UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

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,	)	CIVIL ACTION NO. 2:17-cv-01624-ES-SCM
Plaintiffs,	)	
VS.	)	
UNITED STATES METALS REFINING COMPANY, ET AL,	)	
Defendants.	)	

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F.R.C.P. 30(b)(6) DEPOSITION DUCES TECUM OF DEFENDANTS UNITED STATES METALS REFINING COMPANY, FREEPORT MINERALS CORPORATION AND AMAX REALTY DEVELOPMENT, INC.

ORAL AND VIDEOTAPED DEPOSITION OF

JOSEPH A. BRUNNER

JUNE 6, 2018

VOLUME 1

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F.R.C.P. 30(b)(6) DEPOSITION DUCES TECUM OF DEFENDANTS UNITED STATES METALS REFINING COMPANY, FREEPORT MINERALS CORPORATION AND AMAX REALTY DEVELOPMENT, INC.

ORAL AND VIDEOTAPED DEPOSITION OF JOSEPH A. BRUNNER, produced as a witness at the instance of the PLAINTIFFS, and duly sworn, was taken in the above-styled and numbered cause on the 6th of June, 2018, from 9:32 a.m. to 6:14 p.m., before Tamara Vinson, CSR in and for the State of Texas, reported by machine shorthand, at Vinson & Elkins LLP, 1001 Fannin Street, Suite 2500, Houston, Texas, 77002-6760, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto.

A P P E A R A N C E S

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ALSO PRESENT:
Ms. Tamara Vinson, Court Reporter
Ms. Mary Elizabeth Gaasch, Videographer

INDEX

EXHIBIT INDEX

THE VIDEOGRAPHER: Okay. We are now on the record. My name is Mary Elizabeth Gaasch. I'm a videographer for Golkow Technologies.

Today's date is June 6th, 2018. The time on the monitor is 9:32 a.m. This video 30(b)(6) deposition is being held in Houston, Texas in the matter of Juan and Betsy Duar --

MR. SCHICK: Duarte.

THE VIDEOGRAPHER: -- Duarte -- sorry -- versus United States Metals Refining Company, et al. The deponent is Joseph Brunner.

And will Counsel introduce themselves and state whom they represent?

MR. NIDEL: Chris Nidel on behalf of the Plaintiffs.

MR. GERMAN: Steven German of German Rubenstein on behalf of the Plaintiffs.

MR. SCHICK: Bob Schick for the Defendants.

MR. WILKINSON: George Wilkinson for the Defendants.

MR. HUNT: Travis Hunt for the Defendants.

MR. GERMAN: Guys on the phone?

MR. RUBENSTEIN: Joel Rubenstein on the phone for Plaintiffs.

MR. NACE: Jonathan Nace for the Plaintiffs.

THE VIDEOGRAPHER: Will the Court Reporter please swear in the witness?

JOSEPH A. BRUNNER,

having been first duly sworn, testified as follows:

EXAMINATION

QUESTIONS BY MR. NIDEL:

Q. Good morning, Mr. Brunner.

A. Good morning.

Q. Can you please state your full name for the record?

A. My full name is Joseph Andrew Brunner.

Q. And your address, please?

A. My home address or work address?

Q. Home address, please.

A. It's 3935 East Rough Rider Road, Unit 1368, in Phoenix, Arizona 85050.

Q. Okay. And what is your work address?

A. 333 North Central Avenue, Phoenix, Arizona 85004.

Q. And who do you work for?

A. I'm employed by Freeport Minerals Corporation.

Q. What's your date of birth?

A. May 17th, 1964.

Q. Who signs your paycheck?

A. Freeport Minerals Corporation.

Q. Do you get a paper paycheck?

A. No.

Q. Do you have a card?

A. Yes.

Q. Is Freeport-McMoRan Copper & Gold, is that Freeport Minerals?

A. That's the parent company of Freeport Minerals.

Q. Okay. But you -- your card says that you work for Freeport-McMoRan Copper & Gold?

A. The card is just one that they gave us. My employer is Freeport Minerals Corporation.

Q. Okay. Do you have a LinkedIn profile?

A. Yes, I do.

Q. Okay. What do you list as your employer on your LinkedIn profile?

A. I believe it's Freeport Minerals Corporation, but I'm not positive.

Q. Okay. Do you have a resume?
A. Not with me.
Q. Okay. Do you keep a resume?
A. No.
Q. You don't have a resume?
A. No. I've been employed with the company for a long time and really haven't had the need to compile one recently.
Q. And what company have you been employed with for a long time?
A. Freeport Minerals Company and its predecessor company Phelps Dodge Corporation.
Q. Who do you report to with respect to the cleanup at -- in Carteret?
A. Are you asking who my -- who my boss is?
Q. Yeah.
A. William Cobb.
Q. And who does William Cobb work for?
A. I believe he works for Freeport Minerals Corporation.
Q. Can you tell me all the contractors that you work with in Carteret?
A. The contractors?
Q. Contractors, yeah.

