UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

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JUAN DUARTE, BETSY DUARTE AND N.D., INFANT, BY PARENTS AND NATURAL GUARDIANS JUAN DUARTE AND BETSY DUARTE, LEROY NOBLES AND BETTY NOBLES, ON BEHALF OF THEMSELVES AND ALL OTHERS SIMILARLY SITUATED,

Plaintiffs,

vs.

Civil Action No.
2:17-cv-01624-ES-SCM

UNITED STATES METALS REFINING COMPANY, et al,

Defendants,

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VIDEOTAPED DEPOSITION OF MICHAEL McNALLY

Morristown, New Jersey

Friday, August 17, 2018

Reported by:
Angela M. Shaw-Crockett, CCR, CRR, RMR, CSR

August 17, 2018

9:25 a.m.

VIDEOTAPED DEPOSITION of MICHAEL McNALLY, by the Plaintiffs, held at the law offices of Porzio, Bromberg & Newman P.C., 100 Southgate Parkway, Morristown, New Jersey, before, Angela M. Shaw-Crockett, a Certified Court Reporter, Certified Realtime Reporter, Registered Merit Reporter and Notary Public of the States of New York, New Jersey and Connecticut.

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ALSO PRESENT: Kevin Marth, The Videographer

** ** **

THE VIDEOGRAPHER: Good morning. We are now on the record. My name is Kevin Marth. I am a videographer for Golkow Litigation Services. Today's date is August 17, 2018, and the time is approximately 9:25 a.m.

The video deposition today is being held in Morristown, New Jersey, in the matter of Juan Duarte, Betsy Duarte and N.D., infant, by parents and natural guardians Juan Duarte and Betsy Duarte, Leroy Nobles and Betty Nobles, on behalf of themselves and all others similarly situated, versus United States Metals Refining Company, et al, in the United States District Court for the District of New Jersey. Our deponent today is Mr. Mike McNally.

At this time, would counsel please identify themselves for the record.

MR. NIDEL: Chris Nidel on behalf of plaintiffs.

MR. RUBENSTEIN: Joel Rubenstein on behalf of plaintiffs.

MR. SCHICK: Bob Schick on behalf of defendants.

MR. WILKINSON: George Wilkinson for defendants.

MR. STOIA: Charles Stoia representing Mr. McNally.

THE VIDEOGRAPHER: At this time, would the court reporter please swear -- I'm sorry.

We're going on the record at 9:26 a.m.

Would the -- at this time, would the court reporter please swear in witness and we may proceed.

M I C H A E L M c N A L L Y,

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

EXAMINATION

BY MR. NIDEL:

Q. Good morning, Mr. McNally. My name is Chris Nidel, as I state for the record, and I represent the plaintiffs in this case.

Can you state your full name and address for the record?

A. Michael John McNally.

Q. And who is your current employer?

A. The ELM Group.

Q. What is The ELM Group?

(Phone interruption.)

MR. SCHICK: Off the record.

THE VIDEOGRAPHER: Going off the record at 9:27 a.m.

(A discussion was held off the record.)

THE VIDEOGRAPHER: We're back on the record at 9:29 a.m.

BY MR. NIDEL:

Q. I believe my question was: What is ELM or what does ELM do?

A. We're an environmental consulting company.

Q. Okay. Have you ever been deposed before?

A. No.

Q. Okay. You understand you're under oath, right?

A. I do.

Q. Okay. And you understand that the penalties of perjury apply, including possible jail time?

A. Yes.

Q. Okay. One thing, right off the bat, the court reporter is here to get a transcript of our discussion. I would ask that -- though your tendency may be to give body language responses, nod your head, I'd ask for a verbal response as well and, you know, try to avoid yeahs or yups, yeses and noes, when you can, in addition to any body language

that you might naturally use as well; is that fair?

A. Yes.

Q. Okay. You're not under the influence of any drugs or alcohol that may impair your testimony today?

A. No.

Q. You have no reason that you could not testify honestly and truthfully today?

A. No.

Q. Because of the fact that we're trying to get a written record -- I may anticipate your answers, I may cut you off at times, unintentionally, but it might happen. You may anticipate my questions with an answer -- I would just ask that we both try to keep our conversation one at a time, if that's fair?

A. Yes.

Q. Okay. Are you represented by counsel today?

A. Yes.

Q. And who is your counsel?

A. Charles Stoia.

Q. I'm trying to think if there's anything else.

Did you review the subpoena that was

provided for your case?

A. Yes.

Q. Okay. Did you produce documents in response to that subpoena?

A. Yes.

Q. What did you do to prepare for your deposition?

A. I read through some of the files to refresh my memory of various primary components of the work. Took a look through what -- what would have been in the package that was sent over. I didn't review every single document. I just would get a sense of what was there and generally just sort of tried to keep -- bring some things to be a little more fresh in my mind.

Q. Okay. And when you say "the package that was sent over," what are you referring to?

A. The documents that were the subpoena response.

Q. Did you review them electronically?

A. Yes.

Q. Do you remember specific documents that you reviewed?

A. The work plans primarily. The -- some of the remedial action reports for individual

properties, not every single one, but some of them. Some emails, I guess. A sort of broad review. Again, I was trying just to refresh my memory, not do a detailed -- I didn't try to memorize all the documents that were in the record.

Q. Did you talk to anyone to prepare for your deposition?

A. I did.

Q. Okay. Who did you talk to?

A. Charlie Stoia.

Q. Is there anyone other than Charlie Stoia that you spoke to and to prepare for your deposition?

A. No, other than people who would have copied the files for the depo- -- the document response.

Q. Did you talk to Joe Brunner?

A. No.

Q. Did you read a deposition of Joe Brunner?

A. No.

Q. Did you do anything else to prepare for your deposition?

A. Not that I can think of.

Q. Can you describe for me your education post high school?

A. Yes. I have a bachelor of science in civil engineering from Lehigh University.

Q. And what year did you get that BS?

A. 1990.

Q. Any other degrees?

A. No.

Q. Do you have any professional certifications or licenses?

A. Yeah, I'm licensed as a professional engineer in New Jersey, Pennsylvania, and Ohio.

I was in New York, but I didn't continue it. So I think it's -- I don't know if it's still registered or -- but it's -- I didn't continue to renew it because we don't do work in New York.

And I'm a licensed site-remediation professional in New Jersey.

Q. What is a licensed site-remediation professional?

A. So I'm not sure what year it was exactly, but New Jersey changed -- historically, New Jersey had -- the NJDEP had case managers who were the reviewers of documents and managed the cases, the environmental cases. Whenever they started the -- they did a site remediation reformat and they established the licensed site-remediation program

and the role of the licensed site remediator is to certify that work was done in accordance with the regulations and guidance.

Q. And who do you work for in that capacity?

A. I'm not sure I understand that question.

Q. Is that -- are you contracted directly by a PRP? Are you paid by the state?

A. The company that would be the responsible party to it pays for the LSRP service.

Q. And in this case, they were paying your company, the company that you work for?

A. Yes.

Q. How does a company select a PRP?

A. How does a company select a PRP?

Q. I'm sorry.

How does a company select an LSRP?

A. I don't know what, you know, exactly the process of my clients is. I mean, I think sometimes we've worked with them as -- in the past, so we've had a relationship with the companies for a period of time. In this case, I know we had interviews, so I don't know who else they were interviewing.

Q. Okay. Were you interviewed or was ELM interviewed or both?

A. Both.

Q. So -- and when you say we were interviewed, who interviewed you?

A. I don't even know who all was there. I'd be guessing. I assume Joe Brunner was there, but I -- honestly, I can't remember. It was, I think, 2011 or something like that, so seven years ago. And I didn't know who they were at the -- like, I didn't know the people at the table at the time, so...

Q. Did you know what company you were meeting with?

A. I think the offices we met in were Freeport-McMoRan.

Q. What is Freeport-McMoRan?

A. I think it's a metals -- it's a metals refining company or something like that. I don't know.

Q. What is your understanding as to who Joe Brunner works for?

A. I presume he works for Freeport-McMoRan.

Q. Do you know who Freeport-McMoRan Inc. is?

A. I'm not sure. I mean, I assume it's the same company, but it would be just an assumption.

Q. Do you know who Freeport-McMoRan, or McMoRan Copper & Gold is?

MR. STOIA: Objection, form.

A. No. I mean not specifically. To me, they're the same -- sound like the same companies. I don't know what they are.

BY MR. NIDEL:

Q. Do you know who Freeport Minerals is?

A. No.

MR. SCHICK: Same objection.

BY MR. NIDEL:

Q. Who is your contract with, what company?

A. I think it's with Freeport-McMoRan. I use the terms "Freeport-McMoRan" and "USMR" sort of interchangeably. At this point and -- I think of it as the USMR site, so I don't -- I don't really distinguish.

Q. Okay. At the time in 2011 when you interviewed with Freeport-McMoRan, ELM was already doing work for Freeport at the site; is that correct?

MR. SCHICK: Objection to form.

A. I don't know. I don't think so.

BY MR. NIDEL:

Q. Okay. Do you know what other work that ELM did at the USMR site?

A. Before I was hired?

Q. Other than the work that you were involved in, what other work did --

A. So --

Q. -- was ELM involved in?

A. -- ELM did the -- managed the on-site investigation as well as some of the investigation work in the Arthur Kill. It was managed by a different product manager in the company.

Q. And what project manager managed those?

A. Lauren LaPort.

Q. Did she manage both of those?

A. I think so.

Q. Do you know when ELM was engaged to work on those projects?

A. I think the same time I was. I was -- I think the LSRP services and the consulting services at that site started at the same time.

Q. Okay. And was she engaged as an LSRP or just as a consultant?

A. As a consultant.

Q. How does your role as an LSRP work? Can you describe that for me? Are you -- who do you report to at the DEP?

A. I don't report to anyone at the DEP. We submit documents. I guess -- I'm going to try to

answer it as best I can.

Q. Yep.

A. I don't report -- there's no direct report to the DEP, but we submit documents that are then subject to review by DEP. They do various levels of review, depending on a number of circumstances that I don't know all the details of. Sometimes it has to do with complexity, other things. There are certain triggers.

THE WITNESS: Am I going too fast?

THE COURT REPORTER: Yes.

THE WITNESS: Sorry.

A. I don't -- I don't know exactly -- I know they have different levels of review, but there's no person I report to. There's people I can consult with, ask questions of, but...

BY MR. NIDEL:

Q. Who at the DEP had primary responsibility for the USMR site? Is there some -- your point of contact at the DEP?

A. Not directly. Afterwards, Kevin Schick has provided some -- and some others senior NJDEP have provided some -- we've met with them once or twice. I know one in particular. I can't remember more than that. But we've had several conversations

with them. But Kevin I think was the lead. But it's not -- it's a consulting relationship, but I -- they don't have -- I don't report to them.

I don't -- the only communications we have with them is mainly -- like, we might ask them, you know, we're thinking about doing this, does that sound like it makes sense. And then, in some cases, like this is a -- there's a number of properties here, so some of the administrative components, there's been a little bit of back and forth with NJDEP on exactly how to manage certain components of it.

Q. What were your responsibilities with respect to the site?

A. So generally I reviewed -- so I would be in -- periodically I'd have updates on the planning of work from the technical team. The technical team would -- the consultant -- I'm going to -- I'm going to try to use the term "consulting team" here versus my work.

And in this case, it could be the ELM consulting team or it could be the Arcadis consulting team for the off-property --

THE COURT REPORTER: It could be the what?

THE WITNESS: Arcadis.

THE COURT REPORTER: Okay.

A. -- consulting team for the off-property work. Typically they would develop strategies and plans. Sometimes during their process, they'd consult with me, like, in intermediate steps, like, here's what we're thinking. And I'd get input. Ultimately that would lead to a work plan of one piece or another that would get my review. My then-primary role would be reviewing the document and the strategies and trying to confirm that it complies with the regulations or requirements.

So I'd say primarily a reviewer role, although I did provide some direction, in certain cases, for compliance.

BY MR. NIDEL:

Q. And who was your point of contact at Freeport?

A. Primarily Joe Brunner.

Q. So did you have any other people that you interfaced with at Freeport?

A. There was some people early -- there's -- and I don't remember everybody's name. There was a man that passed away. I -- his name was Mike something or other. I can't remember who he was. After that, it's primarily been Joe. So early on a

project, there might have been one or somebody else, but it's primarily been Joe. Occasionally there may be calls with Joe and their attorneys, because there's been other -- you know, there's -- they have a legal interest in the project.

Q. All right. What is their legal interest in the project?

A. As I understand it -- and I don't know all the details of it, but they had some kind of -- I don't know the details of it. They had some kind of legal matter with the town that I know the broad strokes of, but very broad. So they -- and otherwise, I think they just have their attorneys involved.

Q. What was the other -- you mentioned a Mike. Was that Mike Leach?

A. Yes, that sounds right.

Q. Who was on the ELM consulting team for this site?

A. Hank Martin, who's a principal in the company. Lauren LaPort. A woman named Jennifer Wollenberg. I think she worked primarily on wetlands in the Arthur Kill. And then some junior staff. I don't know all the details beyond that.

Q. Okay. And who did you interface with at

Arcadis?

A. Primarily Lisa Szegedi.

Q. Anyone else?

A. Not that I can think of on a regular basis. There might have been somebody I spoke to here and there, but I can't think of everybody's name.

Q. Okay. What was Lisa's role?

A. As I understand it, she's the product manager for Arcadis.

Q. Who at ELM had final say in the review of plans and submissions?

MR. SCHICK: Objection, form.

A. As submitted to the DEP?

BY MR. NIDEL:

Q. Correct.

A. I would as the LSRP.

Q. Okay. So they might submit a plan to you or discuss a plan with you. You may discuss it with your colleagues at ELM. But then ultimately you would have the final say as to what was approved for as far as a plan goes or as far as what was submitted; is that fair?

A. Yes. It wouldn't get submitted to NJDEP without my signatures. I -- like, I have to certify

it.

Q. Okay. And did you also certify things like remediation assessments. I think there were some RAO reports.

You know what an RAO --

A. Yes.

Q. -- report is?

And what's an RAO report?

A. It's a response action outcome.

Q. And can you tell me practically what that means?

A. Yeah, it's essentially a document that -- it's -- it documents that the remedial action is complete. You know, it might a media-specific -- there's different types but, you know, it documents it's complete.

Q. Okay. And did you review those for the off-site work?

A. I did.

Q. And you certified those being complete, I guess?

A. Yes.

Q. Do you know how much ELM has been paid for the off-site work?

A. I actually don't have any idea, because I

don't manage the numbers.

Q. Do you know what your hourly rate is?

A. Not exactly. I think it's 160 an hour, 170, something like that.

Q. You were investigating off-site contamination, correct, or USMR was investigating off-site contamination; is that correct?

A. Yes.

Q. Who is ultimately responsible for identifying USMR's contamination?

A. USMR is.

Q. And in this instance, would that be Freeport?

MR. SCHICK: Objection, form.

A. I don't -- like I said, I use them interchangeably, so I -- assuming they're the same entity, yes. I don't know.

BY MR. NIDEL:

Q. Okay. Your under- --

A. That's sort of corporate law stuff that I don't get involved in.

Q. But your understanding as to who Joe Brunner worked for was Freeport-McMoRan, correct?

MR. SCHICK: Objection to form.

A. I guess to state that I had an

understanding of exactly who he worked for is sort of stronger than I would word it. Meaning he worked for what I understood to be the responsible party. I call it USMR. It could be Freeport-McMoRan. I don't know the difference between the two so to me, they're the same company. Like, I don't know -- I don't know which company even pays the bill, to be honest. Like, if we got a check from them, I don't know which one.

BY MR. NIDEL:

Q. Okay. But you get a lot of email from Joe Brunner, correct?

A. Some, yeah.

Q. And his email says "Freeport-McMoRan Inc.," correct?

A. I don't know.

Q. You don't know?

A. I don't know what his email address is.

Q. Okay.

A. It just -- when I type in "Joe Brunner," it fills it in, so...

Q. Okay. But I'm not asking you his address. I'm asking you what his footer is at the bottom of every one of his emails other than the --

A. I don't know.

Q. -- ones he sends --
A. I don't --
Q. -- from his iPad.
THE COURT REPORTER: The bottom of every one of his emails?
MR. NIDEL: Other than the ones that he sends from his iPad.
A. I don't know what the bottom of the emails say.
BY MR. NIDEL:
Q. Okay. And you don't know who the contract is with, between ELM and --
A. I don't, not specifically. I think it's with Freeport-McMoRan, but I don't know.
Q. Okay. Whose responsibility is it that the properties get remediated and cleaned up?
A. USMR's.
Q. Are you concerned about metals in the soils in Carteret?
MR. SCHICK: Objection, form.
A. As an LSRP -- you mean to the extent that it related to my -- to the project or what do you mean?
BY MR. NIDEL:
Q. Yeah. Yeah. I mean you're in the --

A. To the extent that --

THE COURT REPORTER: You're in the?

BY MR. NIDEL:

Q. -- in the shoes of the state, correct?

MR. SCHICK: Objection to form.

You can answer.

A. Yeah. To the extent that USMR contributed to off-site contamination above the standards, yes.

BY MR. NIDEL:

Q. Did USMR contribute to off-site contamination above the standards?

A. I think so, yeah. That's why we're cleaning it up.

Q. What are the standards?

A. New Jersey has promulgated soil remediation standards.

Q. Okay. And what are they as they apply to this cleanup?

MR. SCHICK: Objection, form.

A. You mean what are the numbers?

BY MR. NIDEL:

Q. Yeah. What are the constituents that you're cleaning up?

A. We're targeting right now the ones that -- well, anything that exceeds the standard -- that

we've detected exceeding the standard off site of the ones we're targeting that have -- haven't been delineated. So we're primarily focused on lead and arsenic, and there's some copper we're looking at, although copper doesn't typically exceed.

Q. Okay. What are the applicable standards for lead?

A. 400 for nonresidential -- or for residential. Sorry. 800 for nonresidential. Impacted groundwater is site specific. I can't remember what it is for this site.

Q. 400 parts per million?

A. Milligrams per kilogram, yeah, same thing.

Q. And how about for arsenic?

A. 19. It's 19 for all pathways because there's naturally occurring arsenic in New Jersey.

Q. Did releases from USMR impact the dust in homes?

MR. STOIA: I'm sorry. Did --

MR. SCHICK: Objection, form.

MR. STOIA: I didn't hear what you said.

BY MR. NIDEL:

Q. Did it impact the dust in people's homes?

MR. SCHICK: Same objection.

A. I don't have any data about the dust, so

I'm not sure.
BY MR. NIDEL:
Q. Okay. Do you know if any dust testing was done?
A. I don't know.
Q. Do you know why -- did you recommend that no dust testing be done?
A. No.
Q. Okay. Did anyone ask you if they should test indoor dust?
A. Not that I recall.
Q. Okay. Was indoor dust ever something that was proposed in a sampling plan or report?
A. Not that I recall.
Q. What's the extent of USMR's contamination in Carteret?
MR. SCHICK: Objection, form.
A. When you say "extent," how far does it go?
BY MR. NIDEL:
Q. Yeah, lateral and vertical extent.
Are you familiar with those terms?
A. Yeah.
I'm not sure -- so it doesn't go very deep, because it's -- so -- I think it goes up to -- it's usually the top couple of feet, anywhere from a

foot to -- I think, in some cases, it's gone down as deep as 3 feet or at least we've treated it as if it was related to the site.

The aerial extent, I don't know the exact distance. Half mile maybe. Quarter mile. I'm not sure exactly the distance. And it might be based on the data we have so far.

Q. What data is that?

A. So there's been -- there was remedial investigation conducted in -- prior to 2016. I don't know the -- for a period of years, because of access agreements and things. There was remedial investigation conducted.

THE COURT REPORTER: There was?

THE WITNESS: Remedial investigation.

A. And then subsequent to that, as part of the remedial actions, there's a fairly detailed sampling done on each individual property that provides additional data that expands the database as we go, made up of more data.

BY MR. NIDEL:

Q. The goal of the RI was to delineate the extent of contamination, correct, one of the goals?

A. Generally yes, although it's also to determine what type of remediation would be

necessary and whether remediation is necessary.

Q. Okay. But one of the goals is to delineate the extent of contamination?

A. It is, although NJDEP has specifics of what "delineation" means. It's not necessarily point-by-point.

Q. What do you mean by that?

A. They provide -- they provide a clarification before a due date for many of their remedial investigations. A few years ago, they set some dates that remedial investigation that were due based on when the sites were triggered. I don't know what the right word is. And so they clarified what delineation meant in a memo that basically acknowledged that in some cases you may have additional data to collect in the remedial -- in a remedial action.

Q. Has the extend of contamination in Carteret been delineated?

MR. STOIA: In -- I'm sorry. What was the word?

MR. NIDEL: "Delineated."

A. It was. But we're still looking at the data as it's comes in, because we're getting more and more data.

BY MR. NIDEL:

Q. Okay. What does the word "delineated" mean?

A. Identifying where material exceeds the standards versus doesn't exceed the standards, horizontally and vertically.

Q. Okay. And just for the jury, so when you say "horizontally," you mean the geographic extent of contamination that exceeds the cleanup standards; is that fair?

A. Yes.

Q. Okay. And you testified that the RI was complete. You testified, I think, that it had been -- the contamination had been delineated but there was additional work being done.

Is that correct?

A. That's right.

Q. Okay. Do you today have an understanding of where -- what the extent of USMR's contamination is in Carteret?

A. To the extent that it was determined based on the RI, yes. Again, we're generating a lot more data as part of the remedial action. And I try to -- I try to consider the -- they plan and it's written this way in the remedial investigation and

then the remedial action is as the data comes in or as we have a bigger data set to continue to evaluate the data and see -- we won't be done until we're done.

Q. Okay. When you say that it's to the extent an RI has been completed, are you referring to the area that was determined to be the area of concern, or AOC?

A. Can you repeat the question?

Q. Yeah. To the extent that -- your testimony a second go, and I didn't go back and read it to you, but was something in reference to while an RI has been completed, to the extent that that was completed, the site has been delineated but additional work is being done, right?

A. Yes.

Q. And I'm just trying to understand what that delineation is?

A. So at the time -- at the time of the RI, the data supports -- supported that the standards have been achieved at a certain distance from the site based on actual data. But we are generating more data as we -- as we go that may change where those limits end up before we finish the remedial action.

Q. Okay. And what I'm trying to understand is: What limits is it that you're referring to? Is that the limits of the area of concern, or AOC?

MR. STOIA: Objection to form of the question.

But you can answer.

A. I guess maybe I'm struggling with what terms you're using here. So the area that will be remediated, so if that -- you want to refer to that as the AOC, then, yes, it would be the limit of the AOC.

BY MR. NIDEL:

Q. Okay. What I'm trying to understand is where USMR's contamination is.

A. And it's --

MR. SCHICK: Objection --

MR. STOIA: Objection to form of the question.

MR. SCHICK: Same objection.

BY MR. NIDEL:

Q. Where is USMR's contamination?

MR. SCHICK: Objection, form.

A. It's -- it's laterally off site so far we've been determined -- based on the data so far, it's laterally off site, I don't know, whatever my

distance I said before was, a quarter mile, a half mile. I'm not exactly sure. But it's still remains to be final determination -- the final determinations remain to be made.

BY MR. NIDEL:

Q. Okay. Based on data that you've reviewed, how far off site do arsenic and lead exceed the cleanup standards?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. Like I said, I think it's -- I don't know. It's a quarter mile or a half mile. I'm not sure of the scale of the drawings.

BY MR. NIDEL:

Q. Okay. When you say "a quarter mile or a half mile" -- I'm just trying to make sure I'm on the same page as you -- are you talking about Roosevelt Avenue and the extent of the AOC?

A. I'm still confused by that question. I'm not -- I don't -- I didn't pick a street as a limit. It's going to be based on where the end of the contamination exceeds.

Q. Okay.

A. So I'm not sure -- that's where the end will be and that's -- right now, my current

understanding of the data so far is that it exceeds the -- in the RI, we had data that supported a line being where it is. So that was the extend of the AOC at that point. But as data is generated, that line could change a bit depending on what our data says. So right now, as I understand it, it's about where the -- about where it was in the RI.

Q. And that's the edge of the -- what's been determined for the site to be the AOC, correct?

A. At that point, yes.

Q. Okay.

A. But it still remains to be -- it's not a hard -- there's no hard line that, like -- that we stop there because we drew a line there.

Q. Where are they remediating?

A. Right now, on that footprint.

Q. Okay. So they stop --

A. But if we have -- if we have data that continues to support that it goes further than that line, we'll continue to the remediate.

Q. Okay. And do --

A. I would require them to continue to remediate.

Q. Okay. And do you have that data now?

A. Not yet.

Q. Okay.
A. Because they're still remediating and getting the data.
Q. Okay. But they're done transect testing, correct?
A. I understand it's being done. I know the work plan was submitted and we're prepared and I know the work has proceeded. I don't know exactly what the status is.
Q. You have not reviewed any data from the transects. Is that your testimony?
A. That's right.
Q. Okay. You've not been provided any data outside of the AOC; is that correct?
A. That's correct. I don't think I've ever seen anything yet.
Q. Okay. If there is data outside of the AOC that shows exceedances of those cleanup standards, would that then extend the boundary or aerial extent of contamination?
MR. STOIA: Objection to form.
MR. SCHICK: Objection, form.
MR. STOIA: You can answer.
A. To the extent that it was site-related, yes.

BY MR. NIDEL:

Q. Okay. What are -- what are some of the other sources of arsenic in the area?

A. There's naturally occurring arsenic in soils in New Jersey. There's anthropogenic-type things. It could be pesticides or herbicide -- I don't know what -- arsenic, I think, is used in pesticide. I think people put it on tomatoes and things at some point.

MR. STOIA: Were you finished?

A. I'm trying to think. I can't think of any -- I don't know what other -- I know there's other sources, but I don't know what they all are.

BY MR. NIDEL:

Q. Okay. What information do you have on people using arsenic-based pesticides in Carteret?

A. Nothing specific.

Q. Okay. You said there's naturally occurring arsenic.

What is the background of arsenic in New Jersey?

A. Well, they establish the soil remediation standard of 19 based on -- they -- based on regional background. I think naturally occurring arsenic can vary substantially within that, but I think their

data actually had it -- some places higher, some places lower. But NJDEP selected 19.

Q. Okay. What is the New Jersey background in soil for arsenic?

A. I think it's 19.

Q. That's the background or that's the cleanup standard or both?

A. That's -- I think it's both. The cleanup standard is based on background.

Q. Okay. And do you know what the background is in urban soils?

A. I think that's dependent upon whether or not there's historic fill, that sort of thing. So, no, I don't -- I know it's variable. I've seen some tables that showed the sampling around the state that was, you know -- that was based on anthropogenic and background and I've seen variable data. But that's about it.

Q. Okay. What's the -- what are some other sources or what are the other sources of lead in Carteret?

MR. SCHICK: Objection, form.

A. I haven't done a detailed analysis of sources of lead in Carteret. It broadly -- sources of lead in the environment, anthropogenics --

there's naturally occurring lead. Lead is an element, so --

THE COURT REPORTER: Lead is what?

THE WITNESS: An element.

THE COURT REPORTER: Uh-huh.

A. -- so it occurs in soil all over.

Ethyl lead was used in gasoline, so it's been used -- it's -- there's lead from that.

Historic fill -- you asked about sources of arsenic. Historic fill, which can be present in urban areas, is -- and in some cases -- I don't know exactly where it has been here. We're not really making it -- so far I haven't really made an issue of -- or seen an issue with historic fill in our particular area. But historic fill can have arsenic and lead in.

Lead-based paint. So if you have an older house -- and I forget when they stopped using lead-based paint, but I think sometime in the '70s. And that paint tends to flake off over time. So around drip edges and things like that, lead can be in soil. I have a friend that has a -- an old house that he remediated and he ended up taking samples -- because he was in our business, took samples around his drip edge and he ended up with very high

concentration, of digging into the soil --

THE COURT REPORTER: Took samples -- just please slow down. Took sample around his?

A. His property boundary -- his house boundary, because he was concerned about the lead paint. And he ended up with values that exceeded his -- the cleanup standard. So he cleaned up his own house, so...

BY MR. NIDEL:

Q. And just to be clear, I think you said he tested his drip edge, correct?

A. Yeah.

Q. Okay. Any other sources of lead in Carteret?

MR. SCHICK: Objection, form.

A. Specifically, I don't know.

BY MR. NIDEL:

Q. Okay. And what is the background in New Jersey for lead and soil?

MR. SCHICK: Objection, form.

A. I don't know. It's below the remediation standard, because otherwise they would have established the standard based on that.

BY MR. NIDEL:

Q. What are the contaminants of concern from

the USMR operation as it relates to the off-site work?

A. Primarily, in the areas we're working in right now, lead and arsenic.

Q. What about other metals?

A. Based on the remedial investigation data we had, there wasn't exceedances of other metals for the most part. I think -- I think we analyzed copper, because there's still -- there was a few. I don't think any other metals exceeded, that I can recall.

Q. What about dioxins?

A. There was some dioxin detected on site that we then sort of evaluate -- so then we evaluated that off site as well. So we took samples outside the property boundary. I think they're in public right-of-way just adjacent -- just across the street from the site. And we found that we had achieved it -- we had achieved or just about achieved the remediation standard at that point.

Q. Is there a remediation standard for dioxins in New Jersey?

A. No, actually, it's not a standard. It's a -- it's guidance -- I don't know exactly what form it takes, but it's like a -- it's a -- it's not

promulgated, so I don't know what it's called. But essentially it's a screening -- I think it's called a screening level, is what it is.

Q. Did you look into what the screening levels were for dioxins in other states?

A. In other states?

Q. Yeah.

A. No.

Q. Okay. Did you look at -- do you know what the health risk-based number is for arsenic in soil?

A. The risk-based number?

Q. Correct.

A. I know it's lower than 19. I don't know what the number is.

Q. Do you know if it's below 1?

A. I don't know. It's -- I know -- the only reason I know it, it shows up in their table in the standards.

Q. Okay. But you do know that the -- that arsenic presents a health risk even at or below, to some degree, the cleanup standard, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form of the question. We're getting into an interesting area here. This witness is here to give

factual testimony about what he did at the site. That's what the subpoena calls for. You're now asking for his expert opinion and you have not determined that it has anything to do with what he's done at the site. I think you have to lay that foundation, because I don't believe you're entitled to get this witness' expert opinion on things that have nothing to do with what he's done at the site.

BY MR. NIDEL:

Q. Okay. And to be clear, I'm not trying to get an expert opinion. But let me ask you this: The goal of the remediation off site is to make a safe and healthy environment for the impacted properties in Carteret, correct?

MR. SCHICK: Objection, form.

A. Yeah, I -- to meet the remediation standards, yes.

BY MR. NIDEL:

Q. Okay. Is it, in fact, to make it safe and healthy for people with unrestricted use of their property?

MR. SCHICK: Objection, form.

A. It's to bring it to unrestricted use -- yes, I think it's to make it safe and healthy.

BY MR. NIDEL:

Q. Okay. And making it safe and healthy with respect to lead and arsenic is to get those to levels that are safe and healthy for people to use their property, correct?

MR. SCHICK: Objection, form.

A. I would say yes.

BY MR. NIDEL:

Q. Okay. So what is the safe level of arsenic in soil?

A. NJDEP has determined it to be 19.

Q. Are you aware of a risk-based number for arsenic that is less than 19?

MR. SCHICK: Objection, form.

A. Yes.

BY MR. NIDEL:

Q. Okay.

A. I think so.

Q. Okay. And the reason New Jersey chose 19 was because, in fact, the safe level of arsenic is below the level that in cases it naturally occurs or it's found in the background, right?

MR. STOIA: Objection to form of the question.

MR. SCHICK: Objection, form.

A. I don't know how -- I mean, I wasn't there when DEP set the standard. As I understand it, yeah, that's how I think it works.

BY MR. NIDEL:

Q. Okay. And so I'm just asking: Is it true that arsenic can present a health or safety hazard even if it's below 19?

MR. SCHICK: Objection, form.

MR. STOIA: Objection to form of the question. Again, that's asking for his expert opinion that's beyond the scope of what he's done at the site. You're asking for his expert opinion on something that he hasn't evaluated or done.

MR. NIDEL: No, because there's emails that say that this level is not protective but it was chosen. He's on those emails. His goal was to create a safe environment for people. And I'm not asking him to define for the world what's safe as far as arsenic. I'm asking him what his understanding is for what is safe and whether that number is below 19.

MR. RUBENSTEIN: Wait a second. Let's have the witness step out if we're going to have this conversation.

MR. STOIA: Okay.

MR. NIDEL: Let's go off the record.

THE VIDEOGRAPHER: Going off the record at 10:08 a.m.

(Recess was taken.)

THE VIDEOGRAPHER: We are back on the record at 10:21 a.m.

MR. RUBENSTEIN: How much time have we --

THE VIDEOGRAPHER: 41 -- 42 minutes on the record.

BY MR. NIDEL:

Q. When you delineate -- when you delineated the extent of contaminates in Carteret, did you delineate to background?

MR. STOIA: Objection, form.

A. We delineated to the remedial action cleanup standards.

BY MR. NIDEL:

Q. Okay. And the extent of contamination that USMR has identified, does that go down to background levels?

A. It would go to the remedial action cleanup standards.

Q. Okay. Can you tell me what the extent of USMR's contamination is in Carteret at any level?

MR. STOIA: Objection to form.

A. When you mean -- "at any level," what does that mean?

BY MR. NIDEL:

Q. Okay. Where did USMR's pollutants go in Carteret?

MR. STOIA: Objection, form.

A. I don't know. I mean, I don't know how far they may or may not have gone. I know they exceeded a standard -- or we've determined that they've exceeded a standard within a certain footprint.

BY MR. NIDEL:

Q. Okay. And I just want to be clear.

Your determination -- your determination that those contaminations exist within that footprint is not that they exist within that footprint and don't exist outside that, it's just that they exist within that footprint above a certain standard, right?

A. That's right.

Q. Okay. So -- and your testimony was that you're continuing today to look beyond that boundary as to whether those contamina- -- those contaminants exist outside that boundary above that same

standard, correct?

MR. STOIA: Objection to form.

A. Yes -- well, they are, yeah.

BY MR. NIDEL:

Q. Okay. And you are working with them to do that, correct?

A. Yes.

Q. Okay. Who selected the area that was tested for dioxins, the location?

A. I think it was primarily Arcadis. It may have been. I don't -- I don't recall. I was involved in the discussions, though.

Q. Do you know: Why was that area selected?

A. Based on on-site data. So the conceptual site model is that there was an on-site source. And so we have -- we took data on site to see if contaminants ended within the site versus going beyond the property. And we found some contamina- -- some dioxin values that exceeded the screening value, or whatever the -- whatever the right term is, at the -- near the property boundary in the northwest corner and so we took a series of borings off site.

Q. Okay. And what is your basis for your understanding that dioxin levels exceeded a

screening standard in the northwest corner?

A. There was a series of borings collected. There was also some historic data too that was a line evidence.

Q. Okay. And what historic data was that?

A. I don't -- I think it was collected in -- I think there was two sets of data. I can't remember the details. I think there was some collected in the '80s and some maybe collected in the early '90s or something like that.

Q. Is it your understanding that the highest levels of dioxins were in the northwest area of the site?

A. I don't think it was the highest. I don't remember where the highest was. There was a series of borings and some of them were collected as composite samples so they were sort of -- represented a broader area. So I don't remember the details.

Q. Okay. The goal was to find out if dioxins had -- from the site, have left the site, correct?

A. Yes, to -- whether or not there's dioxins outside the property boundary that exceeded the standard.

Q. Okay. And what I'm trying to understand

is why the northwest corner was chosen either on site or off site?

A. To evaluate whether additional work needed to be done in the off -- off-site AOC.

Q. Okay. Does it make sense to choose the area with the lowest dioxin levels to test just adjacent to, to see if -- would it make sense to test the area with the lowest levels of dioxin?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. It might. Because if you're looking for a gradient where you're expecting things -- you know, generally, contamination decreases with distance from source. And so you might take a sample -- actually, frequently you'll take a -- the "next step out" sample adjacent to where you have a fairly low concentration. The highest concentration is area where you already know you have contamination.

BY MR. NIDEL:

Q. If you have a high concentration right next to a fence line, you're more likely to get contamination outside that fence line near that high concentration, correct?

MR. SCHICK: Objection, form.

A. Potentially.

BY MR. NIDEL:

Q. All other things being equal, that's correct, right?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. It depends on the distance from the source. There's a number of variables you'd have to consider. I don't know what -- it's a hypothetical.

BY MR. NIDEL:

Q. Okay. And I'm talking about the same distance. You have a high concentration here, a low concentration here. You would expect -- you're more likely to get high concentrations off site near the high concentration than the low concentration, right?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. Potentially.

BY MR. NIDEL:

Q. When will you not?

A. If there's been disturbance. If there's been filling in the area. If there's been a reason why -- you know, assuming all the CSM, like -- so there's a number of factors. It's a complicated site that's been industrialized for a long period of

time, so -- and the whole area has been developed for a long period of time. So there's a number of different things that influence concentration grades and concentrations -- and concentrations in the samples.

Q. Okay. So there's a number of things, development -- a number of factors that you just went through, and probably some more, that would influence whether you would find dioxins next to a high or a low site on the property and off site, right?

MR. STOIA: Object to form of the question.

You can answer.

A. If I understand what you said correctly, yes.

BY MR. NIDEL:

Q. Okay. There's a number of factors that may impact whether you find dioxins off site, whether it be near a high area or a low area, correct?

A. Yes.

Q. Okay. And the only area that was tested off site was one area just outside the northwest boundary, correct?

A. Yeah, because we were trying to also sort out whether or not -- at least for me, what I was interested in is whether if the pathway was between most of the residents and the source. And I was trying to determine whether additional work needed to be done as part of the investigation on the residential properties, what is the -- what's the concentration trends look like in that direction.

Q. Okay. What was the source of lead on site?

A. As -- there's a number of different sources. As I understand, there was swag. There was -- they were smelting metals, so there was some in the different ores. I think there were some operations that were lead developing -- lead dependent. I can't remember all of the details of the individual operations.

Q. Okay. There were fugitive and stack emissions, correct?

A. Fugitive and stack emissions. You mean there was dust and -- when you -- describe what you mean by "fugitive emissions" in this case.

Q. Emissions that were coming other than outside of a -- of a stack emission?

A. I don't know whether or not there was

fugitive emissions. I don't know what's been documented. There may have been.

Q. What were the height of the stacks?

A. I don't recall the details of it. A hundred feet, something like that. I don't remember. I think there were two different heights over different times.

Q. Okay. What --

A. I think the stack was rebuilt.

Q. What were the two different heights?

A. I don't recall.

Q. Okay. What information were you provided about the source of the contaminants?

A. There was a history of the overall site that was developed. There is all the reports describing the different operations, things like that. They're all documented in the RI.

Q. Okay. For our discussion, the source of the contaminants in Carteret was the smelter operations on the site; is that fair?

MR. STOIA: Objection to form.

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. In broad terms.

MR. SCHICK: Same objection.

MR. STOIA: Objection to form.

A. Yeah, I mean, to the extent that I sort of -- in that case, mentally, it's their -- it's the operations primarily. If you're talking about outside the main property, I would say it's -- they're primarily airborne deposition.

BY MR. NIDEL:

Q. Okay. So what can you tell me about the source?

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. Tell me everything you know about the source.

