oh, definitely, yes, I did. Yeah.

Q. And did you look at those both in the paper form and digital form?

A. Yes. I looked at two survey-- I had-- I looked at the 10-meter DEM. DEM stands for digital elevation model that's downloaded from the USGS seamless site. And that data is elevation data that's--it's XYZ data; lat, long, and elevation data on a regular grid spacing. In this case it was a 10-meter grid spacing, so I had one data point every 10 meters throughout this area.

And I also looked at the ground survey that had been done of the feedlot area that I was given by EPA.

Q. Was that the ground surveyed by Mr. Vos' consultants?

A. Yes, it was.

MR. RYAN: Your Honor, for the purposes of-- I'm not moving this into evidence, but just for purposes of identification, this is the large

oversize sheet which, on the right-hand side, says "Lowell Vos Feedlot Site Layout," which was provided to us by Respondent.

I apologize.

THE ADMINISTRATIVE LAW JUDGE: Okay. Thank you.

MR. RYAN: Thank you.

BY MR. RYAN:

Q. Is this, Ms. Doty, the document you just referred to in your prior testimony?

A. Yes, it is.

Q. Okay. What does this show us?

A. This shows us one-foot contour intervals that were taken from surveying, ground survey equipment, in the vicinity of the feedlot, primarily the feedlot.

Q. And is this something you relied on in preparing your expert report?

A. I did. I did examine this, and I took some slope measurements to make sure that they were consistent with the 10-meter DEM. For my--for the kind of work I do, I need my--my elevation data to be in a digital format so I can load it into the model, and so I wanted to be sure that my two sources were--elevation data were consistent.

Q. And were they consistent--were your elevation data that you used for your model consistent with what you see in this--in this site diagram?

A. Yes, they were.

Q. Now, based on your having walked the site, is what you see in this site diagram provided to us by Respondent, is this consistent with what you saw when you were walking on the ground?

A. Yes. You can actually see the gully channel in here in the topo. They have it. The gully pathway is actually defined by the topography.

You can see the-- I can draw it. I don't know how to-- You can see the peaks that are formed when you have a depression in the land surface in a contour map like this, and you can actually follow it from the fence line all the way down to where the data is cut off on the western side.

Q. Okay. So the flow path which we talked about--which you testified about earlier in Exhibit 42 Pollard, you could see that on this map?

A. I can see it. I could show it to you, if you wanted.

Q. Sure. Let's do that.

MR. RYAN: May I approach, Your Honor?

THE ADMINISTRATIVE LAW JUDGE: Yes.

MR. RYAN: I want to go off the record for just one second while I get this set up.

THE ADMINISTRATIVE LAW JUDGE: Okay. We'll go off the record.

MR. RYAN: May? I'm sorry, Your Honor. May we go off the record for just a second?

THE ADMINISTRATIVE LAW JUDGE: Yes. We're off the record.

(Discussion off the record.)

MR. RYAN: Before we proceed with Ms. Doty, Your Honor, I just checked briefly with opposing counsel. He would have no objection to me just moving this into evidence despite the fact it was not part of our prehearing exchange.

With that, I would--before we start marking this up, I would like to have this marked for the purposes of identification as-- Excuse me.

What's our latest exhibit number?

MR. POLLARD: Looks like 49.

MR. RYAN: I would like to have this, for purposes of identification, marked as Complainant's Exhibit 49--excuse me--Complainant's Exhibit 50, and then I would like to move it at this time into evidence.

THE ADMINISTRATIVE LAW JUDGE: You want to move it at this time?

MR. RYAN: Yes.

THE ADMINISTRATIVE LAW JUDGE: Okay.

MR. McAFEE: No objection, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: All right.

(Complainant's Exhibit No. 50 was received in evidence.)

THE ADMINISTRATIVE LAW JUDGE: Complainant's Exhibit 50, which will be-- You'll need to mark it as 50 on there.