A. That would be Arcadis, ELM, and they're the two main contractors that are doing work. We also have Geosyntec doing some work for us.

Q. Okay. And who else? Who else is doing work for you?

A. That's -- that's it as far as Carteret goes.

Q. Those three are the only three consultants or contractors that you have working for you in Carteret?

A. At the current time, yes.

Q. Okay. The entire -- from 2011 until current, anyone else?

A. I don't -- I don't think so. We formerly had HydroQual working for us and we transitioned from HydroQual to ELM. I can't remember the exact date when that occurred. It was probably in the 2010-2011 time frame.

Q. Okay. And were there any other -- are there any other companies, contractors, consultants that you've had working for you on the Carteret cleanup?

A. Are you -- are you referring to the -- to the offsite soil remediation program?

Q. The offsite soil remediation, the evaluation of boundary areas, the -- yeah, the program that you work on.

MR. SCHICK: Well, I just -- I just want to caution if there are experts who might have been retained by counsel, then I don't want to be waiving any privilege or -- and I don't want Mr. Brunner to identify any experts who have been retained by counsel who we've not -- and are not required to designate as of yet.

Q. (By Mr. Nidel) Okay. I'm not asking you about consultants for this litigation, but I am asking you for all of those consultants and contractors that you've relied on for any of your assessments of the extent of contamination, your work delineating the contaminants in Carteret, your work remediating those contaminants, all of those consultants.

A. Okay. Very, very early on in the ISDA process we utilized Shaw, which is also an environmental consulting company.

Q. Okay. Any others?

A. I don't believe so.

Q. When you give presentations, who do hold yourself out as being employed by?

A. With respect to this project, we're doing this on behalf of USMR.

Q. Okay. When you give presentations

professionally and you have PowerPoint presentations that may be posted online, who do you hold yourself as -- who do you hold yourself out as being employed by?

A. In general terms? I mean, for --

Q. When you give a PowerPoint, what do you -- what logo do you put on there?

A. With respect to which -- I mean, are we talking about. . .

Q. You're one person. You only have one employer. Right?

A. Yes.

Q. Okay. So what logo do you put on your PowerPoints?

A. It depends on which site we're presenting a PowerPoint about.

Q. Okay. What footer do you put on your e-mails?

A. I believe it's Freeport Minerals Corporation.

Q. Okay. What's your current job?

A. I'm director of discontinued operations.

Q. Do you work for USMR?

A. I work for Freeport Minerals Corporation.

Q. Okay. Do you report to anyone at USMR?

A. No, I don't.
Q. What are your responsibilities at Carteret?
A. I have management responsibility for the business side of Carteret, which includes our joint venture with V. Paulius & Associates to redevelop the onsite and I've also assumed project management responsibilities for the environmental remediation.
Q. Do you make decisions about cleanup strategies?
A. I'm involved in the decision-making process.
Q. Who reports to you with respect to Carteret project?
A. The consultants which I just referenced.
Q. So you direct the work of the consultants?
A. I'm -- I'm part of the group that directs the consultants.
Q. Okay. Who else is part of that group?
A. We have a safety professional, we have our group of consultants and I work with -- with counsel.
Q. Okay. Who's the safety professional?
A. The current safety professional is named Chuck, Chuck Thompson.
Q. Okay. And then you mentioned a group of consultants. Is that just the consultants that you

already mentioned?

A. Yes, sir.

Q. Okay. Who directs the work of the consultants, you or Chuck?

A. Oh, I -- it's not Chuck. I do.

Q. Okay. Who does Chuck work for?

A. I believe he works for Freeport Minerals Corporation.

Q. So as far as Carteret goes and Freeport Minerals, there's two people that work on the Carteret project primarily. That would be you directing the operations and you would have working for you Chuck. Is that correct?

A. Chuck doesn't report directly to me. I utilize Chuck as a safety resource to ensure that the work that the consultants are doing is being performed in a safe manner consistent with our safety expectations.

Q. Okay. And who is -- how much of your time do you spend in Carteret?

A. Do I spend physically there in Carteret?

Q. Yeah.

A. I try to get there at least once a month for a day or two.

Q. Most of your work is done by e-mail or by phone?

A. That's correct.

Q. Okay. Who's Michael Leach?

A. Michael Leach is the former project manager for the Carteret project.

Q. Are you the current project manager for the Carteret project?

A. I'm the project manager for the environmental remediation, yes.

Q. Okay. When you say Michael Leach was the former, did you take over responsibilities from Michael Leach?

A. Yes.

Q. Okay. When you distinguished that you were in charge of environmental remediation, was that the same job that Michael Leach had?

A. Generally, yes.

Q. Okay. Who did Michael Leach work for?

A. What company?

Q. Yeah.

A. I believe Freeport Minerals Corporation.

Q. When did you take over for Michael Leach?

A. I can't recall exactly. I believe it was in

the 2014, 2015 time frame, but. . .