A. They -- they performed, I think, some primary smelting activities and some secondary smelting activities.

Q. Okay. When did they start?

A. I think it started in the early 1900s, like 1908 or something -- 1903.

Q. Okay. Did they -- what controls did they have in 1908 or 1903?

A. I don't know.

Q. When did they add controls?

A. I'm not sure.

Q. What controls did they add?

A. I don't know.
Q. How tall were the stacks?
A. I don't know.
Q. When was the first stack built?
A. Pretty early, but I don't know. 1920s. 1910s. I don't recall.
Q. How high was the stack on the converter?
A. I don't know.
Q. How high was the stack on the cupola?
A. I don't know. All those are in the documents that -- for the site. All those details are in the doc- -- I don't -- I don't keep them in my head, so...
Q. Was there a -- did you review documents that told you what the cupola stack was, what the converter stack was for what given period of years?
A. I don't know about the specifics of each of the items you mentioned there, but generally, yes, the operations were described.
Q. Okay. What modeling did you review?
A. I think there was a few different models there that I saw.
Q. Okay. What models were there?
A. I don't recall the details of them.
Q. What did the models suggest as far as how

far contaminants went from the site?

A. I think it varied by the model.

Q. Okay. And what did they suggest?

A. They -- it went somewhere -- so it went somewhere in the range of where we had started out the investigation. So I think it's half a mile, quarter mile, something like that.

Q. And when you say "they went," they went only a half mile or quarter mile or they went in excess of a half mile or a quarter mile?

A. I don't recall. I wasn't -- I only treated the models as one line of evidence. I expected to use the data as the real guide. Once we got the data as the -- a model to me was one -- an airborne deposition model is one line of evidence that helps inform your conceptual site model. But the data is what I was -- always expected to use as the determination of whether or not -- where the limit of the remediation ended.

Q. How far did the models -- the modeling that you reviewed suggest that the contaminants went from the site?

A. I don't remember the distance.

THE COURT REPORTER: Contaminants went?

MR. NIDEL: From the site.

A. I don't remember the distance.
BY MR. NIDEL:
Q. Was it more than a mile?
A. I don't remember the distance.
Q. Was it more than 5 miles?
MR. SCHICK: Objection, form.
A. I don't remember the distance.
BY MR. NIDEL:
Q. Okay. Part of your work was in developing a conceptual site model for the property, right?
A. It was primarily reviewing it. I did provide some input to how it would be developed, yes.
Q. Okay. Did you agree with the conceptual site model that was developed?
A. I'd say broadly, yes.
Q. Okay. What was the conceptual site model?
A. That there were stack-type operations, so -- well, it's a conceptual site model for -- I'm answering now with respect to off-site AOCs. I think that's what we're discussing here, because there's other conceptual site models for other areas of the site.
That there was airborne -- potential airborne sources. At the time, we weren't sure

whether or not they had an impact -- we weren't sure for certain whether or not there was an impact -- an actual impact off site. So that led to a work plan. So the general conceptual site model is that if you have an airborne deposition or an airborne source, that concentrations tend to decrease with distance from the site, which is true of actually most types of sources, but...

Q. Which would be true of my example with dioxin, right, that you would -- you would expect higher concentrations adjacent to higher concentrations of the site, right?

MR. STOIA: Objection to form.

MR. SCHICK: Objection, form.

A. I already answered that. It's -- I said it varies on a number of things. That's -- it's a piece of the model. So the -- if you want all the other pieces -- so conceptual site models can have a number of different levels of detail. And some of them you put down and -- you refine the conceptual site model as you go through a project like that, and any project, actually. Some of them you keep in your head, you know, meaning it's how you -- how you understand the site. So that's what the concept is.

So there are other factors that involve --

that inform or can -- need to be considered in a conceptual site model. And those things that I mentioned before about disturbances and factors and -- in this case, for example, if I was looking at things -- so if I was looking, I was interested in potential impacts to a specific area, say the residential areas, I wouldn't sample in the opposite direction, even if the highest concentration was in that direction. I'd sample in that direction. The concentrations could be affected by other things and you have to look at it in the overall context.

BY MR. NIDEL:

Q. Okay. And what historical information on the source did you review?

MR. SCHICK: Objection, form.

A. There were some historical documents that were provided. There's -- I'd say primarily what's in the remedial investigation report summaries is what's -- what I reviewed.

BY MR. NIDEL:

Q. Okay. What did you review about the particle size of emissions from the site?

A. I don't recall the details of it.

Q. Did you -- what were the particle size of the lead that came off the site?

A. I don't recall.
Q. What was the particle size of the copper that came off the site?
A. I don't recall.
Q. Did you review information about particle size?
A. It was in the models, so, yes, it existed. Like I said, I didn't rely on the models very strongly because I considered the models a starting point.
Q. Okay. What did you rely on very strongly?
A. The data. The investigation data.
Q. Okay. You had a conceptual site model. Okay? The conceptual site model, there's actually tech guidelines for conceptual site models from New Jersey, correct?
A. Uh-huh.
Q. Okay. And one of the important things in determining a conceptual site model is to understand the source, right?
A. Generally, yeah.
Q. Okay. What did you do to understand the source?
MR. STOIA: Objection, asked and answered.
Go ahead.

A. I reviewed the data that was provided to me regarding the sources. I don't recall all the details of them, because it was five years ago or six years ago when I reviewed them. The conceptual site model is a starting point at that point. So we've reviewed the models. And models form the basis -- there's documents in the work plans, the specifics of which models were considered or presented in the plans. The -- and the basis for where the sampling was collected and where the -- what the specific decisions made are documented in the work plan.

The -- so we did review it at the time. I considered the models one -- the models and particle size a line of evidence to support the model, although the model is pretty general at that point. You don't have any supporting data yet.

BY MR. NIDEL:

Q. How has the model changed?

A. I don't know that we've rerun the model. I don't recall if we have. I wouldn't rerun -- to me, the model -- at this point, now we have data, so the model is sort of -- we have empirical data and that's what is -- primarily what's going to be the determination.

Q. What did you review to determine this -- to characterize and understand the source? You talked about data. I'm not sure if you meant the data from the field testing or data from documents you reviewed. But I want to know what documents, what types of data you reviewed to understand and characterize the source to agree to buy into a conceptual site model.

MR. SCHICK: Objection, form.

MR. STOIA: Objection. That's the fifth or sixth time the same question has been asked.

MR. NIDEL: Okay.

A. So if you look at the work plans and the RI report, they have references in them. I don't recall all the documents. It's pretty -- and so I don't recall all the documents that were considered, but if you look at the RI and the work plans, those are the materials I would have considered.

BY MR. NIDEL:

Q. Okay. Did you review anything that's not cited in the RI and the work plans?

A. I don't recall. I don't think so.

Q. Did you review everything that is cited in the RI and the work plans?

A. I think so.

Q. What can you tell me about the particle size of emissions from the site?

MR. STOIA: Objection, form.

A. I don't know the particle size of the emissions from the site.

BY MR. NIDEL:

Q. Do you know if they were greater than 2 1/2 microns, less than 2 1/2 microns, 50 percent greater, 50 percent less?

A. I don't know. I'm sure that's in the documents that are available for the site.

Q. Okay. And what can you tell me about the fugitive emissions, the contribution from fugitive or nonstack emissions?

A. My general sense of those is that they'd likely be less than stack because the elevations are lower and they're -- unless they're blowing them straight out to this -- to the air as in -- like, you would with a stack, that they're lower so they likely disperse low -- lesser distances.

Q. They're more likely to end up in the immediate vicinity, correct?

A. Yes.

Q. Okay. What emissions are in the neighborhood in the AOC? Are those contaminants

from stack emissions? Are they from fugitive emissions?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. Which AOC, the on-site AOCs?

BY MR. NIDEL:

Q. The off-site AOC.

A. I don't know the specifics of every particle that landed out there.

Q. But I'm asking you in your -- based on your review of the data, is the AOC impacted by fugitive emissions that you just described or is it impacted --

A. I think it's --

THE COURT REPORTER: Or is it? Or is it?

BY MR. NIDEL:

Q. -- by stack emissions?

A. I think it's primarily stack emissions.

Q. Okay. Are you familiar with the concept of plume rise?

A. Yes.

Q. Okay. Your conceptual site model says that air deposition occurred and air deposition -- with air deposition, you would expect to see a -- an exponential decrease in concentration as you move

farther from the source, right?

A. I didn't say exponential.

Q. Okay. You expect to see a decrease as you move farther from the source, correct?

A. I said generally, yeah.

Q. Okay. And you also expect to see variation because of development and other things, correct?

A. Yes.

Q. Okay. Are you familiar with the concept of the fact that when you emit from a stack, say at 100 feet high, you're going to get some minimal deposition close to the stack, you're going to increase as you get further from the stack, and then you're going to start to see that declining trend? Is that fair?

MR. SCHICK: Objection to form.

A. Yes, that can happen.

BY MR. NIDEL:

Q. Okay. What is the distance from a hundred-foot stack that you're going to start to see things peak?

A. I'm not exactly sure.

Q. Okay. Do you know if it's a mile, 2 miles, half a mile, hundred feet?

A. I don't know.
Q. How about a 400-foot stack?
A. I don't know.
Q. Okay. Was there a 400-foot stack on site?
A. I don't recall.
Q. You don't -- you don't know whether or not there was a 400-foot stack?
A. I don't recall the sizes of the stacks.
Q. Does the distance at which you're going to see that peak of deposition -- you understand what I'm talking about, the peak of deposition?

Does the distance at which you're going to see that peak depend on how tall the stack is?

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. In general.
A. In general, yes.
Q. Do you know if there was a 60-foot stack on site?
A. I don't recall the size of the stacks.
Q. Okay. And the distance where you'd see that peak is obviously also a function of whether you have contribution from fugitives or not, correct?
A. Yes. Also what amount is being -- number

of variables.

Q. Okay. How much lead was emitted from the site?

A. I don't know.

Q. How much copper was emitted from the site?

A. I don't know.

Q. What was the ratio of copper to lead?

A. I don't know off the top of my head. It's in some of the documents, but I don't know.

Q. When you say it's in some of the documents, can you tell me that there's a document that says for the site's emissions historically from all the unit operations, that there is a ratio that the site -- it's a fingerprint for arsenic to copper?

A. So I think in the work plan for the off-site transect work that's being done outside the current AOC boundary, there's some information about fingerprinting of the arsenic and copper -- arsenic, lead, and -- the various ratios of the different metals.

Q. Okay. I understand there were sampling data taken and ratios were taken of that sampling data.

Can you tell me what the ratio of any

metal is to another metal from the metals that were emitted from the operations, the source?

A. No. Not sitting here, no.

Q. Have you seen that data anywhere?

A. Like I said, I thought it was in that work plan. I can't recall.

Q. What was the -- what was the fingerprint of dioxins that were emitted from the site?

A. You're asking me all, like, which different congeners are in --

Q. Yeah.

A. I don't know. Again, that's in the documents as well.

Q. Okay.

A. That's in the RI, I think.

Q. Okay. What were the sources of dioxins on the property?

A. I think there's any number of them. Like, I don't know the -- all the different sources, but I think potentially burning plastic whenever doing secondary smelting.

Q. Okay. What other sources were there?

MR. SCHICK: Objection, form.

A. There's airborne deposition of dioxins. There's others. I don't know.

BY MR. NIDEL:

Q. Okay. The burning of plastics, was that emitted through a stack?

A. As I understand it, yeah.

Q. Okay. What stack?

A. One of the ones on the site, the primary smelter stack.

Q. Okay. How high was the primary smelter stack?

A. I don't know the heights of the stack.

Q. Okay.

A. I can answer that question all day long the same way. I don't know -- I don't know the heights of the stack.

Q. Okay. You don't know the types of dioxins that were emitted either, do you?

MR. SCHICK: Objection to form.

A. It's in a document. I don't keep it in my head.

BY MR. NIDEL:

Q. Okay. You looked at a document that had some testing of stack emission of dioxins, correct?

A. Yes.

Q. Okay. What kind of -- what kind of dioxins were omitted at the fugitive level?

A. I don't know.
Q. Were dioxins emitted at the fugitive level?
A. I don't recall.
Q. Was there open burning of plastics?
A. There may have been. I don't know.
Q. Was that emitted through a stack or was that emitted through --
A. I don't recall the details of specific operations on the site.
Q. Okay. Did you review any documents that told you what the congener fingerprint was of dioxins emitted from open burning at the site?
MR. SCHICK: Objection, form.
A. I don't recall what the dioxin fingerprint analysis included.
BY MR. NIDEL:
Q. Okay. You looked at the dioxins and you said, well, if the dioxins match -- if the fingerprint from the stack doesn't match the off-site fingerprint and the fingerprint from the on-site soils don't match the off-site fingerprint, then you have a very good argument that the dioxins off site aren't from the site, correct?
MR. STOIA: Objection to form --

MR. SCHICK: Objection to form.

MR. STOIA: -- of the question.

A. I didn't say that, so I'm not sure -- I know, in the RI report, there's a discussion of it. So -- and I didn't have a problem with that analysis. I was looking at the concentrations in relation to the standard. Wasn't so much worried about the attribution at that particular moment.

BY MR. NIDEL:

Q. What was the analysis? What was the fingerprint analysis of the dioxins?

MR. SCHICK: Objection, form.

A. They looked at the different congeners of the dioxins from the various sources and compared it to what they found in the soil.

BY MR. NIDEL:

Q. Okay.

A. The report does that.

Q. Okay. Did they compare it to what they found in the on-site soil?

A. I don't recall. I think so. I don't know.

Q. Did they compare it to what they found in the baghouse dust?

A. I don't know.

THE COURT REPORTER: In the what?

MR. NIDEL: Baghouse dust.

THE COURT REPORTER: Oh.

A. I don't know.

BY MR. NIDEL:

Q. But you signed off on the delineation of dioxins, correct?

A. Yes, but that didn't have to do with the fingerprinting.

Q. Okay. So your opinion that the dioxins have been fully delineated off site is based simply on the fact that there was five or ten samples taken off site in the northwest corner of the property just off site, right?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to the form of the question.

You can answer.

A. The off-site, the dioxin data in that direction, yeah, that was with the -- the data that's we used that's presented in the RI was based on the data that we have, the actual soil data.

BY MR. NIDEL:

Q. So your opinion as to the delineation of dioxins off site has nothing to do with the

fingerprint analysis that was done?

MR. SCHICK: Objection, form.

A. No, I didn't -- I didn't really rely on the fingerprint analysis.

BY MR. NIDEL:

Q. Okay. Did you rely on sampling that was taken anywhere else off site?

A. I don't think so. I'm not -- I'm not -- I don't think I'm aware of any site sampling that was done off site, other than what's in the RI.

Q. Would you agree that the characterization of the source provides a basis for completing the site remedial investigation?

A. Can you repeat that question again?

Q. Yeah. Would you agree that the characterization of the source or the sources of contaminants provides the basis for completion of the site remedial investigation?

MR. STOIA: Objection to form.

You can answer.

A. Yes.

BY MR. NIDEL:

Q. Okay. And so part of that is to identify discharges, discharge material, the nature of contaminants that were discharged, the properties of

those contaminants, the particle sizes, et cetera, right?

A. Yes.

Q. And it would be important to know the location on the -- on the source property of where those contaminants came from, correct?

A. So I guess I'd characterize it this way: That understanding the source is important because it does tell you about the nature that -- what's coming -- what has the potential to be there, where it potentially is. But in a complex site where you have potential disturbance, it forms a starting point and the actual data then drives the rest of it. So you -- so you start out with a source and you investigate outward from there. And you start out broader and then you can narrow down.

Q. Okay. Is it your testimony that starting out half mile or so is broader than what you expected --

MR. SCHICK: Objection --

BY MR. NIDEL:

Q. -- based on your review of the source?

MR. SCHICK: Objection, form.

A. Broader than I expected. When I say broader to start out with, like I start out on site

with a wider sampling. I might start out with a wider selection of COCs and sampling around the perimeter. Some sites -- this one, we didn't do it, but with you might do a grid.

So that's how you do it. And then you start looking at the data and see where that takes you.

BY MR. NIDEL:

Q. Did you review any documents related to violations at the site, environmental emissions violations?

A. Yeah, I think there was some historic documents related to that. I don't recall what they were.

Q. Okay. What did they indicate? Was it in compliance most of the time, in violation most of the time, well kept?

A. It's been a really long time. So the whole RI work plan was developed initially, especially the on-site and the off -- with -- had a -- that had a lot of the history and the off-site had a bit more -- was developed six years ago and all the details of that I don't recall.

Q. Okay. What did the details that you reviewed of the source, what did they suggest, all

these lines of evidence as far as what the distance would be? I know the data suggests it's only half mile. But what did the -- your review of the source --

A. Whatever the distance would be --

Q. -- information -- let me just finish the question.

The source information, what did that indicate or suggest to you as far as a distance that you should be looking?

MR. STOIA: Objection to form.

A. So there was a work plan prepared as we started the investigation. I don't recall actual distances. Whether it's a hundred -- you know, quarter mile, half mile, eighth of a mile, I don't recall the actual distance. But it started out with a footprint of sampling that was based on an evaluation of the data and modeling that was done at the time. And that's what we based the initial sampling area as.

BY MR. NIDEL:

Q. Okay. What data and modeling was that initial sampling based on?

A. I don't recall. It's -- the work plan was written in 2012 or 2011. I don't recall the

details.

Q. Okay. Is that in the work plan?

A. Yeah.

Q. Okay.

A. At least it should be. I think -- I think it's there.

Q. Okay. Okay. The data and the modeling that was -- that suggested half mile, eighth of a mile, quarter mile?

A. I think it's in the reports.

Q. What -- we talked about this plume rise and the fact that you're going to get a limited deposition and then it's going peak and then it's going to decrease, right?

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. You remember that discussion?

A. Yes.

Q. Okay. And you would agree with me that the distance at which it peaks is going to depend on a number of things, including the stack heights, correct?

A. Yes.

Q. And you would agree the taller the stack, the greater the radius will be that it will reach

before it peaks, correct?

A. All other conditions the same, yes.

Q. Okay. Do you know what the tallest stack east of the Mississippi was in 1960?

A. I don't.

Q. Do you know if it was in Carteret at the USMR smelter?

A. I don't recall.

Q. Do you know how far a 425-foot smelter stack emits pollutants to?

A. Not specifically. It's in the documents.

Q. Okay. What research did you do to inform yourself about smelter cleanups and site investigations?

A. So it's been a long time, but I think I looked at some online -- so there would have been some online documents from other smelter sites. I don't recall which ones and I'm not sure I downloaded them or just read them online. I don't remember what they were.

Q. Okay. And what did they suggest as far as what -- how far contaminants go from smelters?

A. I don't recall.

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. You don't recall if they said that they go 10 feet, they go 10 miles, they go 50 miles? You don't recall?

A. I don't recall the details of any of the reports. I don't remember -- or even which ones I read. It was seven years ago.

Q. Okay.

A. Six years ago, whatever it was.

Q. Sitting here today, you can't tell me what you would expect a smelter with stacks operating throughout the 1900s, how far you would expect to find those contaminants. You have no --

A. So --

MR. SCHICK: Objection, form.

A. So we currently have an AOC that goes out -- I don't -- like I said, I don't recall feet. So whatever that line was that's what the data supported, based on the RI at that time. We'll use additional data to continue.

So I don't know -- so the factors of how far a stack and what concentrations would deposit from a stack are highly variable, as I'm sure you know. So they are influenced by temperature. They're influenced by throughput. They're

influenced by height, general wind direction, any number of things. So it could be that on one side of the stack, you have almost no deposition, even if -- even the highest concentrations might be -- might not exceed a standard. Going another direction, it might be higher. I don't know. I don't know -- when -- in, you know, a given site, it's going to vary.

So I also know that there's -- wind direction and throughput can be highly variable over the course of an operation of a plan. Other factors can affect it, whether it rained, whether it didn't rain, how much washed off, any of those things. So there's a number of variables that are all in there, and so I relied on the data. And I plan to continue to rely on the data.

BY MR. NIDEL:

Q. Your testimony was that the -- that the data supported the boundary at the time.

A. Yes.

Q. And what I'm asking you is: How is that boundary picked? Why did you stop at Roosevelt Avenue doing the ISDA sampling?

A. I think it's in the work plan. So we looked at -- so -- again, I don't recall the details

of it, but I think -- so there was some modeling done. There was some -- I don't remember if there was data at the time or not, but -- I don't recall the details of how that -- where those -- why we sample -- stopped sampling initially when we did. But then the data, when we reviewed it, at the time, showed, at the perimeter, that the soil achieved the standards.

Q. Did the data show that the soil was achieving the standards at the perimeter of the AOC?

A. In the RI, yeah.

Q. Okay. What information did you review about the wind and weather patterns?

A. I broadly reviewed the general wind direction.

Q. Okay. And what was the general wind direction?

A. It's usually to the east.

Q. Okay. It's usually toward Staten Island, right?

A. Yes.

Q. Okay. What -- based on that information, what recommendation did you make to delineate -- strike that.

The goal was to delineate the impact of

off-site contaminants from USMR's operations, correct?

MR. STOIA: Objection to form of the question.

You can answer.

A. In accordance with New Jersey requirements, yes.

BY MR. NIDEL:

Q. Okay. And you understood that the predominant wind direction was actually toward New York, toward Staten Island, right?

A. Yes.

Q. What testing did you recommend that they do over there?

A. We didn't do any over there.

Q. Okay. Why not?

A. There's no requirement to go over to that part of the state. You're crossing state boundaries.

Q. Okay. Is there a requirement to protect the public health?

A. I'm not sure how to answer that question. We have to meet New Jersey standards. Just different laws in different states, so I don't know the New York laws.

Q. Okay. Is it your -- based on everything you reviewed, is -- are there contaminants from the USMR's operation in Staten Island?

MR. SCHICK: Objection, form.

A. There could be.

BY MR. NIDEL:

Q. There likely are, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form. Counsel, we're getting -- it's got nothing do with what he's done here.

MR. NIDEL: Absolutely does.

MR. STOIA: We're going beyond what --

MR. NIDEL: He's a human being. There are people there.

MR. STOIA: You're right.

MR. NIDEL: There are 4-year-olds that are playing in their yards right now.

MR. STOIA: That's true.

MR. NIDEL: Their properties haven't been tested.

MR. STOIA: I -- that's true. However, you're not entitled to ask his expert opinion on any of those issues. He's not here as an expert for you.

MR. NIDEL: He's clearly not an expert. I understand.

MR. STOIA: And you're not going to usurp him as an expert. So you can ask him in regard to what he has done at the site. But you're going beyond that.

MR. NIDEL: Okay.

MR. SCHICK: And it's not a part of your pleading either.

BY MR. NIDEL:

Q. Would you expect contaminants to be in Staten Island?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. There could be. I don't know if they exceed the New York standards or what they are.

BY MR. NIDEL:

Q. Based on your review of the data and your work at the site, you would actually -- that's where you would expect the majority of them went, right?

MR. SCHICK: Objection, form. Not supported by any pleading in this case. Not relevant to any issue in this case.

MR. NIDEL: I'm going to object to the speaking objections and I'm going to ask the

witness to answer that question.

A. Potentially.

BY MR. NIDEL:

Q. That's where you would expect the majority of them to have gone, correct?

MR. SCHICK: Same objection.

MR. STOIA: Objection.

A. I expect the majority --

MR. STOIA: Counsel, now he's given you your answer to the inappropriate opinion that you've asked and now you're arguing with him about the inappropriate opinion that he's already given you.

MR. RUBENSTEIN: Guys, let's just state the words "objection" and the basis.

MR. STOIA: No. No.

MR. RUBENSTEIN: That's the rule.

MR. STOIA: As I've stated --

MR. RUBENSTEIN: That's the rule.

MR. STOIA: As I stated, you're not going to get this witness's expert opinion on areas beyond his work at the site.

MR. RUBENSTEIN: We understand that.

MR. STOIA: We're not going to do that today.

MR. RUBENSTEIN: We're not asking --

MR. SCHICK: That all -- the other rule is one lawyer per objection per side.

MR. RUBENSTEIN: Sure. This isn't an objection.

MR. SCHICK: It's his deposition.

MR. RUBENSTEIN: Just asking counsel to follow the rules, which is to state objection or to state objection and the basis for objection, and that's it. And I think that's pretty clear around the country but particularly in New Jersey.

BY MR. NIDEL:

Q. Based on your review of the documents and data, you would expect that that's where the majority of the emissions from the site went, correct?

MR. SCHICK: Same objection.

A. It depends. So, again, because the wind can be going -- so I don't know where they landed. So -- and at what concentrations. I don't have any data about that. The wind would be carrying more of it -- more wind would be blowing in that direction carrying the contaminants, but I have no idea about the concentrations or anything about what's --

whether -- how they relate to any standards or what's applicable in New York.

BY MR. NIDEL:

Q. Okay. Based on the conceptual site model and based on the data that you reviewed, that's where the majority of them went, correct?

MR. SCHICK: Objection, form.

A. I just -- I think it's the same answer that I just gave. I don't have any data about what went over there. So if the wind is blowing in that direction, I don't know how far, so -- meaning so you could -- if you have the same amount, so you have the -- if the same amount of -- the same amount of a material is -- let's imagine snowfall.

If the snowfall is being blown at a hundred miles an hour, it might deposit at a half an inch. Or if it's blown slowly, it might deposit at 3 inches. So that analogy is similar to concentrations. I don't know what concentrations are present and to what extent and where things would be deposited on Staten Island.

BY MR. NIDEL:

Q. There was a history of development that you were made aware of with respect to the land in Carteret, the properties in Carteret, correct?

MR. STOIA: Objection to form of the question.

You can answer.

A. So are you asking me do I know when houses were built?

BY MR. NIDEL:

Q. You reviewed houses, parks --

A. Yes.

Q. -- where -- when land was redeveloped.

A. Uh-huh.

Q. Okay. You reviewed that information, right?

A. Yes.

Q. And you reviewed that, in part, to associate it or, you know, to compare it to the levels that were being reported by the sampling, correct?

A. Yes. And also to determine whether or not -- to help scope out the work as well.

Q. Okay. It also told you whether certain properties were factually relevant to your conceptual site model of air deposition, right? Because you knew a property might have been redeveloped and fresh fill was applied in a certain year or --

A. Yeah, that's what I mean. It helped with the scoping.

Q. Okay. And there were areas that were tested in the AOC or the original ISDA that had been, in fact, redeveloped and tested clean, correct?

A. Yeah, I think so.

Q. Okay. But those areas were included in the AOC ISDA analysis, correct?

A. Yeah, I think all the data was included.

Q. Okay. How many samples were included in that first delineation?

A. I don't know the -- I don't recall the specifics. I think it was like 60 points. I don't remember if it was more than that or less than that. I think that's -- that's the number that comes to my head. I don't know.

Q. Okay. Do you know if USMR had the data before they determined the zones?

A. I don't think they had the data before they determined the zone, but I -- I don't -- I don't recall.

Q. Okay. They didn't do a grid, right?

A. No, they did -- they did, essentially, like, transects, if I recall correctly.

Q. They did not randomly generate those locations, did they?
A. I don't remember how the specific points were developed at that particular point.
Q. Did you do your own analysis of the -- of the concentration samples shown in the zones?
A. Yes.
Q. Okay. And what did that analysis show or --
A. I was -- I was looking at it primarily in comparison to standards.
Q. Did you do your analysis as far as showing that expected decline?
A. Yes.
Q. Okay. And what did that show?
A. It showed, at the perimeter, the standards were typically met. I think in some cases we had some that we had to -- we established the limit at -- for the RI based on gradient. I think that was on the northeast corner of the area. But the rest we had, like, samples for lead that met the standard at the perimeter.
Q. Okay. Explain to me how the -- how the contaminants lead and arsenic were delineated, the extent of those contaminants --

A. So there is a series of samples that are collected at varying distances from the site in this area. And essentially my review, what I was looking at is whether or not we achieved the standard at what the distance. "Distance" is little strong, because I'm not sure that's the way I actually think about it. It's where do the samples start to achieve the -- like, where do we have consistent sampling that achieves the standard.

And it doesn't have to be consistent, meaning a trend per se, but literally, like, point by point. And then if there's a trend in a given area, like, there's a spot where we didn't quite get it at that one spot but there's additional sampling that's necessary to follow up but there seems to be a trend that sets the boundary temporarily at that point.

Q. Okay. So is it your testimony that -- and was that based on a 60-sample -- 60-ish samples?

A. Whatever was in the RI. I don't -- if it was 60 -- whatever was in the RI sampling. If I recall, I think it was 60. And I don't know if it's 60 points. I don't think it was 60 samples. I think it was 60 locations. That's what I think. But at varying depths.

Q. Okay. 60 locations, correct, plus or minus?

A. Whatever that is, yeah.

Q. Okay. And is it your testimony that a consistent trend was seen of clean samples at the boundary of that area?

A. That's what I recall, yeah.

Q. Okay. Then there was additional data taken within those same areas, correct?

A. Yes, the general -- like, the whole AOC sort of doing different remediation, so getting data from each of the sites.

Q. Okay. And was that data consistent with this consistent trend of clean samples at the boundary?

A. I -- actually, I think -- so that's why we're doing the transects. So it -- there's some data that was developed that led us to ask should we do additional work beyond this boundary. USMR actually did -- was -- they had the whole database. I don't have the database. They didn't give -- like, I'm not working with the whole data set. They come to me with reports, but then they did an analysis. And they came to me and said, based on this analysis, we may need to look at further. And

so they gave a presentation, that I think is in the work plan, actually. It showed some of their analysis of data. And that's what I was referring to earlier with --

THE WITNESS: I'm sorry if I'm speaking too fast.

A. -- that showed some of the correlations of different the metals and things like that. But it also showed potential trends that, if you took different types of sites in or out of the data set, could lead you to conclude that the additional -- that the boundary could go further. So they're doing a transect analy- -- the transect sampling beyond it to try to evaluate and develop further data to see we -- if there is any impacts further out.

BY MR. NIDEL:

Q. Okay. Would you agree that the goal of -- that the delineation will not be complete until you get -- whether it's already been achieved or it's not, but that it -- in order to delineate with the samples, you need to achieve a clear consistent trend of samples that are below the cleanup standards?

MR. STOIA: Objection, form.

A. Yes, provided that there's not another source, meaning that, you know, we -- just -- that we -- it's not attributable to something else.

Like, if we find that the battery breaker out -- a mile out -- I don't remember our distances, but -- so it's -- let's say it's a mile and a half out, whatever the distance is. And we have a really high concentration on this one property but nothing around it is clean -- everything else around is it clean and the CSM supports that some other source, that could exceed.

But in general what you said is correct. In general, as we achieve the standard and the data starts to support that we achieved the standard, that would be the -- that'd be the ultimate end of the AOC.

BY MR. NIDEL:

Q. Okay. So you would agree that short of identifying other sources, that the goal of delineation proceeds until you achieve consistent clean -- and by "clean," I mean samples that are below the cleanup standards.

Am I correct?

A. Yes.

Q. Okay. And what other sources -- I know we

talked about generally other sources: Pesticides for arsenic, lead paint, leaded gasoline.

What other sources are there that you're aware of in this area?

MR. SCHICK: Objection, form.

A. Those are the ones that come to mind. I mean, there's -- historic fill is common. I don't know that there's historic fill on any of these particular properties at this point, but we could encounter historic fill in an urban area. They -- I don't know, but these properties have been in someone else's -- people have done things on these properties for -- since they've been developed, at any given time.

So I don't know -- like I said, I just came up with a hypothetical, but somebody could have been done a battery breaker operation. Somebody could have had a gas tank.

THE COURT REPORTER: Somebody could have done a?

THE WITNESS: Battery breaker operation.

A. Which I think is unlikely. But there could have been car repairs done. There could have been any number of -- because there's lead in car parts.

It's hard for me to speculate on all the different sources because I think the first question is whether we -- whether or not we exceed. And then the second is whether or not it's consistent with being from our site.

BY MR. NIDEL:

Q. Okay. And there were -- there were steps taken in the remedial work plan to avoid things like drip lines for lead and things like arsenic-treated wood, right?

A. I think that's correct.

Q. Okay. So the best technical efforts were made to avoid those extraneous sources of the specific contaminants of concern, correct?

A. I think so.

(Plaintiffs' Exhibit 188 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you Exhibit 1 -- well, it's Exhibit 188 in this case.

A. Thank you.

MR. NIDEL: I don't -- generally, I probably don't have enough exhibits, but I don't -- I don't need that.

BY MR. NIDEL:

Q. Can you identify Exhibit 188?

A. It's the subpoena for -- to produce documents.

Q. Okay. Is that what you reviewed?

A. Yes.

Q. Okay. And you produced documents that were requested in that subpoena?

A. Yes.

Q. And you provided them to your counsel?

A. Yes.

Q. Hand you Exhibit one -- I think I -- did I pick the wrong sticker? I might have.

MR. STOIA: It says 192.

THE COURT REPORTER: They're going down.

MR. NIDEL: Oh -- oh, down.

THE COURT REPORTER: Sorry.

MR. NIDEL: It's all right.

MR. SCHICK: Do you need it back?

MR. RUBENSTEIN: Take it back.

MR. NIDEL: Yeah. Sorry. I go across and she went down.

(Plaintiffs' Exhibit 189 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 189.

Exhibit 189, can you identify Exhibit 189?

A. It's an invoice.

Q. Okay. And who is that invoice to?

A. Freeport-McMoRan Copper & Gold Inc.

Q. Okay. Did you send invoices typically to Freeport-McMoRan Copper & Gold Inc.?

A. Apparently. I didn't send them, so I don't know. I wasn't involved in the invoicing.

Q. Okay. Is that an -- is that an invoice from your company --

A. It is.

Q. -- to Freeport?

A. That's why I said "apparently."

THE COURT REPORTER: I'm approaching needing a break, so --

MR. NIDEL: Yeah --

THE COURT REPORTER: -- whenever it's a good time.

MR. NIDEL: -- we need a break for the meeting as well, so we're going to take a break.

THE COURT REPORTER: Okay.

(Plaintiffs' Exhibit 190 was received and

marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you Exhibit 190 to your deposition.
Do you know what Exhibit 190 is?
A. 190 is a proposal for a scope of work.
Q. Okay. And that's from The ELM Group, your company?
A. Yes.
Q. Is that related to work that you were involved in?
A. Yes.
Q. Okay. And it's directed to Joseph Brunner, director, discontinued operations, Freeport-McMoRan Copper & Gold, right?
A. Yes.
Q. Does this refresh your recollection as to -- do you know who Joe Brunner worked for?
MR. SCHICK: Objection, form.
A. It looks like he worked for -- it looks like the address I had for him was Freeport-McMoRan, so I assume that's who the contract was with.
(Plaintiffs' Exhibit 191 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you Exhibit 191 to your deposition.

Can you identify Exhibit 191?

A. It's -- it's a NJDEP receipt of some forms. It's an online receipt.

Q. Okay. And is this something you would have generated?

A. Yeah, it comes from the -- well, it comes from the NJDEP website when you -- when you certify -- so when you submit documents. So here it looks like we did an online submission of some forms.

Q. Okay. And it's got you currently logged in, Michael McNally?

A. Yes.

Q. Okay. And then the contact name is William Cobb.

Who is William Cobb?

A. I think he's -- so I don't know the specific relationships. I think he is Joe Brunner's boss. But he was who -- the person they identified as the -- the name to put down as the responsible -- the signatory for documents going to the agency, the DEP.

Q. He was the responsible contact for the site?

A. He was the -- I think -- if that's the

correct NJDEP term, he was the person that the company identified as the signatory for the -- for the submittals.

Q. Okay. And when you said "they," you meant the company, Freeport, right?

MR. SCHICK: Objection to form.

A. Yeah, my -- yes, Freeport or --

BY MR. NIDEL:

Q. Okay. But when you said "they," you meant the company, right?

A. Yes.

MR. NIDEL: Okay. We need to go off the record.

THE VIDEOGRAPHER: This marks the end of Media No. 1. We're going off the record at 11:15 a.m.

(Recess was taken.)

THE VIDEOGRAPHER: This marks the start of Media No. 2. We're back on the record at 11:38 a.m.

BY MR. NIDEL:

Q. Mr. McNally, has the off-site contamination been fully delineated from USMR in Carteret?

A. I think there's additional delineation

that's being done. I don't know what the data says.

Q. Okay. Has it ever been fully delineated?

A. I thought it was delineated for the sake of the RI, so when we -- when we did that, I thought it was delineated. As the data fills in, we're look at it. We're doing a transact analysis. I haven't seen the data, so I don't know what that's going to tell.

Q. Okay. I just want to be clear. I understand that the RI -- the objective of the RI was to delineate the site, correct? A requirement of the RI was to delineate the site, right?

A. Yes, with the New Jersey's requirements.

Q. Okay. And is it your testimony that that was achieved?

A. It was achieved at the time, yeah.

Q. What is the basis for rejecting sample results from the lab?

MR. STOIA: Objection to form of the question.

You can answer.

MR. SCHICK: Same objection.

A. Rejecting in which way?

BY MR. NIDEL:

Q. There were sample results that were

rejected as out of expectations or out of bounds.

A. The thing --

MR. STOIA: Objection to form.

A. I guess -- not knowing specifics, that's hard to answer, but it could be -- there could have been a laboratory problem. So I don't know what -- you know, specifics, but there could have been something didn't meet its holding time or didn't meet its recovery -- laboratory quality assurance and quality control items. So those would be -- that sort of data would be rejected.

BY MR. NIDEL:

Q. Okay. Other than a lab error, what data is it -- what -- under what conditions or complications is it appropriate to reject data from the lab for a given site?

MR. SCHICK: Objection, form.

A. I don't think we are rejecting any data from the -- that's been provided by a lab other than those circumstances.

BY MR. NIDEL:

Q. Okay. So it's your understanding that no -- all the data that's coming from the lab, unless there's an indication of lab error or chain of custody issues, all data is being considered for

your assessment of the site; is that fair?

MR. SCHICK: Objection, form.

A. Yeah, I think that's correct.

BY MR. NIDEL:

Q. And you would agree that all the data should be considered unless there's a lab basis for rejecting it; is that fair?

MR. STOIA: Objection to form.

MR. SCHICK: Objection, form.

A. Yeah, consider. You'd have to look at it.

BY MR. NIDEL:

Q. Okay. Is the data that -- is the sample data from individual properties being provided to the property owners?

A. I don't think so. I don't know. I don't know specifically what's provided. I know that there's a summary that's provided to the property owners. I don't think they're getting the full copy of a RAR, which is submitted and is public record.

Q. Okay. They're not getting a copy of the data from their property, correct?

A. I don't think so.

Q. Okay. And who is Fred Mumford?

A. He's a representative of the DEP. I think he's the -- is he the ombudsman? No, he's not

the -- he's some -- he's some sort of interface between DEP and EPA.

Q. Okay. And he was insistent that the data be provided to the residents, right?

MR. SCHICK: Objection, form.

A. I don't recall that. It's been a long time since I've had communications with Fred Mumford.

BY MR. NIDEL:

Q. Okay. Did -- has Joe Brunner ever confirmed to you whether or not the data has been provided to the residents?

MR. SCHICK: Objection, form.

A. I don't recall specific- -- specifically what communications have happened with Joe, so I don't know.

BY MR. NIDEL:

Q. Okay. But it is your testimony that, based on everything that you're aware of, the residents have not been provided the data for their properties, correct?

MR. SCHICK: Objection, form.

A. I don't know -- I don't think -- I think they're provided an analysis of the data. It's been a little while since I looked at their -- the

specific things that it's -- they're provided. But I think they're provided an analysis of the data regarding the comparison to the standard.

BY MR. NIDEL:

Q. Okay. Are they provided the actual data?

MR. SCHICK: Objection, form.

A. I don't think so.

BY MR. NIDEL:

Q. Okay. Whether it was Fred or not, is it your understanding that the DEP was insistent that they be provided the data?

MR. SCHICK: Objection, form.

A. No, I didn't think the NJDEP was insistent about that.

BY MR. NIDEL:

Q. Okay. And you -- so then you don't -- you don't believe that Fred was insistent of that?

MR. SCHICK: Same objection.