MR. RYAN: Yes. After the break, Your Honor, I will take the liberty to mark it.

THE ADMINISTRATIVE LAW JUDGE: All right. Why don't we just right now, though, have Ms. Doty, for the record, describe in her words what Exhibit 50 is.

MR. RYAN: Okay.

THE ADMINISTRATIVE LAW JUDGE: Exhibit 50 is? If you would just describe it, please.

THE WITNESS: Yes. It's a--it's a ground survey that was done by an engineering firm, a third-party engineering firm, that's on here somewhere. Let's see. By Eisenbraun & Associates.

THE ADMINISTRATIVE LAW JUDGE: And there's a

date, right?

THE WITNESS: There is a date.

THE ADMINISTRATIVE LAW JUDGE: Right below that.

THE WITNESS: There is?

MR. RYAN: Bottom right-hand corner.

THE WITNESS: Yes. October 4th, 2005. Sorry.

THE ADMINISTRATIVE LAW JUDGE: Okay. And it's described, is it not, as the--the title of it is "Lowell Vos Feedlot Site Layout, Woodbury County, Iowa"; is that right?

THE WITNESS: Yes. That's correct.

THE ADMINISTRATIVE LAW JUDGE: All right. Go ahead, Mr. Ryan.

THE WITNESS: Well, I just wanted to point out these V-shaped notches that you see go down through--going down south. It's over--it's overlain here by a holding pond that doesn't exist, but underneath you can see the one-foot contours, and when you see these V-shaped notches, it's indicative of a depression in the ground surface.

MR. RYAN: Okay. Let the record reflect that the witness just made three circles on Exhibit 50.

BY MR. RYAN:

Q. And could you put-- You said those were V-shaped notches. Could you put just a V next to each of them.

A. Okay. There are more of them are here than I'm marking, but you can--it's actually all the topographic lines, the one-foot topographic lines down through here, show that notch.

And then you can tell that it gets to be more pronounced at the base of this hill, where it starts to turn to the southwest and then head on out.

Q. Okay. Could you do this for us? Could you trace the approximate path you took when you walked this site on July 1st, please?

A. Yes. I'm going to put a dotted line on here.

This reproduction kind of whites out in this area, so I'm going to--I can see it here, but you can't see it because it's--it's not a good, you know, photocopy in that area. And my pen's not working very well either.

Q. Here. Let me get you a better pen.

A. Technical difficulties.

Thank you. Yes. That's better. Thank you.

Goes off there.

Q. We just lost it on the screen. If you could push your paper a little bit to the right so we can see.

A. Well, that's pretty much the end of where the map is extended to.

Q. So the dotted line you just made on Exhibit 50 represents the approximate path you took during your site visit--

A. Yes, it does.

Q. --or the dashed line?

Now, we see a number of--you mentioned a minute ago that there was some stuff in the way of putting your dashed line. What is that thing, that large rectangular thing?

A. It's a proposed holding pond, Pond No. 2.

Q. Are there other proposed holding ponds on Exhibit 50?

A. Yes. There is proposed Holding Pond No. 1 and proposed Holding Pond No. 3.

Q. And are those--is the placement of those holding ponds-- Let me step back a second.

Is there also berming shown on this Exhibit 50?

A. There are berms. There are berms between the western Holding Pond No. 1, the southern Holding

Pond No. 2, and then to the east of the southern Holding Pond No. 2.

Q. Now, were any of these berms in place when you visited on July 1st, 2008?

A. No, they weren't.

Q. So, to your knowledge, none of this stuff has actually been built?

A. No. No. This is a design plan.

Q. Okay. Now, the placement of the berms and the holding ponds, are those consistent with your understanding of the flow paths on this site?

A. Yes, they are.

Q. And, in other words, would you expect, as an engineer, to place berms and holding ponds in those places to capture runoff?