Q. When did you first have responsibilities for Carteret?

A. I initially was involved on the business side of Carteret, as I mentioned, the joint venture between the company and VPA probably in the 2008 time frame.

Q. Okay. When did you have -- when did you first have responsibilities for the environmental cleanup in Carteret?

A. I -- I think you just asked that.

Q. Okay.

A. The transition from Mr. Leach to myself.

Q. Okay. I didn't know if that was your first responsibilities to become project manager. That's why I asked.

A. That's -- that's when I had direct responsibility.

Q. Does Michael Leach still work for Freeport Minerals?

A. He does not.

Q. Do you know when Michael Leach left?

A. Mr. Leach is deceased and I think he died in the 2014, 2015 time frame, if I recall correctly.

Q. Is that around when you took over for him?

A. There was a bit of a transition. He -- he was quite ill and was no longer able to fulfill his project management responsibilities.

Q. Okay. Prior to -- do you know when specifically you took over for Mr. Leach? You said 2014, 2015 time frame. Can you give me any spring, fall, summer?

A. I wish I could. I just don't -- don't recall.

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

A. Essentially I reviewed a large number of documents. I -- excuse me -- had a number of meetings with counsel to -- to review those documents. That's pretty much what I did.

Q. When did you do that work? Over the last several months or. . .

A. Over the last two or three months.

Q. When did you first know that you were going to be deposed in this case?

A. Probably several months ago.

Q. Okay. So you reviewed documents, lots of documents to prepare for this deposition. Are those documents -- well, other than review documents, did

you talk to anyone?

A. I spoke with counsel.

Q. Okay. Other than speaking with counsel, did you talk to any employees, former employees of USMR, any other people that were onsite?

A. In preparation for this, no, I did not.

Q. I don't know where the exhibits are. Oh, they're right there. They're just not in the Redweld.

Other than meeting with counsel and reviewing documents, did you do anything else to prepare for your deposition?

A. No.

Q. When did you meet with counsel?

A. Multiple times over approximately, I guess, maybe the last six weeks or so.

Q. Okay. When was the first time you met with counsel?

A. I'd have to look at my calendar.

Q. Do you keep a calendar?

A. Not -- not on me.

Q. Is it on your phone?

A. Could be.

Q. Is it on your phone?

A. Should be.

Q. Okay. It's on your phone?
A. Yeah.
Q. Okay. You understand you're under oath today?
A. I do understand that.
(Exhibit No. 50 marked.)
Q. It's just the notice. I'll hand you Exhibit 50 to your deposition. It's the notice for the 30(b)(6) deposition of U.S. Metals and I believe Amax and Freeport Minerals. Did you review Exhibit 50?
A. Yes, I've seen this document.
Q. Okay. Do you understand that you're here to testify on behalf of these companies with respect to the topics that you were identified for?
A. Yes, I understand that.
Q. Are you prepared to testify in response to the substance of those topics?
A. Yes, I believe I am.
Q. Okay. I'm going to hand you Exhibit 3. Exhibit 3 is a response from your counsel to that notice and it identifies a number of documents that were reviewed. I think it's probably the very last attachment to that and I think you might have passed where it starts. So there's -- there's an attachment

for Mr. Fenn and there's an attachment for you.

A. Oh. Okay.

Q. Okay. Are those the Bates numbers of the documents that you have been given and reviewed in preparation for your deposition?

A. I believe that's true.

Q. Okay. Do you handle the management of payment of the contractors?

A. Yes.

Q. Okay. You put in requests for payments to them when they send you an invoice?

A. We have a -- we have a process that invoices are submitted electronically, reviewed and then approved and then in turn paid.

Q. Okay. Can you explain that process to me?

A. Let's put the clip on first.

Q. Sure. The court reporter will thank you for that.

A. You want to understand the whole -- the whole --

Q. Sure. So Arcadis does -- does work. How often do they bill you?

A. They bill on a monthly basis.

Q. Okay. So they send you a bill at the

1 beginning or the end of the month?
2 A. It's typically the middle of the month
3 covering the -- the month immediately preceding that.
4 Q. Okay. And is that bill sent to you?
5 A. No.
6 Q. Who is that bill sent to?
7 A. We have a service that receives the invoices,
8 scans them, and they're then delivered in electronic
9 format on whichever particular service order that work
10 is being performed pursuant to.
11 Q. Okay. And then how is the money -- how is it
12 determined whether they should be paid for the
13 invoice?
14 A. When the document is received by me
15 electronically, I'll review it for, you know, accuracy
16 both on the scope of work and the -- and the dollar
17 amount. If I'm -- if I have questions about the
18 invoice I'll get back directly with whichever
19 contractor sent the invoice to, you know, get some
20 clarifications. If I've got no issues with the
21 invoice, then I will approve it for payment.
22 Q. Okay. And then what do you do when you
23 approve it for payment?
24 A. Depending on how the service order is

configured in our system I'll enter the appropriate numbers that are charged to each particular task and then I'll hit approved or press approved.