A. I don't think he was. I don't recall that if he was.

BY MR. NIDEL:

Q. Okay.

A. He's also not a -- he's -- he's not necessarily the person that would decide that at DEP anyway.

Q. Okay.
A. He's just a DEP person.
Q. Okay. Do you think that a property owner should be provided with the data for their contamination on their property?
MR. SCHICK: Objection, form.
A. Yes, except I think there's a -- there's a challenge with -- it has to be presented in a context.
BY MR. NIDEL:
Q. Okay. But they should get the raw data, correct?
MR. SCHICK: Objection, form.
A. I don't know that they should give -- you know, I don't know that it'd be helpful to provide full lab reports to them.
BY MR. NIDEL:
Q. Okay. I'm not talking about full lab reports, but the data.
MR. SCHICK: Same objection.
Go ahead.
A. And so -- I actually came across an email related to this, because I was preparing for this. And -- because I couldn't remember what exactly -- I was going through some documents. I couldn't

remember some components as we were going through.

So if I recall correctly when we were -- when -- at some point, I had a discussion with -- I don't know. I think it was Lisa Szegedi from Arcadis sent an email about it. And the question came up whether or not to provide the full RAR to each individual property owner. And at the time, my response was that I didn't think the full RAR was required to be submitted to the property owner and that I recommended providing a summary.

And my reason for that was that we have -- so we're doing compliance averaging as their compliance approach for most the properties. And that's a statistically based analysis of the data that -- I was concerned would provide -- that providing the full RAR report would be confusing, because it's difficult to understand the -- a layperson understand the details of the statistics. So I thought it would be clearer to present it in a format that it achieves the standard, a little like an RAO does. You know, the RAO format basically says you met the standards.

So I think the genesis of them providing the summaries came from me, the -- you know, based on -- you know, the question came up whether the RAR

was required to be submitted, and I didn't think it was a requirement and I thought actually it would be a -- honestly a clearer and more relevant presentation of the information by presenting it as the -- a summary of the data in terms of how it meets the standard or doesn't meet the standard.

BY MR. NIDEL:

Q. Okay. What were the residents told about whether they were going to get their property results?

A. I don't know what communications people have had directly with the property owners.

Q. Did you review any communications with -- between USMR and the residents?

A. Not that I recall.

Q. Okay. Do you know if USMR told them they were going to get their sample results?

A. I don't know.

Q. Do you know if USMR told them they were going to have any exceedances cleaned up on their property?

A. I don't know what specific communications there were between USMR and the property owners.

Q. Okay. And it's your testimony that it would be more clearer to a property owner who had

their property sampled if they got a 95 percent upper confidence limit average summary, than it would be -- than to get individual results.

Is that your testimony?

A. Yes.

Q. Okay. What's the average level of education for residents of Carteret?

MR. SCHICK: Objection, form.

A. I don't -- I don't know.

BY MR. NIDEL:

Q. Okay. What's your basis for saying that a summary of upper confidence limit of mean averaging data would be more understandable for a resident of Carteret?

A. Well, so an individual data point -- and so if you're doing compliance averaging, an individual data point might have a concentration that individually is higher than the standard. However, in the overall context of the exposure pathway analysis and the compliance approach, the attainment approach -- that's New Jersey's term -- is based on the overall statistical average that -- the compliance average of 95 percent upper confidence level. It's one method. There's four or five methods you could use.

But -- so an individual sample exceeding a standard isn't necessarily relevant. It's about the average in that particular compliance approach. And it has to do with -- as I understand, it has to do with exposure pathways and the standard isn't based on a point-by-point basis.

So what happens is -- so my concern is that if you give somebody a table that shows a standard of 400 and you show them that there's a 500 in among 7s -- I don't know -- whatever the number is. There's a 500 here in among 7s. The appearance, the misleading appearance -- and this is my concern -- is that there's things there that they need to worry about. And I don't think that, based on NJDEP's attainment guides, that an individual sample is something they need to worry about. It's about whether or not the overall site met the standard.

Q. How many square feet of 500, 600 parts per billion lead should a homeowner worry about?

MR. SCHICK: Objection, form.

A. How many square feet?

BY MR. NIDEL:

Q. Yeah. Yeah. How big of an area of 500 parts per billion lead should a property owner worry

about? And let's add if they have a 3-year-old that likes to play in the yard.

A. So there's a -- so NJDEP established the sampling protocol based on use areas. And the frequency of sampling, I can't recall the details of how many samples per use area. But the sampling frequency per use area -- "use area" is defined as a specific size of property -- that you then do the statistics on the data from there.

So the question is built into their protocols. I can't -- and I have to look it up, what the frequency requirement is, but we're following NJDEP's approach. So the -- this -- it's built into the statistics. So we're following NJDEP's standards and attainment guidance. And the soil, once -- if it achieves the 95 percent upper confidence level, has attained the remediation standard in accordance with the NJDEP requirements.

Q. Okay. NJDEP requirements prohibit you from using compliance averaging until you fully delineated a site, correct? Prohibit.

A. Yes.

Q. Okay. So it's not incompliance with NJDEP regulations, correct?

A. I don't agree with that.

Q. Okay. But it's prohibited from using averages until you fully delineated a site, correct?

A. So we reviewed the protocols. We had a meeting with NJDEP to review the protocols.

MR. STOIA: Okay.

MR. SCHICK: Excuse me.

MR. STOIA: Yeah, this --

MR. SCHICK: This is really becoming distracting.

MR. STOIA: But when you --

MR. RUBENSTEIN: That's too bad, Bob.

MR. STOIA: When you two -- when you two start to talk, the witness doesn't think he has to continue his answer, so he turns away from you.

MR. RUBENSTEIN: Nobody instructed him not to answer. There's a question pending.

MR. STOIA: But when --

MR. RUBENSTEIN: Nobody instructed --

MR. STOIA: But when the questioner turns his back to the witness, the witness does not know to continue to respond.

MR. NIDEL: We're going to go off the record -- we're going to -- we're going to stop if you keep doing this.

MR. STOIA: No, no, no.
MR. NIDEL: Yes.
MR. STOIA: All I'm suggesting is when you ask a question --
MR. NIDEL: I don't have to maintain eye contact with him. I --
MR. STOIA: Not eye contact, but you're turning around --
MR. NIDEL: That's fine.
MR. STOIA: -- and talking. It's very distracting to the witness.
MR. RUBENSTEIN: The witness, if he's distracted, he could stop and say he's distracted. We didn't know he was distracted. But just do us a favor. Say "objection."
MR. STOIA: No, I'm saying the objection and observing what's going on --
MR. RUBENSTEIN: I'm not -- I'm not --
MR. STOIA: -- this is not coaching the --
MR. RUBENSTEIN: I'm not -- I'm not --
MR. STOIA: -- witness in any way. I'm --
MR. RUBENSTEIN: I'm not -- I'm not --
MR. STOIA: -- trying to stop something --
MR. RUBENSTEIN: -- listening to you.
MR. STOIA: -- that's causing a problem.

MR. RUBENSTEIN: We heard you.

MR. SCHICK: Okay. He didn't finish his answer.

MR. STOIA: That's right.

MR. RUBENSTEIN: That's because his counsel interrupted.

MR. STOIA: No, that's because he turned to talk to you and you were distracting the witness.

MR. RUBENSTEIN: No.

MR. STOIA: It's on the camera. You'll see what happens.

MR. RUBENSTEIN: He didn't say he was distracted. Let him finish his answer.

MR. STOIA: But you could see him looking at the two of you. And stop talking. It's on camera.

MR. RUBENSTEIN: But he can answer the -- he can answer the question afterwards.

MR. NIDEL: We are -- I've never seen an objection to a lawyer's conferring while an answer is being discussed.

MR. RUBENSTEIN: That's your objection.

MR. NIDEL: Not at all.

MR. STOIA: No, my objection is that

you're conferring while the witness is in the midst of -- let me finish. No, no. I let you finish. Why are you interrupting me? Why can't I finish? Why are you interrupting me and not letting me speak?

MR. RUBENSTEIN: Because you're --

MR. STOIA: No.

MR. RUBENSTEIN: -- violating the rule.

MR. STOIA: Why aren't you letting me speak?

MR. RUBENSTEIN: Because you're violating the rules.

MR. STOIA: No. That's not the rules. The rules is I'll let you say whatever you want to say on the record and I would appreciate the same courtesy and you let me say what I want to say on the record.

MR. RUBENSTEIN: You're supposed to state "objection" and the basis. So is it confusion or distraction?

MR. STOIA: It's distraction and -- it's distraction.

MR. RUBENSTEIN: Okay.

MR. STOIA: I never used the word "confusion."

MR. RUBENSTEIN: Where is that in the rules?

MR. STOIA: Let me -- you're not even letting me talk.

MR. RUBENSTEIN: Where is that in the rules?

MR. STOIA: Could I talk?

MR. RUBENSTEIN: Where is that in the rules?

MR. STOIA: Tell me when you're done. Are you done?

MR. RUBENSTEIN: When you show me an objection of distraction in -- distraction in the rule, then. Otherwise, we should continue and you should stop.

MR. STOIA: Are you done?

MR. RUBENSTEIN: Objection, distraction?

MR. STOIA: Are you done?

MR. RUBENSTEIN: I'm done.

MR. STOIA: Now can I talk and will you not interrupt me?

MR. RUBENSTEIN: Give me a basis for the objection.

MR. STOIA: Can I talk and you will not interrupt me?

MR. RUBENSTEIN: Sure. But I want a basis for your objection.

MR. STOIA: Okay. The basis for my objection: It is distracting for you to ask a question and then turn around and speak to your counsel. Between the two of you -- and the camera will show you are distracting the witness. He does not know whether to continue with his answer or to stop.

So what I'm asking you is to please stop doing that, ask a question, wait for the witness to answer. Then you can turn and confer all you want.

MR. NIDEL: I'm asking you to object to form and that's it.

MR. STOIA: No. I'm objecting to the procedure.

MR. NIDEL: Okay. But --

MR. STOIA: I can object --

MR. NIDEL: Stop.

MR. RUBENSTEIN: Fine.

MR. STOIA: -- to the procedure --

MR. NIDEL: Stop.

MR. STOIA: -- that you're doing.

MR. NIDEL: Stop.

MR. RUBENSTEIN: Objection, procedure.
MR. NIDEL: You made your objection.
MR. RUBENSTEIN: We got it.
MR. NIDEL: It's inappropriate.
MR. STOIA: It's not --
MR. NIDEL: Stop.
MR. STOIA: -- inappropriate. It's --
MR. NIDEL: It's absolutely inappropriate.
MR. STOIA: What are you talking about, inappropriate?
Can you read back --
MR. NIDEL: Can you read the question back?
MR. STOIA: And the answer, please.
MR. NIDEL: There was no answer.
MR. SCHICK: Yes, there was a part --
MR. STOIA: Of course. He had been talking for --
MR. SCHICK: -- of the answer.
MR. NIDEL: Stop. Stop yelling.
MR. STOIA: -- several sentences before you turned.
MR. NIDEL: Stop yelling and stop.
MR. STOIA: I'm not yelling. The camera is on. It's clear whether I'm yelling or not.

You -- I know what you're trying to do. Ask the witness the questions. Let him answer your questions.

MR. NIDEL: Stop.

(The record was read back by the reporter.)

A. So -- and where I was, was compliance -- so the site is effectively -- each individual property is effectively delineated -- actually, not delineated. We're not clean at the property matter. We reviewed this entire process with NJDEP's senior management, including -- I forget the person but somebody who was directly involved with the generation of the standards. There's -- so we met with DEP to work through exactly how this would be implemented. They agreed that this was what -- specifically, the procedure we had was consistent with what their requirements were.

BY MR. NIDEL:

Q. Okay. Who at DEP agreed with that?

A. I can't recall who was all at the meeting. Kevin Schick was there, but he wasn't the one that would have agreed to it. There was a group of four or five people from senior management. Ken Kloo was there. Karen Kloo may have been. I can't remember.

Somebody who was involved in the compliance averaging approach. And as I understand it -- so Arcadis met or called DEP and reviewed -- developed the process and discussions with DEP. We then met with them. We specifically walked through the process with them and they agreed that it made sense.

Q. And they agreed you could use compliance averages?

A. Yes.

Q. And they agreed you could provide only the compliance averaging summaries to the residents?

A. We -- they weren't consulted about that, as far as I know.

Q. There was no discussions with that -- with them about that?

A. I don't recall that, no.

Q. You don't recall discussions with DEP about whether --

A. No. What to submit to -- not -- sorry.

Q. -- about whether the residents should be given the sampling results?

A. I don't recall having those discussions about what would be provided to the property owners.

(Plaintiffs' Exhibit 192 was received and

marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you Exhibit 192.

MR. NIDEL: That's the only copy I have.

BY MR. NIDEL:

Q. It's a study called "Tacoma Smelter Plume site" on a Asarco Tacoma smelter prepared for Washington State Department of Ecology.

Is that fair?

A. That's what -- yeah.

Q. Did you review that study?

A. I don't know. I may have. I don't know. What's the date on this? I might have. I don't recall.

Q. If you turn to page 47.

A. (Witness complies.)

Q. Bottom heading there, "Smelter emissions can be transported long distances."

THE COURT REPORTER: Uh-uh. You can't read now, that quickly.

MR. NIDEL: Sorry.

THE COURT REPORTER: Just read a little slow.

MR. NIDEL: Yeah, yeah. Gotcha.

BY MR. NIDEL:

Q. "Smelter emissions can be transported long distances."

Do you see that?

A. Yes.

Q. Next page, 48, bottom of the page: "The spatial extent of contamination from smelter emissions can be regional in scale," excluding -- (extending tens of kilometers from the source)."

Do you see that?

A. I do.

Q. Okay. You hadn't reviewed this study, correct?

A. I don't remember whether I did or not.

Q. Okay. Do you disagree with the conclusions of the Asarco authority -- the assessment from the Asarco smelter investigation?

MR. SCHICK: Objection to form.

MR. STOIA: Objection.

A. If this is what their data said, I don't -- I don't agree or disagree with it. Take it for what it is.

BY MR. NIDEL:

Q. I want to get back to my question about the technical regulations in New Jersey. They

prohibit the use of compliance averaging until a site has been fully delineated, correct?

MR. SCHICK: Objection, form.

MR. STOIA: Objection to form, asked and answered.

A. So first I'm not sure the regulations do -- there's guidance that I think provides -- I don't think the resolution speaks specifically to compliance averaging. I'd have to -- I don't recall exactly what the regulations say about compliance averaging. There's guidance, which isn't regulations.

Q. Okay.

A. So I'm not arguing right now. Just saying that's what I understand. So -- however, the way the guidance is written, as I understand it, so -- it wasn't anticipating multiple residential properties or multiple parcels that -- where contamination extended beyond the property boundary. So when it said delineation, it assumed that you were done and so that we had a clean boundary within a given site.

So here we know that's an area-wide issue. We're cleaning up each area to -- similar to -- similar to what you would do on a site. The only

issue would be is that you won't have delineation at the sides of the boundary, because it goes on to the next -- it presumably goes on to the next property and goes on to the next property, because it's an area-wide issue.

So the issue about delineation in this case is a little bit different. Much of what we had to do here is not textbook things according to NJDEP requirements, because they don't have many sites like this.

Q. Okay. The guidelines prohibit you from using technical -- from using compliance averaging before a site is fully delineated, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection, asked and answered three times now.

A. The guidelines say that you're supposed to have delineation complete. And actually, as far as I'm concerned, to start out with, we did. In the RI, we have widespread delineation complete. It may change. But at this point, I consider the delineation complete at the RI phase.

Q. Okay. But it's not done, correct?

MR. STOIA: Objection, form of the question.

A. I haven't seen the data that says it hasn't. I've seen data that says that it might not be.

BY MR. NIDEL:

Q. You've seen a whole lot of data on the boundary of that site that's just as contaminated as some of the data that's right close to the smelter, correct?

A. I actually haven't seen a whole lot of data like that, so...

Q. Have you seen all the sampling data within the AOC?

A. I've seen lots of it, yes, but not all of it.

Q. Okay. And it does not show a clean boundary, does it?

MR. SCHICK: Objection, form.

A. I haven't reevaluated the boundary.

BY MR. NIDEL:

Q. Okay. Does it show a clean boundary?

MR. SCHICK: Objection, form.

A. I think it still does, actually. I don't know. I don't think we have data that discounts the RI outright.

BY MR. NIDEL:

Q. Okay.

A. And that's what we're doing the transect analysis for.

THE WITNESS: Okay. Exhibit 193.

(Plaintiffs' Exhibit 193 was received and marked for identification, as of this date.)

THE COURT REPORTER: We're doing the what?

THE WITNESS: The transect analysis.

BY MR. NIDEL:

Q. Exhibit 193 is a study called "Heavy Metal Concentration of the Soils Affected by Zinc Smelter Activities" --

MR. NIDEL: I don't have one.

BY MR. NIDEL:

Q. -- in the -- "In the Qeshm Island, Iran."

Do you see that?

A. Yes.

Q. Is that a study that you reviewed.

A. I don't recall. It's 2013, so I don't know. Probably not.

Q. You've never refreshed your research based on your conceptual site model?

MR. SCHICK: Objection, form.

A. I've looked at things here and there. I

just don't recall what I've read.

(Plaintiffs' Exhibit 194 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you a 2015 study, It's Exhibit 194 to your deposition. It is entitled "Environmental Exposure to Arsenic, Lead, and Cadmium in People Living Near Janghang Copper Smelter in Korea."

Is that fair?

A. That's what it says, yeah.

Q. Okay. And is that a study that you've reviewed?

A. I don't recall. As I said, I did -- most of my research was online, so I don't recall what I would have read and didn't read back at the time.

Q. What regulation are you relying on when you say that you can just get an exception from the DEP?

MR. SCHICK: Objection, form.

MR. STOIA: Objection, form.

A. I'm not sure -- when you say getting an exception from DEP, I didn't say we had an exception.

BY MR. NIDEL:

Q. Well, the technical regulations prohibit you from using compliance averaging until a site is fully delineated, correct?

A. Which technical regulation specifically --

MR. SCHICK: Objection, form.

THE COURT REPORTER: I'm sorry. What?

A. Which technical regulation specifically are you referring -- are you referring to the guidance or the regulations?

BY MR. NIDEL:

Q. Either/or.

A. 7:26E?

Well, there's a difference. One's a law and one's guidance.

Q. Okay.

A. The guidance, I don't have to comply with.

Q. Okay.

A. A guidance is a guide. And then I can use judgment and a number of other things to consider. And I don't need specific DEP approval to make judgment determinations. That's specifically written into all the guidance. And it's written into the regulations.

So there is a difference between the

regulations and all of the NJAC that are codified there and the guidance, which are guides.

Q. Okay. Where is it written into the regulation?

A. I'm asking you that.

Q. No. Where is it written into the regulations, as you just testified, that you can use all these other things and you don't have to follow the guidance?

A. It says --

THE COURT REPORTER: And you don't have to?

A. It's --

THE COURT REPORTER: Follow?

MR. NIDEL: The guidance.

MR. STOIA: Let him finish.

BY MR. NIDEL:

Q. You're starting your answer before I'm finished.

A. Okay.

So the guidance specifically is written -- so there's nothing that says specifically in the regulations that I have to follow guidance. There is variance -- there is, in the regulations, some laws that allow for variance from the guidance.

Q. Okay. Did you get a formal variance from the guidance?

A. There is no formal variance to get from anyone.

Q. Okay. Well, the regula- -- what regulation allows you to get a variance?

MR. SCHICK: Objection, form.

A. It's built into the whole process. I'm not sure -- there is no getting it. I'm not sure -- there's judgment that's built into -- professional judgment is built into the process. It's specifically outlined in all the guidance.

BY MR. NIDEL:

Q. What experience do you have with airborne deposition other than this case?

A. This is the first one I've done.

Q. Okay. What professional judgment do you have, what's your basis for your professional judgment in this case?

A. Regarding --

Q. Regarding --

A. -- what specific thing?

Q. -- the conceptual site model, the extent of contamination, all the things we've been talking about.

A. Well, so there are a number of things, so -- I mean, that's a pretty broad question, so it's difficult to answer. Because it -- there's judgment in a number of things. So I have been in the industry since 1990.

Q. Okay.

A. I'm familiar with other sites that are out there. I did review literature that's been done on other sites. I'm familiar with the New Jersey requirements on what's necessary to be done. Ultimately we're required to delineate to the standard. So unless we missed entire -- in the entirety of the plume, of soil contamination, the data will take us where it goes.

My understanding of the applicability of the attainment guidance, including the 95 percent upper confidence level usage is that it can be used in this instance and that it was appropriate to be used in this instance, based on my read of the guidance and its applicability and what the intent was.

And then we discussed it with the people at DEP, who agreed.

Q. Okay. You also can't use compliance averaging with respect to arsenic contamination, can

you?

MR. SCHICK: Objection, form.

A. I'm not aware of that.

BY MR. NIDEL:

Q. You're not aware of that?

A. No.

Q. You're not aware of any limits on the use of averaging with respect to arsenic specifically; is that fair?

A. No, not that I can recall.

(Plaintiffs' Exhibit 195 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. Hand you Exhibit 195.

Can you identify Exhibit 195?

A. It's a response action outcome.

Q. Okay. What is that?

A. That's the determination of completion of a remedial action.

Q. Do you determine completion for all remedial actions off site in Carteret?

A. With respect to this site, as I understand it, yes.

Q. You testified earlier that if somebody had a 500 in one spot, that wasn't significant if they

had 7s everywhere else, right? You recall that testimony?

A. I used that as an example that it's -- the compliance approach is based on averaging of the data, so it's based on an area-wide analysis of the data within the use areas.

Q. Okay.

A. So that individual values provided that they're -- that the individual values, whether it exceeds or not, is not -- that's not the basis for compliance or attainment.

Q. Is that relevant to a property owner?

MR. SCHICK: Objection, form.

A. I actually don't think so.

BY MR. NIDEL:

Q. Okay. What if it is a part of their front yard that their 3-year-old plays in?

A. I think the -- we've still attained the standard. So I think that their 3-year-old is playing in an area that has met the standard.

Q. Okay. Is their 3-year-old playing in an area that's got 500 parts per billion in lead and 25 parts per billion in arsenic safe in your view?

A. I think so. To the extent that NJDEP had determined it's safe, yes.

Q. You think it is safe?
A. Yes.
Q. Okay. You're not a toxicologist, correct?
A. No.
Q. You're not a risk assessor, correct?
A. No.
Q. You're not an epidemiologist, are you?
A. No.
Q. What's your basis for saying it's safe?
MR. SCHICK: Objection, form.
A. I just -- the NJDEP has determined what the cleanup standards are. So my interpretation is that -- I -- so my assumption there is that NJDEP has done their job in determining what's reasonably safe.
BY MR. NIDEL:
Q. Did the NJDEP come to you with a request to use anything lower than the cleanup standards for arsenic or lead?
A. Not that I can think of.
Q. You can't recall the NJDEP saying we should use a lower standard for these residents?
A. Not that I recall.
Q. Is compliance averaging allowed for residential properties?

A. Yes.
Q. By what regulation?
A. That's unrestricted use that would allow residents.
Q. Okay. And is compliance averaging allowed to be done across various depths?
A. Yes, you have two depth intervals. You have surface interval and the deeper interval.
Q. And you can do compliance averaging across multiple depths?
A. Yes.
Q. Okay. And what regulation allows that?
A. The guidance that allows it is the attainment guidance.
Q. And what's the title of that document?
A. It's like the New -- NJDEP guidance for attainment, something like that.
Q. What distance did you determine you would expect to see the peak deposition from the stacks that were on site?
MR. SCHICK: Objection, form.
A. I don't recall the distances. And it essentially was built into the original sampling program, although, again, I didn't rely on the modeling so much, because it was a line of evidence.

Ultimately, I expected the data to take us there.
BY MR. NIDEL:
Q. Okay. I'm not asking about the modeling, to be clear. I'm asking about the -- your understanding of the source and you knew that it at least had one stack. And I'm trying to understand what your expectation was, from your knowledge of the -- that stack and the fugitive emissions that you're aware of, as to where you would expect to see the peak, how far away you'd expect to see the peak.
A. I don't know, not specifically.
Q. You don't know if it would be a mile way or a half mile away or --
A. I don't recall the distances. We did consider that sort of analysis in developing the sampling approach to start out with.
Q. What document was that considered in?
A. It was one of the remedial investigation work plans.
Q. Which one?
A. I'm not sure. There was a couple of revisions of it. 2014, 2015, something like that. 2016. Actually -- I'm sorry -- that would have been the -- I think it was earlier than that. I think it was 2012 or twenty -- I don't know. It was before

we did the remedial action work plan, so it would have been 2012 or 2013.

(Plaintiffs' Exhibit 196 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 196.

Exhibit 196 is a page from Radian's sampling of dioxins on the site. And it shows the USMR smelter site divvied up into quadrants. I think you talked about how there was composite sampling in various -- not quadrants, but sections of the site.

Is that --

A. Yes.

Q. Is that map familiar to you?

A. It's familiar. I don't remember which report it's from.

Q. Okay. With your pen, can you identify where approximately the off-site sampling was done?

A. (Witness complies.)

Q. Okay. You've put a circle on Exhibit 196.

And can you put a DS for dioxin sampling?

A. (Witness complies.)

Q. Okay.

A. It might be here now. Looking at it, it

might be here.

Q. Okay.

A. It's -- it's up in this area, so let me -- like that.

Q. So you've now extended your circle to include --

A. Because I don't know what -- it might be this parcel as opposed to up here. I can't -- I don't know where I am exactly.

Q. Okay. Was that adjacent to -- was the northwest corner the lowest levels of dioxin that was detected on site?

A. Yes.

Q. Okay. And that was adjacent to where your sampling was done off site, correct?

A. Yes. It's also adjacent to the direction of the residential properties.

Q. There are residential properties south of that sampling, correct?

A. I don't think so. I think it's all commercial down there.

Q. Okay. Was there --

A. Even then, on that property boundary, we're talking about a range of .03 to .06. So the numbers are essentially -- with respect to

variability of data, those numbers are almost -- they're essentially the same. There is variation in data, so -- they're all lower than the southeast corner.

Q. Do you know how tall the stacks were that emitted dioxins from the site?

MR. SCHICK: Objection, form.

A. I don't recall the heights of the stacks on the site.

BY MR. NIDEL:

Q. Do you know -- what do you know about the weathering of dioxins in the environment?

A. I know they can change. And I know that they can -- some of them are more persistent. I don't know which ones are which, off the top of my head.

Q. So you know that the fingerprint of congeners, dioxin congeners can change over time based on their different weathering properties, correct?

A. That's my understanding, yeah.

Q. Okay. You raised that concern, didn't you?

A. Yeah, I think so.

Q. And how was that addressed?

A. I don't recall. I know that -- so I didn't rely on that fingerprint analysis very strongly, so I didn't really comment on it very much.

Q. That was what Arcadis submitted for being the basis for delineating the dioxins, correct?

A. It was -- well, to me, the basis was based on the data, meaning the actual data in comparison to the screening levels. It wasn't so much about -- that was sort of their CSM, but I was more interested in the data itself.

Q. Okay. Some of the hits were actually in exceedance of the screening levels, correct?

A. There were a couple, yeah.

Q. Okay. So was the -- was the dioxin contamination delineated?

A. I think so, based on -- based on concentration ingredients, not necessarily based on point-by-point.

Q. Did the data show a gradient?

A. Compared to the site, yes.

Q. Okay. But there were hits off site, correct?

A. In one of five samples, I think, or one of four, whatever it was.

Q. Okay. Was that the sample that was farthest away from the site or closest to the site?
A. I don't recall.
Q. Okay. So was there a gradient?
A. In relation to the overall site, yes.
Q. Okay. Was there a gradient in relation to the other samples for dioxin?
A. I don't -- I don't know. There is variability in the data. All of them, if I recall correctly, were very close to standard, the screening level.
Q. What level of dioxin is safe for children to play in?
MR. SCHICK: Objection, form.
A. I think the screening level for residential is 70. It's been a while since I had to look at it, but I think it's 70. And then I forget what the units are there.
BY MR. NIDEL:
Q. Parts per trillion.
A. Yeah, something like that.
Q. Okay. Do you know what the screening level is in California?
A. No.
MR. SCHICK: Objection to form.

BY MR. NIDEL:

Q. Do you know what the screening level is in any other state?

A. No.

Q. Do you know what the level is that's safe for children to play in dioxins?

MR. SCHICK: Objection to form.

A. NJDEP's screening levels, as I understand them, are based on the health numbers. But I don't know the full basis --

THE COURT REPORTER: Based on what?

THE WITNESS: Health numbers.

THE COURT REPORTER: Okay.

A. But I don't know the full basis of how they determine their screening levels.

BY MR. NIDEL:

Q. What did the air modeling indicate as far as what was the extent of contamination of dioxin from the site?

A. I don't think we did any remodeling for docs specifically, that I can recall.

Q. Did Arcadis or anyone?

A. I don't know.

Q. Did you review air modeling of dioxins?

A. I don't remember.

Q. Were you provided air modeling of dioxins for the site?
A. I don't remember.
Q. Not that you recall?
A. No.
Q. You did not rely on air modeling, correct?
A. No.
(Plaintiffs' Exhibit 197 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you Exhibit 197.
Exhibit 197 is a technical memo from Arcadis to David Wallis, dated -- doesn't appear to have a date on it. But it's got a Bates number of 832390.
Is that correct?
A. Yes.
Q. Okay. Did you review that document?
A. I don't recall seeing this document. I may have, but I don't recall seeing it. Again, because I didn't focus too much on the -- on modeling. I was using the data, but I don't -- I may have received this. I can't recall.
Q. You were not aware of modeling, as you sit here today, that you reviewed --

A. Sitting here today --

THE COURT REPORTER: That you reviewed?

A. -- I don't remember there being a model.

THE COURT REPORTER: Was that --

THE WITNESS: Sorry.

BY MR. NIDEL:

Q. -- that you reviewed on the dioxin issue?

A. I don't recall reviewing modeling on the dioxin issue. I may have.

Q. So you don't know if the assumptions that were used in the modeling, if any, was [sic] done and were accurate or reflective of the source, correct?

A. I don't know sitting here, no.

Q. Was there an attempt to do correlating of dioxin data with metals data in the sampling? Was that something you discussed?

A. I don't recall doing that at all.

Q. Okay. Do you know -- do you recall someone proposing that?

A. Not that I recall.

(Plaintiffs' Exhibit 198 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 198.

Exhibit 198 is an email chain Bates-labeled 836334. Top of the chain is from Bill Cobb to Joe Brunner; is that fair?

A. Yes.

Q. There is an entry at the bottom under "Carteret," bottom of the first page, that says "Dioxin/furan, our most recent testing indicates we still haven't achieved delineation at one of the points along the northern boundary, northern site boundary."

Do you see that?

A. Yeah.

Q. Do you know what work was done beyond this to achieve that delineation?

A. I don't know -- I don't know specifically what this is referring to. I think -- I don't know whether -- when they're referring to the site boundary, I think they're actually referring to samples we took with inside -- inside the site property boundary. But I -- it's hard to tell from this context. And I don't remember when we sampled what, you know, like -- and the first set of samples were taken inside the property boundary and then there was a set taken outside.

Q. The samples that were taken inside the

site boundary, were they taken on land that was redeveloped or were they taken on soil that was there historically?

A. There was -- there was some redevelopment in the area.

Q. Okay. Would that be reflective of what was contaminated starting in 1908?

A. We tried to release -- my review of the data and I -- my input into the team was that we try to find some materials that would be representative of the surface that -- so essentially what happens is I -- in that area, I think they were -- they had some capping that was done, so my -- they were trying to sample and inter- -- and collect samples that were representative of the surface.

Q. So there is some question about whether or not that sampling was, in fact, representative, correct?

MR. SCHICK: Objection, form.

A. I would say it's representative of the conditions that were there. It's -- there was the -- we did have to consider the influence of development or capping that was done.

(Plaintiffs' Exhibit 199 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 199.

Exhibit 199 came from your files.

Can you identify Exhibit 199?

A. It's "Dioxin/Furan Work Plan: USMR Off-site Delineation Sampling."

Q. Is that a document that you reviewed that was given to you by Freeport?

A. I think so.

Q. On -- the pages are not numbered, unfortunately, but on -- there is a figure, indication of a figure before the figure, on the left page, so -- yeah, there you go. There is a PDF annotation there. Do you see that? There's a box for an annotation, a little comment box?

A. So not on the figure itself.

Q. Sorry. Yeah, yeah, the page right before it says "figure."

MR. STOIA: Here.

THE WITNESS: Oh, here?

MR. STOIA: Yeah.

A. Okay.

BY MR. NIDEL:

Q. Do you typically provide comments to Freeport using PDF stickies, PDF electronic tags?

A. Depends on how they provided me the document. So if they provide it as a PDF, I might have provided them -- in -- within the document. Sometimes I provide them in an email. Sometimes both. Sometimes verbally, depending on what the nature of the comment was, although --

Q. Do you recall if these are your comments?

A. I don't know because I can't tell what they say.

Q. Okay. Yeah, I believe they are, but -- it was produced from your files. It's PDF with comments.

A. Are the comments -- do they show up in here anywhere? Other than just as boxes, like, do they show up as a --

Q. No.

A. And I don't -- I don't know. They could be. I do comment this way sometimes.

Q. Right. On the figure, can you identify where the sampling was done off site?

A. I think it's in the gray -- I don't know if this was a final. I don't know what -- because if there's comments on it, so -- and I can't recall the specifics of that sampling out there. But -- so there's a -- there's a -- I guess it's a

community-owned property that runs sort of east and west. These samples are in that, although I'm not sure -- I have to check. I can't recall whether these are the actual final sample locations.

Q. That was not where the sampling was ultimately done?

A. Yeah, I didn't -- I don't think so.

Q. Okay. Where was the sampling actually done?

A. I think it was further -- they were closer to the site. This is, I think -- this looks like their initial sampling plan for the -- for the first step of sampling, but I -- first step of general sampling, not necessarily for this. I don't -- I don't -- so this doesn't look like where I recall the samples all being. I think that most of them were clustered around the area closer to the main property, so across -- like, so sort of between the Chrome --

Q. Where it says "Middlesex."

A. Yeah, over closer to Middlesex Avenue, in that vicinity, because they were closer to the site.

Q. Do you know why this sampling was never done?

A. I don't recall --

MR. SCHICK: Objection, form.

A. -- so -- I don't know what version of -- like, there was sometimes iterations of these things and I can't -- I don't remember why things might have changed.

BY MR. NIDEL:

Q. Did you suggest that they not sample here?

A. I don't think so. I don't remember -- I don't know what version of this, this is, and what the year, like where this sits in the process of review.

Q. And, again, can you tell us why the sampling was chosen to be in that upper northwest corner?

A. Well -- so we had done -- so we had the historic data that we saw in that one exhibit earlier. And then we took some samples on site that showed that there was -- that -- I'm going to use the word "confirmed" that there was potential up in that northeast corner for something to exceed. Because I think, if I recall correctly -- and I don't know the units on that figure anymore, the one --

THE WITNESS: Can you -- what exhibit is that?

MR. STOIA: This one.

THE WITNESS: Yeah, this one.

A. I'm referring to Exhibit 196. I don't recall -- these are ppb, so I don't think -- just bear with me a second. I'm trying to sort out something in my head.

So if I -- I think the northwest corner of the property, based on this data in this 196 -- I can't recall the units conversion. But I think this is -- it was 30 ppb in that corner. But we wanted to take samples unless that area because we were component samples up in that area on site to see if there -- because these were composite samples, if this is what I think it is. And so we found some stuff over there that was greater than the standard on site. So then we went off site and essentially were doing step-out sampling, I guess is the way I'd characterize it.

I don't -- this other one, 199, I don't know what -- without reading the whole thing and sort of digesting it, I don't know what version this was or in what context this was being presented. But the sampling, is my recollection, was more -- was done closer to the site, closer to where we took samples on site that we has some exceedances.

BY MR. NIDEL:

Q. Is it true that point-by-point delineation is what's typically required?

MR. SCHICK: Objection, form.

A. No. Historically, before the -- the changes in site remediation reformat, that was what New Jersey did, point-by-point, typically. I think there was some variations allowed then. But since then, New Jersey has -- I think it's five compliance approaches that they allow. One of them is point-by-point. There's other compliance averaging types.

There's Thiessen polygons, which is like area-weighed averaging. There's the 95 percent upper confidence level.

There is 75 percent ten times, which is where 75 percent of the samples pass and none of the remaining samples exceed ten times the standard. That's one way of doing it.

And then there is a simple -- I think it's arithmetic mean. If you -- and that's limited to, like, if you have a small number of samples, something like that.

But I don't think the DEP has a specific preferred approach.

BY MR. NIDEL:

Q. When was that change made that they --

A. So when we went to the LSRP program, which I think is two thousand -- so my years here might be a little -- getting old -- might be -- it was either 2008 or two thousand -- I think it's 2010 when the LSRP program rolled out. So whenever -- it's that time frame.

Q. Okay. And -- so is it -- it's your testimony that point-by-point is not what's typically used?

A. I don't think it's preferred, meaning I don't think there's a NJDEP preference for one attainment.

Q. Is that what's typically used?

MR. SCHICK: Objection to form.

A. Define "typically." I'm not --

BY MR. NIDEL:

Q. You don't know what typically means?

MR. SCHICK: Objection, form.

A. In what context typically?

BY MR. NIDEL:

Q. Is that what's typically used to delineate contamination at sites?

A. Historically it was. Now people use all

kinds.

Q. Okay. I understand they use all kinds. I'm asking if that's what's typically used.

A. I'd say most of our sites have gone point by point. We've used compliance averaging. We've -- in a number of different forums.

Q. So that's what's typically used. Because that's what you said in your -- in your comment.

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. Is that what's typically used?

A. It's commonly used, yes.

Q. Okay. Is it what's typically used?

A. Yes. Yes --

Q. Okay.

A. -- again, in that context.

Q. And just to be clear, on Exhibit 196, the map, where were -- where was the smelter?

A. It was, like, over here.

Q. Okay. With your pen, can you put an S for smelter?

A. (Witness complies.)

Q. Okay. Where was most of the dioxin released?

A. As I understand, it was -- would have been

from there or the burn pit, which I think is over in the same general area.

Q. Okay. Where were the stacks?

A. I think they're in this vicinity.

Q. Okay. Can you put a circle around the vicinity the stacks?

A. (Witness complies.)

Q. Okay. Where were the warehouses?

A. (Witness complies.)

Q. Up in the northwest corner, the warehouses were, correct?

A. I think so, yeah.

Q. Okay. There was no industrial activity up in the northwest corner, correct?

A. I don't remember the details of the specifics of the site in terms of where -- what was done up -- it's a complicated site and I don't remember all the different parcels.

Q. Okay. You cannot recall any industrial activities that occurred in the northwest corner of the site, can you?

A. I don't recall what was done specifically where, no.

Q. Okay. What sources of dioxin were there in the northwest corner of the site?

A. I don't know.
Q. Where were the sources of dioxin on the site?
A. Mostly the stacks, I presume.
Q. Okay. So in the area that you circled as the stacks with an S, correct?
A. Yes.
Q. Okay. That is not in the northwest corner, correct?
A. No.
Q. Okay. Is that in the area that has higher levels of dioxin?
A. Yes.
(Plaintiffs' Exhibits 200 through 202 were received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Okay. I'm going to hand you Exhibits 200, 201, and 202. These are in order on that page that we were in on your notes. I believe these are the contents of your comments.
A. Okay.
Q. The first comment would be the first comment on that page.
Can you read that comment for the record?