A. Yes, I would.

Q. Is there anything else on Exhibit 50 that you relied on for your expert report?

A. No.

MR. RYAN: That's all I have for that exhibit, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Okay. This would be a good point for us to stop, and we'll pick up at approximately 1:15.

MR. RYAN: Thank you, Your Honor.

THE ADMINISTRATIVE LAW JUDGE: Ms. Doty, you might have heard this, or maybe counsel, Mr. Ryan or Mr. Breedlove, mentioned this; you're not to talk with anyone during lunch.

THE WITNESS: Okay.

THE ADMINISTRATIVE LAW JUDGE: Talk about have you had an early snowfall in Denver yet--

THE WITNESS: No. I'm actually going to go up there and have lunch there alone, so I won't talk to anybody else.

THE ADMINISTRATIVE LAW JUDGE: All right. So we'll see you all around 1:15. Thank you.

MR. RYAN: Thank you, Your Honor.

(Recess at 12:10 p.m., until 1:43 p.m.)

AFTERNOON SESSION (1:43 p.m.)

MR. RYAN: Your Honor, before we go back into-- If I may? May I proceed.

THE ADMINISTRATIVE LAW JUDGE: Sure.

MR. RYAN: Thank you. We were discussing the large plot plan that we looked at before, which was identified as the Lowell Vos site layout dated October 5th--October 4th, 2005. And we were going to label this as Complainant's Exhibit 50, and Ms. Doty never got to that point, so I'd like to have her mark it now so that--

THE ADMINISTRATIVE LAW JUDGE: Yes. That's fine. Okay.

MR. RYAN: And could you put a C in front of the 50, if you didn't already.

THE WITNESS: I did.

MR. RYAN: Let the record reflect that Ms. Doty just marked C50 on that exhibit.

DIRECT EXAMINATION (Resumed)

BY MR. RYAN:

Q. Ms. Doty, before our lunch break we were just about to get into your--a discussion of your application of the APEX model in this case. Before we get there, let's step back for a minute.

You testified, when we were talking about

where these models come from and how they were constructed over time--you talked about some mathematical calculations, and could you tell us, give us some summary of how those mathematical calculations, which are part of these models, were derived and why we should trust them?

A. Okay. The APEX and the SWAT models are composed of components, and those are the calculations that you're referring to, I believe, and those components were developed by the USDA based on decades of research.

They actually started test plots back in the 1950s across most of the United States, primarily in the Great Plains area, and those test plots measured the flow and soil loss and nutrient yields from different areas.

And they used that data to develop equations that we still use today, and those equations are components of this model. To determine flow volume, the SCS curve number method; to determine peak discharges, they use the TR-55 method; and to determine sediment yield, they use the USLE.

And actually, the--you have the option of using universal soil loss equation or the revised universal soil loss equation or the modified

universal soil loss equation. They're all options.

But those standard components that we use every day--and we always used to do those calculations by hand using those techniques--are just put into the model, and you select them when you run the model, and it runs those calculations for you.

Q. So you referenced a test plot done over a period of years. Is that where the scientists developed these--you know, actually went out in the field and measured how much soil, for example, or how much runoff came from a specific area they were looking at and then translated that--those observations into mathematical models?

A. Yes, they did.

Q. Okay.

A. Those are called process-based models when they're looking at specific processes and replicating them. And that's a type of model we're talking about here.

Q. Okay. So these models are not based on hypothetical laboratory thoughts; these are based on real-world--

A. Right. Or regression analysis, statistics. They aren't based on that, and, therefore, they are not--because they're processed-based and they're

based on data and decades of research on the amount of material that will move on a slope, you don't calibrate those. Those are calibrated based on the research that's been done. So you validate your models, but you don't calibrate them.

Q. Okay. We'll talk about calibration a little bit later, but I think you answered my question as to where these, for example, soil loss equations come from. And given the number of years they've been in existence, are these considered--these soil loss equations considered trustworthy?