Q. Okay. What's that system called?

A. We do it in -- it's called CAS.

Q. Okay.

A. Contract Administration System I believe is what the acronym stands for.

Q. And then is a check sent out or is it electronically transferred or wired or. . .

A. As far as I know they're wired. You know, some -- some consultants may request paper checks, but that's kind of done on the back end transparent to me. I don't know specifically how one contractor might get paid as compared to another.

Q. Do you know what account it's wired from?

A. No.

Q. Okay. Who is Ronald Buchanan?

A. Ronald Buchanan is an employee of Freeport Minerals Corporation.

Q. Okay. What's his role in the Carteret remediation?

A. He was providing some support to Mr. Leach in the -- probably the 2010, 2012 time frame.

Specifically he was looking more at the onsite work than -- well, there was no offsite work going on during that time.

Q. Okay. And you talked about William Cobb. That's the person that you report to. Correct?

A. That's correct.

Q. In addition to the Bates-numbered documents, did you review anything else in this case?

A. Without knowing exactly which documents these Bates numbers refer to, I mean, there are a lot of them, you know, I may have reviewed other documents that are not included here, but I don't know for sure.

Q. Okay. You said you met with counsel starting about six weeks ago. When's the last time you met with counsel to prepare?

A. I met with them for a brief time yesterday.

Q. Okay. Did you review any deposition transcripts?

A. I -- I -- what deposition transcripts are you referring to?

Q. Any of them. I don't know.

A. As -- as part of my document review, there were several deposition transcripts I reviewed that dated back to the '80s.

Q. Okay. Did you review John Fenn's deposition or any portion of it?

A. I -- I have not personally seen Mr. Fenn's transcript.

Q. Did you see a rough of a portion of his transcript?

A. I may have seen -- you know, seen that with -- with counsel.

Q. What high school did you go to?

A. Sunnyslope High School.

Q. What high school?

A. Sunnyslope.

Q. Okay. Do you attend a church?

A. I do.

Q. Okay. What church do you go to?

A. St. Patrick's in Scottsdale.

Q. So you -- did you review Mr. Fenn's transcript?

A. I did not review Mr. Fenn's transcript.

Q. You did not read Mr. Fenn's transcript?

A. No.

Q. Did you look at it?

A. Perhaps from the distance I am from Mr. Wilkinson, if that's so-called looking at a

transcript.

Q. I'm not asking you to tell me what your counsel told you, but if you reviewed a document, I need to know.

A. I did not review Mr. Fenn's transcript.

Q. Okay. How long did you meet yesterday?

A. Approximately three hours.

Q. Where did you meet?

A. In this building.

Q. Okay. What's the current status of sampling in the residential areas in Carteret?

A. Sampling in the residential areas is ongoing.

Q. What's the status of sampling in the AOC in Carteret?

A. Sampling in the AOC is ongoing.

Q. Okay. What's the -- what's the status of sampling outside the AOC?

A. We're not currently doing any sampling outside the AOC.

Q. What's the status of the delineation of USMR or potential USMR contaminants in the residential areas in Carteret?

A. Please repeat that.

Q. Sure. What is the status of your delineation

of the extent of contamination in Carteret?

A. That is a work in progress. We're continuing to review the data we have available.

Q. What is the status of remediation in Carteret?

A. The remediation within the AOC is ongoing.

Q. What's the status of remediation outside of the AOC?

MR. SCHICK: Objection. Form.

A. We're not doing any remediation outside of the AOC.

Q. (By Mr. Nidel) Are you planning to do any remediation outside of the AOC?

A. At this point, that is yet to be determined.

Q. What is the plan for determining whether or not you will do any remediation outside the AOC?

A. Once we complete our analysis of the appropriateness of the current AOC boundary and review that with the LSRP, the LSRP will make a determination on whether modification of the boundary is appropriate. In the event that he does determine that expansion to the boundary is required, then we will expand our sampling and remediation efforts to properties outside of the current boundary. If the

LSRP determines that the current boundary is appropriate, then things will stay as they are. We'll complete our remediation within the boundary and not do anymore outside of the boundary.

Q. What is the status of those discussions?

MR. SCHICK: Objection. Form.

A. Discussions with who, please?

Q. (By Mr. Nidel) With the LSRP.

A. We have not yet completed our analysis, so we have not had any discussions on the AOC boundary with the LSRP at this time.

Q. Okay. When is that scheduled to be concluded?

MR. SCHICK: Objection. Form.

A. We're hopeful to initiate discussions with the LSRP sometime later this summer.

Q. (By Mr. Nidel) You've already initiated those discussions. Right? You've been discussing the extent of the boundary for at least the last year and a half. Right?