THE COURT REPORTER: Slowly.

A. It's -- 200 is what you want me to read?

BY MR. NIDEL:

Q. Yeah.

A. "Need to consider whether this is an acceptable delineation prospective since point-by-point is typically required."

Q. Okay. So -- and that refers to this sentence, "If this UCL does not exceed the NJDEP screening level, then it will be concluded that additional delineation of dioxins and furans north of the southern boundary of the AOC is not warranted," right?

A. Yes.

Q. Okay. So you were hesitant to use upper confidence limit or compliance averaging because typically DEP requires point-by-point --

A. No --

Q. -- delineation?

A. -- that's not what that means. In this case -- so typically you have to -- you're supposed to do point-by-point, as you mention earlier. They require point-by-point delineation to define your AOC. So you don't define the AOC -- although there is a -- there is language in the guidance that does

allow it as well, but they prefer point-by-point. And you don't do the averaging until you're doing the remediation. You can do compliance based on the RI data. But you don't determine whether you've achieved your standard in advance by compliance averaging.

Q. Can you read us your note for Exhibit 201?

A. "What will we do with this conclusion?"

Q. So, here, the proposal is talking about doing samples along with metals testing and then correlating the two, correct?

MR. STOIA: This paragraph.

A. Yeah, just -- let me read the paragraph briefly.

Okay. So, yes, it says -- so the sentence leading up to that comment, assuming this is what it's applying to, is "If that probability exceeds" -- they're referring to correlation of metals, I think. Yeah, I think they're trying to propose that there is a potentially different source -- or evaluate whether there is a potentially different source of metals than dioxins. And so -- and so I asked what they're going to do with that conclusion.

BY MR. NIDEL:

Q. Okay. Was that sampling done for metals?

A. I don't know.

Q. Okay. Did you ever follow up and say has this been done; this might be a line of evidence I could consider in determining whether dioxins have been delineated?

A. I wasn't viewing it that way. That's why I asked the question. I viewed it as -- at least I think, because it -- and without reading the whole document, I can't recall. But what I think I was viewing this as was -- again, is are we achieving delineation. That's what our objective is. This was sort of an argument about whether or not what the source was, and I was going to look at that, sort of a -- once we've looked at the -- once I have the whole data set. So I wasn't going to necessarily -- so we concluded that it's a different source. That don't -- didn't necessarily mean anything directly to me at the time other than -- again, I was trying to find out whether we could achieve delineation.

Q. But you were never provided that data, correct?

MR. SCHICK: Objection, form.

A. I was provided the data that we have in the RI. So if there was stuff done beyond that, then I'm not aware of any other data, so -- and maybe they did this correlation and I saw it at some point. But I didn't -- I wasn't terribly concerned with the correlation, because I was looking at the data primarily.

BY MR. NIDEL:

Q. Okay. And if you can read Exhibit 202.

A. So then, "So what is the intent of this correlation -- of the correlation analysis?"

Q. Did you ever get an answer to these questions?

A. I may have. I don't remember. They may have told me about it or they may have responded in revisions. I'm not sure.

Q. Why were the homes never tested inside the homes?

MR. SCHICK: Objection, form.

A. What media?

BY MR. NIDEL:

Q. Dust.

A. We didn't sample the dust media. We were sampling soils and things around them.

Q. Why not?

A. I don't -- I've never heard of it being required, so...

Q. You've never heard of indoor dust being required to sample when you have --

A. It's --

Q. -- soil contamination outside the house?

A. It's not immediate that's been identified under NJDEP requirements, so I haven't seen it done. I'm not -- I'm not saying it's not done in places. I'm just not saying it's -- I haven't -- I'm not aware of it being done in New Jersey. Maybe it has, but I'm not aware of it.

Q. Did you provide comments to Joe on dioxins and furans?

A. Yes. I specifically asked him to make sure they looked at that.

Q. Was the northwest -- what direction was the wind?

A. As I understand the wind rose for this area is that it's primarily to the east. But it varies. As everybody knows, wind changes direction every day. So statistically more -- the wind typically flows more towards the east than it does to the west.

(Plaintiffs' Exhibit 203 was received and

marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you an exhibit, 203.

A. Thank you.

Q. Can you identify Exhibit 203? It was produced from your files.

A. So it says, "USMR LSRP notes, draft LSRP notes response to comments on dioxins and furans."

Q. Okay. Did you provide to Joe Brunner your comments on dioxins and furans?

A. I'm sorry. I was reading when -- can you say that again?

Q. Did you provide your comments -- are these your comments that you provided to Joe Brunner?

A. Trying to make sure these are mine or not his back to me, so I'm just trying to read -- I have to read the document to see what it is.

Q. It's an LSRP note.

A. That's what I think it is, but then it says "regarding response to comments."

Okay. Yes, this appears to be something I wrote.

Q. Okay. And you provided comments to Joe Brunner about dioxins, right?

A. I did.

Q. And the bottom of the page, D2, you say, "Under the CSM, concentrations would generally be predicted to decrease with distance from the stack," right?

A. Yes.

Q. Okay. Again, where was the stack that omitted dioxins?

A. As I -- as I said, I think it's in this area of the site, which is the central eastern portion of the site.

Q. Okay. Were there fugitive emissions of dioxins?

A. There may have been. I can't say specifically.

Q. And would those -- how far would those be expected to increase or decrease?

A. I would generally think fugitive emissions, depending on the source, would be -- tend to be closer because they're not as high up. So you don't -- I forget the -- so you wouldn't have the lift that you have in other sorts of source.

Q. Okay. Are the contaminants that you found in the AOC off site, are they have fugitive emissions or from stack emissions?

A. I think they're from stack emissions,

primarily. And they would be from fugitive emissions, but I think the primary contribution is stack emissions.

Q. Okay. And that's based on what stack height?

MR. SCHICK: Objection, form.

A. The stack heights that were documented at the site.

BY MR. NIDEL:

Q. Okay.

A. I don't recall the stack heights.

Q. Okay. And that's based on what wind speed?

MR. SCHICK: Objection, form.

A. It doesn't -- I'm not sure the wind speeds -- the fact whether or not something ended up out there that we concluded was potentially site-related, the wind speed is a variable on how much would have deposited, but the data is ultimately what we reviewed. So I'm not sure, like -- I don't know what wind speed was specifically used in the analysis.

BY MR. NIDEL:

Q. What -- where was the open pit of plastic burning?

A. I don't recall. I think it's in the central portion of the site. I'd have to look at a map.

Q. Okay. And was that a -- what that vented through a stack or was that just a open --

A. I think it was an open pit.

Q. Okay. And how far would you say those dioxins went?

MR. SCHICK: Objection.

A. I don't know, but I wouldn't think they'd go as far as a stack.

BY MR. NIDEL:

Q. Okay. And -- so the stack goes further than the fugitives, right? We --

A. That's what I would think, yeah.

Q. And the stack actually -- there's a distance at which the stack would be -- the emissions would be low and they would increase as you get further away and then they would decrease and we called that the peak earlier, right?

A. Yes.

Q. Okay. And you don't know where that peak is, right?

A. Not off the top of my head, no.

Q. Okay. So you don't know if a half mile

from the site it's increasing. You would expect the concentration from the stack emissions to be increasing or decreasing, do you?

MR. SCHICK: Objection to form.

A. Sitting here, I don't think they'd be continuing to increase that distance. But I don't have any data in front of me to say that for certain.

BY MR. NIDEL:

Q. Okay. What data do you have, period, to say that with any certainty?

A. So we have the on-site data, which was closest to all the sources. So we didn't have -- I wouldn't characterize the material to be detected on site as being highly elevated with respect to dioxins and furans to begin with. They were generally close to the screening levels. So with the -- with a couple of exceptions. So I haven't seen any data that suggests it should go further, at least not that I recall.

Q. Did you ever delineate where that peak impact would have been?

A. I think we did. I think the samples showed that the concentrations were essentially at the standard just shortly past the property

boundary.

Q. And where was that peak impact?

A. The peak --

Q. Yes.

A. -- is closer to the site, just on site. I mean, some of the concentrations on site were three hundred and -- three point -- .39 and .73 ppb, which is, what, 730 ppt.

Q. Okay. With respect to dioxins, okay, they're a form -- they're a by-product of combustion, right?

A. Yes.

Q. Okay. There was open pit burning that would have produced dioxins, correct?

A. I think so, yeah.

Q. There were stack emissions that would have included, and we know, from some testing, included dioxins, correct?

A. That's right.

Q. We know that the stack testing in 1986 or 1987 may not be representative of what happened in either the open pit or in the stacks 20 years earlier, right?

MR. SCHICK: Objection to form.

A. Just a second. I'm -- so the stack

testing data?
BY MR. NIDEL:
Q. Right. Based on the feed, based on the temperatures, based on all those variables, what came out of the stack on one day in 1987 might have been different than what came out of the stack in 1956, right?
A. I think that's correct.
Q. Okay.
A. I'm not a dioxin --
Q. Okay.
A. I'm not a dioxin chemist.
Q. Okay. But you actually raised that issue, right?
A. Yes.
Q. Okay. Did you ever get an answer as to how reflective of historical emissions those 1986 and 1987 dioxin stack tests were?
A. Not that I recall, because I think the whole point of me raising that was I didn't -- I didn't think the fingerprint analysis was particularly important for what we were doing.
Q. Okay. So your -- the entire assessment of dioxins was from the perspective of if it's below the screening limit that New Jersey has roughly

established, that it's -- that you're [sic] done your job, correct?

A. Yes, if the -- I mean -- yes.

Q. Okay. So it wasn't health-based, correct?

MR. SCHICK: Objection, form.

A. Not directly in that way. I don't know what -- I don't know what it means in that context.

BY MR. NIDEL:

Q. Okay. You used a screening limit, there may be some influence of health, but you don't have an opinion and you -- you're not giving guidance as to what's acceptable from a health --

A. That's right. I'm not a toxicologist or anything like that.

Q. Okay. So -- and you're also not saying that the dioxin that was found off site was or was not related to the smelter. You were simply saying it's decreasing in such a fashion that it's not a concern because it goes below the screening levels, right?

A. Yes, that's generally right.

Q. You're not attributing a source of that dioxin, correct?

A. I didn't make a determination of what the source was.

Q. And you're not discounting the source -- any source of --

A. That's right. I didn't --

Q. Okay.

A. I didn't do either. That's why I wasn't so much worried about the correlations.

Q. Okay. And has anyone done either, to your knowledge?

A. They may have and I may have seen something. Again, because I wasn't focused on that so much, I wasn't -- I didn't comment on those things that much, other than getting -- asking them to collect the data. "Collect the data" meaning take docs and samples.

MR. NIDEL: Okay. Let's take a short break.

MR. STOIA: Why don't we take a --

MR. SCHICK: Lunch break.

MR. STOIA: -- lunch break for --

MR. NIDEL: Oh, it's 12:45.

MR. STOIA: -- 20 minutes?

MR. NIDEL: I didn't realize that. Yeah.

MR. STOIA: And we'll back at 1:05, if that works?

THE VIDEOGRAPHER: This marks the end of

Media No. 2. We're going off the record at 12:46 p.m.

(At 12:36 p.m. a luncheon recess was taken.)

(At 1:18 p.m. the deposition resumes.)

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A F T E R N O O N S E S S I O N

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THE VIDEOGRAPHER: This marks the start of Media No. 3. We are back on the record at 1:18 p.m.

CONTINUED EXAMINATION

BY MR. NIDEL:

Q. Before we broke for lunch, we were talking about the dioxin/furan issue.

And I guess my question for you is: Your original assessment was based, at least in part, on the fingerprint assessment, right?

A. I don't think I relied on the finger [sic] assessment for really anything that I recall.

(Phone interruption.)

A. It was mainly the data.

MR. NIDEL: Yeah. Be quiet.

MR. GERMAN: Okay.

A. So I think it was information that was

provided to me, but I don't think I used it for anything.

BY MR. NIDEL:

Q. Okay. Arcadis relied on the fingerprint assessment, right?

MR. STOIA: Objection, form.

A. I don't know what for. I mean, they may have used -- I don't know.

BY MR. NIDEL:

Q. You don't know?

A. I don't know what Arcadis did.

Q. They didn't submit anything to you?

A. They did provide me information regarding the fingerprint analysis. But it wasn't relevant to the delineation, so -- other than -- it's more relevant and related to whether or not -- so I wasn't -- no one made the claim specifically that the material that was detected was not theirs. And we haven't concluded to that. So the fingerprint analysis is a line of evidence related to that but we haven't made that conclusion.

Q. Does the fingerprint analysis support that it was not their dioxin?

A. I think that's what it was suggesting.

Q. Based on the fingerprints of what dioxins?

A. I don't remember. They compared, I think, source dioxin and then the materials they found in the soil. Maybe on site too. I can't remember.

Q. The source being the stack or the source being the fugitives or the source being on site?

A. I don't remember all the pieces of data that were considered. I think there was data from the stack, which I don't -- you had referenced it before. But I think there was some data from the stack that was considered. I don't recall specifics. They may have used soil data that was on site. They may have used soil data that was off site.

Q. Okay. And you don't know if the stack data that was in nineteen -- the 1980s was reflective of anything else prior to that, do you?

A. That's right.

Q. Okay. And you also don't know if it's reflective of what would be -- what would be in the soil 50 years later because you would agree that those dioxins weather at different rates, correct?

A. Yes.

Q. Okay. So you cannot determine, based on the stack data and the off-site data, as to whether or not those are from the same source of dioxin,

correct?

A. I won't say I can't, because I -- without looking at it all. I haven't tried to do that. So I haven't tried to say that it wasn't theirs.

Q. And the Arcadis analysis is part of the reports that you are signing off on, correct?

A. That's right.

Q. Okay. So you did submit Arcadis's analysis based on fingerprinting to the state, correct?

A. Yes.

Q. To certify completion of delineation, correct?

A. Yes.

Q. Okay. So you've adopted Arcadis's assessment, correct?

MR. SCHICK: Objection, form.

A. As a statement, yes. I don't think it was relevant to the determination of the report.

BY MR. NIDEL:

Q. That was what was provided to the state as the basis for the conclusion that the dioxins had been delineated, correct?

A. No. The data was.

Q. Okay. That's not the way it's presented

by Arcadis, is it?

A. It's presented both ways. If I recall correctly. I don't know exactly which text you're referring to, but I think it's presented both ways. I think there's a presentation of that analysis, the finger print analysis --

Q. Slow down.

A. Sorry.

There's a presentation -- if -- what I recall, it was that there was a presentation of the fingerprint analysis and there was a presentation of the data, meaning the data in relation to the screening levels. The fingerprint analysis was what it was. I don't think anybody has made a determination -- I don't -- I don't think I have personally made a determination that the stuff was off -- that anything that was detected in those samples was not specifically related to that site.

That is what some of the -- they said those lines of evidence support that. I didn't say necessarily -- it may support it in some ways. In fact, it probably does support it in some ways. It doesn't necessarily mean it's a conclusion. And we haven't completed remediation yet, so I haven't concluded about that. At this point, we've

delineated.

Q. Okay. Did you sign the report?

A. Yes.

Q. Okay. And the report doesn't look at a bunch of other congener analysis that you had, right?

MR. SCHICK: Objection, form.

A. I don't recall the details of what was or wasn't included in there, so I can't speak to the details.

(Plaintiffs' Exhibit 204 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you Exhibit 204.

Exhibit 204 is an email from you to Joe Brunner, dated January 18, 2016. And it says, "I'm okay with the DF presentation and agree that the off-property RI is complete for these constituents."

Do you see that?

A. Yes.

Q. Okay. So you're saying it's been delineated, correct?

A. That's how I interpreted it, yeah.

Q. As of January 18, 2016, correct?

A. Yes.

Q. Okay. What was that based on?
A. I presume, because I -- it looks like it's the RI data that was presented also in the RI report from May. And it's based on whether or not they see the same screening levels.
Q. Okay.
MR. SCHICK: Excuse me one second. Since I haven't gotten the last several --
(Plaintiffs' Exhibits 205 and 206 were received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you Exhibits 205 and 206 to your deposition.
Can you identify Exhibits 205 and 206?
A. They -- so 205 is a table. It's actually two tables. One says "Figure 2" and other one says "Figure 3." Figure 2 is labeled "On-site soil dioxin/furan fingerprints." Table 3 is UP -- "U.S. EPA Tier 4 emissions study, 1987, dioxin/furan homologue fingerprint."
And Exhibit 206 says, "On-site dioxin/furan fingerprints, Figure 22."
Q. Okay. These are -- these are produced from your files. Okay?

A. Yeah.

Q. Some of these I had never seen.

But are these documents that you reviewed as far as fingerprints of various sampling that was done of dioxins?

A. Yeah, I looked at them.

Q. Okay. And you see both 205 and 206 represent the congener fingerprints of the various dioxins -- various dioxin samples taken across the site, right?

A. That's what it looks like, yeah.

Q. Okay. Do you recall what the basis for Arcadis's conclusion was that the fingerprints did not match?

A. I don't recall the details of it. It had to do with -- so there's different congeners and dioxins. And so it has to do with the different ratios of dioxin -- the different components of the dioxin analysis. For example, on Figure 2, which is part of Exhibit 205 -- and I'm not speaking to the specific conclusion. This is an example. There's -- if you -- listed down the side, there's octa-, hepta-, hexa-. Those are the different congeners of dioxins, different types of dioxins, if you will. So they looked at the ratios of the

different components of the dioxin around the site. In this particular one, it looks like these are based on soil data and data from on site.

So then it looks likes, on Figure 3, they had two sets of dioxin data that were collected from the stack. That's what I think this is. It's been a long time since I looked at these, but -- so they were -- they were suggesting -- just bear with me a second. Okay.

So I think they were stating that based on the ratio -- so, like, for example -- they might have one -- so one particular source or one -- that's not -- that's not a use source -- one particular data set, whether it's a soil sample or a source or potential source or a historic source or something else or a -- maybe a reference set. I don't even know -- the ratios of one -- it may be some of the given congeners are there at lower concentrations than others. Some of them are at higher concentrations than others. And I think their analysis was suggesting that this -- these -- the dioxins that they saw on soil didn't necessarily match what they saw in other samples.

Q. Okay. Well, the dioxins from the two stack tests also don't match each other, right?

A. That's what it looks like from this record.

Q. Okay. And is it your conclusion that those two stack samples are not from the same source?

MR. STOIA: Objection to form of the question.

You can answer.

A. I don't know exactly what these samples were anymore. So I'm presuming -- assuming if they're from the same stack, then they're from the same source, site, whatever, I assume.

BY MR. NIDEL:

Q. Okay. But this shows -- this demonstrates very clearly that the fingerprint that's emitted from that source, despite it being the same stack, varies.

MR. STOIA: Objection.

MR. SCHICK: Objection to form.

BY MR. NIDEL:

Q. Correct?

A. So the fingerprints are different in these, yeah. I agree that they -- the distribution is. I don't know -- again, I don't recall exactly what was sampled and how, and so there could be some

factors there. But, yes, they're different.

Q. And you agree the fingerprints across the site are different, correct?

A. Yes, they vary somewhat, although I think they're -- I -- they seem much more consistent. They're presented in a different order, so it's hard to tell, but -- so I -- but they seem to have general trends from one -- you know, from one set of congeners to another, but...

Q. You're saying that -- if you look at, for example, the main plant east, it's got almost no octa-dioxin, whereas scrap metals west has dominant octa-dioxin.

You're saying those are a match?

A. No, I didn't say that. I said that I think there's some general trends that make these somewhat similar. There's some variations. My sense is that -- with this sort of data, is that you would expect some variations. But, no, I'm not saying that every one of these looks the same.

Q. Okay. And you actually -- your belief, at the time, was if those fingerprints, the congeners from the off-site samples are not a match for what came out of the stack, which we have here, and for what's on the site, which we have here, then that's

a good argument, a good basis to argue that that's not our dioxins, right? That was what you said.

MR. SCHICK: Objection, form.

A. No, I don't think I said that. I think what I said is that we've delineated.

BY MR. NIDEL:

Q. Okay. So you didn't say that we could make the argument that this is not your dioxin if there is not a match of both of those sources?

MR. SCHICK: Objection to form.

A. I don't think I said that.

BY MR. NIDEL:

Q. Okay.

A. I may have, if they had a -- I might have said that they could do fingerprinting. I don't recall saying that, though. That is a way that it's done.

Q. Who's Hank Martin?

A. He's a principal at the ELM. And he's on the technical team.

So I -- you know, I don't interact -- just for clarify, I don't interact on a day-to-day basis with the technical team in terms of how they do stuff on the site.

Q. Was he involved in this site?

A. He's involved in the site, yeah.

(Plaintiffs' Exhibit 207 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you 207.

MR. NIDEL: Sorry. It's got your copy too.

MR. STOIA: Yeah.

BY MR. NIDEL:

Q. Could you identify Exhibit 207?

A. So --

Q. Well, I'll identify it for you.

A. Yeah, I can do it. It's an email from Hank to me, but it's -- with a chain. It includes an email from me to Hank. And I'm asking -- so I was suggesting that perhaps they can make a statement regarding the fingerprinting.

Q. Okay. And that statement was, "If the on-site soil data is substantially different than the off-site samples and it is substantially different from the stack air samples, then I think we'd make a very strong argument [sic] that the off-site detections are not consistent with on-site air or particulate data." Right?

A. Yes.

MR. STOIA: You read it incorrectly, though. That was "statement," not "argument." But okay.

A. Yes.

BY MR. NIDEL:

Q. Okay. We can make the statement. Sorry. Fair enough.

So in January of that year, you had said you were fine, they had delineated, right?

A. Yes.

Q. In April of that same year, later you were still on this fingerprint issue, right?

A. Apparently. I think at this point we were reviewing -- I was reviewing a draft document at this point.

Q. Okay. What was that document?

A. Probably the RI report. Because if I recall correctly, we submitted the RI report in May. So this would have been in relation to that, probably. And so -- and I still think this is correct in that -- so it's looking at various lines of evidence and trying to determine whether or not it's -- the source is our site or not. So I don't think the statements in here are incorrect.

Q. Okay. But you actually could not make

that determination that they were substantially different from the on-site --

A. I asked --

Q. -- samples?

A. I asked Arcadis to look at the site. And so Arcadis was doing the detail analysis now preparing the presentation. So I asked them to do it.

Q. Okay.

A. So -- in this case. I asked them to look at this, the soil data, to see if there was a connection. So I think what I was trying to do here -- so, like, you just pointed out -- and I don't know what I -- whether I had these tables. I don't know what I had in my hand at this particular -- that resulted in this email.

So what I was asking was if the soil data that's -- was these, the on-site soil -- I think this is all on-site soil data. Let's assume. I think what I was asking was is the on-site soil data similar to this and is the off-site similar to this or is it different. Because if these -- so if soil data, which would weather -- you know, if it was -- the soil is one spot here and it's 50 feet away, it would be subject to the same -- generally the same

weathering things. So -- weathering forces.

So is data consistent with what we saw. That's all I was asking.

So -- and then is it consistent -- also, is it consistent with air sampling. So that's what I was asking. And if it wasn't, then we could see whether or not it's ours or not.

Q. You can make --

A. Or theirs or not.

Q. -- a very strong statement that it wasn't, right?

A. Uh-huh. I think you can.

Q. Okay. Okay. But Arcadis didn't do that, did they?

A. I don't recall what -- how strong it was, because, again, I wasn't so much worried about that --

Q. Did Arcadis mention the soil congener or fingerprint at all?

A. I thought it was in the RI report, but I'd have to go back and look at specifics of the text. I know there is a discussion of the fingerprinting. At least I'm pretty sure there is a discussion of the fingerprinting in the RI report.

Q. Okay. And if, in fact, the soil congeners

were a better match for the off-site -- well, let's just -- let's just be clear.

The reason you said it had to not match either was because both could be a source for the off-site contamination, correct?

A. No, that's not how I was thinking about it. What I was thinking was that -- and -- what I think I was thinking is -- because looking at it now and what I'm thinking now is that I'm thinking that what we're seeing in the soil across the site comes from the aggregate of sources that are on the site and that that soil data would likely be if that same source continued to impact an area further afield. You'd likely see the same sort of makeup of those dioxins that you saw on site and samples off site.

It was less about the correlation necessarily with the air, at least in my -- that's what I'm thinking now. Like, I mean, that's what I think I would have been thinking then is that a soil that looks like -- a soil looks like a duck, it continues to look like a duck, and then I have something that looks like an orange when I get off site. Perhaps the orange is not the source as the ducks. That's a silly analogy, but that's kind of how it is.

Q. Okay. So it seems to me like what you're saying is that what came out the stack was not all that informative to you, because what came out the stack today wasn't necessarily what came out the stack yesterday; is that fair?

A. I think that's correct.

Q. Okay. What was on site would be more informative, because what was on site looks more like the accumulation of what's been out the stack and any other source that was anywhere nearby, right, including all the on-site aggregate of sources, correct?

A. I would say generally that's correct, although I'd want to look at the whole picture. So I would say generally that's correct and that's what I was looking at, I think. That's why I said can you look at the -- look at the data and -- which is it more like, but...

THE WITNESS: Too fast again.

MR. NIDEL: Always --

THE COURT REPORTER: No, no, no. No.

Thank you. But -- I'm okay. I'll let you know.

THE WITNESS: All right.

A. So I -- so my view is I'd like to see the

whole picture, because there could be sometimes -- sometimes correlation isn't related to cause. So I like to try to see the whole picture and see what's going on to see if we can parse it out.

I think generally you're correct in your statement, that I would tend to lean towards if I had a trend of soil of a certain type, that duck analogy I just gave, that if the ducks continued off site and I suddenly saw an orange, I might question whether or not that's mine.

I also might look, though -- if my sources on site looked more like an orange, maybe I'd want to look at that too. And that's carrying that analogy as sort of a concept.

So I like to see all the data.

BY MR. NIDEL:

Q. Okay. But where was all that data summarized? Because --

A. In the RI --

Q. -- I haven't seen it.

A. In the RI report.

Q. Okay. Did they include the soil fingerprints that we're looking at here?

A. I thought they did. And that's why -- I don't recall, but I thought this was in the RI

report, like the off-site RI report, which was an appendix to the on-site RI report, or an attachment to the RI -- on-site RI report. So I think -- the 2016 RI report, I think it's in there. I could be mistaken. I know there is a discussion of -- at least I'm pretty sure of the discussion of the fingerprint is there. Again, I -- I guess where I'm sitting now -- and I can't say maybe I was thinking something different three years ago or two years ago. But I don't think in my head I necessarily discounted whether or not, at this point, concluded that any dioxin being off site, that that was off site, in that -- those soil samples, were not necessarily site-related.

Q. Okay. So what we've established as far as these fingerprints is that in your technical view, what was on site in the soils would be the best indication of a definition of a duck or an orange as compared to what was off site, which you would want to see is that an orange or is that a duck or is that like an orange-like duck, right?

A. If I had a trend of -- this is getting silly. But if I had a trend of ducks on site and I was continuing along that path, I would expect to see another duck. If I saw something different, I'd

want to look at why generally.

Q. Okay. And if -- and, in fact, if we go -- if we look at it the other direction, if there was a source, say an incinerator, five blocks away, you'd expect to see a bunch of baboons --

A. That's right.

Q. -- across the entire area.

A. Or I might have -- got to stop this --

Q. Well, apples, oranges, and --

A. No, no. I know. It's the same thing. It's just -- you know. So, yeah, you might see -- you might see baboons with duck feathers, in that analogy. Like, if you have other sources, they're going to have a different finger- -- like, you're going to have mixed fingerprint, potentially. Again -- maybe in different intervals you might have different -- you might have baboons at the surface and ducks at the subsurface.

Q. Okay.

A. It's -- you start getting kind of speculative in terms of what you'd see, but -- depends on what the source was, that sort of thing.

Q. Okay. And you might have different fingerprints based on weathering, you might have different fingers -- fingerprints based on open

burning versus stack burning. You might have different fingerprints based on temperatures.

A. I think all those are correct.

Q. Okay. Feeds, correct?

A. Uh-huh.

Q. Okay. Did Arcadis ever answer your questions as to whether the ducks were oranges or just plain ducks?

A. I don't recall. Like I said, I think to the extent that I -- I think, in the RI report, it speaks to this. It may not have taken it much further, because I -- and maybe they -- you know, so I don't -- I don't know.

Q. Who is Peter Brussock?

A. Peter Brussock is another partner in my firm.

Q. Okay. Did he work on the site at all?

A. Not that I am aware of, at least not on a significant level. On a significant role, he may have consulted here and there.

Q. Okay. Did he consult on the dioxin issue?

A. He may have. I don't know.

Q. Okay. Who is Steve Finn?

A. Steve Finn?

Q. Yeah.

A. That might be an email from a different site. Steve Finn is a -- he works for Golder on a -- I worked with him on another project.

Q. Related to PCBs?

A. PCBs are an issue on that site. And so are congeners and the PCBs. That might be from another -- it might have gotten copied mistakenly. My guess is that's what that is. I don't know what -- I can look at it and tell you real quick, but...

Q. Okay. And on that site, just a simple apple and duck correlation was not something you were confident in, right? Couldn't just do apples and say ducks, looks like a duck, doesn't look like an apple, end of story, right?

MR. SCHICK: Objection to form.

A. So on that site, there was different analyses that were done. First, we weren't -- there was some dioxin sampling done, but it wasn't a whole lot. They were looking at PCBs and they had different types of analyses done. I don't know what document you're looking at there. But there is different types of analyses done. So some of them are aroclors versus congeners. Aroclors is one form, so it's -- but they're -- so I don't know what

we were doing there, I mean in terms of that specific...

(Plaintiffs' Exhibit 208 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 208.

Can you identify Exhibit 208? It's from your files.

A. It's "Off-site Residential Area Concern Remedial Investigation Report, April 2016."

Q. All right. Is this the RI that you were talking about, a draft?

A. Yeah, this would have been a draft. It looks like it would be a draft of the RI report. And here's those figures, I think, that you were just showing to me, or related to them. I think. And just, at the back, there's some -- looks like fingerprint things.

Q. Okay. If you turn to page -- what's numbered 17.

A. (Witness complies.)

Q. Did you provide comments on this RI?

A. I did. I don't know if -- I can't tell whether these -- I did. I provide comments. I don't know if these are my comments or these are

their revisions. It looks like these are their revisions, in track changes, I think.

Q. Okay. If you look on page 17, under "Dioxins and Furans," it says, "Dioxin/furan sampling was conducted for the following reasons." And it references "stack sample" --

A. Uh-huh.

Q. -- and the "detected within the on-site area" --

A. Uh-huh.

Q. -- above the cleanup recommendation, right?

A. Yes.

Q. There's no mention of open burning of wire, is there?

A. No.

Q. Would that be a basis to test for dioxins?

A. It would have been, potentially, but the -- we already had some data from the site. So that's what really was the driver here.

Q. Okay. And if you turn to the next page -- well, let's see. Let's actually go a couple of pages. We go to page 40. Under "Dioxins and Furans," it says, "Based on the findings of the dioxin/furan off-site residential AOC soil study,

the following conclusions can be made."

Do you see that?

A. Yeah.

Q. Eight of the ten samples were less than the TDQ, right?

A. Yes.

Q. Is that right?

A. That's what it says, yeah.

Q. Okay. And then the chemical signatures of the air stack samples and the off-site samples were significantly different.

See that?

A. I do.

Q. Okay. So they're comparing not apples and ducks, they're comparing apples to stack samples that you said you didn't find relevant, right?

A. I didn't say it was irrelevant, because it's a line of evidence.

Q. Okay.

A. So I --

Q. You didn't feel they were the most informative line of evidence, correct?

A. I think that's generally correct.

Q. Okay. You reviewed this report, right?

A. I did.

Q. Okay. You didn't tell them where is the discussion of the ducks or the on-site congeners, do you?

A. I didn't, no.

Q. Okay.

A. Well, I don't know what else is in here, but --

Q. Okay.

A. -- I'm assuming no, if you -- if you say so.

Q. Okay. And they didn't include -- those congeners aren't discussed in here, right?

A. You mean the soil samples?

Q. Yes. Yeah.

THE VIDEOGRAPHER: Mr. McNally?

MR. NIDEL: Your mike.

THE WITNESS: Oh. Sorry.

A. Actually -- so let me just read this sentence real quick, because it...

Okay. So -- I'm sorry. You had asked a question. I didn't --

BY MR. NIDEL:

Q. There's no mention of those other congeners?

A. It doesn't appear to be, no.

Q. Okay. Did you question that?
A. Doesn't look like -- well, I don't know, because -- so the date on this is April 2016. I don't know what the specific date is of this document. So I can't -- I can't tell. So I don't know if this came before or after my April twenty -- April 28 note.
Q. Okay. And then there is -- all there is, is just this mention of TCBF and penta- and hepta- and octa- and comparing the dominance of octa-CDD, right? So --
A. That's still on page 4 that you're referring to?
Q. Right. Yeah. Yeah.
And you don't know what the -- what the partial pressure of octa- is versus hepta-, do you?
A. Not off the top of my head, no.
Q. Okay. You don't know what the vapor pressure is of either of those?
A. No.
Q. You don't know which one degrades faster in the environment?
A. Not just sitting here, no. I'd have to look it up.
Q. You don't know which ones are more

volatile than the others?

A. Not just sitting here, no.

Q. Okay.

A. The information is available, meaning I can look it up. I just don't --

Q. Did you look it up for this?

A. Probably not, no.

Q. Okay. The next page, it says, "Based on the findings of the off-site residential AOC samples collected in 2015, the dioxin/furan concentrations from the USMR smelter have been adequately delineated and no further investigation is warranted."

Do you see that?

A. Yes.

Q. Okay. There's a curious deletion there. I think it was by you. It had said, "Based on the findings of the LSRP determined on January 18, 2016, that."

And that was deleted, right?

A. That's right.

Q. Okay. Why did someone, maybe you, delete the reference to your determination that the delineation was complete?

A. I tried to do that throughout these sorts

of documents, wherever -- if that sort of statement ended up in any given paragraph. Because I'm certifying the overall docket and I prefer not to have attributing statements to me in individual sentences.

Q. Okay. You're certifying the whole document?

A. Yes.

Q. You don't believe the stack samples are the most informative fingerprints to compare to. There's no other mention of the other congeners, which may or may not be a better match for ducks and apples, but they're not included in here. And yet you reviewed this, you cleaned it up, but you didn't say where's the other discussion, did you?

MR. SCHICK: Objection, form.

A. I may have. I don't know what's -- ended up in the final.

BY MR. NIDEL:

Q. Well --

A. So --

Q. -- you actually did.

A. I did what?

Q. You did ask that question. You did it in an email, though. Didn't make it into the final

report.

A. Well, is -- this isn't the final report.

(Plaintiffs' Exhibit 209 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you Exhibit 209.

Exhibit 209 is an email from you to Hank Martin, right?

A. Yeah.

Q. Okay. And the second paragraph says -- And it's dated May 2. Okay?

A. Yes.

Q. So presumedly after this, after you read this.

"The only other question I had related to whether the on-site DF soil data congeners was more similar to the stack or the outside soils."

Do you see that?

A. Yes.

Q. But you never -- you never went back and included the on-site soil data, did you?

A. It doesn't appear that it was -- I assume not, because I don't have the final. But if -- so if it didn't end up in the final report, then we assume it didn't end up in the final report.

Q. Okay. Did you think it should be included in the final report?

A. I thought it should be if they wanted to make a strong statement about causation.

Q. But you signed off as --

A. I don't think they made a statement about causation. That's my point, is that they didn't conclude that -- I didn't see a conclusion in this document. It says the material is not related to the site.

Q. Okay. You don't see a suggestion in that document that because these aren't a match, that it's not from the same source?

A. What I see is an analysis that says -- so this is how I viewed it. I see an analysis that says here's a line of evidence that says maybe it's not. All right? But I didn't conclude whether or not it is or not one way or the other. We haven't completed a remediation. Delineation was complete for the purpose of the RI. So -- and it may be that the soil that where this is located is going to get remediated anyway for metals.

So it wasn't really a -- I guess, from my view, it was -- I guess maybe there's a way to phrase it. It's more USMR's problem about whether

or not it's attributable or not and less mine as the LSRP, because the whole objective was to get the delineation and finish, or to -- you know, to try to get delineation, or not. If we didn't, we didn't. But if we did, then -- the remedial actions were yet to be determined at the time of the RI.

Q. Okay. And just to be clear, your efforts as far as delineation have nothing to do with determining whether or not any amount of contaminants from USMR are on a given property, correct?

MR. STOIA: Objection, form of the question.

A. And can you phrase it a little differently?

BY MR. NIDEL:

Q. Right. Your delineation is only to a safety cleanup standard, right, residential?

A. To the cleanup -- to the cleanup standard, yes.

Q. Okay. It is not to the existence of any USMR pollution or not --

A. That's right.

Q. -- correct? Okay.

(Plaintiffs' Exhibits 210 and 211 were

received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I've handed you Exhibits 210 and 211.

MR. STOIA: Here they are. Why don't you read those.

BY MR. NIDEL:

Q. 210 and 211 are actually the same document. Okay?

A. Okay.

Q. It's -- document is -- it's a document from your file. It's printed out as the PDF and then it's printed out with the summary of the comments. Okay?

A. Okay.

Q. Okay. Do you -- did you review the -- this comment to response on dioxins and furans?

A. Yes, it looks like I did.

Q. Okay. And you provided comments back, right?

A. That's what -- yeah, that's what I think 2011 [sic] is.

Q. Yeah.

A. 211.

Q. Yeah.
A. And --
Q. And it --
A. I'm just getting sorted on what am I looking at here. Okay.
Q. Yeah. Fair. I only provided you with two copies because one may be easier to read. However, the one provides the actual --
A. Right. So one's got my comments --
THE COURT REPORTER: The actual what?
MR. NIDEL: Comments.
A. Yeah, one's a version that either doesn't have comments. I don't -- they're not turned on. The other one is showing the comments. Okay? I don't know -- without spending more time with the document, I just -- so for context, I don't know what the context -- off the top of my head, what this context of this document is, so -- but okay. So fine. Start there, meaning I don't know where -- what -- where it was -- in the process of this thing, where it fits into the overall RI, so...
BY MR. NIDEL:
Q. Well, your comments are dated 4/16/15?
A. Yeah. So I -- what I think this is, is I provided some comments to USMR, I think, regarding

dioxins and furans, and they responded to me. That's what I think this is. Because, like, it's not comments -- the response to comments is from anybody else. I think.

Q. Okay. And on page 2, the comment. Okay. So on 211, it says, "Considering off-site area of concerns, if any, would be related to airborne deposition over a long period of time, how representative would the 1987 be to historic operations such as" 1986 -- or "1956. Were there any changes in operations over time that affect equation."

Do you see that?

A. I do see it.

Q. Did you get answers to that?

A. I don't recall whether it had answers to it, but -- I'm not sure what the context of this was in terms of what we -- I don't know that we did anything with this later, so...

Q. Okay. Well --

A. And essentially it's a statement on my -- basically, if you want to make a strong statement about it, you need to analysis this. If you don't, then you have this challenge.

Q. Okay. To be clear, we talked about

operational information.

You received that operational information in the very first reporting that you did, correct?

A. Yes.

Q. Okay. And you weren't sure what operational information you reviewed, but you said it might have been what was cited in the report, it didn't extend beyond what was cited in the report and you couldn't give me any specific answers, right?

A. That sounds right.

Q. Okay. And was sometime well before 2015, because you started work on the site in 2012, right?

A. Yes.

Q. Okay. But you didn't know, as of April of 2015, what changes there were on the site, which changes were in operations, or have a basis operational for whether the data in '87 would be reflective of '56, did you?

MR. SCHICK: Objection, form.