A. Yes. They're definitely trustworthy. They're widely used around the world.

Q. Okay. Let's go back to a quick overview and then we'll get into the APEX model. You testified at the beginning about your conclusions about the number of days of discharge, number of tons of manure. How many general discharge points from this feedlot facility did you determine existed?

A. Three.

Q. Okay. And where were those three?

A. Can I refer to a diagram?

Q. Yes. Please refer to your expert report.

A. I believe it's Figure 9, and I'll tell you the page here in a second.

Yes. Figure 9, page 25 of the report.

MR. RYAN: Do you have a page 25 in the lower right-hand corner of your copy, Your Honor? Is there a handwritten page number in the lower right?

THE ADMINISTRATIVE LAW JUDGE: Yes. I thought you said 45. Yes. Mine shows, in the lower right-hand corner for Figure 9, the number 25, and pages are numbered up to 42. And then--then there are no numbers, even though the report continues.

MR. RYAN: May we go off the record for one minute, Your Honor, so I can--

THE ADMINISTRATIVE LAW JUDGE: Yes. We'll go off the record.

(Discussion off the record.)

BY MR. RYAN:

Q. Ms. Doty, for the record, we're referring to what's marked in the lower right-hand corner of your expert report as page 25, which is Figure 9. Could you proceed with your answer?

A. There are three points where the runoff enters the stream channel, the unnamed stream channel.

Q. Okay. And where are those three points?

A. Do you see area K, the northwest corner of area K?

Q. Uh-huh.

A. The north central area of area F, north central by the road, by 100th Street. And then at the end of the flow path that I walked down, past where it says L1, down to where the stream is there.

Q. Okay. So is it safe to say one flow path is to the north, one flow path is approximately to the west, and one flow path is to the--emanates from the south and heads west?

A. That's correct.

Q. And we'll discuss each of those in more detail as we go along. I just want to make sure we're all aware that there are multiple paths to the unnamed tributary.

So let's talk about your APEX model. Before I go on that, those three points we just discussed on Figure 9, did you come up with those independently or did you rely on something from EPA on that to come up with those?

A. I looked at the topographic data and I used the models to determine flow paths.

Q. Okay. You didn't--in other words, you didn't put them where EPA asked you to put them, did you?

A. No.

Q. Okay. On the APEX model, which I believe you testified earlier is what you used to calculate runoff in loading from the feedlot down to the unnamed tributary-- And you testified just before we broke for lunch that you considered a host of data for this site, such as the aerial photographs, the 10-meter DEM data, et cetera, et cetera. Could you tell us how you took this information and entered it into your model?

A. Yes. I guess I could start on page 20, which is just showing the location map. I was given general locations of site, and so I plotted-- Oh, see, that's not 20. Hold on.

Q. Page 17, perhaps?

A. Yes. I'm sorry. 17. It's just a general property location. First thing I did was identify where the property's located, and I determined that it was located in western Iowa, a little bit to the north of center western Iowa.

Then I looked at an aerial photograph, and I--from that aerial photograph-- I'm using a GIS system to do this type of work, and from an aerial photograph, I did--

Q. What is a GIS system?

A. Geographical information system. It's

computerized approach to looking at visual data. And so using a GIS program, I could outline the extent of the feedlot area based on what--

Q. Are we now looking at Figure 2 on page 18?

A. Yes, we are.

Q. And this would be Figure 2 of your expert report?

A. Right. So I could identify the outline of the feedlot area from the aerial photograph. That becomes a separate layer in the GIS system, and so I took that layer and I overlaid it on the USGS quad sheet, which is what we're looking at Figure 18--page 18, Figure 2.

Q. Now, when you say layer, are you saying you took one set of data and you laid on it top of another set of data?

A. That's correct. And all that was was the boundary of the feedlot area.

Q. And did you size the topographic data to the same scale as the feedlot data when you laid them on top of each other like this?