A. I'm not sure what you're specifically referring to. We have worked with the LSRP to develop a program where we would sample along transects beyond the boundary of the AOC, but the information that's

gathered as part of that is the investigation that's in progress and the one that we still have not discussed in detail with the LSRP.

Q. Okay. But you have the data from the transects. Correct?

A. We have some data from the transects, that's correct.

Q. Okay. What -- what data do you not have from the transects?

A. We have -- we have the data from the transects that we committed to get as part of the sampling program.

Q. Okay. So what data do you not have?

A. We're looking at potential other sources of the constituents of concern that may be present in both on and offsite within AOC and transect samples.

Q. Okay. What other sources are you looking at?

A. There are many other potential sources of lead and arsenic in a residential environment like -- like Carteret. A few examples could be lead-based paint, arsenic-containing wood from wood treatment, lead from unleaded -- sorry, from the historic use of leaded gasoline. A lot of material that we're finding within the AOC as part of our remediation efforts is

historic fill that is derived from non-USMR sources that was used over time. Historically the Carteret area back in the 1800s was farmland, so there was, you know, well-documented use of various pesticides and herbicides from that time frame. So there -- there are a lot of other sources of the constituents of concern that we're evaluating. We are trying to understand where those sources might have come from as part of our overall review of the adequateness -- adequacy of the boundary.

Q. Okay. So I've got lead-based paint, I've got arsenic-containing wood, I've got lead from leaded gasoline, I've got material and historic fill and I've got pesticides from the 1800s. Anything else?

A. I think that's a pretty comprehensive list of things.

Q. Okay. What well-documented use is there of pesticides in the 1800s in farmland in Carteret?

A. As part of our -- as part of our study we're looking at historic documents and have identified the use of certain pesticides and herbicides back in that time frame.

Q. Okay. I haven't seen any of those documents. Those are documents you guys are reviewing right now?

A. They're documents that we're in the process of evaluating as part of our boundary evaluation.

Q. Okay. Have you given them to counsel?

MR. SCHICK: Counsel obtained them.

MR. NIDEL: We have them?

MR. SCHICK: I don't -- counsel, this witness, I don't want him waiving privileges with respect to expert testimony that this may relate to.

MR. NIDEL: Well, here's the thing. If the company is taking actions factually in a case and doing a remediation and negotiating with the State and -- that's not expert testimony.

MR. SCHICK: Right.

MR. NIDEL: That's -- that's consulting --

MR. SCHICK: He's already told you he hasn't --

MR. NIDEL: -- for the purpose of cleanup.

MR. SCHICK: -- he hasn't had the discussions with the LSRP at this point. What he's referring to is information that may have been gathered by counsel for purposes of expert testimony in this litigation, period. And I don't want this

1 witness -- I'm cautioning him not to waive that
2 privilege.
3 MR. NIDEL: Well, here's -- here's the
4 problem. I mean, if they're going to make decisions
5 whether to clean up an area or not to clean up an area
6 based on information, then that's not privileged.
7 Q. (By Mr. Nidel) So what pesticides did you
8 find were used in the 1800s?
9 A. I've not reviewed, you know, those documents.
10 Q. Well, you said it was well-documented use of
11 pesticides. I mean, was there cotton groves there?
12 What was -- what was going on there?
13 A. I don't know what was -- what was being
14 farmed.
15 Q. Okay. What pesticides?
16 A. I don't know specifically what pesticides
17 were being used.
18 Q. Okay. With respect to the historic fill,
19 what evidence do you have that any of the historic
20 fill that was used was contaminated with arsenic,
21 lead, dioxin, zinc, copper?
22 MR. SCHICK: Objection. Form.
23 A. It's my understanding that the DEP has
24 developed various maps that identify where fill is

used in certain areas of the state and that they have documented that that fill has contained various contaminants.

Q. Okay. I'm not talking about various areas of the state. I'm talking about Carteret. I'm not talking about the copper site. I'm talking about the residential area. What evidence do you have that material used for historic fill contained arsenic, lead, copper, zinc or dioxins?

A. I believe if you'll look at DEP maps that it shows that portions of the Carteret townsite were constructed of historic fill and I believe DEP has also generally indicated that historic fill does contain various levels of various constituents.

Q. Okay. What documents that you reviewed to prepare for this deposition show you that material that was used for historic fill in the residential areas of Carteret exceeded the cleanup standards?

A. I can't point to a specific -- specific document, but there is documentation that indicates where historic fill was -- was used in Carteret.

Q. Okay. I understand there are documents that indicate where historic fill was used.

A. Uh-huh.

Q. I got that. I understand that that fill probably contains some amount of arsenic, copper and lead. Okay? But do you have any documents that say that it contains arsenic, copper or lead or any other constituent above a safety standard?