A. I guess I'd characterize it a little differently.

BY MR. NIDEL:

Q. Okay.

A. So the way I viewed my role was that in

some cases if I -- was that Arcadis's role was to essentially answer -- I would review the documents and things like that. And I could have gone back to all the historical documents myself. But as the LSRP, I'm not the consultant. The consultant does those sorts of things, generally. So I'm asking them these questions so they can answer them for me rather than -- because they can -- and to include that sort of analysis in here --

BY MR. NIDEL:

Q. Okay.

A. -- or provide the analysis to me or to stop going down this line.

Q. Okay. Did they get an answer to that question?

A. I don't recall.

Q. Okay. Where is the answer to that question?

MR. SCHICK: Objection, form.

A. I don't recall if they answered it, so -- I don't remember how or what they answered with respect to these specific comments. I know that we've eventually developed a remedial investigation report that would have reflected evaluation of these sorts of issues.

BY MR. NIDEL:

Q. Okay. And a draft of which we just looked at, right?

A. Yes.

Q. Okay. And that doesn't mention any of this?

MR. SCHICK: Objection, form.

A. I don't remember what it said, but I don't think it speaks to specific iterations in operations, no.

BY MR. NIDEL:

Q. Okay. And if you go to the page 4 comment, your comment was, "Since these are airborne concentrations, do we need to estimate the total mass or some other method to evaluate how the airborne mass may relate to deposition".

Do you see this?

A. Yes, I do.

Q. Okay. That question was never answered, right?

A. I don't think so.

Q. Okay. And then on page 9 --

A. I'm just looking at the context for that comment.

So I think -- without reviewing this

entire document, I think there may have been a -- so there may have been a discussion about whether or not dioxin sample was necessary at all or whether the existing data set was sufficient to conclude that dioxin was done. I recall here. Because this probably is reporting, but I -- was it based on the data -- so 2015. I think the other reports we were looking at were 2016.

Q. Correct.

MR. STOIA: They were.

A. So these -- this is before that. So I think -- and my time --

MR. NIDEL: And I'll -- I would object to coaching the witness, but --

A. My time -- my time frame might be off here. But what I think is that there was some discussion about -- and I raise this -- whether or not additional dioxin/furan sampling -- that's what these comments, I think, are responding to, is whether additional dioxin/furan sampling was necessary. And I think some of the initial response was me -- this is me paraphrasing -- maybe not, because here's some considerations regarding the airborne data and -- or the data set we have.

My feeling was that if you were going to

make a firm conclusion not to collect any more dioxin samples, you needed to answer these questions. We collected dioxin samples. And so the question was sort of made moot. If I -- I think that's that context of what this document is. I could be mistaken.

BY MR. NIDEL:

Q. So you never got answers to those questions, right?

MR. SCHICK: Objection, form.

A. I don't know whether there was any responses back and forth.

BY MR. NIDEL:

Q. Well, you can't recall any answers to those questions, right?

A. That's right, although I didn't remember these comments to begin with, so.

Q. What was the mass of dioxin that was emitted from the site?

A. I don't know.

Q. Okay. You've never seen that calculated, right?

A. I don't think so. Because I think we went to sampling, so it became sort of moot.

THE COURT REPORTER: We went to it?

THE WITNESS: We went to sampling.
THE COURT REPORTER: Okay.
THE WITNESS: Soil sampling, so it became somewhat moot.
(Plaintiffs' Exhibit 212 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you Exhibit 212.
Have you seen Exhibit 212 before?
A. I might have. I mean, I'm aware of this event, so...
Q. Okay. You were aware they had an open house?
A. Yes.
Q. Did you attend it?
A. I attended one. I think it was probably this one.
Q. Okay. And on the third page -- it's 834246 -- it says, "If soil testing indicates one or more of the sampled yard areas have concentrations of metals that exceed state cleanup levels, impacted soil would be removed and replaced at no cost to the property owner."
Do you see that?
A. Yes.

Q. Okay. That's not true, correct?
MR. SCHICK: Objection, form.
A. Maybe not literally. I think it is in concept.
BY MR. NIDEL:
Q. Okay. It's not literally true because, as the example you discussed earlier, you could have a 500-part-per-billion section of soil with lead at 500 parts per billion that exceeds the state cleanup standard that gets left behind because the average is below --
A. That's right.
Q. -- correct?
A. Uh-huh.
Q. Okay. And then, if you go to the next page --
A. (Witness complies.)
Q. -- it says, "Property owner will receive a letter with results and analysis of the soil testing."
Do you see that?
A. Okay.
Q. That's also not true, correct?
MR. SCHICK: Objection to form.
A. You know, actually, it may be true. So --

and I have to go back and look at the files. I can't recall, but -- because this would have come from USMR directly to them, not through me. But I recall that they were -- when they completed sampling of a yard -- and I -- so I don't know how to testify here, because I'm so -- I'm just going to testify to the best of my memory and it will be what it is.

I think when they first -- so there's two phases of the remediation. There's -- they collect some samples and they determine what remediation is necessary. Then they do the remediation. And after the remediation is done, they provide a summary. They may actually provide -- thinking they do, actually, now that I think about it. After the initial sampling phase, I think they may provide that sampling data to the property owner. I'd have to check. It doesn't come through me, so I don't -- I don't know for certain. But now, in this context -- because some of the sampling -- because they have to sample and then develop a remediation plan. Some of that sampling happens a fair bit of time before the actual remediation takes place. And I think they may provide that. I just can't -- I can't recall for hundred percent certain. So I may

have been incorrect before when I -- when I spoke differently.

BY MR. NIDEL:

Q. Okay. But you would agree that the word "sample results" is the actual parts per billion or parts per million of lead or arsenic at a given sample location, correct?

A. I mean, we are providing -- they are in the summary report providing results. I mean, you could say someone could expect specific sample points from that or they could expect -- I mean, they are given results.

Q. Are they given the results or are they given mathematical averages?

MR. STOIA: Objection to form.

A. In a way, the results are --

BY MR. NIDEL:

Q. Okay.

A. A laboratory analysis is a -- is a --

Q. Is a result, right?

MR. STOIA: Well, he hasn't finished his answer yet.

A. No, no. The laboratory analysis itself is an interpretation of graphs and things like that that are spectroscopy and things like that, so --

BY MR. NIDEL:

Q. Okay. Are you given the laboratory analysis itself? And I'm not asking for the report. I'm asking: Are they given the number, the laboratory analysis? If you want to quibble with what that means, that's fine. But I just want to know --

A. Well, no --

Q. -- if they're given that.

A. -- you were saying that -- so I don't think they're given -- so I didn't think they were, but now I'm rethinking that. They may be right after the sampling is complete. I can't -- I'm not certain about that because that doesn't come through me.

Q. Okay. But --

MR. SCHICK: And I object to the form of that last question.

BY MR. NIDEL:

Q. Okay. But given the fact that you now -- you have said you're not sure what they do. Your initial --

A. I -- I --

Q. Let me finish.

A. I think --

Q. Let me finish.
A. Sorry.
Q. Your initial response is that you don't think that they did?
A. That's right. I didn't think that --
Q. And I want to make sure we're on the same understanding. We're talking about an apple and that apple is the number parts per million for a given location on this person's property.
Were they provided those numbers?
MR. STOIA: Objection to form of the question.
A. So I didn't think so. Now I'm questioning that they may.
BY MR. NIDEL:
Q. Okay. But you do know --
A. And I do specifically, in this case, mean like a table of results, individual results, not an average.
Q. Okay. And you do know the difference between those two, right?
A. Yes.
Q. Okay. And you do know, because you attended this open house, that they were telling people that they would, A, have their properties

cleaned and, B, be given the results, right?

A. Well, as I said, results can mean different things. So I don't know how people interpreted this. I agree that maybe people could have interpreted it that way, but results could mean a number of different things.

Q. Okay. But you would agree that you were aware that the language that --

A. It says --

Q. -- Freeport used was --

A. It says --

Q. -- that -- let me finish.

-- that Freeport used was sample results, right?

A. With results.

Q. Okay. After the sampling was done, right?

A. That's right.

(Plaintiffs' Exhibit 216 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. Hand you Exhibit 216. Switch.

Can you identify Exhibit 216?

A. This is an email from me to Mike Leach from 2012.

Q. Okay. And you provide comments and

questions on the SAP, right?

A. Just bear with me.

Q. Is that right?

A. Yes, that's what it looks like.

Q. Okay. And if you go down to Bullet Point No. 5 on the back of that page, it talks about copper and zinc.

You agreed that copper and zinc could be used to help define the limits of AOC, right?

A. Actually, section 2 suggests that copper -- so I haven't had read -- let me -- I haven't had a chance to read what Item 5 said. But it starts out Section 2 suggests that.

Q. Right. And --

A. I didn't write Section 2.

Q. I understand that. You wrote this email. And I'm just asking you. I gave you the document to maybe help refresh your recollection.

But my question is really: Did you agree that copper and zinc may potentially be used as part of the analysis, which is what you said in that email? That's how I do this. I read your emails and then I bring them back to you.

So I'm asking you if you agreed. You can review the document if you want, but the purpose --

my question is not really related to this at all. It's: Did you agree?

MR. STOIA: I'm sorry. I don't even know what your question --

MR. NIDEL: That's fine. My question is whether he agreed that zinc could be useful in determining the boundaries of the AOC.

A. So potentially.

BY MR. NIDEL:

Q. Okay.

A. And then -- and I think in this context -- so this was written in 2012 before we had really any data.

Q. Okay.

A. I asked them what was their basis for -- because Section 2, it looks like they were saying -- they were -- that USMR was suggesting that copper and zinc would be helpful. I asked what the basis of it was, you know, why they're saying -- like, what's their support, what references they have to support that. And then I do agree that, in concept, having more data can be helpful. But not always. But I also want to know how they're going to use it. That's what this comment is asking.

So do I agree that copper and zinc could

be helpful? Potentially. And that's what this says too, I think.

Q. Okay. Was -- why was zinc -- why was there no more zinc testing done?

A. Because there's no -- I don't think any sample -- I don't think -- I think it was zero, but it's -- approaching zero. The samples collected in the off-site AOC exceeded the standard.

Q. Okay. But that's not the only purpose of doing the sampling, right? The purpose is also to determine the boundary. And the beauty of zinc was that there weren't other background sources of zinc, correct?

MR. SCHICK: Objection, form.

A. I can't say whether or not there's other background sources of zinc. I mean, there's -- zinc is a naturally occurring element. I mean, at the end of the day, if you don't have zinc and you wanted to make a conclusion based on zinc and you don't have the data, you can't make a conclusion based on zinc, one way or the other, meaning you can't make a fingerprint analysis that says that it's there or you can't make a fingerprint analysis that says that it isn't. So it both strengthens and weakens your argument.

I don't know that -- typically, in environment of consulting, I haven't taken samples for long distances for constituents that were no longer of concern, because you end up with potentially a complicated data set that's -- requires all kinds of management.

BY MR. NIDEL:

Q. Okay. Copper was -- copper -- how many times did copper exceed?

A. It exceeded a few times.

Q. It did?

A. Yeah. I think -- or maybe once.

Q. Maybe once. Out of how many samples?

A. I don't know. 180.

Q. 180 samples?

A. Could be. I'm saying 60 locations times 3. I don't know. Something like that.

Q. How many times did it exceed all throughout the AOC?

A. I don't know.

Q. Okay. But your testimony is zinc is not helpful because it just clouds the picture because it didn't exceed?

MR. SCHICK: Objection, form.

A. Yeah, that's what I said.

BY MR. NIDEL:

Q. Okay. What are other sources of copper in the area?

A. Copper pipe. Any number of things.

Q. Copper pipe is a source of copper in the soil of --

A. If some.

Q. -- some people's yards?

THE COURT REPORTER: I'm sorry.

A. All right. So I guess I'm not -- where -- I'm not sure what you want. Am I supposed to come up with all kinds of background sources of copper?

BY MR. NIDEL:

Q. Yes. Please.

A. Okay. So you could have copper roofing. You could have copper gutters. You have copper solder. You have airborne deposition of copper from other sources.

Q. Okay. What other sources --

MR. STOIA: You --

A. I'm -- you're asking --

MR. STOIA: You let him finish.

MR. NIDEL: Okay.

A. You're asking me --

MR. NIDEL: Okay. Stop now. I'm going to

let him finished.

A. So you're asking me for generalities. I gave you some generalities. I'm not sure, but -- at the end of the day, you're right. Copper doesn't exceed anywhere -- anyway -- any -- either. But I didn't require them to use copper. They decided to continue to take in copper samples.

BY MR. NIDEL:

Q. Despite it may be clouding the data set, right?

MR. SCHICK: Objection to form.

A. I didn't require them -- I didn't require them to sample zinc. I didn't require them to sample copper, as far as I can recall.

BY MR. NIDEL:

Q. Okay. And I'm not asking --

A. There are a lot of --

Q. -- generalities.

A. Sorry.

Q. Okay? I'm asking what specific sources in Carteret are there of copper.

MR. SCHICK: Objection to form.

A. I just named some.

BY MR. NIDEL:

Q. No. In Carteret.

A. I just --
Q. Where do you see the copper roofs and copper gutters?
A. Okay. So -- I don't know, but okay. I don't know.
Q. Okay. So what are the other sources that you would attribute the copper to in Carteret?
A. There isn't very much copper in Carteret, looks like.
Q. Okay. There's not exceedances. But is there a lot of copper in Carteret?
A. There's copper -- there is not -- there is copper, actually.
Q. Okay.
A. But it's not above the standard.
Q. Okay. What sources other than the smelter?
A. Naturally occurring in soil.
Q. Okay. Other than naturally occurring in soil.
A. Historic fill. Those are two that I can come up with. Possibly runoff from streets. I don't know how much copper is run off from streets, but...
Q. Okay. So runoff from streets is a

throwaway. You don't -- that's --

A. Any one of these is a throwaway. I don't -- I didn't do an analysis of copper sources and background copper sources.

Q. Okay. And how much are these metals, the sample for? Each sample costs an additional eight bucks?

A. It's not very much.

Q. Okay. But you didn't think zinc was useful? Even though you thought it could be useful, but you didn't require that they --

A. I didn't say I thought it could -- I said -- I said so they were suggesting including it. That's what my response here. And that if they decided to do it, it could be potentially useful in the overall analysis. So I'm not disagreeing. It could potentially be useful, but it's not a requirement.

Q. Okay. Why --

MR. STOIA: Can we -- when you -- I'd just like to take a bathroom break, whenever you get --

MR. NIDEL: Sure.

MR. STOIA: Finish up your line. I don't want to --

MR. NIDEL: Yeah, I'm going to --

BY MR. NIDEL:

Q. So -- so I don't understand -- copper -- copper was useful --

A. I didn't -- I don't know that I necessarily concluded that copper was useful or not useful.

Q. All right. Let's just ask this: What was the amount of copper released from the facility?

A. I don't know off the top of my head.

Q. Do you -- have you reviewed that anywhere?

A. I don't know.

Q. No. No, no. Can you tell me that you have reviewed it or not, that you recall, the amount of copper from the facility?

A. I've reviewed data related to copper at the facility.

Q. Have you reviewed data that indicates how much copper was released from the site?

A. Yes, in some forms.

Q. Not that there was a stack and that stack had copper emissions. Any quantification of how much copper was released?

A. I don't recall.

Q. Any quantification of how much zinc was

released?

A. I don't recall.

Q. Any quantification of how much lead was released?

A. I don't think so.

Q. Would the relevant amounts of any one of those metals or any other metal was to any other metal. So, for example, the amount of lead to the amount of copper.

A. I think there was some analysis of the relative ratios. In fact, I know, for the off-site AOC, they were looking at the relative ratios.

Q. And, again -- we talked about this earlier -- they looked at the relative ratios in the samples. But where did you review data that they looked at the relative ratios in what was emitted?

A. I don't recall.

Q. Okay. They sold copper, correct?

A. Yes.

Q. Okay. Did they sell lead?

A. No. Not that I know of. I think there was one or two operations that may have had some lead-related issues, but I can't recall.

Q. Okay. But to your knowledge, lead was not their primary product, right?

A. No, I don't think so.
Q. Okay. So why is it your idea that copper is what you've got to be looking for, if it's not copper, it's not theirs, because they're a copper smelter --
MR. SCHICK: Objection --
BY MR. NIDEL:
Q. -- when you don't know how much arsenic they put out versus copper, how much lead they put out versus copper, how much zinc they put out versus copper, right?
MR. SCHICK: Objection to the form of the question.
A. So I guess -- those were a lot of conclusions that you've attributed to me. I don't know that I've ever made those conclusions. Those are your statements.
The fact that USMR collected copper data, for example, isn't necessarily a requirement under NJDEP. They could collect data at -- if they'd like to, and to try to use it as a basis of argument later about whether or not the attribution goes one way or the other. There is no requirement to collect -- there wouldn't necessarily be a requirement to collect copper. But if they chose

to, they did.

Q. Is there a --

A. They didn't have to collect zinc because zinc didn't exceed.

Q. Is there a requirement to fully delineate the extent of their contamination off site?

A. To the -- to the cleanup standards, yes.

Q. And when were they -- where in the regulation does it say to the cleanup standard?

A. In -- where it discussions delineation. In attainment.

Q. Okay. And when was -- when did the DEP tell USMR, or Freeport, that they were required to delineate the extent of their contamination off site?

A. I think 2011.

Q. Was that the first time?

A. I thought so.

MR. NIDEL: Okay. We can take a break, if you want.

MR. STOIA: Thanks.

MR. NIDEL: A short one.

THE VIDEOGRAPHER: This marks the end of Media No. 3. We're going off the record at 2:16 p.m.

(Recess was taken.)

THE VIDEOGRAPHER: This marks the start of Media No. 4. We are back on the record at 2:24 p.m.

BY MR. NIDEL:

Q. Can you tell me whether more copper was released than arsenic?

A. Not off the top of my head.

Q. Can you tell me whether zinc -- more zinc was released than copper?

A. Not off the top of my head.

Q. Off of anything that you've reviewed, could you tell me that?

A. I don't remember all the documents that I reviewed, so there may be things in there that talk about the relative amounts that were discharged.

Q. Okay. Can you recall any reference that gives you that information with any kind of specificity other than it's possible it's in something?

A. I don't recall, no. I don't think there is anything, but there could be.

Q. Okay. What is the sampling and analysis plan data report?

A. That was, I think, the summary of the

initial round of some sampling that was done off site. I guess I view it almost like a site investigation report sort of. So there's -- in New Jersey, there's a site investigation report. Then there is a remedial investigation report. They're a little different.

Q. And did you sign off on that?

A. I think I approved it, but I don't know that it was ever submitted anywhere. Ultimately, I don't think there was a context for submitting it.

Q. What reports were submitted?

A. So I think -- so there's the remedial -- so I think there would have been a -- I think, remedial investigation work plan perhaps, back in the -- back in 2012 or 2013. Maybe twenty -- yeah, 2012 or 2013. There then would have been remedial investigation report which ultimately was submitted in 2016.

There were remedial action work plans. This is -- these are all in relation to the off-site AOC. There were some other things for on site. There is a remedial action work plan that had a couple of revisions, but there was -- I think the first one was submitted 2016 and was revised a bit for a couple of clarifications.

So I think the most recent submittal was just in the past few weeks, which just added some things related to sampling for soil reuse on the -- on the on-site properties.

Q. Is there a -- that website that we looked at earlier, can you log in and see what's been submitted for this project?

A. Which website?

Q. The DEP's website where you logged in as Mike McNally, can you see an index of what's been submitted for the site?

A. Yeah, there's like a -- in fact, you can -- you wouldn't -- well, I could see it through there, but I can -- you also see it through DataMiner, which is, like, NJDEP's online database.

Q. And is that publicly accessible?

A. Yeah.

Q. And I could search for the site by some reference and pull up everything that's been submitted?

A. Yeah, I don't know if you can pull up copies of the report. You can pull up what was submitted.

Q. Okay. But you could provide copies of the record for everything that's been submitted,

correct?

A. Yeah, either I could or I'd have to get it from Arcadis, because they maintain a database that's a share file of sites of some of the documents on there.

Q. Do you have access to their share file site?

A. Yes, for a section related to my stuff, yeah.

Q. Okay. Is there a section in there that says "submitted files"?

A. Something like that.

Q. Okay. Because --

A. It's something like that -- yes.

Q. Right. Because it's difficult for me, because I get copies of your files. They have dates on them. I don't know what was submitted or not. So what I'm asking for is copies of the file as it relates to submissions to DEP?

A. Yeah, Arcadis has a lot of them and I started relying on their -- because we have the share file, I started relying on their stuff, because they had -- in some cases, they prepare the final submittal and I certify it online. So it's a convenient place to keep it.

Q. I'm going to hand you exhibit -- I am not going to hand you that exhibit.

MR. STOIA: Just -- I went from 212 to 216.

MR. NIDEL: Yeah, that's right. We're --

MR. STOIA: Okay.

MR. NIDEL: -- not going to fix it, but that's because I go across and she goes down.

MR. STOIA: Okay.

(Plaintiffs' Exhibit 213 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 213.

Exhibit 213 is a sampling and analysis plan data report, or at least the body of it.

A. Okay.

Q. Bates-labeled 802403.

A. Oh, I know what this is.

Q. Okay. What is that?

A. So this ended up being the off-site RI report. It just was -- it was a early draft and they weren't using NJDEP terminology. So I asked them to change it. So ultimately what ended up an appendix attachment to, or whatever it is, from the overall RI that was submitted for the site is a

revision of this. But it's -- this is an April version. It was submitted in May. So it's essentially the RI report, which I think -- it's a version of it. It's just -- and early on, they called it this and...

Q. Okay. So if we turn to page 7 of this --

A. (Witness complies.)

Q. -- it talks about -- at the bottom of the page, it talks about the 60 sample locations, the 60 series, and that that was approximately 20 sample locations within each zone?

A. Yes, I see that one.

Q. So we talked earlier. You said you weren't sure if it was 60. This is -- this confirms that it was 60-ish, right?

A. Yes.

Q. Okay. Locations not samples, right?

A. That's what I think it is, yeah.

Q. Okay. And that -- those samples were the basis -- are the basis for the delineation of the AOC, correct?

A. Currently, yes. And the RI.

Q. Okay. And you've said that the delineation was done but is still not complete; is that correct?

A. I guess the way I'd characterize it is that it was done and then we have a lot more data that is coming in that is making us re- -- you know, we constantly would -- where we would reevaluate the boundary based on what the actual data says, as we get more data.

Q. Okay. If you'd turn to page 13.

A. (Witness complies.)

Q. There is a review of sampling for dioxins and furans. And it again mentions the stack samples as well as the on-site sampling, but no mention of those on-site congeners, right?

A. Just bear with me a minute. And just -- I'm trying to understand what I'm -- what I'm looking at here.

Q. Well, it's the same language we've seen.

A. It is, but I think this is a sampling discussion of the plan, not the conclusions. So, yes, it's --

Q. Is that right?

A. Yeah.

Q. Okay. If can you turn to page 23.

A. (Witness complies.)

Q. I had asked you earlier about the testing for outliers. And you said, well, unless it was a

lab error and there was some justification, you wouldn't disregard samples. But here it talks about testing for outliers?

MR. STOIA: Objection to form of the question.

MR. SCHICK: Same objection.

MR. STOIA: You can answer.

A. So I think the question before was related to was data rejected. And that's a specific term of art. So -- this is related to statistics, so the outliers -- if there is a sample population distribution, there's an analysis that's done to see if certain samples may or may not be part of that distribution. Those would be outliers. And they're commonly reviewed -- removed from the analysis of, like, 95 percent upper confidence level.

BY MR. NIDEL:

Q. Okay. On the basis of what?

A. They're not part of the statistical -- so -- I'm not a statistician, so I'm going to be a little imprecise here, but -- so the statistics are based on an analysis of the population. They have to normalize the -- based on a normalized data set. Like, a bell curve is a normalized data set. The -- sometimes they have to -- it's called transform the

data -- like, put it in log form, do other things to make it fit. There is a whole -- ProUCL is a U.S. EPA program for doing these statistics. And it converts the data into normal -- normally -- "converts" is not right. It does analysis to see if the data can be made normalized through a number of different transforms.

Based on -- then, through that analysis, they also then determine if there is some samples that don't, for one reason or another, appear to be part of that population data. So, like -- to continue a terrible -- so if everything is sort of in the range of ducks or birds and suddenly we see something that's a stone, it's -- it would flag that data as not being part of that population, statistically not being part of the population.

And so that's why you wouldn't typically include that.

Q. Okay. But if somebody -- it's not saying -- this test for outliers is not saying that the data itself is incorrect, right?

A. Not on -- not by itself, no.

Q. Okay. And did you review any of the rejection or testing for outliers that was done?

A. Yes.

Q. Okay. And did you determine that all of that was --

A. It --

Q. -- there was basis for it?

A. It --

Q. -- there was basis for it?

A. Sorry. Yeah.

It appears like it was done correctly, meaning that the statistics showed that these were outliers and they --

Q. If there was an outlier statistically, was that data provided to the homeowner?

A. I don't know. Again, so with the final report summary, no. I don't know what was included, if -- so I think there was data set that was provided before that so -- that I'm not clear about. So not in the final report. And then if something else was provided, I don't know what was in that.

Q. The analysis of the 60 samples that was the basis for your determination that the delineation was complete based on I think the extrapolation method, right?

A. Only in a couple of spots. So what happens is so -- I don't know if we have all the attachments on here, but I'd say generally -- so my

recollection, looking at the document -- and this is one document I looked at relatively recently -- is that pretty much everything at the perimeter met the standard the exception of a couple of spots, like, one or -- like, one or two maybe for lead. I don't recall. And I think in the upper northeast corner of the area we looked at. Those -- so only in that spot did we use extrapolation. And it wasn't -- it was relatively based on this, but yes. So other places was based on point-by-point because their samples -- or further south samples met the standard.

Q. Okay. So what you're saying is that you didn't need to extrapolate because, based on your testimony, in the 20 samples that were taken in Zone 3, those that were at the boundary were clean, right?

A. Yeah. Most of them were and only in those instances -- I think there was one or two that we used in extrapolation.

Q. And if you go to page -- well, I mean, let's go to page 27.

Why is there an assumption that the data would fit any distribution?

A. Well, so I'll do the best I can to answer

it, because it's -- so data that occurs in the environment, if it's from a similar source, typically follows certain -- normalized distribution, meaning that there is less frequent results at the lower end and less frequent results at the higher end and more frequent results in the middle. That's that bell curve.

Now, it may require some transformation to do it, meaning that -- and I know this is -- now we're starting to get into math. I know how to do, but I don't -- all the reasons why are beyond me. But they can transform it to try to get there, so that's what the ProUCL does.

Q. Are you done?

A. Well, you asked me why there would be following normal distribution, so --

Q. Yeah.

A. That's the -- so I'm not going to continue, because I -- as I understand it, that's how data distributions of this sort generally tend to fall into or can be transformed into it. And it allows you to do the statistics.

Q. Okay. Was that testing for outliers done on the entire area basis or was it done at the property level basis?

MR. STOIA: Objection to form of the question.

A. So -- for here, I don't recall what we did for the RX. I don't think I relied terribly on this. The central trend was only sort of a line of evidence. Again, I was looking primarily at the point by point.

For the R -- remedial actions, the remedial actions, we were doing it property by property.

BY MR. NIDEL:

Q. Okay. Which has no basis whatsoever, right?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

BY MR. NIDEL:

Q. You can't -- if you got a 1,200 on this property and you got 5- and 600s on the same property, but next door you got a 1,300, you have no basis to reject that 1,200, right?

MR. SCHICK: Objection, form.

A. Can you rephrase that again? I'm sorry.

BY MR. NIDEL:

Q. Yeah, yeah. You've got two properties next to each other. One's got 5-, 600 and then it's

got a 2,000. The next property next to it has got 3,000, 2,000, and 2,500. But if you look at only the one property, you're going to say, well, I've got a baboon instead of a duck. But if you looked at the entirety of the area that's impacted, you would say they're all animals in the forest, right?

A. I can't speak to the statistical strength of the different analysis. I understand what you're saying. There is -- I think DEP's guidance of the number of samples to collect is to try to provide sufficient strength to be able to do that. So even if there is differences site to site, they're based on the distribution of the data present on that property.

Q. Okay. And you reviewed that and you were okay with it?

A. Yeah.

Q. Okay. The EPA [sic] --

A. Well, I think it follows the -- I think it follows the DEP's requirements.

Q. EPA requirements say that you can look at residential properties property by property and discount samples that are high?

MR. STOIA: Did you just switch to EPA?

MR. NIDEL: Yeah, he said EPA's guidance.

MR. STOIA: Okay.

A. DEP.

BY MR. NIDEL:

Q. You said EPA, correct?

A. It was DEP.

Q. Okay. DEP's guidance.

What guidance is it that says you can do that?

A. DEP's -- so DEP's attainment guidance speaks to how to do the 95 percent upper confidence level. You do it by use areas, which are limited in size. You're not allowed to use gigantic use area.

Q. Okay. I'm not asking about upper confidence limits. Now I'm asking you about testing for outliers.

MR. STOIA: Objection to form.

A. I don't know what -- I can't speak to that, so I don't know the answer to that specific question. You're asking -- are you asking me can we use that -- can we use smaller data sets to do outlier analysis?

BY MR. NIDEL:

Q. Right.

A. If we're doing all the other statistics on a smaller data set, I think it's consistent.

Q. Consistent with what?
A. We're using -- we're doing all of our statistics on the same data set.
Q. Okay. But you're taking a 1,200 on one property because there's 500s on that property or 200s on the property ignorant of the fact that its three neighbors look like the 1,200 and not the 500.
So how is that outlier test consistent with anything?
MR. SCHICK: Objection to form.
MR. STOIA: Objection to form of the question.
A. How is it consistent with any -- it's consistent with the data set that's available for that property. Each property has a different history.
BY MR. NIDEL:
Q. Each property has a different history?
A. We talked about it before. Some of them have different development histories and things like that that can affect their data.
Q. Okay. Okay. So what your testimony is, is you can look at 10 or 15 sample locations and you can start to reject outliers statistically independent of the fact of what their neighbors look

like, right?

MR. STOIA: Objection to form of the question.

You can answer.

A. I think the statistics are done on each use area and that's how we're doing it here.

BY MR. NIDEL:

Q. Okay. If you turn to page 29.

A. (Witness complies.)

Q. Bottom of the page, it says, "As discuss previously, if dioxins/furans had migrated off site, the transport mechanism would be atmospheric deposition. Therefore the chemical signatures of the air stack samples and the off-site soil samples should be similar."

Do you see that?

A. Yes.

Q. And then it goes on with the same analysis that we looked at before. Okay?

A. Okay.

Q. And then it goes and gives those fingerprints.

A. Yep.

Q. Right?

A. Okay.

Q. Off site compared to stack. No mention of the other fingerprints. No --

A. Well, this is an earlier version --

Q. Let me finish.

No mention of the on-site data, right?

A. That's right.

Q. Okay. You had mentioned earlier I don't know if that was what we ended up using or they ended up using, but --

A. Well, this is before those emails that we looked at earlier. This is a draft before that.

Q. I don't believe this is a draft.

A. It is a draft. This is not what was submitted to the DEP. What was submitted to the DEP was a remedial investigation report.

Q. Okay. So is it your testimony that what was submitted to the DEP was anything different than this?

A. I think we looked at what was submitted, or what was close to it. We looked at the one that was dated May 2016.

Q. Is it -- is it your testimony that what was submitted is anything different than this?

A. I don't know without comparing them word for word.

Q. Oh. Okay.
A. I think they're similar. So --
Q. Okay. Let's assume that this was the same language that was submitted.
A. Okay.
Q. Okay. So this is inconsistent with your own analysis, because your own analysis would say we need to look at the soil congeners because those are most informative about what would be off site if it was from us, right?
MR. STOIA: Objection, form.
A. All right. So the answer is the same as before, that we didn't use that as a conclusion for the RI. I see that you're pointing to the same document.
BY MR. NIDEL:
Q. Right. This is what was included -- this is what became the RI, right?
A. Yeah. And we read the document that was the RI, or what I think was the RI, before, and the conclusion was based on the data, not based on the source.
Q. Okay.
A. And I wasn't concluding based on the fingerprinting.

Q. Okay. Well, you would agree that this document concludes, based in part, on the fingerprinting, right?

A. Yes, just like the RI does.

Q. Okay.

A. This is the RI. It becomes the RI and the same -- I think the same fingerprinting analysis is presented in there.

Q. Okay. So --

A. And it's probably the same language.

MR. STOIA: Now, Counsel -- can you step out?

MR. SCHICK: Take your mike off.

MR. NIDEL: We're going to go off the record.

THE VIDEOGRAPHER: Going off the record at 2:44 p.m.

(Recess was taken.)

THE VIDEOGRAPHER: We're back on the record at 2:51 p.m.

BY MR. NIDEL:

Q. Is the central tendency analysis in the final?

A. I think so.

Q. Okay. What's the significance of the

central tendency analysis?

A. I didn't view it as particularly significant, because, again, I was looking primarily at the data. It did provide a lot of evidence supporting that the data trends were a certain way. But, again, I was trying -- I was looking primarily at the individual data points.

Q. Since the central tendency analysis by zone, given the additional data that you have for 300 or more properties, did that -- did those central tendency trends continue?

A. I don't know, because I don't know -- I don't know -- I don't recall what -- whether that whole analysis has been redone. What I do know is we've relooked at the data -- actually USMR relooked at the data, came back to me and said that the data is supporting doing some additional analysis. And that's why they're doing those transect analysis outside the AOC.

Q. Okay. When did the transect analysis, when were those samples taken?

A. So I think over the last year. I haven't seen the data yet, because I think -- for a while -- so as I understand the process is that they were trying to do them all in one event. And there's a

number of properties that they had to sample and they wanted to do them all at once. And they had to get all of the property access in line before they did it. So I haven't seen the data.

Q. And you would agree that the current data -- you have not -- the current data that exists for the area that was defined as the AOC in the RI, okay, the 300 or so properties, that the current data now contradicts or is inconsistent with the conclusions from the initial 60 or so samples?

MR. SCHICK: Objection, form.

A. So I'd have to look at the specific data. I think it's -- it provides -- depending on how you look at the data and the specifics of it -- I don't recall all the pieces, but depending on how you -- what parts of the data you do or don't include, it could support that you have to go further, that the AOC may extend beyond the current line.

BY MR. NIDEL:

Q. Okay. If you don't include samples that were historically redeveloped and therefore factually distinguishable, okay, would you agree that the trend from Zone 1 to Zone 2 to Zone 3 with a 50 percent reduction and a 30 percent reduction no longer is consistent?

A. I can't speak to specific numbers. I think the trend supports that there could be exceedances beyond the current AOC. And that's what the purpose of the transect samplings.

Q. Okay. And as far as -- well, given that, you would also agree that the boundary sampling no longer supports the notion that you've got a clean boundary at that edge, correct?

MR. SCHICK: Objection, form.

A. I think I characterize it a little differently than that, because I haven't seen transect data. What it does is -- it says that it may be -- may require rereview. And that's why we're doing those transect samplings.

BY MR. NIDEL:

Q. Okay. And to be clear, you may not have seen the transect data, but you've seen a bunch of data on that boundary, because a bunch of homes have been tested, and that data does not show clean samples, correct?

A. I don't recall the specifics of all those, but -- so there is a chart that's in the off-site transect work plan. That's not the actual name of whatever it's called, but -- that shows the data points. I still think most of the data is still

similar because we have the same issue that many of the data sets at the perimeter, for one reason or another, either because they were redeveloped or because the concentrations actually are lower, as you approach the boundary, the concentrations are still within the standard. But I don't know if that's an artifact, whether it's -- at this point, based on the data analysis we have, we don't know whether that's -- I don't know whether that's an artifact of -- so the clean samples, whether that's an artifact of potential redevelopment or the trend does stop there. And that's what the whole purpose of the transects are.

Q. Okay. So you would agree with me -- and I think you've said this earlier, but I want to make sure -- that as of now, based on the data that you have available to you and the data -- well, based on the data that you have available to you, that the site currently needs further delineation.

A. I think so. And that's going to be -- so the final delineation -- so I guess I'd characterize it this way. The final delineation will be based on analysis of the transect data. And then if additional data is necessary, you know, whatever, it might get filled in beyond that, as well as the

overall data sets to the site.

So that was a lot of words to say that I don't know that those transect data say, so I don't know whether it's a couple of properties near the property boundary that exceed for one reason or another or if there's a widespread problem off site that -- you know, beyond our line. If it is, then the line would change and so then the delineation. So that would mean the delineation changes. If we don't see anything out there other than like a couple of properties, so then there might be some small change. I don't know the extent to which it may or may not change.

Q. What is the RAWP?

A. It's a remedial action work plan.

Q. Thank you.

And how does that fit into the RI?

A. It's -- so it's -- it doesn't fit into the RI. It's the work plan for doing the remedial action. So it's the next step.

Q. Okay. Did the remediation work plan establish a plan so that it would allow unrestricted use by the residents?

A. Yes, that's -- yeah, that's the goal.

Q. And is that what's been achieved so far?

A. Yes, so far. These -- you know, for all the sites that I've looked at. I haven't looked at all of them yet. And some of the -- there's a lot of remediation ongoing and I haven't necessarily looked at every one of those.

Q. But you would agree that there continues to be contamination on site above cleanup standards, correct?

MR. STOIA: Objection, form.

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. Even post remediation?

MR. STOIA: Objection to form.

MR. SCHICK: Same objection.

A. Do you mean on sites that haven't been cleaned up, on properties that haven't been cleaned up? I'm not sure --

BY MR. NIDEL:

Q. On properties that have been cleaned up, post remediation, that contamination exists above cleanup standard.

MR. STOIA: Objection to form.

MR. SCHICK: Same.

A. So I'm going to -- I'm going to caveat that answer. There are samples that make -- some

sites, maybe not, but -- so there may be samples that exceed on an individual basis. But overall, the property attains the cleanup standard in accordance with NJDEP requirements.

BY MR. NIDEL:

Q. Based on the average, correct?

A. The compliance averaging, the 95 percent upper conference level.

Q. Okay. And is that allowed -- what's allowed for residential properties?

A. Yes, you can use it for unrestricted use.

Q. Okay. And there are some properties that have not been remediated that also contain arsenic levels or lead levels above those cleanup standard, correct?

MR. STOIA: Objection to the form of the question.

A. Sorry. Just -- give me a second. My brain is a little bit behind that -- can I paraphrase your question back, make sure I'm understanding it?

BY MR. NIDEL:

Q. I can rephrase it.

A. That's fine.

Q. There remain properties -- there are

properties, that remediation was not done on, that contains levels of arsenic and/or lead above the cleanup standards?

MR. STOIA: Objection to form.

BY MR. NIDEL:

Q. Contains soils that have levels that tested above cleanup standards.

A. That haven't yet been remediated.

Q. That will not be remediated under the current plan.

A. Again it's the same sort of answer in that there could be individual or -- individual could be more than one, but there could be sample -- individual sample points exceed, but the overall data set achieves -- attains the standard per New Jersey guidance.

Q. Okay. And that sample -- that section of soil could be the front yard, the backyard, the sand box, or it could be anywhere as long as the average does not reflect a number above that standard, correct?

A. Yeah, I think so. I mean, when you say "anywhere," that's a little broad. But, yes, I think that's the --

Q. There's nothing in the plan that says --

A. No, it doesn't eliminate, you know, some specific portion of the property. Sorry. I spoke over.

Q. What is the Phase 1 sampling? Is that the ISDA sampling?

A. I don't know what context it would -- can you give me some context for Phase 1?

Q. "The majority of lead concentrations identified during the Phase 1 sampling were less than 400 parts per million."

A. It's probably the ISDA sampling. I don't know in that context, but I think that's what it means.

Q. Do you know if the majority of samples during the entire AOC sampling were below 400 parts per million, lead?

A. I think so. I think majority in that context probably. But it may be -- may be more than that. I don't know.

(Plaintiffs' Exhibit 214 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit --

A. Quite a few properties required remediation, so I think it also depends on what

depth, and things like that.