A. Yes. They are referenced to NAD-84, to a specific reference system that allows you to overlay this data.

Q. So when we're looking at Figure 2, the

feedlot and the topographic data are all to the same scale?

A. Yes, they are.

Okay. And so at this point I did overlay the boundary of the feedlot area on the USGS quad sheet, which is what we're looking at on Figure 2. And I did that so I could get a general sense of the topography.

I could see from that that, you know, we were looking at a hilly region. I could see from that photo that the USGS had shown the unnamed tributary as a perennial stream. I could see from that photo the pathway that I actually walked, and just as I showed on this other--

Q. Exhibit 50?

A. Thank you. --Exhibit 50, the signature of the topographic line shows me the flow path that I walked straight up to the feedlot area. And so that's what I used that for, just get a general lay of the land.

Then I went on to-- Let's see. At that point I downloaded the 10-meter DEM.

Q. Okay. What is DEM again? I'm sorry.

A. Sorry. Digital elevation model.

Q. Okay.

A. And if you will go to Figure 9, I developed this diagram.that we're looking at.

Q. And is Figure 9 page 25 of your report?

A. Yes, it is. Thank you.

From the 10-meter DEM data, I generated a 1-meter topo map, a 1-meter contour map, and I overlaid that 1-meter contour map on top of the aerial photograph, and then I delineated the extent of the watershed that I used in the model. The--

Q. So if I could stop you for just a second, so the topographic data we see here and the aerial photography data we see here are two separate images that are same scale and put together?

A. That's correct.

Q. Proceed.

A. The green line, the outer green line, is the--is the perimeter of the watershed area. It's actually discontinuous on the east side, but it goes around this area.

That subdrainage area that I delineated, the subwatershed area, is actually not a direct interpretation of what I would do if I was just looking at this 1-meter DEM, the 1-meter contour.

In other words, on the south side, when I looked at the aerial photograph, I noticed that there

was a row of berms, which you call them terraces, that were coming down the side of that hill.

Q. Are those--are those those sort of thick lines we see in the lower half of Exhibit--or Figure 9 on page 25?

A. That's correct. I didn't include-- Those--the water runs down from the knob, which is just at the south end of this figure, on down and out along the channel that I walked.

But in this case, I didn't include it, that area, in the model because the effect of the terraces are to slow down the flow and to allow it to infiltrate so that I didn't want to add in that additional flow into the system when I wasn't sure it was going to actually be runoff. I didn't think I should--it was appropriate to do that, so I shortened up the extent of the subwatershed area down in that area.

Q. So let me ask you a question here. So would the effect of-- You excluded that area outside the green line at the bottom end of Figure 9. If you had included that, would you have had more water flowing into the system?

A. Yes, I would have.

Q. So by excluding that from the drainage, does

that mean--make it more likely or less likely that you'd find discharges out of that flow path?

A. It would make it less likely because you don't have as much flow. You don't have as much energy picking up the particles and moving them out.

And then I put in the terrace that you see on the west side of the feedlot.

Q. Is that the kind of horseshoe-shaped white thing we see immediately to the left of the feedlot?

A. Yes, it is.

Q. Right below the K?

A. Right below the K, correct.

Q. Okay.

A. So then I had my--the watershed area defined that I used in the model. Next I broke it up into smaller subdrainage areas, and--

Q. And why did you do that?

A. The way these models, process-based models, work is they run the calculations when you have a uniform--uniform soil and land use cover. So you have to tell the model the extent of those areas, and that's what I did in this next step.

Q. So if you had feedlot and corn in one area, you couldn't--the model wouldn't work?

A. No. You couldn't-- Well, no. You need to

break those out because they're two separate land uses.

Q. Because corn--does corn behave differently than--

A. Yes. Water running through a cornfield is much--you know, is not going to be as-- A lot of the flow is going to be taken out in evapotranspiration and, you know, used by the plants, and therefore less runoff is going to occur than if you have a fallow area, in other words, a bare area where there isn't anything growing.