A. I don't know if -- I can't point to any specific document that indicates a specific concentration.

Q. Okay. Can you point to any document that indicates a specific concentration -- sorry, not a specific concentration but a concentration that exceeds a residential safety standard?

A. I can't point to a specific document at this time.

Q. So what you're saying is that right now the potential -- it's simply a potential that historic fill was used that hypothetically might have had contamination?

A. I'm -- I'm not -- no, I'm not saying that there's a potential that historic fill was used. It's documented that historic fill was used.

Q. Okay. That wasn't my question. Maybe you --

A. That's what you just stated.

Q. No, because my question was there was a

potential that historic fill was used that contained levels of these constituents above a cleanup standard.

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) You don't have any actual evidence that such fill was used. Correct?

A. We have evidence that fill was use -- historic fill was used in Carteret townsite.

Q. That's not my question. I understand historic fill was used. Fair enough.

A. Uh-huh.

Q. I've seen the Sanborn maps, I've seen some of the fill. My question is: Was historic -- what evidence do you have that historic fill was used that exceeded residential cleanup standards?

A. At this -- at this time, I don't have any direct evidence that indicates that, but, you know, regardless of whether there was constituents above cleanup standards in historic fill, it's -- it's -- it's a fact that there are constituents in historic fill of the various constituents of concern and that along with these other lines of evidence, such as, you know, the use of leaded gas, lead-based paint, arsenic-containing wood, those are all lines of evidence that point to multiple sources of these

contaminants in the Carteret townsite.

Q. Your sampling avoided leaded paint. Correct?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) You specifically -- your sampling plan was designed to avoid picking up lead from paint. Correct?

A. We employed an offset from certain residential areas to attempt to avoid lead -- lead-containing paint as a contaminant in our sampling. Did that mean that not a single piece of lead paint was picked up in our sampling, no. If you're out there scraping a deck or scraping the side of a house, those paint chips are going to fly and they're going to, you know, potentially fly beyond the boundaries of what our offsets are. It's just a fact.

Q. Yeah, they're going to fly like they're launched from a 400-foot stack. Right?

MR. SCHICK: Objection. Sidebar.

Q. (By Mr. Nidel) Is that right?

A. I don't know if you've ever, you know, removed lead -- you know, removed paint from a -- from a structure but it does tend to move.

Q. How many foot buffer did you use to keep -- to prevent from picking up hits of leaded paint?

A. I don't recall what -- what the exact buffer is.

Q. Okay. And did you use also a buffer or you have a practice in place to avoid too close to treated woods, decks, fences, things like that?

A. It's my understanding that we do.

Q. Okay. And you said that -- I think your testimony was that is it possible -- did you avoid every speck of leaded paint and your answer was no. Do you have any evidence that you picked up leaded paint in your samples?

A. I think we've got one good example of -- of lead paint that was picked up in a sample that was part of the ISDA sampling.

Q. Okay. What was that?

A. It was -- I can't remember the exact location. It was towards the northernmost part of the ISDA generally within the center of the arc, but it was a sample that was surrounded by, you know, a number of other samples that were, you know, very low in lead. And this particular sample registered 16,000 or so ppm of lead, so obviously, you know, that would be -- that would be lead paint.

Q. Okay. Any other examples of picking up lead

paint in your sampling?

MR. SCHICK: Objection. Form.

A. During -- during which sample?

Q. (By Mr. Nidel) Any of it, yeah. Where else did you pick up lead paint?

MR. SCHICK: Objection. Form.

A. You know, we have not essentially looked at, you know, each of these samples through, you know, scanning electron microscope or something which would kind of differentiate a fleck of lead paint from -- from something else, but we have in the course of our sampling identified some significant outliers that are, you know, really not consistent with the, you know, lead concentrations in other parts of the particular property that would indicate that that sample was not representative of the property as a whole and was more likely impacted by some level of lead paint or other -- or other form of lead or other source of lead. Sorry.

Q. There is a way that you could have fingerprinted for lead paint. Right?

MR. SCHICK: Objection. Form.

A. I'm sure there is. I'm not a -- I'm not a forensic chemist.

Q. (By Mr. Nidel) But you've talk -- you talked about it --

A. Yeah.

Q. -- in your work that there was a method you could have employed to determine whether or not the lead you were seeing was from lead paint. Right?

MR. SCHICK: Objection. Form.

A. I understand there are techniques that can look and, you know, make a determination whether a sample or a part of a sample is more likely to be lead-paint derived as opposed to derived from different -- some other source.

Q. (By Mr. Nidel) Okay. And you chose not to use those techniques. Right?

MR. SCHICK: Objection. Form.

A. Well, I mean, in the -- in the establishment of the data used to do the ISDA and the -- and the AOC, we're not making an effort right now to differentiate the lead. If the lead is there, we're -- we're running the calculations and if it indicates that there is an exceedance in the residential cleanup standard we're cleaning it up.