Q. I handed you Exhibit 214. It's an email from Joe Brunner to you, 2/26 of '15, right?

A. Yeah.

Q. Just to finish that conversation we were having, is it -- do you know what percentage of the properties within the AOC have -- needed to be remediated?

A. I think most of them. Percentage-wise, no, but --

Q. Okay.

A. -- most of them.

Q. Vast majority?

A. Yeah, I think that's right.

Q. Okay. So it would be fair that -- to say that at least property by property, most of them exceed either 400 or the 20 or 19 for arsenic or both?

A. I think that's correct, at least enough to make it remediable.

Q. If you read Joe's email to you, under 3(b), where he says, "The majority of lead concentrations identified during Phase 1 sampling were less than 400 parts per million. Some samples that exceed that number, and the distribution of

those, was used to define the aerial extent of the AOC."

Do you see that?

A. Uh-huh.

Q. "The highest lead concentrations are generally located closer to the former smelter."

A. Yes.

Q. I mean, I guess we've been talking around this. But you would agree with me now, based on the sampling that you've reviewed, that the majority of lead concentrations in the AOC are not less than 400?

A. I can't remember which sites were driven by lead versus arsenic, so it's -- I don't mean to parse it. I just don't remember. So it could be -- I don't know. I don't know what percentage which -- we could look at it. I'm sure it shows up in the --

Q. Okay. I mean, I think the point I'm getting at, you -- what you agreed to is just that the majority of properties, the vast majority of properties have at least an exceedance for lead or arsenic or both if not multiple.

A. Yes. Yes. That's why they were doing remediation.

MR. NIDEL: I'm not ignoring this, but I

will look at it on a break. I do appreciate that.

MR. STOIA: Sure.

BY MR. NIDEL:

Q. What is the remedial action work plan addendum?

A. What's the dated on that one? Do you know the date?

Q. November of 2016.

A. So I think there were two revisions. So -- well, so that one might have been -- I think they wanted to submit an addendum and I think I told them they couldn't. But I think it was to handle deed notices for nonresidential properties. There was a couple of publically owned properties where they wouldn't necessarily clean up the residential. I think that's what that was for. I can't recall.

Q. Was an addendum ever submitted?

A. They submitted a revised remedial investigation -- or remedial action work plan. In fact, another one was just submitted, just recently, to handle -- it had to do with the disposition of soils that were excavated. So we just -- it's the same document with a couple of minor revisions to it.

Q. Did you ever review the McVehil air modeling that was done?

THE COURT REPORTER: The what?

MR. NIDEL: McVehil, M-C-V-E-H-I-L.

A. Yeah, I think so, back when we were first looking at it. Again, I didn't use the modeling as -- I used it as one piece of information.

BY MR. NIDEL:

Q. Okay. What did the modeling show?

A. It showed an estimated distance of deposition, if I recall correctly. I don't remember anymore. And I didn't focus on the modeling, so my recollection of the details are not strong.

Q. Okay. And how far did it show that deposition occurred?

A. I'm not sure. I think it was within the AOC.

Q. It was within the AOC?

A. I think so. Well, deposition above the standard, so I don't know about beyond that.

Q. Is it your testimony that they modeled down to the level of detail of comparing to the standard?

A. I don't think so, no.

Q. What document -- you're -- you talked

about the ratios and you said I think that the -- they discussed the ratios later.

Where was that discussed?

A. So there's a document and it should have been in some of the materials I provided. I can't recall the name of it. It would have been -- it's -- so I think it's, like, late 2016. It's the discussion of the off-site transect work plan. So essentially the work plan they used for developing -- to support how they're going to go about implementing the off-site transects.

Q. Was that submitted to the DEP?

A. It wasn't, because remedial investigation work plans don't get submitted anymore. So -- but it's in the file. And essentially it prevents -- it presents the -- it presents a detail analysis of the existing data set, including RA data.

(Plaintiffs' Exhibit 215 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 215, which is a -- I guess a draft of a remedial action work plan addendum dated November of 2016; is that correct?

A. Yeah, it's dated that. This looks like the document I was just -- a version of like -- I

don't know if this is a final one. This looks like a version of what would have ultimately been prepared.

Q. Okay. And this looks like the document or a draft of the document, or a draft of the document that you're -- that you're thinking --

A. That's exactly what I was talking about, this -- a version of this document, because it had attachments to it. You see a -- there's a placeholder for -- the last page is Attachment 1, LSRP presentation. They gave me a presentation, before this was drafted, that was their analysis of the data and that was suggesting that maybe we should do some -- you know, here's -- so here's -- see, I didn't have the overall data set to look at. So they were presenting me the data set that they had so far.

THE WITNESS: Sorry. Too fast?

A. I didn't have the overall data set, so they presented me an analysis of the data set that they had done, that they then were suggesting essentially something like this based on their analysis they said, which I think -- which included analysis of ratios of the data of arsenic and copper and lead and sort of using that to evaluate sources,

but also trends. And then -- I think trends, because they had to do a data distribution. I can't remember all the graphs they had on there.

And then they also looked at analysis of data different ways. Like, so if you substracted out developed properties versus undeveloped properties -- so if there was a property developed more recently where there could have been disturbance or fill, and soil removed, if they took those out and then looked at the data set, I think the conclusion was that the -- depending on which portion of the graph you looked at with the trends, the off-site AOC may need to extend further. And so that was the basis of doing a sampling, to evaluate that.

BY MR. NIDEL:

Q. Okay. In all of that data, was there any data that attempted to quality or quantity the ratios of metals from the source?

A. I think so. That's what I'm saying. If I had it in front of me, I could tell you, but I think that's what they were doing, so that -- they were trying to see if -- in our data set, if there were certain things that popped out that probably weren't, so it didn't affect their trend. Because

they're using a trend is to try to see do they need to do additional sampling. So I think they did some of those to determine whether or not the site -- it could or could not be cited later, for the purpose of this analysis, meaning the analysis of how far to go, at least for the -- for the extended sampling.

Q. Right. And my recollection of that analysis was to say, well, let's say, for example, if the -- if the arsenic number was high or the lead number was high but the copper number was low, that stood out and that was being disregarded, because it didn't look like it came from the same source that emitted a lot of copper because there was no copper, but there was a lot of lead or arsenic, right?

A. I think --

MR. SCHICK: Objection to form.

THE WITNESS: I'm sorry.

A. I think for the purpose for this analysis, I think that's correct.

BY MR. NIDEL:

Q. Okay. And -- but we don't know, on any given day at this site or any given pile of waste or fugitive dust cloud, how much copper was in that versus how much lead was in that versus how much arsenic was, right?

A. I think that's correct.

Q. Okay. So how is that -- in your mind, how does that justify disregarding or performing an analysis excluding those data?

A. I think -- so, in my mind, the way it worked is that first now, when they did this -- when they did this analysis, they had a much broader data set. So they had a lot of data, was considering a fairly broad data set that had the ability -- better predictable ability. They also weren't using it -- and, again, I'm not -- they weren't using it as a be-all/end-all, here's the end of the line, we'll never take another sample. So it was a -- used as a guide to try to really try to parse out where this line likely ends. But, again, or potentially end.

So I guess -- because there's a range, you know, so it's -- depending on how you plot it, I think they actually plotted a statistical range and switched the range with distance, you know, how far things may exceed. And I think, in this case, they were doing "things may exceed," as I recall correctly. They looked at their all -- overall data set and I think with -- you know, so taking a few numbers out of there wouldn't affect the overall trend substantially but would provide them a better

estimate of where this line should or shouldn't end. Ultimately, the data is going to tell -- at least in my view, the data will decide where things end up.

Q. Well, here's what I don't understand. If the conceptual site model was air deposition with decreasing concentrations with distance, right? Doesn't take into account peaks. Doesn't take into account distance from stacks or height of stacks. But that's the general conceptual height model, correct?

A. It is the general site model, but it does at least acknowledge those things are variables that exist, those things that you just listed.

Q. Okay. Well, acknowledging a peak from -- if we just -- let's say that we had just one stack and one emission of one metal. You would see an increase and then a decrease, right? So the conceptual site model for the one stack wouldn't be just decreasing with distance from the stack because, actually, right next to the stack we would get very little of it.

A. That's what I'm saying. You would have to consider that. That's --

Q. How does the conceptual site model consider that?

A. Well, we have samples of fairly long distance out at this point, so -- and we're looking at the data trends.

Q. Okay. And long distances, by that you mean what?

A. Half a mile, mile.

Q. Okay. And what I'm trying to understand is originally your analysis was let's cut it up into zones of increasing distance, and let's look at the -- look and see a trend, and let's do a central tendency analysis by zone and say it's decreasing and it's decreasing at such a fast rate that we're good to go, right?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form of the question.

A. I guess -- that wasn't exactly my conclusion. So the conclusion was base on -- so those zones form the bases of potentially sampling. It may be even looking at the data, but ultimately it was the data itself. So in the RI, the data -- if we had that -- so if we had a projected -- the CSM should have projected central tendency that ended -- I'm just going to pick a number, because, again, I don't know this -- I didn't look at a

specific distances, at least not recently.

If it -- if the CSMs showed that it would -- it should end a quarter mile out but we had data that showed that it was going further, we would have to go further. So the central tendency analysis in those zones were a way of getting started and then would have to consider the rest. And that's why, like, for example, we're doing the transect analysis further out.

BY MR. NIDEL:

Q. Okay. So once you get the transect data, you could do another analysis of zones and you could say, okay, are we seeing this trend, and if we are, to where do we predict it's going to stop, right?

A. I think that's correct.

Q. Okay. That has not been done obviously, right?

A. Not that I've seen. I don't know what they're -- you know, I don't -- I haven't seen the data from transect --

Q. Okay. But look at the exhibit that I gave you, this RAWPA. If you go to page 2.

A. (Witness complies.) Roman 2 or the -- the double 2 or the --

Q. Number 2. Sorry.

The first full paragraph, it says, "Because extrapolation techniques were used to estimate the limits of the off-site AOC."

Do you see that?

A. No.

Q. Top of the -- it's the second sentence of the first full paragraph.

A. Oh, I see it now. Okay.

Q. You see that?

A. Yes.

Q. Okay. So you said extrapolation was used, but that wasn't your -- your thing was the boundary samples. This thing tells me extrapolation was used.

Which was the basis for your delineation?

A. Well --

MR. STOIA: Objection to form of the question.

You can answer.

A. It was both, so we had point-by-point. As I mentioned earlier, there was some portions that we used extrapolation. I guess I viewed this as being sort of imprecise language.

BY MR. NIDEL:

Q. Okay. Did you change it in the final

version?

A. I don't remember. I guess, to me, the way I viewed it is the data -- I mean, the whole reason we're doing these transacts it to try to figure out what's going on out there. And we're still looking at the data, so...

Q. Okay. And if you go to page 3, it talks about -- the bottom of the page talks about metals ratios, arsenic to copper and lead to copper?

A. Okay. Yep.

Q. Okay. You said you thought it talked about source ratios. I don't see that anywhere.

A. Well -- so I -- that first bullet says, "The ratios of these provide evidence of percent potential smelter impacts and also allow alternative sources to be distinguished." So I'm not -- I mean, that's a summary statement, but I -- that's what I think that's -- those are those ratios I was talking about before that they were doing.

Q. Yeah, and I'm -- but I'm asking: Did they ever provide data that said on a given day or for a given year or for a given hundred years, that there was 5 pounds of arsenic compared to 10 pounds of copper or anything like that?

A. I don't think like that.

Q. Was there anything that qualified how much copper -- here's what I see: I see an assumption that a copper smelter emits a lot of copper. Okay? And if you don't find arsenic with copper, then it's not my arsenic; if you don't find lead with copper, it's not my lead.

Does that make sense?

MR. STOIA: Objection to form of the question.

A. I don't think I've concluded that.

BY MR. NIDEL:

Q. Okay.

A. That's -- I don't think I've concluded -- so we get data from these transects, for example. So this is analysis they're using to try to determine the source, we can data from the transects. I would want to -- I'd have to look at the overall data set to see if something was being excluded for the -- on the basis that it's not related to the smelter. I would need -- and we're not going to remediate it because of that. I'd want to look very closely at the lines of evidence.

(Plaintiffs' Exhibit 217 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 217.

Is Exhibit 217, is that the presentation to the LSRP?

A. It may be. It looks like it probably is, or a version of it, because there is some comments still in it.

Q. If you look on -- and we'll go by Bates numbers, I guess -- 484 -- yeah, 481, speaker notes for Slide 3. It says, "Background selected at 2X" --

MR. STOIA: Hang on. He's not there.

MR. NIDEL: Okay. Sorry. Thanks.

BY MR. NIDEL:

Q. "Background selected at 2X, actual background copper levels," do you see that?

A. Yeah.

Q. Do you know what the background levels were that were selected?

A. I don't -- I don't know off the top of my head. I'd have to look, because -- I don't know what note -- speaker note for Slide 3.

So we have Slide 3 in here, right?

Q. Yeah, I think the slides -- the notes come after the slides.

A. Yeah, so I don't know which -- I'm trying to figure which one is Slide 3, but I presume it's like you could tell in there what the assumption was.

Q. So let's go -- let's go to page 482.

A. (Witness complies.)

Q. And on that slide, there is a comment by HJ1.

Do you know who HJ1 is? It's sort of for this at the top of the slide. It's just a HJ1 at the top corner --

A. 482?

MR. STOIA: The comment is at 83, right?

MR. NIDEL: The text of the comment is at 83. The note that there is a comment is on the slide.

MR. STOIA: Got it.

BY MR. NIDEL:

Q. Do you see that?

A. Well, it says "Jason Hughes."

Q. Okay. So -- and it talks about, on the slide, so the previous page talks about, "Finding, metals ratios provide evidence of smelter signature and permit alternate sources to be distinguished."

Do you see that?

A. Okay.

Q. And there is a comment -- I don't know where the word "clear" was, but he said, "If we are not a hundred percent sure about the smelter signature, suggest deleting 'clear' and putting in more qualifiers about this statement."

Do you see that?

A. I do.

Q. So, again, what do we know about the smelter signature?

A. I haven't looked closely at the smelter signature because I haven't tried to make a determination yet on any given property related to this.

Q. Okay. Is there any data that you've reviewed that suggests any consistent or known smelter signature?

A. I've had data presented to me. I haven't done a critical analysis of the data in terms of its -- because, again, it wasn't focus. So, like, this data was presented to me in a presentation and it's included in that work plan thing that we were just looking at. But we -- I wasn't, at that point, using it as a specific determiner for whether or not a given exceedance might be -- might or might not be

related to this site. Ultimately, something like that might be used, along with other data. I don't -- you know, site-specific information. I don't know.

Q. Do you know why they would graph these things on a log -- along log plots?

A. So all I can speak -- I can't speak to the specifics in this case. I'm not familiar with exactly why they did it here. But frequently I think it it's done in order to evaluate whether there's a trend and whether there's a correlation. And sometimes the easiest way to do it is a log off.

Q. Simply because it just compresses the data?

A. I think so. And I -- yes. Or it shows up as a line and so then allows you to do -- so it -- it would -- I think it would be potentially a curve if you didn't log transform it. So you do it as a line and it allows you to get the slope of the correlation.

Q. Right. Even though it's -- I mean, the data could be correlated or not, and then, as you said, correlation is not necessarily causation.

A. It --

Q. Let me finish.

But you take the log and it makes it look like a line, right?

A. Yeah, although that's -- it's a commonly done thing, so I don't -- again, I didn't look at these -- specifically what was done here.

Q. And if you turn to 114514 --

A. (Witness complies.)

Q. -- there is a map that shows soil data with respect to redevelopment. And we had talked earlier about the fact that some areas have been redeveloped and those areas were cleaner than sort of -- you know, they were sort of clean outliers based on their development, right?

A. Uh-huh.

Q. And you would agree that those areas include portions of Chrome Park, the north part of Chrome Park?

A. Yes.

Q. As well as portions of the north -- well, using north -- northeast --

A. North is up on this figure.

Q. Okay.

A. Reasonably so.

Q. So northeastern corner of the site?

A. Yes. I think a lot of that data is -- I

can't tell whether or not it's an artifact of being redeveloped specifically. But it does look like -- there's certainly been redevelopment here and the concentrations are lower. So I don't -- you know. But I think this was the basis -- so -- and this is also 0 to 6, but this was the basis for wanting to do -- this sort of analysis was the basis for wanting to do the transects.

Q. If you go to page 114521 --

A. (Witness complies.)

Q. -- there is some data from modeling that was done, right?

A. Yes.

Q. And that shows data going out to over 1 1/2 kilometers, right?

A. Yes.

Q. Okay. And then it, also on the next slide -- two slides later or two pages later, there is notes. It says, "Scenario 1, short stacks, 100 feet" --

A. Yes.

Q. -- "scenario 2, 225-foot stacks," right?

A. Yes.

Q. So based on this modeling, which we don't know -- you don't know anything about that modeling,

right?

A. Not any details.

Q. Okay. But you do know that it's saying it's going out at least to 1 1/2 to 2 kilometers, right?

MR. SCHICK: Objection to form.

BY MR. NIDEL:

Q. That's the suggestion from that modeling, right?

A. Yes. I don't know what concentrations on 4521 -- in this particular instance, I don't know what the left-hand -- I don't what those -- I think those are airborne concentrations being dispersion model.

Q. Right.

A. So I don't know what these mean in terms of depositions specifically.

Q. Okay. But you realize that they are suggesting that the contaminates traveled, at least in the air, out to at least 1 1/2 kilometers or further?

A. That's what the model seems to say.

Q. Okay. And then on the speaker notes two pages later, it says short stack is a hundred, Scenario 2, 225 stacks, right?

A. Uh-huh.
Q. And there is -- I will tell you, if you don't know, there was also a 400-plus-foot stack, right?
A. Okay.
Q. So that would have even gone further, right?
A. Yes.
Q. Okay. But you did not take any of that into account in your assessment of the site, right?
MR. STOIA: Objection to form.
MR. SCHICK: Objection to form.
A. Well, so that's where I disagree.
So the fact that a particle could travel a kilometer and a half doesn't necessarily mean it's an indicator that something exceeding a standard. So if our data distribution -- so, like, some of these have data distribution plotted on them. If our concentrations decrease -- and on the bottom, I don't know what these distances are off the top of my head, but -- because these are all Northings.
But if the concentrations decrease -- so just as example -- and I -- I'm not familiar exactly what the -- and I'm just looking at this as we're speaking. I've looked -- I've seen it before,

but -- so this is on 4525. And so -- so they're looking at the lead 95 percent UCL per use area. So this is essentially averages then plotted, so a series of averages then plotted across.

And you can see, when you get down someplace short -- and it looks likes this line -- I don't know if this line is, but -- so the standard is 400. So on the left-hand side, the vertical is plotted in milligrams per kilograms. So that's the soil concentration. The soil concentration standard is -- to meet residential is 400.

So somewhere, based on this data distribution, you start meeting it along about Northing 4491600, based on this data distribution. So this data distribution itself, the distribution of the actual soil data is different -- it's -- it follows a path -- the slope is similar to the -- to the air dispersion model, but it's -- it doesn't necessarily mean that you exceed the standard that far out.

That's how I understand this.

BY MR. NIDEL:

Q. You're pretty good. Because you're calculating a slope from this data just staring at it?

A. Well, I think the central tendency probably looks something like this. But even if you took the top, so --

Q. I know you're good, but you're not a computer. I mean, I --

A. I'm not saying I'm a computer. You asked --

MR. SCHICK: Objection to form.

A. You asked my opinion and I gave it.

BY MR. NIDEL:

Q. Well, you -- no, you actually gave your opinion. You said the slope is consistent with the modeling. And I'm --

A. That's what I said. I gave my opinion. You asked my opinion and I gave it.

Q. And I'm not sure that I see a clear slope. I don't see a line fit to that data.

A. Okay.

Q. I do see two scenarios modeled out that go well further than the data that was sampled. And I do see samples --

A. On the other hand, there is no samples that exceed --

MR. STOIA: Mike wait --

THE WITNESS: Sorry. Sorry.

MR. STOIA: -- for --
BY MR. NIDEL:
Q. And I do see samples that are low that are close to the stack, a lot of them. And I see samples that are far away that exceed the standard.
MR. STOIA: What's your question?
BY MR. NIDEL:
Q. Right?
A. Okay. So what I see, though, is that closer to the stack, there is some that concentrations are up in the thousands. And the center where there's a -- so as we get further away, the maximum concentration of the averages goes -- starts getting below a thousand. And then as we get towards the 1,600 line or before, depending on which part you look at, but even the maximum concentration -- when you get that far out, the maximum UCLs don't exceed 400.
Q. Okay. So the proposed step-out area was 1,600 meters from the stack and that was based on the 225-foot stack modeling, right?
A. That sounds right.
MR. SCHICK: Objection, form.
BY MR. NIDEL:
Q. Okay. So if you had a 410- or -20-foot

stack, you would go out even further, right?

MR. SCHICK: Objection, form.

A. Probably. Although I'd also consider the data. So if the data didn't support going out of that far -- just, like, as I pointed out, airborne -- air dispersion doesn't necessarily -- it tells you how far a particle might go, but not how much -- how -- so not how much actually landed there. The closer you get, you know, further out, the concentrations in air decrease, so that means you're going to likely have lower concentrations in the soil. So these show decreasing concentrations in air. And I see decrease in concentrations in the soil as well. If those are continued to be supportive, we see concentrations in soil that don't do this, you know, don't decrease, we'd have to go further.

BY MR. NIDEL:

Q. Okay. Have you reviewed anything done by Integral?

A. Yes, but I don't recall what.

(Plaintiffs' Exhibit 218 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I hand you 218. It's a memo from Integral

dated March 14, 2016. Is that fair?

A. Yes.

Q. Have you reviewed that?

A. I don't recall. I might have.

Q. They recommend -- if you look at the second page, they look at selecting cadmium and zinc as being most correlated to soil copper concentrations?

A. Where are we, page 2?

Q. Yeah, bottom of page 2. Second-to-last full paragraph, last sentence.

A. Okay.

Q. Are you -- are you recommending that they use cadmium and zinc to better fingerprint the smelter as a source for contaminants?

A. I guess I'd characterize it this way: I'm not recommending that one way or the other specifically. However, if you want to make a case that the material is not yours, when we get to that point that -- if you want to make a case that some concentrations at some distance from the site are no longer yours and barring some other -- depending -- this would be a line of evidence that you'd want to support that. But it's not a requirement.

Q. Are you -- is anyone making the argument

currently that the contaminants are not theirs, off-site contaminants are not theirs?

MR. SCHICK: Objection, form.

A. Not that I've heard. I think there's been -- as you can see in these sorts of documents, there's some documents that lay out some potential pathways for doing that.

BY MR. NIDEL:

Q. Has Joe Brunner sent you that in an email?

A. Sent me this?

Q. Sent you an argument that we've got a bunch of hits in the transects but it's not our stuff?

MR. STOIA: Objection to the form of the question.

A. No, I haven't seen any of the transect data or any conclusions related to transect data, I don't think.

(Plaintiffs' Exhibit 219 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 219.

Exhibit 219 is an email from you to Joe Brunner, November 13, 2017, right?

A. Yes.

Q. And in the middle paragraph, you talk about how Fred Mumford from NJDEP called you and he noted that there was a lower standard use for lead based on updated EPA screening and risk values related to juvenile blood concentrations and he suggested -- he noted the information in case you wanted use a more stringent standard.

Do you see that?

A. Yeah, I do. I recall this not. I didn't recall this earlier.

Q. Okay. Yeah, I asked you about that before?

A. You did. And I didn't recall it.

Q. Okay. So isn't it true you had a conversation with Fred Mumford?

A. Yes.

Q. And he suggested using 250, right?

A. He did.

Q. Okay.

THE VIDEOGRAPHER: Counsel.

Mr. McNally. Hand. Thank you.

THE WITNESS: Sorry.

BY MR. NIDEL:

Q. Why was that not done?

A. It's not a requirement in New Jersey.

It's not standard in New Jersey. So I don't have the authority to require USMR to do something the beyond the current standards, as far as I'm aware.

Q. Okay. Is the goal of your work to make for a safe environment for families and kids on their property or just to confirm or require compliance with New Jersey regs?

MR. STOIA: Objection to form.

MR. SCHICK: Object to form.

A. Sorry. The objection made me smile, so...

BY MR. NIDEL:

Q. And to be clear, given the objection, I'm not saying whether or not those New Jersey regs are safe or not.

Let me finish, just for her sake.

However, what I am saying is they may be inconsistent. And all I'm saying here is that -- all I'm asking is: Is it your job to require compliance with the regs or to require a safe property?

A. As I --

MR. SCHICK: Objection to form.

MR. STOIA: Same objection.

Go ahead.

THE WITNESS: Sorry.

A. As I understand it, it's to comply with New Jersey standards. I don't have -- so as we -- as I said before or we talked about before, I'm not a risk assessor. As you have mentioned, the different states have different standards, different cleanup goals, different methods of doing them. I'm -- I don't have any legal standing to require anything beyond that.

So, to answer your question, I don't -- I don't know that I have an opinion necessarily about NJDEP's process. But I don't think I have the authority to require analysis -- or require cleanup beyond that.

BY MR. NIDEL:

Q. Okay. You're not -- you're not saying that by complying with the regulations, that they are or are not creating a safe environment for kids and families, correct?

MR. STOIA: Objection, form.

MR. SCHICK: Objection, form.

A. I'm only saying that to the extent that I understand NJDEP based the standards on what they have determined is safe, then I think it's safe.

BY MR. NIDEL:

Q. Okay. And then Fred Mumford calls you and

says, hey, EPA seems to think that a lower number might be better, what do you think about using it, and your response is I have no authority to require that and, therefore, I didn't, right?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. Yes, I suggest it to the client, but I don't have any authority to require it.

BY MR. NIDEL:

Q. Did you suggest it to the client?

A. That's what this is.

Q. Okay. And what did the client's -- what was the client's response?

A. We -- I don't think we're using it, so.

Q. Okay. So it was their decision not to use Fred's recommendation, right?

MR. SCHICK: Objection to form of the question.

MR. STOIA: Object to the form.

A. I think so. I didn't drive it and we're not using it, so...

BY MR. NIDEL:

Q. Okay.

A. Because I -- because I don't think I can drive it. Even if I -- you know, even if I wanted

to, I don't think I have that authority.

THE COURT REPORTER: I need to plug in for my battery.

MR. NIDEL: Okay. Sounds like we need to take a break.

THE COURT REPORTER: Yeah, we do. Because I don't want to lose anything.

MR. NIDEL: Yeah, let's do that. Let's take a break, then.

MR. STOIA: How much time have we used?

THE VIDEOGRAPHER: Stand by.

This marks the end of Media No. 4. We're going off the record at 3:37 p.m.

(Recess was taken.)

(Plaintiffs' Exhibit 221 was received and marked for identification, as of this date.)

THE VIDEOGRAPHER: This marks the start of Media No. 5. We're back on the record at 3:48 p.m.

BY MR. NIDEL:

Q. I'm going to go ahead and hand you Exhibit 221. Can you identify Exhibit 221?

A. The "Off-site Area of Concern, Remedial Investigation Report, May 2016."

Q. Okay. And what is that?

A. This is the -- at least it looks like the final remedial investigation report that was submitted in May 2016, or at least close enough, where the off-site AOC went in with part of the overall AOC -- overall RI.

Q. Okay. And where in there does it talk about how you delineated the metals in soil off site?

A. I think it's in Section 7.

Q. Okay.

A. I'm trying to sort out what's here.

There is also conclusions in Section 8.

Q. Okay. So in Section 7, it talks about the central tendencies by zone, correct?

A. Yeah, they talk about central tendencies, where it talks -- the text reports -- discussions central tendencies.

Q. Okay. And when you're talking about the conclusions with respect to metals, you're talking about Section 8.1?

A. Yeah.

Q. Okay. So the basis for the conclusion was the -- turning to the central tendencies, right? 8.1 and then No. 1?

A. That was one of the conclusions, yeah.

Q. Okay. And then extrapolation of the data, what is the extrapolation of the data that was Bullet Point 2?

A. So -- I'm trying to find -- figure out which figure it's on. In the figures -- so let me see if I can sort this out. It's -- so Figure 8-1 --

Q. Okay.

A. -- and the text, these are point-by-point -- it's hard to see because it's black and white, but these are point-by-point analysis of the arsenic and lead data. Previous figures showed that pretty much all the other constituents didn't exceed the standards maybe with a -- like one or two small exceptions, but by and large, these were the two that exceeded.

So if you look at the data -- and it's hard to tell which one is which -- the smaller dots are arsenic samples and the bigger dots are lead samples. And the data is presented next to each one. As you get further out, you can see towards the northern property boundary, with a couple of exceptions, like notably sample -- I think it's 60.15 where you have a lead detection of twelve -- 1,260. Pretty much all the other ones start meeting

the residential standard up near that northern boundary.

Same thing for arsenic. Arsenic was -- exceeded a little bit -- generally exceeded -- this is -- it generally exceeded closer to the boundary and started to get cleaner further out. That was -- this sort of analysis -- and there's additional data presented in the other figures but was the basis for what I felt supported the analysis.

In some cases to the northeast, there were a couple of lead sample -- like, there is a lead sample in 60.20. And I can't remember all the details individually. Some of these, we may have used -- essentially extrapolated because they were close. You know, do we stop at the boundary. And so the boundary is an approximation in those areas.

Q. Okay. So I'm trying to -- so it looks to me like you got the trend of central tendencies, right, number one? I'm just trying to get something that we can converse.

A. Okay.

Q. Right?

You've got the extrapolation of the data. And then in Bullet Point 4, there is a discussion of -- well, I guess there is this -- the actual

point-by-point samples, right?

So there is the central tendencies by zone, there is the extrapolation of the data set as a whole, and there is the point-by-point data. And you're saying the most -- the data most valued to you was the point-by-point data that indicated, in general, a clean boundary?

A. Yes.

Q. Okay. And you -- we've talked about modeling. We've looked at modeling. It's your assessment that the modeling is not the primary line of evidence and you are focusing your lines of evidence primarily on the data itself, right?

A. Yes.

Q. Okay. And you would agree that that's also something that Freeport and its other consultants have determined is the best approach; is that right?

MR. SCHICK: Objection, form.

A. I don't know what they've determined, you know, in terms of their -- I don't know about their specific opinions. My view is that that's ultimately what's required.

BY MR. NIDEL:

Q. Okay. And that's also what you've

submitted in reports with your certification, right, that this is --

A. I think --

Q. -- driven by the data?

A. I think --

THE COURT REPORTER: That this is what?

MR. NIDEL: Driven by the data.

A. That's what it intended to be, at least that's my view.

BY MR. NIDEL:

Q. Okay. And so you would agree that if the additional data for the AOC and/or the data for the transects indicates contaminants in exceedance of the remediation standards at the boundaries or beyond the boundaries that your delineation needs to be reevaluated, correct?

MR. SCHICK: Objection, form.

A. Yes. We had adjusted delineation -- the size of the AOC would reflect what the data actually supports, assuming that it's -- you know, there isn't some obvious -- some other source that we can ultimately determine it's not ours.

BY MR. NIDEL:

Q. Okay. And the conclusions based on that data, assuming again that the data shows something

different than the data for that first Phase 1 sampling, those conclusions would need to be reevaluated, correct?

A. The conclusions that are in this report?

Q. The conclusions that you've -- that you've derived from the basis of this is quickly decreasing, it's decreasing over a short distance, and the boundary that you've established on Roosevelt Avenue is the boundary of impacts from the site?

A. Yes, we'd -- I'd reevaluate the boundary based on the data we have.

Q. Okay. And there was a discussion and ensuing debate about the assessment of dioxins and furans.

A. Yes.

Q. Is that delineation also contained in this report?

A. Yes.

Q. Okay. And if you go -- that's got some analysis in Section 7 as well as in Section 8, correct?

A. Yes.

Q. Okay. And in Section 7, it also has very same -- very similar, if not the same language,

regarding off-site samples compared to stack samples, comparing octa levels and other congeners, correct? That would be on page --

A. Yes.

Q. -- 32, right?

A. I'm sorry. I was looking at 39.

I'm sorry. Can you repeat that question?

Q. Page 32.

A. Yeah, I'm on it now.

Q. Okay. That includes the same -- a very similar discussion, if not the same language that we previous high discussed?

A. Yes.

Q. Okay. And then there are graphs of those fingerprints including the eight or ten off-site samples, as well as the stack samples and then a comparison of those?

A. That sounds right. Or that's correct.

Q. There's no discussion of the soil samples, correct?

A. There doesn't appear to be.

Q. There's no discussion of weathering, correct?

A. I don't think so.

Q. There's no discussion of the samples that

you thought were the most informative with respect to the fingerprint analysis, correct?

MR. STOIA: Objection to form of the question.

BY MR. NIDEL:

Q. That is those -- the on-site soil fingerprints, correct?

A. No, there doesn't appear to be discussion of the on-site soil --

Q. Okay. And then --

A. -- in terms of fingerprinting.

Q. Okay. And then the conclusions are drawn in Section 8.

And what were those conclusions?

A. Ultimately concluded that the delineation was complete. There is a discussion about the relative source. But the main point was that the -- was that the samples essentially achieved the standard with a small exception and it had to be addressed.

Q. Who found this reference to Cleverly on page 39? Is that yours?

A. I don't think it's mine.

Q. Okay.

A. I presume it's Arcadis.

Q. Okay. There's no discussion of weathering, right? We said that, right?
A. I don't think.
Q. There's no discussion of open burning of plastic?
A. I don't think so. Perhaps in the overall RI, that main on-site RI report, that would have been discussion of the historic work that was done there.
Q. But you don't know?
A. I don't recall.
Q. And that is not discussed here, right?
A. No.
Q. Do you know what the fingerprint of that -- the emissions from that burning was?
A. No.
Q. You don't know where on the site that burning was done, right?
A. Generally in the central portion, but not exactly. Not without looking at figures.
Q. Do you know for how many years that was done?
A. I don't recall.
Q. Do you know how many tons of plastic wire were burned?

A. No.

(Plaintiffs' Exhibit 220 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 220.

Exhibit 220 is a -- well, looks like a PowerPoint from -- titled "USMR 12/4/13 Review Meeting," Bates-labeled 836109; is that fair?

A. Yes.

Q. Okay. Have you reviewed that document before or were you at that meeting?

A. I don't recall, so -- I don't recall this specific meeting, so if I can take a look at the slides, I'll see if I can -- if they look familiar.

Q. Earlier I asked you if anyone --

MR. STOIA: He's reviewing the document.

MR. NIDEL: Oh. Oh, okay. Sorry. Sorry. That's my fault.

A. This may not have been a meeting I was part of. This might have been a meeting with the borough. I'm not -- I'm not saying I wasn't there, but it -- just based on the context, there is some bullets -- it may have been a meeting that I was at with the borough as well. I don't know. So -- I don't know. So I can't speak to whether I was there

or not off the top of my head.
BY MR. NIDEL:
Q. Earlier I had asked you if anyone from Freeport had indicated to you that the contamination off site was not theirs.
Do you recall that?
MR. SCHICK: Objection, form.
A. I don't recall you indicating that --
BY MR. NIDEL:
Q. Well, I asked you if Joe Brunner had emailed you that and --
A. Oh. Yeah, I still don't recall a specific statement that was saying that there is no off-site contamination that's ours.
Q. Okay. Has anyone from Freeport ever admitted to you that the contamination off site was theirs, or any portion of it?
MR. SCHICK: Objection, form.
A. I don't think it's ever come about in that way. They're paying for the remediation and investigation, so I never asked them whether they felt like they were responsible for it.
BY MR. NIDEL:
Q. On page Bates-numbered 115 -- last three are 115. And if you look at -- the prior pages are

the conceptual site model discussion. Okay?

And then there is a slide, "Expected Trend from Air Deposition." You see that?

A. Yeah.

Q. And it says -- the first sub-bullet, it says, after the preliminary rises, deposition from stack emissions tends to decrease."

Do you see that?

A. Yes.

Q. And so that's what we were talking with respect to sort of a gap, an increase, and then a decrease, right?

Yes, is that --

A. Yes, yes. I'm sorry. I was nodding my head. Sorry. I was reading while we're talking.

Q. And you don't know what that rise -- what the distance of that rise or fall is, right?

A. Not off the top of my head, but the next bullet down does say that the -- for copper and lead smelters, the distance tends to be shorter because the particles are heavier.

Q. Okay. And you don't know what the size of the particles were, right?

A. No.

Q. And you see -- I don't think these folks

knew either. I probably have asked them. But since you brought it up, we can talk about it again.

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. Do you know if that was true at the Carteret smelter, that the particles were heavy and somehow fell from --

A. I don't know specifically, no.

Q. Okay. You don't know anything about the weight of the particles, right?

A. No. Although I have -- I do recall, from reading some other materials, that -- this is my general understanding about some -- which is very broad, my general understanding of some of the other things that have been found at other smelter sites, that they tend to be something like this, but it also depends on a number of factors.

Q. Okay. Is it your understanding that other smelter sites that you've reviewed, their contaminants, as far as exceedances of any state or EPA standards, that they're confined to an area within a half mile of the smelter stack?

A. I don't recall. And different states have different standards, so it's hard to -- I don't know.

Q. Okay. What smelter sites did you review?
A. I don't recall.
Q. Okay. How many of them did you review?
A. There were a few. I don't remember. It was when -- when we were first getting starting, I did a -- like an Internet search. And so I don't -- like, I don't think it was like a -- it wasn't a formal review where I kept copies of the documents. I was trying to just get a sense of what certain -- you know, what things we're looking at, at other similar sites.
Q. Okay. And how far at smelter sites were they looking?
A. I don't recall.
Q. You don't recall if it was feet or miles?
A. I don't recall. I don't recall the details of it.
Q. What did you search for in Google?
A. Probably "copper smelter," "secondary copper smelter," "contamination" -- I don't know. I don't even know. Things like that.
Q. Probably something similar to what I searched for when I found a handful of studies I found, right?
MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.
A. I don't know what you searched for.
BY MR. NIDEL:
Q. I don't know what you searched for either, but --
A. That's what I'm saying. I don't know. I just gave you an example, what I might have searched for.
Q. So none of those studies that you searched for, none of them indicated distances of miles?
MR. SCHICK: Objection to form.
A. I don't -- it's been a while since I looked at those studies.
BY MR. NIDEL:
Q. Okay.
A. And, again, because I was primarily focused on -- so -- if -- again, I'm looking at the data itself. I was less concerned about the modeling. Or modeling or particulate transport per se as -- it's the mode of things getting there but doesn't necessarily dictate, on its own, the concentrations.
Q. Okay. And if you go to the next page, you've got Dunk's model.
Do you know who Richard Dunk was?

A. Which --
Q. It's on page 10 of the -- Slide No. 10. It's -- 118 is the Bates number.
Do you know who Richard Dunk was?
A. I don't specifically. I think he developed distribute -- air dispersion models, but I don't know.
Q. Okay. Did you -- how many of his models did you review, if any?
A. I don't recall.
Q. Okay. Do you recall reviewing any specifically?
A. I reviewed a couple. I don't remember the ones I reviewed.
Q. Okay. Well, his model here shows lead levels going out to -- I don't know. What's that? What was that 5 or so kilometers? 4 1/2? 4-point-some kilometers. Is that right?
A. It shows -- these are air values.
Q. I understand.
A. So I'm -- it shows that there is the potential for lead in this model to go -- I think it's 4. And wherever that -- it crosses the boundary at zero.
Q. Okay. And it ends at 10 kilometers,

right? It looks like it's -- 4, 5, 6, 7, 8, 9, 10 -- so about 4?