Q. So by breaking this up into subareas, you were looking at areas that all had one--each subarea had its own unique characteristics?

A. Yes, it did.

And so after I had broken it up into those subareas, I numbered them. There's--it started with A and it went A through H, K, J, and then down through the L system, 1 through 5. There is really nothing--there's no-- You can name them anything you want is what I'd like to say. I just picked letters because it was quick to put it into the computer, and that's how did I it.

Q. So is--

A. But you can call them anything, but you have

to call them something so the program can identify them.

Q. So when you look at, they say, the feedlot area on the left-hand side, the west side of the feedlot area, you see the letter A, and then above it is H, so are you treating those two parts of the feedlot as separate subareas?

A. Yes, I am.

Q. And why would you do that?

A. Also it has to do-- In that case it had to do with flow direction. I was dividing out these areas based on flow, so they're subdrainage areas, and they have a relatively constantly slope within each area.

Q. Okay.

A. And then I guess since we're talking about Area H, I could just point out that I did not include that in the model. The flow-- The flow that went into area H, I didn't include, because I just made the conservative assumption that that terrace was 100 percent effective and was containing that flow at all times during the period of interest.

Q. Do you know whether it's containing the flow or not?

A. No, I don't. And I could have left that up

to the model to determine, but I didn't. I just decided not to.

Q. So just by excluding area H, are you giving the benefit of the doubt to the respondent?

A. I am.

Q. Okay.

A. I am. So after I defined all my subdrainage areas, I put that information into the model.

Q. Okay.

A. Okay. That information was-- First of all, I took measurements of the slope and the length of the flow path within each of those subdrainage areas. I measured the aerial extent of each one of those subdrainage areas in terms of acres. And the model requires that information.

Then I told the model that starting from the drainage divide down to the outlet of the model, I told it what it was going to go through. So it turns out that the drainage divide, that the highest point in this watershed, is--runs right through the middle of the feedlot, and so areas A, B, C, and D are points where the flow goes south from that drainage divide, and areas H, G, and F go either north or west.

Q. How about area E?

A. And E, yeah.

Q. Would E go north or--

A. No. E does go south. Thank you.

Q. Okay.

A. So I would tell the model, for example, it needs to go from the drainage divide, say area B, then it's going to run through the cornfield, subdrainage area L-2, which flows into the subdrainage area L-1 that flows to the outlet.

Q. And the outlet would be the confluence of that flow path with the unnamed tributary?

A. Yes. That's correct. And I did that for all the flow processes that we have here.

Then other things that I tell the model, I tell it what soil type it is within each of the subdrainage areas. I tell it what the surface conditions are.

In this case it was fallow within the feedlot, meaning I didn't have any vegetation growing. It was corn through all the L area, subareas. It was a summer meadow through area J. It was also corn at area K.

Then-- Well, what else?

Q. You talked a minute ago about how you determine the--the soil types. How did you know what

soil types were there?

A. I referred to the NRCS soil survey map, and that's included in the figures, and for the regional area, it's shown as Figure 7.

Q. And what's the page number on that?

A. That's page 23. And that tells you that the soils in this area are silty loams and silty clay loams.

Q. Uh-huh.

A. And these models are sophisticated in that they include databases within them, and they have a database that includes all of the soil types in it.

So you select a soil type, and it goes to the database and it selects all the parameters that it needs, the properties that it needs, to run the calculations. And those properties come directly from a database that was developed by the USDA and the NRCS, and all the data is taken directly from the soil surveys.

Q. And what role does the soil type play in the analysis? Does water behave differently in different soils?

A. Yes, it does. Because this model's a process-based model, it simulates the hydrological cycle, so it simulates the amount of water that hits

the surface and what happens to it when it does hit the surface. Some of it's going to infiltrate, some of it's going to potentially run off, some of it's going to be absorbed by plants, some of it's going to go as evaporation right back into the atmosphere.