Q. (By Mr. Nidel) Okay. I just want to be clear: There are techniques that you could use to

1 determine if lead in a sample is from lead paint or
2 more likely to be from lead paint or not. Correct?
3 A. It's my understanding that is correct.
4 Q. Okay. And you have not employed those in
5 your investigation onsite. Correct?
6 MR. SCHICK: Objection. Form.
7 Q. (By Mr. Nidel) And by onsite, I mean in
8 Carteret, the residential site.
9 A. Not to my knowledge.
10 Q. Tell me about samples of arsenic that you
11 found that you think are from other sources. Where
12 have you found arsenic that's from another source?
13 MR. SCHICK: Objection. Form.
14 A. We've -- we've not attempted to do any
15 arsenic fingerprinting.
16 Q. (By Mr. Nidel) Have you attempted to do any
17 smelter fingerprinting of your lead or arsenic?
18 MR. SCHICK: Objection. Form.
19 A. Not that I'm aware of.
20 Q. (By Mr. Nidel) Okay. Have you ever heard of
21 doing an antimony testing to see if -- to correlate
22 with the lead levels to see if the lead is from a
23 copper smelter or a lead smelter?
24 A. No. As I said, I'm not a forensic chemist,

so. . .

Q. Okay. I'm not asking you if you're a forensic chemist. And just to be clear, when I'm asking you -- I'm using the word you and I'm asking you as a representative of USMR. Okay? So is USMR aware of any techniques to fingerprint smelter contaminants -- smelter metals contaminants including lead using antimony or any other method?

A. Not to my knowledge.

Q. Did you, being USMR, do any research on fingerprinting lead from smelters?

A. Not to my knowledge.

Q. Was the purpose of the remedial action work plan to ensure that post-remedial metals concentrations no longer exceed New Jersey DEP residential safety standards?

A. Could you run that past me again, please?

Q. Sure. Was the purpose of the remedial action work plan to ensure that post-remedial metals concentrations no longer exceed the New Jersey DEP's residential cleanup standards?

A. That's generally accurate.

Q. You would agree with that?

A. Within the AOC, yes.

Q. Okay. What was -- what was Phase 1 of the cleanup?

A. Phase 1, I think what you're referring to is the ISDA work that was done and the ISDA or Phase 1 work was in an effort to attempt to delineate the likely extent of various metals that could have come from the smelter to be within portions of the townsite.

Q. Okay. Is Phase 1 complete?

A. Yes, Phase 1 was completed when the ISDA was essentially morphed into the AOC that we currently -- currently know.

Q. Okay. So Phase 1, the goal was to attempt to delineate the likely extent of contaminants that were possibly or probably associated with the smelter. Is that fair? Or sorry, with the site, let's say.

A. That's correct.

Q. Okay. And maybe I should say facility because my tendency is to call the cleanup the site. So how about we call the USMR operation the facility, or I'll try to do that.

You said Phase 1 was complete when the ISDA morphed into the AOC. Correct?

A. Yes. We -- we collected data within the --

1 within the ISDA to validate our conceptual site model
2 that air deposition was the method whereby these
3 materials would have gone into the townsite. It
4 consisted of a sampling program that was reviewed and
5 approved by the LSRP. The data that was collected
6 supported the conceptual site model and resulted in
7 the establishment of the AOC, which prescribed the
8 extent --
9 Q. Sorry. We lost one.
10 A. That's okay. I put him to sleep.
11 Q. Or I did.
12 A. The -- I'm sorry -- the AOC which then
13 prescribed the boundaries of where we would be
14 conducting sampling on each individual property and
15 for which constituents that sampling would be
16 performed for.
17 Q. Okay. So does that mean that you now --
18 well, when was Phase 1 completed?
19 A. Probably in the 2015, early 2016 time frame.
20 Q. Okay. So does that mean since that
21 completion that you now have delineated the likely
22 extent of USMR's contaminants in the area?
23 A. Well, the ISDA informed the boundaries of the
24 AOC. What we're doing in Phase 2, which is the AOC

sampling which is a much more detailed sampling where we're going into essentially every property and obtaining many samples, that is allowing us to get the data to determine whether the AOC boundary is appropriate. We've always represented to the LSRP and to the DEP that we wanted to let the data drive decision-making process -- processes. So the data that we're gathering from the AOC is going to be used, as we discussed earlier, to evaluate whether the AOC boundary is appropriate or whether it needs to be expanded.

Q. Okay. So the goal of Phase 1 was to delineate. Phase 1 is completed but it sounds like you haven't quite delineated. Is that fair?

A. We've delineated what we believe is the likely boundary. We're now collecting data to confirm that that's the likely boundary. If the data does not support that to the satisfaction of the LSRP and the State, then the boundary will be modified accordingly. If the data supports that the AOC is the appropriate size, then we'll just continue along our remediation program within the current AOC.