A. Yeah, I think it's 4.

Q. Okay. And do you know what the air standard is for lead?

A. I don't know off the top of my head.

Q. Okay. Do you know where this graph indicates exceedances of the air standard?

A. It's hard for me to read the graph, so -- I could guess, but I'd be guessing.

Q. Okay. And, again, this is an air model, so depending on how long this was done for and to what extend those models particles deposited, right, that would -- that would indicate what the levels were in the soil, whether there was any redevelopment, effects of rain and weather, correct?

MR. SCHICK: Objection to form.

A. With this, as I -- as I read this, what it tells me is where, you know, a potential particle -- because I -- I don't know what the left-hand scale is, so -- I'm assuming -- I don't even know -- it's -- I don't know if it's logarithmic or -- it looks like it's -- it's logarithmic on the vertical. So I don't know what it means in terms of what deposition could be, because the fact that a -- this

model shows a particle going up 4 kilometers, that could mean that there's .00001 of lead in the soil contributed or it could mean more. I don't know.

BY MR. NIDEL:

Q. And it also could mean 4,000, right?

A. It could, if you had data that supported that.

Q. Okay. But you don't know, right?

A. Well, if you have soil data within this -- within this range, you would know.

Q. Okay. And then if you go to page 12, there is a discussion of particle size, right?

A. Okay.

Q. And there is a general discussion, like you referenced earlier, about large particles and copper smelters and copper smelters. Emissions factors are four times greater than for small particles for big particles, right? You see that?

A. Yes.

Q. Okay. Do you know if this is accurate for the Carteret smelter?

A. I don't know specifically, no.

Q. Do you know what percentage of particles emitted from the Carteret smelter were under 1 micron?

A. I don't.
Q. Under --
A. It might be in the records, but I don't know off the --
Q. Under 25 microns?
A. I don't know.
Q. Okay. Can you recall specifically any records that indicated what that --
A. No --
Q. -- percentage was?
A. No, I don't recall any specific records, although I wouldn't have looked at them in quite some time.
Q. Do you recall any records generally indicating that? So do you recall that you reviewed records that indicated the particle size but you can't recall specifically what they are, or do you not have any recollection of reviewing particle size data?
A. I don't have any specific --
THE COURT REPORTER: Particle size?
MR. NIDEL: Particle size data.
THE WITNESS: Sorry.
A. I don't have any specific recollection of looking at particle size data other than perhaps

something like this. But I don't recall. There were dispersion models that were done that I did look at and they may have included some analysis and particle size. But I don't recall.

BY MR. NIDEL:

Q. Have you ever used the TIA database?

Was that a "no"? Sorry.

A. I didn't respond. I don't think so.

Q. Do you have access to the TIA database?

A. Oh. The TIA -- I'm sorry. The TIA database is the Arcadis database. No, I don't have access to it.

Q. You do not have a log-in?

A. I don't think so.

Q. Have you asked for a log-in?

A. No.

THE COURT REPORTER: And what's it called?

MR. SCHICK: T-I-A --

MR. NIDEL: It's T-I-A.

MR. SCHICK: -- all caps.

THE COURT REPORTER: Okay. Thank you.

(Plaintiffs' Exhibits 222 and 223 were received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I hand you Exhibits 222 and 223.

222 is an area that is north of the AOC. The AOC is outlined in, I think, yellow and then, there's a boundary around -- outlined in purple that's easier to see.

You see that?

A. Uh-huh.

Q. And 223 is the AOC area itself.

So if you put them one on top of the other you can see how they're just -- one's just a continuation of the other. Okay?

A. Uh-huh.

Q. The samples that are -- this is from the TIA database. The samples' locations are indicated with red and green triangles.

You see those?

A. Yes. And blue.

Q. Blue, where are you seeing blue. Oh, blue. Correct. Down there. I think it's -- I think it's just a clustering of them. But -- and they end up -- I don't know why they're blue, but okay. Fair enough.

So if you look at Exhibit 223 -- and by the way, the locations where there's an exceedance

are highlighted as red and where there's no exceedance are highlighted as green.

Do you see that? Or I'm telling you that. Okay?

A. Yes.

Q. You see the areas in the park where there's a clustering of clean samples and -- along with the area in the northeast corner.

You see those?

A. Just a second. I'm --

Q. And I'm just talking about the AOC. So --

A. No, I understand.

Q. -- I'm looking at 223.

A. Yeah, because in 222, it's blue, so that's what I was looking -- I had them overlapping one another so that I could join them. But, yes, I see green and orange.

Q. Okay. And --

A. And there's more green in the park and in the northeast corner.

Q. Okay. And that's consistent with what you know about the development history of the northeast corner, correct?

A. Yes.

Q. Okay. And what we now know about the

development history of the park, correct?

A. Yes.

Q. Okay. When did you become aware of the -- that the area in the northeast corner was redeveloped and had, you know, clean or other fill brought in?

A. I think we knew it may have been a newer development during the RI, although the impact of that and how it specifically affected the data -- just because there's redevelopment doesn't necessarily mean that there's clean fill brought in. So I don't think we knew about the potential influence of specific redevelopment activities and how it might affect the data until we started looking at the transects data and getting more of this type of fill-in than we had to start out.

Q. What years were the emissions from the facility the greatest? Can you tell me anything about a qualitative trend that it --

A. I think they were highest in -- up into the '60s and -- '50s and '60s. And I think they -- they may have been pretty high still, but they had to put -- start putting controls on them in the '70s and '80s, if I recall correctly.

Q. Okay. And, again, that's consistent -- I

know you qualified and said we don't know if it was clean fill. But you knew, at the time, that this area was -- in the northeast corner was developed after sometime in the '60s, correct?

A. I presume, yes. Yes, that area was developed more recently.

Q. Okay. And to go to Exhibit 222, Exhibit 222 are samples that you've been referring to as the transects.

Does that look correct to you?

A. Generally, yes. I don't -- I don't have the work plan in front of me, but, yes, this looks like the right area and the right sort of what I would expect the locations to look like.

Q. Okay. Is there a reason why there's no transect off further to the northwest?

A. I don't think there is anything specific other than this was sort of a scoping.

Q. Okay. You can see -- I know you have not reviewed the results of the transect sampling, but their results are indicated by color on these -- on Exhibit 222 that show almost entire -- almost every single sample point there is an exceedance in this transects.

Do you see that?

MR. SCHICK: Objection to form.
A. So the orange is greater than the standards?
BY MR. NIDEL:
Q. What you're calling as orange -- and I understand why you're calling it that -- it's actually red. I think I might have been low on toner or just --
A. Okay.
Q. -- not --
A. But what --
Q. Yeah.
A. Nongreen?
Q. The -- yes, the red or orange indicates an exceedance at that location.
A. Of the standards?
Q. Of the standards.
A. Okay.
Q. Of one or more of the standards.
MR. SCHICK: Objection to form.
BY MR. NIDEL:
Q. Okay?
But you, again, have not reviewed that data yet, right?
A. This is the first time I've seen any of

the data.

Q. Okay.

(Plaintiffs' Exhibit 224 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I hand you Exhibit 224.

Exhibit 224 is a data set outputted from the TIA database of the data that represents the data selected in Exhibit 222. Okay? Selecting those data points and outputting those sampled results.

Do you see that?

A. Yes.

Q. And there is -- that database output is copper, lead, arsenic, and an exceed flag as to whether or not there is an exceedance there.

Do you see that?

A. Yes.

Q. And it gives, you know, for various sample locations and depths and dates, right?

Is that --

A. Yes.

Q. -- look fair to you? Okay.

The only change I've done to this data is at the back bottom page is I've tallied up the

number of exceedances and the number of not exceedances. There is a "yes" of 541 and "no" of -- I think is -- is that 294?

A. Yes.

Q. And then I took a ratio that's 1.8. So 1.8 exceedances -- 1.8 to 1. Okay? Exceedances are at 1.8 to 1 nonexceedances; is that fair?

MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. Do you understand what I'm saying?

A. I do.

Q. Okay. So the data looks like you've got a total of 835 data points, locations. 541 of those exceed. Two hundred thirty -- 294 of those don't exceed. And you can try my math, but that's roughly a 1.8-to-1 ratio.

Fair enough?

MR. SCHICK: Objection to form.

A. Sure.

BY MR. NIDEL:

Q. Okay. Do you know how that compares to what the sampling that was done in the AOC is?

A. The ratio, no.

Q. Yeah.

A. And also -- so, just as a caveat, I also

don't know how many of these sort of -- I'm not saying the ratio doesn't -- is incorrect, but it's -- like, one might expect that if you had exceedance in one spot vertically -- and I -- it looks like there is a couple of different depth intervals here. I'm just -- like I said, I haven't done the data before. May -- is it all six? Maybe it's -- no. I don't know what the intervals are.

So you could have a case where you have multiple samples in the same location with different depths, so I don't know how the ratio is horizontally versus total, so -- because that might mean you, essentially -- by area, you're doubling up on a -- despite that it exceeds. But that's sort of besides the point.

Q. Yeah. And just to be clear, my point is not these are exactly the same. We could look at the numbers and we could do a comparison.

A. Uh-huh.

Q. We could look and see that the transects maybe weren't sampled to the same depth?

A. That's what -- I don't --

Q. But you would agree with me that if these numbers in fact come from the TIA database and if they are in fact the data from the transects that

there are a significant number of exceedances of arsenic and/or lead in cleanup standards, correct?

MR. STOIA: Object to form.

MR. SCHICK: Objection to form.

A. Yes.

BY MR. NIDEL:

Q. And you would agree that this nullifies or contradicts the previous delineation of the extent of contamination from -- that was done as part of the RI, correct?

MR. SCHICK: Objection, form.

A. It appears that it would support extending the AOC battery.

BY MR. NIDEL:

Q. I'm going to give you -- and I only, for some reason, have one copy, but 227 --

THE COURT REPORTER: You know what? I went across for you.

(A discussion was held off the record.)

(Plaintiffs' Exhibit 225 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 225.

Exhibit 225 is a very similar data set. It was derived from the selection within the AOC.

You can see the same type of analysis on there with an average or -- sorry -- a tally of the yeses and noes and a calculation on the ratio.

Do you see that?

A. Yes.

Q. And what's the ratio?

A. .8. .82.

Q. So there are -- in fact, there are fewer exceedances to nonexceedances, correct?

A. That's what it appears.

Q. Okay.

A. Although, just as a note --

Q. Yep.

A. -- not to -- because this is sort of qualitative, the off-site data set was -- if I recall the scope of work correctly, was biased specifically to try to collect samples from one -- from undeveloped sites or limited in developed sites so that the ratio may not be as it -- might be an artifact of what the sampling bias as opposed to, you know, data. It may be related to data trends, but it's -- it also might be -- just have some cases we were sampling other things.

Q. Okay. And, again, I -- my understanding is that Freeport has spent 30 to $45 million and

obviously several years which you've been involved with them. I just kind of did a spreadsheet.

But you would agree that given the extent of exceedances in that area, whether they be influenced by development or lack thereof, that they -- if those samples are accurate, would indicate further delineation needs to be done, correct?

MR. SCHICK: Objection, form.

MR. STOIA: Object to the form.

A. Yeah, I need to look at the data set. I'd want to look at it and -- you know. It may, as we mentioned earlier, extend the AOC battery.

BY MR. NIDEL:

Q. And to the extent that properties have been redeveloped as they were in the northeast corner of the AOC and in the park, those areas are factually distinguished from any investigation as to what the impacts were of historic contamination going back to the 1910 and certainly peaking in the '60s or '70s before environmental controls were put on, correct?

MR. SCHICK: Objection, form.

A. I'm not sure that they're distinguished. I'm not sure I follow that -- what you were saying.

BY MR. NIDEL:

Q. Okay. If the -- if the question is where did this contamination go over the last 100 years and you know you have properties that were redeveloped within the last 30 or 40 of those years, they would be factually distinguishable, they would not be representative of areas that were being deposited on for the duration of that time period, right?

MR. SCHICK: Objection, form.

A. They would be -- so I think the simple answer is they would be different and they wouldn't be influenced by as much change as a developed property. So, yes, they would be different.

BY MR. NIDEL:

Q. And my words were "factually distinguished."

A. I didn't know what that --

Q. Okay.

A. -- exactly meant, so...

Q. Okay. They would be different from it. In fact, if your -- if the goal is to try and -- and I think there was some discussion of that in your own documents, with respect to the areas that were redeveloped in the AOC, right?

Yes?

MR. STOIA: Answer verbally.

A. Yeah. Sorry.

BY MR. NIDEL:

Q. And so --

A. Yes.

Q. -- you would agree that when there is such a distinction to be made, whether it helps or hurts the argument or extends or shrinks the boundaries, that those are the facts you're dealt with and you distinguish and move on, right?

A. That's right.

Q. Okay. So if, in fact, there was redevelopment that occurred and if, because of that, there are some homes that are cleaner than those that we've seen in that sampling, that does not indicate that the extent of contamination is not extending out to those properties, correct?

A. Not necessarily, not based on that line alone.

Q. Okay.

(Plaintiffs' Exhibit 226 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I hand you Exhibit 226. Exhibit 226 is an

email from you to Joe Brunner.

Do you see that?

A. Yes.

Q. Okay. And Fred Mumford sent you an email on September 19, 2016, right? Bottom of the page.

A. Yeah, just give me a second.

Okay. So -- yes, there's --

Q. So Fred sent you an email in 2016 and said, "Mike, to follow up on our recent conversation." And then, you know, continues, "As we discussed, confirmation that individual property owner/tenants have been provided their individual sample results is key."

You see that? Bottom of the page.

A. Okay.

Q. He goes on: "I'd like the LSRP to provide us in writing the details of their outreach efforts to the local officials and the individual property owners. This should include a map of the affected parcels with individual results and the names of the property owners and tenants, if they are not owner-occupied."

Do you see that?

A. Yes.

Q. So in September of 2016, not just Fred,

someone asked him, has been asked to confirm that you and Freeport are providing the, quote, individual sample results, right?

MR. SCHICK: Objection, form.

A. Okay.

BY MR. NIDEL:

Q. Okay. And so you sent that along to Joe?

A. Yes.

Q. And Joe -- you said I just received it. They're asking for a public outreach, a confirmation individual property owners or tenants have been provided copies of data from their properties, right?

A. Yes.

Q. And he did not answer as to whether or not -- whether they were providing data, right?

MR. SCHICK: Objection, form.

MR. STOIA: Objection to form. You mean ever or on this document?

MR. NIDEL: On that document.

A. Well, so -- it looks like we're -- as of September 2016, we were pulling together that information at that point.

BY MR. NIDEL:

Q. Pulling together what information?

A. The data that was required. So --

MR. STOIA: That's a 19.

THE WITNESS: I'm sorry. September 19.

What did I say?

A. So -- so I sent Joe the note on September 19. He's asking us for those things that we just -- you just asked me about, public outreach and confirmation from individual property owners. So then Joe says he's -- Lisa, who is Lisa Szegedi from Arcadis, indicates that she had spoken with me and she understands what we need us to provide. And she's pulling the -- together the info and we'll get something back to you as soon as possible. I -- it looks to me like I thought we were doing it at this point. And, like I said, I don't recall, but I thought we were actually -- we are actually redoing this, so... I said for the -- well, let me phrase it that way, to go back to what I had said before, is for the remedial actions, as far as I know -- so remedial actions were just providing a summary. For the investigation, I thought we were providing that data. And I could be mistaken.

BY MR. NIDEL:

Q. Okay. And you -- I want to be clear, because it seems like you're saying you understand

the distinction. I understand the distinction. There is the data, which is the number from the lab for a given location, correct?

A. Yes.

Q. And there is a summary of the data which doesn't include any of those numbers but includes a summary by averaging of those numbers?

A. So post remediation, there's a summary that just includes the compliance averaging results. As I mentioned earlier, I think that when they do the sampling, do the investigation sampling, before they do their -- do the remediation, I thought they were providing -- I recall that they were providing that data then. But I can't -- I can't recall specifically.

Q. And you would agree that if they send them a letter that says pre remediation, post remediation, and they're leaving certain sections untouched, not remediating them, that that's no different. That's their property. It's not been remediated, touched one way or the other and yet, at that point, they're not being given the data for that portion of their yard?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. They're given the -- no, they're not being the given specific data points at that point.

BY MR. NIDEL:

Q. Okay. And it's your testimony that you believed they were giving them the data at some point, you don't recall for certain, and you don't know, right?

A. Yes. What it is, is that there's two phases. There's the sampling phase and there's a remediation phase. The summary of the remediation phrase, which is -- goes with the remedial response action outcome, which is given to them around that time, is the compliance averaging. I could be mistaken, but I thought they were also providing it, after they got the -- so that email we looked at earlier -- I think it was an email -- that talked about providing the property owners within 6 to -- 8 to 16 weeks, 8 to 12 weeks or something like that, copies of the data, I thought that was -- and so, like I pointed out earlier, I'm not sure, because it doesn't go through me, but I thought that might have actually been -- might be being providing.

Q. Okay. And you were interfacing with Fred Mumford of the DEP, he was asking you is that being provided, and you can't tell me whether or not it

was?

A. That's right.

Q. And did Brunner, through this email or anything else, did he ever answer you?

A. I think we did. I think we responded and gave a response back after this. So I think they -- they prepared something and I think we provided it to -- and provided an example to DEP but I just can't recall what the -- I'd have to go -- like, if I had all my emails, I could go look it up. But I think there's a follow-up after this. And it may have been a meeting. I don't recall. But I think there's a follow-up to this where we gave Fred what he was looking for. Because Lisa -- from this email exchange, Lisa was pulling together what we asked for.

Q. She was pulling together what we asked for, which included community outreach information and all kinds of other things, not just your question about sampling data, right?

MR. SCHICK: Objection to form.

A. Yes. But as I understood it -- so I had a discussion with her and I think she understood what we needed. So I -- what I don't have from here and I don't recall is what ultimately got provided. And

that's what your question was. I don't recall what was actually provided. It appears that we were on the path to providing it, so I think we did. I just don't know what.

(Plaintiffs' Exhibit 227 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 227.

A. Thank you.

Q. Exhibit 227 is another email chain with you and Joe Brunner. It starts with an email from Joe to a number of people on September 2 of 2016, correct?

A. It actually begins with an email from me, September 1, but yes.

Q. Yeah. If there is any -- if we go to your email to Joe, again, "Hi, Joe."

Fred Mumford called, right?

A. Uh-huh.

Q. "He noted that there were some elevated concentrations of lead in the 0-to-6-inch interval and asked whether the actual analytical data had been transmitted to the individual property owners. I explained the extensive outreach," and he continues -- "the extensive outreach has and

continues to be performed and that my understanding is that the community and individual property owners were informed about the presence of metals in the soil. I wasn't sure about what specific information had been provided" -- "has [sic] been provided to individual property owners so I didn't answer that directly. Is that data provided to the property owners?"

Do you see that?

A. Yes.

Q. Okay. Did Joe answer your question?

A. It looks like they were in the process of preparing sampling reports to reach the property owners. They're preparing sampling results letters for the property owners. This is what I was talking about before. These are the results letters I -- that I thought were being provided. So that's different than the final remedial action summary. But I thought -- see, this is a letter that they were providing the sampling results. This is what I thought was being -- that I wasn't sure about a few minutes ago. This is what I was referring to, these sorts of letters. And I thought they actually were being provided, but I could be mistaken, because they don't come through me.

Q. Okay. And your email to him goes on and says, "Apparently, his call was triggered," and he asked -- middle of that paragraph, he also asked if census populations were provided guidelines on what they could do to avoid impacts related to the contamination."

Do you see that?

A. Yes.

Q. Okay. Were they provided guidelines as to how sensitive populations could avoid the impact?

A. I think they were. I think there's some kind of EPA handbook, but I -- they have their public outreach people and I think these -- this was done. Because they specifically targeted doing some of the sensitive populations early, so -- and finding out where they were. And I don't know the specifics right now of each one, but -- so we did try to address this and I think they gave them like a -- I think it's an EPA flyer or something like that. That's what I recall. I could be mistaken.

Q. An EPA flier on lead paint, right?

A. I don't recall. It may have been. Because that would be the guidance on how to handle lead.

Q. Okay. Was that on lead in your soil?

Was it on lead in your soil?

A. I don't remember what it was.

Q. Okay. How --

A. That's what I'm saying. I don't know what was provided.

Q. How were sensitive populations identified?

A. Whether pregnant women or children under -- I forget what age, were present in the household. But I think they did that by canvasing.

Q. Okay. And were there any immediate steps taken to notify people who had sensitive populations with hits above a certain level?

A. As I understand it, they went -- so some of the details are now a couple years old. But as I recall, they targeted doing remediation of the surface soils in areas where they had -- early, so either -- and I say remediation. Initial remediation. It might have been capping with clean soil. It might have been removal. I can't remember the details. But they did a temporary exposure-control type of remedy in those properties and then they were -- that was done as an initial step.

Q. How many properties did they do that?

A. I don't recall.

Q. Was it five, ten?
A. I don't remember. It's --
Q. Was it a hundred?
A. I don't think it was a hundred.
Q. Based on what was the limit that they used, what was the trigger?
A. I think it's -- so I think the EPA guidance was over a thousand ppm of lead in the surface interval and a sensitive population, which is the ones I just defined, which is pregnant and/or a child, a small -- a small child.
Q. And it's your testimony that when they got a result that was above that with a qualifying sensitive population, that they took some immediate step to contain it?
A. I think they took an early action. "Immediate" might be -- you know. They expedited those properties.
Q. Okay. Did -- other than doing the remediation -- maybe prioritizing the remediation of them, did they do some kind of immediate capping?
A. No, I think they did some kind of capping. I can't remember the details of it. They did some kind of intermediate capping before they did the model remedy.

(Plaintiffs' Exhibit 228 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 228.

228 is another email. Starts with an email from Joe dated 10/17 of 2016, right?

Is that right?

A. Yes.

Q. And it's got an email --

A. I'm sorry. Dated what?

Q. Dated 10/17/2016.

A. No, it starts with an email from me April 2.

Q. Sorry. When I say "starts," the document starts with an email.

A. Oh. Okay. All right. Yes.

Q. Fair enough.

It starts with you -- sorry.

It, in time, starts with you, an email April 2, 2015. And you say you received another call from Fred. He act about -- asked about the range of lead concentrations in residential properties, if there were properties greater than 1,200. As a follow-up -- so you're saying, "Do you know if the technical team looked at whether there

are sensitive populations at the locations where the samples were collected," above 1,200, right?

A. Yes.

Q. And you say that in April of 2015, right?

A. Yes.

Q. You then send another email responding to the same email, copying yourself and Joe, following up, right?

A. Yes.

Q. Okay. Did he ever respond to you, prior to your follow-up?

A. I don't recall, so -- the fact that I resent this suggests that I had a question in my mind at that point.

Q. Because he had not answered your question, correct?

MR. SCHICK: Objection, form.

A. I don't know whether he answered it.

BY MR. NIDEL:

Q. Okay. But that suggests that he did not -- had not answered your question, right?

A. That's what I just --

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. That's what I just said.

BY MR. NIDEL:

Q. Okay.

A. Yes, I presume that's why I was sent it.

Q. Okay. So do you know when this so-called, you know, capping or action was taken for sensitive populations, whether that started in 2015 or 2016 or 2017?

A. I think it happened in 2016, it started.

Q. Do you know how many samples where surface levels exceeded 1,200?

A. Not off the top of my head.

Q. Do you know how many samples were there where --

A. And I don't know that -- an individual sample versus a property that -- you could have four on a property. So that -- and so I don't -- no, I don't know how many samples in a surface interval exceeded 1,200 --

THE COURT REPORTER: I'm sorry. You got to --

A. No, I do not know how many samples exceeded 1,200 in a surface interval.

THE COURT REPORTER: Okay.

(Plaintiffs' Exhibit 229 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 229 to your deposition.

Exhibit 229 is a screenshot from the TIA database for PPIN 4110.

Do you see that at the top, "PPIN, 4110"?

A. Yes.

Q. And this -- you can see the sample results down at the bottom, right? There is an exceed flag and there are sample results there.

You see that?

A. Yes.

Q. And you see a number of them are crossed out?

A. I do.

Q. Do you know why that is?

A. I don't. I've never seen this table before.

Q. I believe those are numbers that were removed based on the outlier assessment.

A. They could be.

Q. Does that look correct to you?

A. They could be.

MR. SCHICK: Objection to form.

BY MR. NIDEL:

Q. Okay. If a sample is rejected because of

an outlier assessment -- so, for example, if you look at the first one that we see there, 42.1 for arsenic and 734 for copper, you see that?

A. Yes.

Q. Okay. They discard the arsenic and the lead number, but they leave the copper number.

Do you know why that would be?

A. It would be based on the distribution of the individual -- the data for that individual -- that individual constituent.

Q. Okay. And do you have any basis for saying that the 41.3 is an outlier compared to the 42.1 compared to the 19.2?

MR. STOIA: Objection to form of the question.

MR. SCHICK: Objection to form.

A. So it looks like they were statistical outliers, based on the data distribution. I don't know what the intervals were and what -- you know, whether these are duplicate samples or things like that. But -- so they -- but they look like they were statistical outliers.

BY MR. NIDEL:

Q. Okay. So just to be clear, this a property at 26 Pershing Avenue, right?

A. Yes.
Q. Okay. Presumably -- it looks like it's a rental property. Presumably somebody lives there, right.
A. Okay.
Q. Okay. Does that seem right to you?
A. I don't know why -- where you're getting rental property from, but --
Q. Well, it's owned --
A. It's a resident- --
Q. -- by an LLC.
A. It's a residential property of some kind, yes.
Q. Okay. So some- -- presumably somebody lives there, right?
A. Yes.
Q. And there were sample results that you have no basis to reject as inaccurate or incorrect, right?
MR. SCHICK: Objection to form.
MR. STOIA: Objection to form.
A. I think that's correct.
BY MR. NIDEL:
Q. Okay. And there -- we don't have the location of them. We don't know much about them

based on this. But we can see that you had 42 parts per million arsenic and 44 -- or sorry -- 41 parts per million arsenic, 1,260 of lead and 795 of lead in samples on that property, but there is no exceedance noted for those samples, correct?

A. On this, no.

Q. Okay. So those areas would not be cleaned, correct?

MR. STOIA: Objection to form.

MR. SCHICK: Objection to form.

A. So that -- not necessarily. So there's -- so I don't know on this individual property, but they frequently are running both Method 6010 and 6020. So in many cases, they have two sets of data for a given sample. So there could be an -- other reasons why the sample was removed. And so frequently -- in cases, like, a individual sample, they're removing 6 inches in the whole surface and they would -- if this was in the top 6 inches, it would be captured in that. So in some of the -- what shows up in an outlier, the parallel sample run with 6020 may have -- was included in the analysis and so it was removed.

BY MR. NIDEL:

Q. Okay. Other than it being a different

analysis of the same exact location, there would be no reason to disregard it other than its statistical outline, right?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. That's right, at least not that -- from this.

BY MR. NIDEL:

Q. Okay. Who is Dawn Farver?

A. She's a -- an engineer that works for me.

Q. Okay. Did she work on this site?

A. She did.

(Plaintiffs' Exhibit 230 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to hand you Exhibit 230.

Exhibit 230 is a spreadsheet that was produced as part of your file.

Did Dawn Farver create these spreadsheets for you?

A. They would have been her working spreadsheets, so I don't -- so yes.

Q. Okay. And this is for a property. I think the PPIN is 1053. Does that look right to you?

A. That's what it looks like.
Q. All right. It's got "Identified as outlier by Arcadis" in --
A. Yellow.
Q. -- yellow, right?
A. Uh-huh.
Q. So those numbers in the lead concentrations, pre remediation, of 1,270, 1,230, those numbers were not included in the assessment, correct?
A. They're not included in the statistical analysis.
Q. And with respect to arsenic, there is a 21.4 not included in the analysis, correct?
A. Yes.
Q. Do you know -- so the 1,270 and the 1,230, I mean, there's a 1,380 that was included. There's a twelve -- there's a 1,090. There is a 1,520. There's an 1,100.
Can you explain that to me?
A. Not without looking at the overall details. This -- it might be because the 1,380 was Method -- different methods, and so the 1,380 for that statistical distribution wasn't excluded.
Q. So the exclusion was not only done on

individual properties, it was done method by method?

A. That's what I'm trying to sort out. But, yes, I think it was.

Q. Okay. Which method is more accurate?

MR. SCHICK: Objection, form.

A. I don't think there's -- either one is particularly more accurate than the other.

BY MR. NIDEL:

Q. Okay. Why would one method be excluded at the inclusion of another method?

A. I don't think they specifically were. Typically they'd -- when they did their analysis, they used -- other than the outliers we were just talking about, they used the higher two values in doing the analysis, which would skew the results higher.

Q. Okay. So why --

A. To be more conservative.

Q. Why were these outliers removed?

A. Because statistically they weren't -- they were shown based on the -- I don't know the name of the formula. But basically the statistical analysis showed that these are not part of that data set.

Q. And is that done also by -- not just by property but by strata or depth?

A. No, it's done by property.
Q. Okay. And we see that with the outliers included, the confidence interval, even post remediation, still exceeds the cleanup standard, correct?
MR. SCHICK: Objection, form.
BY MR. NIDEL:
Q. For lead?
A. Based on these values, yes.
Q. Okay. So based on the data at Property 1053 -- do you know how many kids live there?
A. I don't know the specific property.
Q. Do we know how old they are?
A. I don't know the specific property. I'd have to look.
Q. Do we know if they have pica?
A. I don't know what they have.
Q. Okay. You don't know if they have pica, though, right?
A. No.
Q. Okay. You don't know if they eat the dirt?
A. I thought that's what I just said.
MR. SCHICK: Objection, form.

BY MR. NIDEL:

Q. I just -- I don't know if you know what pica is.

THE COURT REPORTER: What was the answer?

THE WITNESS: I said I thought that was what I just said.

BY MR. NIDEL:

Q. You don't know if they eat the dirt?

MR. SCHICK: Objection, form.

A. I don't.

BY MR. NIDEL:

Q. You don't know if they play in their yards?

A. I don't know what they do.

Q. You don't know where the 1,270 was tested or where the 1,230 was tested versus where they play, do you?

MR. SCHICK: Objection, form.

A. I do know where they are, so -- but, no, I don't know what they're doing specifically. They're -- what I do know is that they're twelve -- they're a foot below the ground surface and -- almost 2 feet below the ground surface.

BY MR. NIDEL:

Q. Okay. Do you know if they dig in the

yard?

MR. SCHICK: Objection, form.

A. I don't know what they do.

BY MR. NIDEL:

Q. Okay. Do you know if they planned to put a deck in the yard?

MR. SCHICK: Objection, form.

A. No, I have no idea what their plans are.

BY MR. NIDEL:

Q. Okay. Do you know if when they plan to put a small pool in the backyard that their kids might play in that ditch for a while?

MR. SCHICK: Objection to form.

A. I don't know what they're going to do.

BY MR. NIDEL:

Q. Okay. You would agree that the data indicate -- the lab indicates that they have contamination in excess of the cleanup standard, not just individually -- at individual sample locations, but also on average, correct?

MR. STOIA: Objection to form.

A. Not based on this. Not on -- not based on the analysis that's done with that -- the outliers.

BY MR. NIDEL:

Q. Okay. But based on all of the data that

you have for that soil, you would agree that they have -- they exceed the soil cleanup standards, correct?

A. That appears to be the case. I haven't looked at the specific spreadsheet, so...

Q. Do you review the work that Dawn does?

A. I do, in general.

Q. Okay. But you have never reviewed this spreadsheet?

A. Not that I recall.

Q. Do you review these types of spreadsheets?

A. We'll sit down and talk through what's been done and what her analysis was of the data.

MR. STOIA: Can we take a quick bathroom break, real quick?

MR. NIDEL: Yeah.

THE VIDEOGRAPHER: This marks the end of Media No. 5. We're going off the record at 4:52 p.m.

(Recess was taken.)

(Plaintiffs' Exhibit 231 was received and marked for identification, as of this date.)

THE VIDEOGRAPHER: This marks the start of Media No. 6. We're back on the record at five -- I'm sorry -- 4:59 p.m.

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 231. It's a copy of a letter -- I only have that one copy. I don't have a copy for myself.

But can you identify the letter for me?

A. Borough of housing -- "Borough of Carteret, Housing; May 16, 2017; Sampling Results for Residential Park Property; Mercer Street, Parcel ID," and then it lists a whole bunch of things.

Q. Okay. And is that an example of a sample -- a property sampling letter that you had --

A. That's what it appears to be.

MR. SCHICK: Objection, form.

THE COURT REPORTER: Sampling letter that, what now?

BY MR. NIDEL:

Q. Property sampling letter that you had referenced earlier?

MR. SCHICK: Objection, form.

A. So it appears to be.

BY MR. NIDEL:

Q. Okay. And it does not --

A. And like I said, I don't know that I've ever seen these before, so...

Q. Okay.

A. At least I don't recall ever seeing them before.

Q. Okay. But it does not include the sample results, correct?

MR. SCHICK: Objection to form.

A. This one doesn't, although this may not be -- I don't know about this particular PPIN. So it doesn't. I don't want to speculate.

(Plaintiffs' Exhibit 232 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. I'm going to -- I'm going to staple this together, so it's a little easier.

Give you an exhibit, No. 232, which is another property sample letter, March 3, 2017, for 26 Pershing Avenue and then a printout of data from that same PPIN; is that fair?

A. It looks to me like the data in this printout has two different --

Q. Correct.

A. -- PPINs on it.

Q. But it doesn't include the data for 4110, correct?

A. Yeah, it includes -- it does include data. I don't know if it's all the data or what, but --

Q. Okay. And it actually continues onto the back.
A. Okay.
Q. Okay. That is another sample result letter, correct?
A. That's what it looks like, yeah.
Q. Okay. And does not include the sample results, correct?
A. No.
Q. Okay. Based on the data that's on there for 4110 on that exhibit from the spreadsheet, are there exceedances of the cleanup standards?
MR. STOIA: Objection to form.
A. On the letter or?
BY MR. NIDEL:
Q. On the data.
A. There are individual samples -- looks like two individual samples that -- well, actually one individual sample that exceeds.
Q. Okay. And -- but on the -- on the data -- average data or the summary that was provided to the property owner, there were no exceedances noted, correct?
A. No.
Q. But, in fact, the data indicates that

there are exceedances, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. Well, as we discussed earlier, so individual data points might exceed, but the overall property doesn't. And in this case, it seems like there is only one that exceeds a value of 23 out of -- one for a value of 23 for arsenic. There's a value also of 19.2, but I think the standard is 19. So that would round to 19. So that's at the standard. So I think there's one value that's slightly above the individual standard for arsenic. But, again, it attained -- it looks to me like it attains the guidance.

BY MR. NIDEL:

Q. Okay. And, again, you know that there is a number that risk assessment says is below the 19 for lead -- or arsenic -- sorry -- right?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

You can answer.

A. Yes, I know that there is a value that they calculated as -- I think NJDEP calls it a risk-based value.

BY MR. NIDEL:

Q. Okay. And you also agree that in 2017, these two examples show that the property owners were not provided the results of the testing, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. The individual sample results, no.

BY MR. NIDEL:

Q. Okay. And by "individual sample results," we're talking about what Fred Mumford was calling you and emailing you about, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. I think so, yeah.

BY MR. NIDEL:

Q. That's your understanding of what he wanted and that's your understanding of what you're seeing in the additional page of data and what is not included in those letters, correct?

MR. SCHICK: Objection to form.

A. I agree.

BY MR. NIDEL:

Q. Okay.

(Plaintiffs' Exhibit 233 was received and

marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 233. It's a summary of data from the TIA database for a PPIN, which you can tell us the PPIN.

A. 7355.

Q. Okay. It is on one of the transects. It's -- 7355, I believe it is the northernmost transect, so 12:00 transect as opposed to the other ones, but it's -- obviously it's pin -- PPIN 7355. And that has data for sampling that was done on that property.

Do you see that?

A. I do.

Q. Okay. And there are a number of exceedances on that property, correct?

A. Yes.

Q. They include exceedances for copper, correct? Or sorry.

They include high levels of copper, correct?

A. There's -- it looks like there's one value that is somewhat above the standard.

Q. Okay. Do you know how that copper got out to the end of those transects?

A. No. Although, based on that concentration, it seems unlikely to be the same source as everything else.

Q. Okay. You would agree -- well, if the transect data shows contamination above the standard for lead and arsenic, you would agree that the investigation needs to continue until -- based on your assessment of the original AOC, until there are samples identified that show a clean boundary, correct?

MR. SCHICK: Objection, form.

A. Yes, provided that there's not some confounding factor out at the boundary, which seems unlikely to be the case. That is a broad item.

BY MR. NIDEL:

Q. Okay. So as a broad matter, you would -- you would agree, right?

A. Uh-huh.

Q. Unless there is a --

A. Yes. I'm sorry.

Q. -- battery cracker for some other --

THE COURT REPORTER: Unless there's a? I'm sorry.

MR. NIDEL: A battery cracker.

A. Like, if we ran into historic fill or

maybe there was a -- some -- you know. I think it's unlikely. You'd have to have something out -- a widespread source out at the perimeter.

(Plaintiffs' Exhibit 234 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 234.

Exhibit 234 is meeting minutes provided by USMR for a meeting on -- I believe it's February 17, 2016, with the borough. Is that fair?

A. That's what it looks like.

Q. Okay. And it says -- do you know who Vajira is?

A. I think he's the consultant for the town, or at least for that matter. I'm not sure.

Q. Okay.

A. I think that's who he is.

Q. And it looks like Hank Martin was at this meeting, correct?

A. That's what it appears.

Q. Your -- one of your colleagues from ELM?

A. Yes.

Q. Okay. And Vajira had questions. His third question was, "Wants to confirm that we're not doing compliance averaging to determine remediation.

This is correct. Clarification that there could be a single sample point that exceeds standards but the UCL would still dictate whether an exceedance occurs or not. Brad questions whether this agreement is consistent with the standstill agreement."

Do you see that?

A. Yes. Now I see it, yeah.

Q. Okay. What -- compliance averaging was being used to determine remediation, correct?

A. Well, I don't know the context -- I wasn't at this meeting. I don't know the context here. This might be for delineation. And so it may be -- I don't know if this is -- because this is before the RI was submitted. And so I don't think -- I don't know what this is relation to -- I don't know if this is relation to specific remediation or the use of compliance averaging.

Like I had commented on earlier in one of the RI -- one of the work plan documents, I had -- there was a comment you had asked me about earlier. And I had said I'm not sure you can -- I think you need to use point-by-point. That has to do with the delineation.

So I don't know, in this case, which one it is. Based on this time frame, I'm guessing that

it was based on -- for delineation. Because I think that was a topic of discussion at the time.

Q. Okay. And the use of compliance averaging could lead to a situation where you have somebody that's got a backyard that's clean or a front yard that's mostly clean except for their vegetable garden has got lead and arsenic in it, right?

MR. SCHICK: Objection, form.

A. Yeah, portions of the site -- there's section of the -- portions of the property that might have soil that individually -- represented by one sample which represents a given area around it that exceeds the standard, yes.

BY MR. NIDEL:

Q. Okay. It could be more than one sample, right, as long as it averages --

A. Yes.

Q. Okay. And when you did the remediation, you actually recalculate the UC- -- upper confidence limit, including the concentration of all the fill dirt, right?

A. Yes.

Q. Okay. So you could leave significant amounts of contamination in a spot or two because the average is being brought down by the existence

of the fill dirt, right?

MR. SCHICK: Objection to form.