So the model does simulate all those processes, in addition to sublateral flow, anything that's going laterally within those soil layers or at the rock interface, and it also simulates the amount that goes down to the groundwater table and is called lost. We say it's lost. It's running out of the model as far as we're concerned. It doesn't daylight in the stream channel.

Q. So you just mentioned the sublateral movement or flow. I think you referenced that earlier on Exhibit 42 Pollard down near the confluence--

A. Right.

Q. --the runoff path with the unnamed tributary. Is that that C we looked at in the photographs?

A. Yes.

Q. Would that be an example of sublateral flow?

A. Yes, it would.

Q. Okay. So what's-- Looking at Figure 6 in

your expert report, what is that?

A. Okay. Figure 6 is the same thing, actually, as Figure 7, only the scale's different. I zoomed in on the GIS system so that I could take a closer look at what the soil types were in the vicinity of the feedlot, and that's all that tells you.

Q. And when you walked this site on July 1st, 2008, did your observations of the soils--were they consistent with the soil maps that you used?

A. Yes. They're fine-grain soils. These are-- these silts and silty loam soils are-- The amount of clay varies. The silt's 60, 70 percent. The amount of clay is, you know, 15 to 25 percent.

But so they're like--they're, you know, predominantly very fine-grain soils. They usually have around 7 to 10 percent sand is what-- And that's what the model needs to know. They need to know the, you know, infiltration rate to be able to determine how much goes in and what runs off.

Q. Okay. Okay. So you looked at the soils and you looked at the slope angles in each of these subareas, and I think you already testified you looked at the cover. What were the slope angles like in this area? Was it flat, steep?

A. Slope angles within the feedlot area were

typically 4 to 6 percent, and throughout the whole sub--what I'm calling the watershed area for the APEX model, they varied from 2 to 9 percent.

Q. This would be the area depicted within Figure 9 of your expert report?

A. Yes.

Q. And is 2 percent of a slope enough to generate flow?

A. Oh, yes, definitely. And 9 percent is a lot. It's a hill, just a hill.

Q. Okay. What did you do next?

A. Next-- Well, I added in the type of plant covers, and as-- Did I discuss this before, as I looked at--initially I looked at the National Land Cover Database layer, which was also in the GIS system?

But then I also looked at--I relied on a lot of information for that. I relied on information from the aerial photographs, from my site visit, from on-site photos to determine what we had in the various areas.

Q. Is that land cover area--land cover data reflected in Figure 8 on page 24 of your report?

A. Yes, it is. Yes. This is the National Land Cover.

THE ADMINISTRATIVE LAW JUDGE: What was that figure of the report?

MR. RYAN: Figure 8, page 24.

THE ADMINISTRATIVE LAW JUDGE: Okay.

BY MR. RYAN:

Q. And what does this Figure 8 show you?

A. It shows the distribution of the land use within this watershed area.

Q. So in the legend in the lower right-hand corner, for example, the fourth box down under "Landuse," it says "Corn," so anything that color in this map, would that be planted in corn?

A. Yes, it would.

Q. Okay. And do you know how often these are updated?

A. Just periodically. I don't know the exact date of this one.

Q. Did you see anything other than what you expected during your site visit on this site?

A. Oh, no, I didn't.

Q. Okay. So you looked at the land use types, the soils, the slope angles. What else? What did you do next?

A. There's-- In these models, because they're designed to simulate feedlots and other management

operations associated with livestock, there's a management layer. So in the management layer is where I indicated that these subareas, A, B, C, D, E, F, G, were part of a feedlot.

Q. We're referring to Figure 9 now, right?

A. I'm sorry. Yes, we are.

Q. Okay.

A. And I told the model how many cows were in that feedlot and how often they were there. I told it that it had 2,000 cows in the feedlot. I was told that there were two to three thousand cows in the feedlot on a continuous basis over a period of interest, so because I had a range, I decided to go with the low end of the range just to be conservative. I didn't want to assume that there were more cows in there than there were.