A. That's -- actually, that's not entirely the case. Because the way the statistical analysis works, the 95 percent confidence level, it's -- you can have -- because it's based on the distribution of the data, the values you put in for clean fill can have some funny results in what you are allowed to leave behind.

BY MR. NIDEL:

Q. Why would you be concerned about high levels of arsenic or lead in a vegetable garden?

A. Why would I be concerned --

Q. Yeah.

A. -- if they -- they may -- depends on the nature of what the high levels are and how much of the overall area is exposed. I think it would really depend on the condition. It's kind of a broad question. So I don't know that I would be concerned about it. I guess that's probably the simple answer. If it was my property and -- I don't think we're doing anything here that I wouldn't be comfortable with for myself, so...

Q. Okay. What if you had a vegetable garden?

A. I still would not be concerned.

Q. You would not be concerned about a --

A. No. I still wouldn't be concerned, because exposure is not a point -- exposure isn't based on a point. It's based on an area type of exposure. Even in a pica situation, the kid just doesn't eat -- this isn't -- it's not an acute scenario where -- concentrations aren't such that I'd be worried about risk, because this one little bit, it's risk of an aggregate. So it's the difference between, like, an immediate poison and something that may have a long-term effect if you continued exposure.

So as I understand it. The standards are protective and that's why compliance averaging is deemed protected by the agencies.

Q. Okay. Why would you be concerned about there being a vegetable garden on a hot spot?

MR. SCHICK: Objection. I --

MR. STOIA: Why would you or would you not? I didn't --

BY MR. NIDEL:

Q. Why would you? Michael McNally, why would you be concerned about it?

A. A hot spot after -- I don't -- when you say --

Q. Yeah, left behind, whether it was not remediated or remediated and left behind, whatever it is.

A. I wouldn't be concerned about it. That's what I'm saying. If we -- if the overall -- an overall property achieved the standard, I wouldn't be concerned.

Q. And we can substitute a vegetable garden with a sandbox or a swing set or anything, right? But you still wouldn't be concerned, right?

A. I don't think so. And I think -- I don't think so, for the same reason I described. I think that the pathway is -- the way that the numbers are calculated are based on area exposures.

Q. Okay. And so because of that -- and you don't know anything about what areas the kids of each of these houses play in. But because that's the way they're calculated, you think that you would not have any concern, even if there was a vegetable garden in the hot spot, right?

A. I guess I don't view it as a hot spot, so I don't know what -- how you define "hot spot," because that seems like a pretty broad term.

Q. A number in excess of the standard.

MR. STOIA: He wasn't finished.

A. So the -- no, I wouldn't necessarily, if all other things -- all the other conditions that we just described are the case, I wouldn't be concerned.

BY MR. NIDEL:

Q. And to be clear, I'm -- a hot spot is a number in excess of the standard.

A. I understand now, yeah.

Q. Okay. All right.

A. And that -- and that -- number in excess to standard, assuming all the other ones met the standard.

Q. Okay. Let's look at Exhibit 235, then.

(Plaintiffs' Exhibit 235 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Exhibit 235 is meeting minutes from a meeting on 6/15 of 2016, which you attended, McNally, right?

A. Yes.

Q. "Discussion of compliance averaging. McNally seems comfortable with our approach. McNally wants to think about an example where we'd only clean the backyard and not do anything with the front yet even though the front yard might still

have numbers in excess of the standard. McNally uses example of what [sic] someone has a vegetable garden in the front and we only remediate the backyard even though the front yard as significant exceedances. Probably need to look at the case-by-case basis, see [sic] what we're doing is protective even if it's discretionary on our part."

You didn't -- you never thought about a vegetable garden, did you?

MR. STOIA: Objection to form of the question.

BY MR. NIDEL:

Q. You want to hold that up for the video so we can show the jury that letter?

A. I'm sorry?

Q. Oh, I'd like to show the jury that meeting minute.

A. Okay. So this was the meeting minute that happened in June last -- June 2016.

Q. Yep.

A. I have considered it further in looking at the process and I think it's protective. I think, in some cases, if -- so if there was an entirely separate area that was distinct that we hadn't sampled it, so...

Q. That's not what you said at the meeting.
MR. SCHICK: Objection, form.
A. I don't know what I said at the meeting.
BY MR. NIDEL:
Q. Okay.
A. These weren't my notes.
Q. Okay. Okay. Seems like you were concerned about hot spots being left behind, but I guess you weren't. Right?
MR. SCHICK: Objection, form and sidebar.
(Plaintiffs' Exhibit 236 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Hand you 236 to your deposition.
236 is another set of meeting minutes, dated six -- sorry -- 11/29 of 2016, right?
A. Yes.
Q. You were at this meeting, right?
A. Yes.
Q. Along with Fred Mumford and Kevin Schick from DEP, right?
A. Yes.
Q. In the middle of -- near the bottom of the page, Karen asks a question: "How do we explain the UCL in our letters? Do we try to make it

understandable?"

Do you see that?

A. Yes, I see that.

Q. Okay. Was it your opinion that --

A. Whose notes are these?

MR. STOIA: Brunner.

BY MR. NIDEL:

Q. These are Joe Brunner's notes.

A. Oh. Okay.

MR. NIDEL: But, again, I would ask that you don't coach the witness.

A. Did you ask a question? I'm sorry.

BY MR. NIDEL:

Q. Yeah. How was the upper confidence limit explained in the letters?

A. I don't have one in front of me, but I don't think it was explained in a lot of detail.

(Plaintiffs' Exhibit 237 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Handing you Exhibit 237. Exhibit 237 is another set of Joe Brunner's meeting minutes dated --

MR. SCHICK: Objection, form. Not minutes.

BY MR. NIDEL:

Q. I'm sorry.

-- meeting notes dated October 4 of 2016; is that fair?

A. That's what it looks like.

Q. Okay. Do you know if you attended this meeting?

A. I don't think I did.

Q. Near the bottom of the page, similar to the spot of the last discussion, it says, "Vajira, some concerns about compliance averaging in RAWP. Contends that if we have contamination in place above the standard it's not protective of human health and the environment."

Do you see that?

A. I see that.

Q. You disagree with that?

A. I do.

Q. Okay. There is an analytical method that you could use or your clients could use to distinguish lead paint from smelter lead, correct?

A. I think there are ways to tell the difference between the sources.

Q. Okay. Why haven't those methods been used?

A. Because we were using -- why -- I'm not sure why we would use those.

Q. Okay. Because you're not pointing the finger at lead paint; is that correct?

MR. SCHICK: Objection, form.

A. Not currently.

BY MR. NIDEL:

Q. Okay. Is there a plan to?

MR. SCHICK: Objection, form.

A. I don't know that there's a plan to point fingers at anything in particular.

BY MR. NIDEL:

Q. Okay. If there was a -- if there becomes an argument that this is not our lead, it's lead from lead paint, would you agree that such methods should be used?

MR. SCHICK: Objection, form.

A. It depends. It depends on what other lines of evidence you have. There could be cross-Pb in other things, so --

THE COURT REPORTER: Depends? It depends on.

A. It depends. There could be other methods, so there's a number of different ways you can come to the same conclusion. So I'm sort of speculating

now because I don't -- we haven't made that argument, not specifically.

(Plaintiffs' Exhibit 238 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. I'm going to hand you Exhibit 238, one copy of 238. But 238 is a spreadsheet summarizing all of the lead data that was taken in surface samples where the results were above 1,200.

Have you reviewed that data?

A. I don't think I've ever seen this table.

Q. Okay. Have you ever counted how many samples in the surface of the data that was taken or the samples that were taken showed lead above 1,200?

A. I haven't. This -- which data set is this? Is this the RA data set or the RI data set?

Q. I'm assuming that it's the -- it's the entirety of the --

A. Okay. So it's got current data in it.

Q. Yeah.

A. Okay.

Q. But you're not -- you've never looked into how many samples exceed 1,200?

A. Not like this, no.

Q. Well, I know you've had back and forth

with -- back and forth with Joe and with Fred where he asks, well, what about 1,200, what about using 250.

But you've never sat down and massaged or analyzed the data, right?

MR. SCHICK: Objection, form.

A. Not like this, no.

BY MR. NIDEL:

Q. Okay. Do you think it would be helpful to respond to Fred or to respond to concerns about health risks?

A. Honestly, I haven't had a -- sorry.

I haven't had a discussion with --

THE COURT REPORTER: No. No, no, no, no.

Respond --

MR. NIDEL: Concerns about health risks.

BY MR. NIDEL:

Q. Now you can answer.

MR. SCHICK: Objection, form.

A. I haven't had any discussions with Fred in like two years, so I don't have -- Fred is not a -- I know his name came up because he was -- he was initially involved as a public employee, but he doesn't have any particular jurisdiction over this work, in his role. He's an EPA -- he's a liaison

with Superfund.

BY MR. NIDEL:

Q. Okay. Is it your testimony that EPA has no jurisdiction over this?

MR. SCHICK: Objection, form.

A. I don't think they have established jurisdiction over it, so other than what might be broader jurisdiction and environmental issues.

(Plaintiffs' Exhibit 239 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 239. Exhibit 239 is -- Exhibit 239 -- can you identify Exhibit 239?

A. A remedial action report, 25 Salem Avenue.

Q. Okay. And just to be clear, that's not the complete report. I did not include the appendices. I included -- just for density of my bags, I didn't copy the entire thing, but just wanted to be clear.

If you -- if you go to USMR 791 --

A. (Witness complies.)

Q. -- there's pre and post remediation data.

Do you see that?

A. Yes.

Q. Okay. And you see post remediation, there

is a number of exceedances that -- where -- number of areas where the soil remains on site and, based on the analytical data, exceeds the cleanup standard, correct?

A. Yes.

Q. Including a number for arsenic and lead, correct?

A. Yes.

Q. When did you learn that redevelopment may have factually differentiated or distinguished those areas of redevelopment?

MR. STOIA: Objection to form.

You can answer.

BY MR. NIDEL:

Q. The northeast corner and the park areas.

A. It became primarily an issue when we first were looking at the -- when we got more data, we started noticing trends. And I say "we." That's what they presented to me. They had the data set that I didn't have.

They started noticing trends or sort of coming up with trends and they saw that there was some correlation between the data with properties that appeared to be older development versus those that appear to be new, so in a specific manner,

meaning we were aware of the ages of -- the relative ages of property. But I think it was primarily twenty -- what year is -- 2016, over -- talking about doing the transect analysis.

Q. When was the zone analysis done, the central tendencies of the zone decreasing?

A. 2016.

Q. Okay.

A. It may have been 2015. I don't know when the RI data actually came in.

Q. Okay. But it was 2015 or 2016?

A. I think so.

Q. Okay.

A. I don't -- I don't remember all the details of the zone.

(Plaintiffs' Exhibit 240 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 240.

Exhibit 240 is a letter to you from USMR dated July 3, 2013, correct?

A. Yes.

Q. Okay. And on the back, last paragraph, it says, "Also, there may be significant differences between Phase 1 data obtained from publicly owned

properties and the Phase 1 data obtained from private properties. The public properties have experienced significant redevelopment. Many of the private properties, on the other hand, have been used as residential properties since the early 1900s. This may result in disparate sampling results, but the disparity will not be known until the full data set is received."

Do you see that?

A. Yes.

Q. Okay. So in mid 2013, it was known, and it was known to USMR, it was known to you, that development may play a significant role in factually differentiating and creating disparate results for the sampling, right?

A. Well, that's basic CSM. So I think you're kind of -- I guess maybe I'm not clear -- maybe I wasn't clear in answering the last question.

This is a broad topic here and -- being discussed. They're talking about public properties being significantly disturbed. And they say, as part of it, that we'll have to look at the full data set once it -- we'll know the full extent of this once the full data set is received. And that's what happened.

Q. I understand. But I also --
A. So this is part of the basic CSM. We talked about disturbance and how it might affect the data.
Q. I mean, it's --
MR. SCHICK: Objection. He hasn't finished his answer.
MR. NIDEL: Okay.
A. So we talked before about how disturbance of properties would affect data. There is no doubt. The extent specific properties affected the data wasn't really -- wasn't really analyzed until -- like it says here, until we started getting the full data set.
BY MR. NIDEL:
Q. Right. But when you got the full data set, you put zones and then you calculated decreases and you included samples that were -- five or six samples that were in that northeast corner, correct?
MR. SCHICK: Objection, form.
A. Yes, there were samples in the -- in the northeast corner.
BY MR. NIDEL:
Q. Okay. And you knew the development history of the -- that corner at that time, correct?

A. Yes.
Q. Okay. So you would agree, at this point, those samples should not have been used, correct?
MR. SCHICK: Objection, form.
A. No. They were still part of the delineation.
BY MR. NIDEL:
Q. Okay. They were factually distinct, correct?
A. Yes, but they were still part of the delineation. So I -- we have extended the transects to try to go further to see what's out there. So that's what's being done.
Q. So it's your testimony that those were validly part of the delineation to delineate pollutants that were emitted in the '40s, '50s, '60s?
A. Yes, they're part of the delineation.
(Plaintiffs' Exhibit 241 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. Okay. I hand you Exhibit 241.
241 is site remediation from New Jersey DEP on compliance averaging.
Have you ever reviewed Exhibit 241?

A. I'm not sure I reviewed this one. This one is from 1995, it appears.

Q. Okay. Well, it's on their website currently.

A. Okay. I think the current one is like 2014 or 2016, something like that.

Q. Okay. Well, if you think there is a difference between their guidance now, given that this was pulled off their website, I think, last night, you can tell me. Okay?

A. Sure.

Q. Okay. Number 1, "Compliance averaging can only be used after remedial investigation has been completed which fully delineates the nature and extent of the contaminants present. See," and there's a cite to the tech regs.

Do you see that?

A. I do see that.

Q. Okay. So compliance averaging -- we discussed this at length -- can only be used after a full delineation has been completed, right?

MR. SCHICK: Objection, form.

A. Well, I guess I'd characterize this a couple of ways.

First, the tech regs have substantively

changed since 1995. So I don't know if this document -- this document doesn't appear to have been updated. So the specific requirements have changed. The -- I will say that the guidance does include something like this, and so I agree on that. However, it also -- in the context of the overall investigation, this is -- we have individual properties that we're looking at. And so within that property, we have data up to the property boundary. And so -- and we did review this with DEP and how we're doing it, and they agreed.

BY MR. NIDEL:

Q. Okay. Well, it also says it's not appropriate to use compliance averaging based upon the information obtained in a site investigation, right?

A. A site investigation is specific phase for remediation, although in 1995, some of them were different than they are today.

Q. Okay.

A. Site investigation is not a remedial investigation.

Q. Okay. It also goes on to say you can't use -- well, you can't do compliance averaging across depths, right?

A. That may be what it -- I don't know what it says here. So if it says that here, that's not true anymore.

Q. That's not true anymore?

A. No.

Q. Okay.

A. In fact, you're specifically -- you have zones, surface zone and subsurface zone.

Q. Okay. And what -- so that's in the new 4.9 tech reg?

A. What's 4.9?

Q. The requirement at 4.9.

A. I don't know what it says at 4.9. The tech regs have substantively changed. So tech regs used to be, before the -- this is when they still had case managers. They had very prescriptive technicals requirements. The laws were very -- the regulations were very prescriptive. When they went to the LSRP program, they took out all the prescriptions, specifically to provide some room for professional judgment. So they took all that out of the tech regs and they put it into guidance.

Q. Okay. And you're saying that guidance no longer has that prohibition?

A. No, I don't believe it does.

Q. Okay. Did you review the -- are you familiar with the article on compliance averaging that's in the New Jersey environmental press?

A. From 1995, that looks like related to the same guidance.

Q. And are you familiar with that?

A. No.

(Plaintiffs' Exhibit 242 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Okay. That's -- Exhibit 242 is a discussion of compliance averaging that was provided by USMR.

And you're not familiar with that?

A. No.

Q. Okay. What part of the tech regs apply to compliance averaging?

A. I don't recall the specific language, so I'd have to go back and look. The -- so I don't know that there is a specific thing that -- I think what it says -- this is, without having a copy in front of me, but what I think it says is that completion of the remediation for each remedial phase shall be based on the attainment guidance. The attainment guidance is what provides the

compliance averaging.

Q. Can you repeat that? Is it not in the tech regs?

A. Like I said, I don't recall the specific language of the tech regs, but what I think is that it says attainment of the remediation standards shall be determined based on -- by -- based -- and consistent with the attainment guidance.

Q. Okay. So --

A. Something along those lines. I don't know what it says.

Q. So it's --

A. It wouldn't -- it wouldn't say specifically using compliance. I don't think there's anything specific that speaks to compliance averaging or geometric mean or point-by-point, that sort of thing. I think all that's been removed.

Q. Okay.

MR. STOIA: Counsel, it's 5:35. By my calculation, we'll be at the seven-hour limit by 6:09. I just want to make you aware that we're going to break at that point.

MR. NIDEL: Okay. I mean, I'm going to go by the videographer, but other than what you're --

MR. STOIA: I believe my calculations are based on the videographer. I just want -- in case there's some questions you want to prioritize, I just want to give you --

MR. NIDEL: I appreciate that.

BY MR. NIDEL:

Q. I'm going to hand you a document. I'm not going to mark it an exhibit unless I am forced to, just because it's got tabs and all kinds of things. It's a document, "Metallurgical Operation at U.S. Metals Refining, Carteret, New Jersey," Bates-labeled 769256. I just want to -- you to tell me if you've reviewed that document before.

A. I don't recall reviewing this specific document, although it might have been reviewed as part of the on-site RI.

Q. Were you involved with the on-site RI?

A. Yes. I'm the LSRP for that as well.

THE COURT REPORTER: And what?

THE WITNESS: I'm the LSRP for that as well.

BY MR. NIDEL:

Q. Okay. But you have no specific recollection of reviewing that; is that fair?

A. That's correct.

MR. NIDEL: Thanks.

(Plaintiffs' Exhibit 243 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 243. Exhibit 243 is Bates-labeled 735937. It's a study of USMR's odorous emissions. Is that fair?

A. Yes.

Q. Have you reviewed that document?

A. Yes. I think I looked at this back in the RI process a long time ago.

Q. Okay. Did you review that as part of your work with respect to the off-site assessment?

A. Yes, in a general means, in a general way.

Q. Okay. And if we look if we look at page 956, there is graph of modeling results that Mr. Dunk did from odor emissions from the existing cupola stack and some proposed stacks.

Do you see that?

A. Yes.

Q. And you see that those emissions go out from the existing stack, including fugitive emissions go out past 10 kilometers out to the 35 or thereabouts, correct?

MR. SCHICK: Objection, form.

A. So are these odors?
BY MR. NIDEL:
Q. These are odors.
A. I can't recall what these were. So -- and it's also maximum downwind, so -- but, yes, it seems to say that.
BY MR. NIDEL:
Q. You did not consider these as part of your determination of the initial AOC proposal, correct?
A. Not specifically, no, meaning that it's a line of evidence.
Q. Did you review any of Richard Dunk's assessments of fugitive emissions on the site for the operations?
A. I may have. Again, it's been a long time since I've looked at all the details of the modeling and things like that.
Q. Those were not a line of evidence that you considered in determining your proposed AOC boundary?
A. No, the proposed AOC boundary was primarily related to data.
Q. Okay. Did you review these documents to see if the data maybe should be extended because there were lots of emissions coming out of various

operations?

A. As we've talked about before, it's very difficult to correlate airborne emissions with soil concentrations. So to the extent that I looked at them, I can't remember what specific of those that I looked at in 2012. But the -- they provide a line of evidence, but not necessarily any kind of direct correlation with concentrations and soil. And that's why I don't rely on them heavily, because I don't -- I don't know what to do with them beyond that.

Q. Did you review information about the control and the lack of controls, the --

A. I had got some documents related --

Q. -- failures of controls --

THE COURT REPORTER: The failures?

A. I'm sorry. Sorry.

BY MR. NIDEL:

Q. You got to let me finish.

-- failures of controls, the breakdown of controls, the baghouses that were failing, any of that stuff?

MR. SCHICK: Objection, form.

A. I reviewed some documents related to the operational history of the controls and the relative

effect that's back in time that they -- I don't remember which ones specifically.

BY MR. NIDEL:

Q. Did you review the work that Radian did to establish compliance with the air monitors for lead?

A. I recall reading something by Radian. I can't remember exactly what.

Q. Just you recall reading something that had Radian's name on it, but you don't know what it was?

A. I think I remember something to with air modeling or air results. Again, it's a correlation between air and soil, so I'm not -- I'm not sure.

Q. Do you recall Radian determining that the majority of local impacts as far as the ambient air were due to fugitive emissions rather than to stack emissions?

A. I don't recall that specifically.

Q. Okay. If Radian had done the modeling and the review of operations and made that determination, would that be relevant to your assessment of the predicted extent of contamination?

A. Only broadly, the same way the other modeling would be.

Q. Well, you've testified today that you think that what you're seeing in the neighborhood of

Carteret is from the stacks, right?

A. I think it's airborne deposition.

Q. Okay. And I've asked you: Do you think that's coming from the stacks or from fugitives?

A. I think it's primarily from the stacks, yes.

Q. Okay. And so if -- my question is: If Radian had determined that airborne sample sites that were, you know, within a similar radius of what your current AOC is were being impacted primarily by fugitive emissions, would that be contrary to your assumption as to the extent of the AOC and to Carteret?

MR. SCHICK: Objection, form.

A. To the extent that I was relying on soil data, not air, it doesn't really make that much of a difference.

BY MR. NIDEL:

Q. Okay. And the soil data, based on what we've seen, assuming that we have more of it. We could look at it. But assuming that what I've shown you is accurate, that it is soil data from those transects, the soil data and the conclusions you drew during Phase 1 are not accurate, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form of the question.

A. It does appear like the AOC's boundaries extend. This is the first time I've seen the data, so without looking at it further, I assume so. It looks like it would.

BY MR. NIDEL:

Q. Okay. And you would agree that the conceptual site model to the extent it indicated a rapid decline in deposition as you got further toward Roosevelt Avenue, say, it is not confirmed by that data, assuming that data is what I've presented it to be?

MR. STOIA: Objection to form.

MR. SCHICK: Objection, form.

A. Yes, the -- I mean, I guess I -- I'm not sure I follow the question. But the AOC boundary would expand and the CSM would be adjusted accordingly. And it's going to take account the actual data.

BY MR. NIDEL:

Q. Okay. And we talked -- I showed you a graph of lead modeling emissions by Mr. Dunk -- sorry -- odor emissions by Mr. Dunk.

Did you review lead modeling that was

similar going out to several kilometers?

A. Yes, I think so.

Q. Okay. As much as, again, 35, 38 kilometers in distance?

MR. SCHICK: Objection, form.

A. It may have been.

BY MR. NIDEL:

Q. But you still felt comfortable focus in on that quarter-mile, half-mile range?

A. I felt comfortable looking at the data and see what it told us. And it's told us to go further.

Q. Okay. Your testimony is that at least as early as 2011, Freeport was ordered to delineate the extent of contamination off site, right?

A. That's what I understand.

Q. And it's now 2018 and that's not complete, right?

A. It doesn't appear to be, based on the data you showed me today.

Q. Who else worked on the on-site RI with you?

A. It was primarily Lauren LaPort. I don't know if there's -- other people would have generated pieces of it or tables or possibly figures.

Q. Who was the lead on it from ELM?
A. Lauren LaPort.
Q. Okay. So you worked on it but you were not the lead?
A. That's right. I reviewed it. It's -- I think the process is broadly similar to the off-site use.
Q. Okay.
(Plaintiffs' Exhibit 244 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. I'm going to hand you Exhibit 244 to your deposition. Exhibit 244 is a May 5, 1991-dated document with a USMR Bates stamp of 5186.
Is that fair?
A. Yes.
Q. Did you review this document?
A. I think so.
Q. Okay. If you -- when would you have reviewed this document?
A. Probably right around 2012 when we started the RI process.
Q. And would that have been part of the RI for off site or on site?
A. I guess -- they're interrelated, so on

site to the extent that it goes off site.

Q. All right. And if you go to say page 190 -- I'm just using the last three of the USMR Bates number -- there is a source emissions discussion and there is contaminants from the source indicated at zinc, 32 percent; copper, 6 percent; lead, 14.

Do you see that?

A. On --

Q. Air contaminants from source?

A. -- 5190?

Q. Yeah. Section G?

A. Okay. I see it now, yeah.

Q. So you see that zinc is -- I don't know what that is -- 5-plus times what the copper is being emitted, right?

A. Okay.

Q. And then lead is 2 1/2 times the copper?

A. Okay.

Q. You see that, right?

A. I do.

Q. And they're emitting, before the control that they're going -- planning to put on, they're emitting, it looks like, 3,333 pounds per hour of that?

A. That's what it appears, yeah.
Q. If you go throughout the rest of the document, for example, you look at the next page 5191, you've got again zinc dominating at 60, copper at 1.5, and lead at about 10 times that at 14.
You see that?
A. Yes.
Q. And you believe you have reviewed these?
A. I think I have, yeah.
Q. Okay. And this was -- from that unit, was emitting at 61 pounds per hour prior to additional control?
A. That's what it looks like.
Q. If you go to page 197 --
A. (Witness complies.)
Q. -- there is a discussion of the cupola stack lead emissions for -- and then a discussion about proposed 250-foot stack. In that first paragraph, it says --
A. Yeah.
Q. Bottom of that first paragraph says, "Maximum ambient concentrations occur between 1,000 and 2,000 meters during unstable atmospheric conditions, in between 10,000 and 15,000 meters

during stable conditions."

Do you see that?

A. I do.

Q. Okay. So for the cupola stack discussion in 1981, unstable conditions, you had relatively close peak concentrations. And, again, these are air concentrations rather than deposition, but I think they're related.

And then you have, during unstable atmostpheric conditions -- sorry.

And then during stable atmostpheric conditions, you have between 10 and 15 kilometers, right, of a peak?

MR. SCHICK: Objection, form.

A. Okay.

BY MR. NIDEL:

Q. Right?

A. That is what it says here.

Q. Okay. And, in fact, this -- I mean, these folks knew -- I mean, they had -- because there's some data in here probably, but they knew what the percentages of lead and zinc were. They probably knew something about particle sizes too, correct?

MR. SCHICK: Objection, form.

A. I don't know what's in here, but -- so

perhaps.
BY MR. NIDEL:
Q. They probably knew more than you know about particle size, right?
MR. SCHICK: Objection, form.
A. I don't know what they knew.
BY MR. NIDEL:
Q. Well, they probably tested the stuff?
MR. STOIA: Objection, form.
A. Is there a question?
BY MR. NIDEL:
Q. Do you think they tested the stuff?
MR. STOIA: Objection, form.
A. I don't know.
BY MR. NIDEL:
Q. Have you reviewed anything where they tested the particle size of various emissions of dust?
A. I can't recall.
Q. Did you test any of their dust?
A. They didn't have any emissions at the time?
Q. Okay. Did you?
A. I wasn't -- I wasn't working in the field in 1988.

Q. Right. But they were, right?
A. Okay.
Q. Okay. So they knew more about what was coming out of their stacks than you do probably, right?
MR. STOIA: Objection to form.
A. Perhaps. Probably.
BY MR. NIDEL:
Q. Okay. And they thought their -- they were impacting the air maximum levels at 10 or 15 meters away?
MR. SCHICK: Objection to form.
BY MR. NIDEL:
Q. Sorry. 10 or 15 kilometers away, right?
A. Okay.
Q. Okay. But you were, again, comfortable with the quarter-to-a-half-mile investigation, right?
MR. SCHICK: Objection, form.
A. Well, again, these are airborne par- -- and so we don't know what size particulates were at that distance. There's a number of factors again that I can't -- I can't analyze here. So our data is going to take us where the data takes us.

BY MR. NIDEL:

Q. Okay. I'm going to hand you exhibit --

MR. NIDEL: What time have we got?

MR. STOIA: 5:51.

MR. NIDEL: And you said, what, 6:09.

MR. STOIA: Yeah.

(Plaintiffs' Exhibit 245 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 245.

Exhibit 245 is a 1984 Richard Dunk document Bates-labeled 741787; is that fair?

A. Yes.

Q. And if you go to page 793 of that document, there is a -- there are isopleths for a modeling exercise that he did.

Do you see that?

A. Yes.

Q. Did you review this document?

A. I may have. I don't recall.

Q. When would that have been?

A. 2012. That time frame.

Q. Okay. Can you identify where the -- where the facility was in this -- on this map, approximately?

A. That's what I'm trying to sort out. I'm having trouble reading the map all together.

So it appears to be right at the center here. Actually, I can see the label now.

(Phone interruption.)

MR. NIDEL: Sorry.

A. So it looks like there's a small label in the center, the right center of map that says "USMR."

BY MR. NIDEL:

Q. Okay. And can you identify, maybe in this orange marker, where your AOC is?

A. It's really hard to tell on this scale. I can't really see it very well.

Q. I understand that it's not a great photocopy of a photocopy. But roughly can you indicate where the AOC is on that?

A. Something like that. I can't even tell.

Q. Okay. I'm not asking you to be precise. I'm asking you to approximate, if you can, where the AOC is roughly.

Is that fair?

A. Yes.

Q. Okay. And you've done that on Exhibit 245, correct?

A. Yes.
Q. Okay. Did you review a history of what feed materials were and production numbers were for the site?
A. In a broad way, yes, but I don't recall any details.
Q. Is it true that air -- I think I asked you this earlier. But is it true that air deposition typically has an exponential decline in concentration when we're moving from a site?
A. I think it can.
Q. Does it always? Or what would make it have or not have that or do you not know?
A. I don't really know all the details.
Q. Have you drawn any conclusions about -- I know you haven't seen the data. But have you drawn any conclusions about the -- whether or not the transects were impacted by the smelter operations?
MR. SCHICK: Objection, form.
A. I haven't at this point. I have just seen the data today.
(Plaintiffs' Exhibit 246 was received and marked for identification, as of this date.)
BY MR. NIDEL:
Q. I'm going to hand you Exhibit 246.

Exhibit 246 is an email that we received from your file. Can you identify Exhibit 246?

A. It's an email from Joe Brunner that's -- it's an email from me to Joe Brunner thanking him for an update.

Q. Okay. And then the body -- the bulk of the exhibit is an email from him to you, correct?

A. Yes.

Q. Okay. Did you receive this email?

A. I did.

Q. You receive it on June 20?

A. Yes.

Q. When you actually responded to him, correct?

A. Yes.

Q. We talked earlier about what his footer says. You said you didn't know what it -- what it said, if you look on the back. Indicates he works for Freeport-McMoRan Inc., correct?

MR. SCHICK: Objection, form.

A. It does.

BY MR. NIDEL:

Q. Okay. That's as of June 20, 2018, correct?

A. Yes.

Q. Okay. And I've never seen this email. I deposed Joe Brunner. I got files from him. I don't think I was ever produced this email. I think the deposition was after this.

Have you read that email?

A. This email?

Q. Yeah.

A. Yes.

Q. Okay. Do you agree with his assessment of particle size and --

A. I actually didn't come to any conclusions regarding this email, because I hadn't seen the data. So this is me basically asking what's the status of the data. This was a big broad conclusion that I hadn't seen the data to determine one way or the other.

Q. Okay. But your conclusions would be drawn based on the data itself, as you've insisted was with the Phase 1. That same analysis would proceed into Phase 2, 3, 4, whatever phase. You -- your decision would be driven by the data itself, correct?

A. That's what I anticipate.

Q. Okay. And the only exception to that would be if there was some strong indication of an

alternative significant source and you find that unlikely, correct?

MR. SCHICK: Objection to form.

MR. STOIA: Objection to form.

A. Yes.

BY MR. NIDEL:

Q. And because there was an objection --

A. Unless like -- something like historic fill, if they found that widespread. I don't know what we're seeing. I've looked at some borings and there could be historic fill. It could drive some of this. But I don't want to get into that discussion at this point.

Q. And because of the objection, I want to break my question up.

So your decision would be driven by the data with the exception of whether there was an alternative explanation for an alternative source, right?

MR. SCHICK: Objection, form.

A. Yes.

BY MR. NIDEL:

Q. Okay. Okay. And you -- do you know when you plan to -- when you're going to be given the data?

A. I don't know. He says he wants to set up a meeting on this and so I don't know -- I presume soon.

Q. Have you asked him for the data?

A. Not specifically. Because at this point, I wasn't sure exactly what had been collected, validated, like, what all the status of all the things were in terms of this investigation. And so I was asking what the status was. This was, I think, his response. My expectation is that I'll get the data. They may present it to me first but also get the data.

Q. He references a number of things, including metals ratios analysis, geostatistical evaluations, historical research, forensic microscopy. Would -- I would assume that you would be reviewing that data as well. Correct?

A. Yeah, I would have to look at it. I don't know what it's going to say.

Q. Have you -- you have not received any of that data?

A. No. The first time I've seen any data related to the off-site is -- the transects was what you showed me earlier.

MR. NIDEL: Let's go off the record.

Are you --

THE VIDEOGRAPHER: Going off the --

MR. NIDEL: Sorry.

THE VIDEOGRAPHER: Going off the record at 6:00 p.m.

(Recess was taken.)

THE VIDEOGRAPHER: We're back on the record at 6:01 p.m.

(Plaintiffs' Exhibit 247 was received and marked for identification, as of this date.)

BY MR. NIDEL:

Q. Hand you Exhibit 247.

Exhibit 247 is a lead compliance plan, evaluation and recommendation of lead emission controls for the USMR/Amax secondary copper smelter in Carteret, New Jersey, labeled a draft. It's Bates-labeled 829869.

Is that fair?

A. Yes.

Q. Have you reviewed that document?

A. I may have. I don't recall. If I did, it would be general background review done early in the project.

Q. Do you recall the conclusions that Radian drew?

A. No. I don't recall even reading the documents specifically, so...

Q. Did you review information or data about upset conditions at the site in terms of how they might have impacted off-site levels?

A. I'm aware that they had some upsets, so I must have reviewed some things that had to do with it, but I don't remember any of the details.

Q. Do you recall them identifying that the baghouse dust piles were the largest significant -- they were the most significant contributor to the air exceedances that they were modeling for?

MR. SCHICK: Objection to form.

A. I don't recall that specifically, no.

BY MR. NIDEL:

Q. Okay. If you turn to page 6-13.

A. (Witness complies.)

Q. It identifies the baghouse dust as being the most significant contributor to those ambient air sampling points, right?

A. I'm sorry. Did -- I was reading. Can you repeat the question?

Q. Yeah. That data indicates that the baghouse dust was the greatest contributor to the ambient air concentrations that were being modeled,

correct?

MR. SCHICK: Objection, form.

A. It does appear to show that. I don't know where the monitoring points were.

BY MR. NIDEL:

Q. Okay. Do you know if the monitoring points were within a mile of the site?

A. I don't know where they were. They could have been right at the property boundary for all I know.

Q. Okay. Do you know if they were -- so you don't have an idea where they were?

A. I don't remember at all.

Q. You don't --

A. I don't remember this report at all.

Q. Okay. And you don't know -- remember relative to the distance to the boundaries of the original AOC?

A. No.

MR. NIDEL: I'm going to go ahead and turn him over to you.

MR. SCHICK: Passing the witness?

MR. NIDEL: Yeah.

EXAMINATION

BY MR. SCHICK:

Q. Mr. McNally, have you been certified as a qualified LSRP by the New Jersey DEP or whatever body certifies LSRPs?

MR. NIDEL: Objection, form.

A. Yes.

MR. SCHICK: What's wrong with the form?

MR. NIDEL: "Or whatever body." I don't know.

BY MR. SCHICK:

Q. What body does certify you?

A. The New Jersey license site remediation board or something like that.

Q. Okay. Is it appropriate for you to serve as an LSRP for the USMR site when ELM, your firm, is also performing remedial work on the old USMR site itself?

MR. NIDEL: Objection to form.

A. I think it's -- it is. It's commonly done. There's no prohibition for doing that.

MR. SCHICK: Thank you.

MR. NIDEL: I just have a couple of quick follow-ups.

EXAMINATION

BY MR. NIDEL:

Q. Do you consider yourself to be an expert in fate transport of pollutants?

A. An expert?

Q. Are you offering any expert opinions on the fate transport of pollutants?

A. No.

Q. Are you any -- offering any expert opinions on the extent of contamination at this site?

A. Yes, as an LSRP. So I'm looking at it in respect -- with respect to the standards, yes.

Q. Okay. For purposes of litigation, are you offering your opinions as an expert?

A. I'm not sure what that means in terms of legalese.

Q. Okay. Well, I was objected to trying to, quote/unquote, usurp your opinions -- expert opinions for me. So if, in fact, you're offering your opinions as an expert, then I've got a lot more questions for you, because I was not allowed to ask them.

So my question is: Are you offering your opinions as an expert in this case?

MR. STOIA: I'm going to object.

A. Yeah, I guess we can --

MR. STOIA: Well, let me -- let me get my objection.

That's not what we talked about earlier. I don't know that it's relevant, but what we talked about earlier was you couldn't talk to him about his expert opinions for things that had nothing to do with his work in connection with this project. To the extent that he used his judgment or expertise -- I don't know that there's a difference between the two -- in connection to his work in this matter, then he's a factual witness. He did what he did. Whether or not any other party is going to utilize him as a retained expert, none of that has been done yet. Whether anybody does it in the future, I have no idea.

But what you said was a little inaccurate as far as what you couldn't ask him about his role here. You asked him a lot of questions about his opinions and his judgment in connection to what he did at the site. I would suggest that that is expert-type opinions. But that being said, I think we'll represent that

no one has retained him as a litigation expert in the normal course. Whether he's a fact witness or not, you guys can fight among yourselves.

MR. NIDEL: Okay. Are you done?

MR. STOIA: Yeah.

BY MR. NIDEL:

Q. Okay. What did you have to do to obtain the certification for LSRP?

A. Provide documentation to the board regarding my experience and background, my training, I think, like which -- what degree I have, documentation I worked on New Jersey-type products for a period of time, and then I had to pass a test.

Q. Okay. Is there a body to which we can report complaints about an LSRP?

A. Yes.

Q. Okay. And what is that?

A. It's the LSRP board.

Q. Okay.

MR. NIDEL: I think I'm done. I -- I'm not closing the deposition because I do not feel we had sufficient time to cover everything. But I understand that -- at least defense counsel indicates that they're stopping

us at seven hours, which we are accommodating so everyone can get out of here, but --

MR. SCHICK: It's not an accommodation. My flight is not until 10:00. You had hours under the Federal Rules of Civil Procedure. I'm not -- that's it.

MR. NIDEL: I understand that's your position.

MR. STOIA: If there's a debate to be had, we'll have it another day. Everybody is reserving all of their rights.

MR. NIDEL: I agree.

MR. STOIA: Okay.

THE VIDEOGRAPHER: We're going off the record at 6:09 p.m.

THE COURT REPORTER: I just need to get your orders for the record.

(Deposition continues - Next page)

MR. NIDEL: Regular delivery, nothing special. Scanned exhibits.

MR. WILKINSON: We want the same thing, regular delivery and exhibits scanned and video.

(Time noted: 6:09 p.m.)

_____

MICHAEL McNALLY

Subscribed and sworn to
before me this day
of 2018.

_____

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(Exhibits retained by the Court Reporter)

CERTIFICATE

STATE OF NEW JERSEY)
: ss

I, Angela M. Shaw-Crockett, a Certified Court Reporter, Certified Realtime Reporter, Registered Merit Reporter and Notary Public within and for the States of New York, New Jersey and Connecticut, do hereby certify:

That MICHAEL McNALLY, the witness whose deposition is herein before set forth, was duly sworn by me and that such deposition is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

In witness whereof, I have hereunto set my hand this 31st day of August, 2018.

ANGELA M. SHAW-CROCKETT, CCR, CRR, RMR, CSR
LICENSE NO. XI00218400