Q. Okay. So if, I believe, there's been testimony earlier that during a 2006 inspection the inspector found, I believe, in the neighborhood of 2,200 cows, did you account for 2,200 cows or for 2,000 cows?

A. No. I accounted for 2,000 cows.

Q. Okay. And there's also been testimony before you today regarding the fact that Mr. Vos reduced his herd size in 2007, I believe. Did you

take that into account?

A. No. I only modeled till January of 2007. The period I was modeling was January 2002 to January 2007.

Q. So if he reduced his herd size after that it had no effect on your modeling?

A. No. No. Then I also looked at the NOAA weather stations that were in the vicinity of the site, and the figure that shows them is on page 20.

Q. Was that Figure 4?

A. Yes, it is.

Q. Is Figure 4 to your expert report?

A. And it showed that there were four NOAA weather stations in approximately 30 miles.

Q. You say NOAA, is that N-O-A-A?

A. Yes, it is. And two of them were half the distance, two of them, you know-- So in other words, I had two stations that were the closest to the site; one was the Le Mars station and one was the Sioux City Airport station. So I selected the Le Mars station because it's closest to the site.

I went into the model and selected that station. There's a database in the model that takes all the daily parameters from that site to apply in the analyses. So it already has a file that tells it

exactly how much precipitation occurred, and I could have downloaded that, but the model already had that. It had the temperatures for every day and then it had the other data that are also needed.

Q. So the model had actual rainfall and temperature data from NOAA incorporated into itself for this area?

A. Correct.

Q. Now, of these four stations that you considered, were there wide variations in the amount of rainfall between them on average?

A. I did a sensitivity study to look at that. I ran the model with the Le Mars station. A sensitivity study is when you vary one parameter and you leave all other parameters identical so that you can isolate the effects of the one parameter. In this case, I was isolating the weather, the precipitation that fell on the site.

When I ran the model, I used Le Mars station because that was the closest one, but the Sioux City is only a mile farther away, and it's in a different direction, so I wanted to see if it also would produce about the same amount of--you know, the same results, and it did. They were very similar, almost identical in terms of output for the manure yield to

the unnamed tributary.

Q. Do you have an understanding of which way the storm systems prevail in this part of Iowa?

A. I looked at the weather data for Le Mars and Sioux City, and the precipitation events at Sioux City were occurring before the precipitation events at Le Mars, so I'm assuming the weather in most cases was coming in from the west.

Q. Okay. So I interrupted you. You looked at the Le Mars station and you incorporated that data. How many--for how long a period did you look at the weather data for Le Mars?

A. I ran this model for ten years. I used ten years worth of data. But the only reason I used the first five years was to warm up the model. I refer to it as warming up. It just means that you establish the moisture content, we call it antecedent moisture content, in the soil column to be representative of typical precipitation events in the area that you're modeling.

So I just wanted--I wanted everything to, you know, be as representative as possible, but--and then I ran it for five years following that, which is the period of interest, the 2002 to 2006, and that's what I ran the calculations on.

Q. Okay. Let's back up for a second. You said you wanted the--you ran it for five years prior to your model, the weather data, to see what, I believe you said, the moisture soil content would be?

A. Right.

Q. And why is that important?

A. Because these models are process-based. They run a balance every day to figure out how much moisture is in the soil, how much is taken up by the plants, how much is runoff and how much is, you know, lost to percolation.

If you're starting with a really wet soil, you know, if I start with initial condition-- First of all, I don't know the initial conditions at the site because I haven't taken any site-specific data to measure how much water there is in the soil, so-- And if I started off assuming it was really wet, then I'd have a lot more runoff than would have actually happened. So I want to run it so that it becomes representative of what is actually out there.

Q. So at the beginning of your five years that you were looking at for your modeling--

A. Uh-huh.

Q. --instead of making an assumption, you had the model say tell me what the soil moisture content