Q. Okay. Who is the LSRP?

A. Our LSRP is Michael McNally.

Q. Okay. Who does he work for?
A. Mr. McNally works for ELM.
Q. Okay. And you -- you're doing a lot of work with ELM onsite, right? ELM is the contractor that's doing the remedial investigation for the actual smelter site. Right?
A. Yes.
Q. How much money are you paying ELM for that work?
A. What time frame are you talking about?
Q. They did a big remedial investigation for the smelter site. Right?
A. Yes.
Q. Do you know how much that cost?
A. It was -- it was done in several different stages and different components, but all -- all totaled, I would guess that it was somewhere in excess of a million dollars.
Q. Okay. Have you ever been deposed before?
A. Yes.
Q. How many times?
A. Probably five or six.
Q. What was the nature of those depositions?
A. I've been deposed in a talc personal injury

case. I've been deposed on a couple of residential soil cleanup projects. I've been deposed in a cost allocation matter and I've been deposed in a -- this is a long time ago, in a dispute over ownership of a tailing facility in New Zealand. I didn't get to go to New Zealand, though.

Q. Too bad. Have you talked to Mr. Fenn about this case?

A. About the case, no.

Q. Did you talk to him about what he reviewed for this case?

A. No.

Q. Did you talk to him about operations at the USMR facility?

A. No.

Q. Is there anything that is affecting your ability to testify truthfully today?

A. No.

Q. If you need to take a break at any time, which we're about to take one, you can take one. You just need to let me know and answer any question pending. Okay?

A. Certainly.

Q. I would say that at least the one thing we've

been doing a good job of is letting each other speak so the court reporter can get a good record. So we both deserve a pat on the back for that. We'll hope it continues. Does that sound fair?

A. Sounds fair. I've been to several deposition where both people have talked at the same time and the reporter yells at us.

Q. You might have been here on whatever -- Monday.

MR. SCHICK: Monday.

Q. (By Mr. Nidel) We had a little bit of that.

MR. NIDEL: Let's go ahead and take a break.

THE WITNESS: Okay.

THE VIDEOGRAPHER: We are off the record. It is 10:26 a.m. It's the end of Tape 1.

(Break.)

THE VIDEOGRAPHER: Okay. We are back on the record. It is 10:38 a.m. This is the beginning of Tape 2.

Q. (By Mr. Nidel) We talked a little bit about the structure of your responsibility and your workforce there and we talked about Mr. William Cobb. Who did Mr. Cobb report to?

A. Mr. Cobb reports to Michael Arnold.

Q. Okay. Who is Michael Arnold?

A. I believe Mr. Arnold is the COO of Freeport Minerals Corp.

Q. Okay. And what is -- I know you report to Mr. Cobb, but what is his role with respect to Carteret?

A. Well, ultimately he has responsibility, you know, since I'm the manager and he's the vice -- he's our vice president of environmental and sustainable development.

Q. Okay. Does Mr. Cobb direct any of your decisions or do you make your decisions on your own?

A. I tend to make my decisions in a collaborative process and to the extent that I need Mr. Cobb's expertise, I ask for it. So there's certain issues that I, you know, make decisions on my own and others where I, you know, seek the guidance of other people, including Mr. Cobb.

Q. Okay. Who else would you seek the guidance of?

A. Primarily, you know, the consultants that -- that I have working for me.

Q. Do you ever seek the guidance of Michael

Arnold?

A. I do not.

Q. We talked about Phase 1 and Phase 2. Is the purpose of the work in Carteret to fully determine the horizontal and vertical extent of pollution that may have emanated from the site?

A. Phase -- the purpose of Phase 2 is to evaluate the vertical and horizontal extent of the constituents of concern that have been identified and where they are present in concentrations that exceed the New Jersey residential direct contact, so cleanup standards to remediate those properties consistent with the tech regs.

Q. So other than -- other than your qualification that you're looking for exceedances of the residential direct contact standards, you would agree that the purpose of your work in Phase 1 combined with Phase 2 is to fully determine the horizontal and vertical extent of pollution that was emanating from the site?

MR. SCHICK: Objection. Form.

A. It's to determine the horizontal, vertical extent of the three constituents of concern. Whether or not they've originated from the site, we're not

testing out the specific contribution from the -- from the site at this -- at this point.

Q. (By Mr. Nidel) Okay. Has -- have you ever fully determined the horizontal and vertical extent of pollution emanating from the site?

A. Can you repeat that?

Q. Yeah. Have you ever fully determined the horizontal and vertical extent of pollution emanating from the site?

A. That's -- that's a work in progress as, you know, we discussed during the last session on the appropriateness of the configuration of the AOC. Have we completed horizontal and vertical delineation of the constituents of concern within the AOC, not yet. It's -- we're also continuing our sampling program. There's certain properties that we have not yet received approval from the property owner to perform sampling and there's other properties where we have done sampling but we have not yet completed vertical delineation.

Q. Okay. You said it was a work in progress. When did that work begin?

A. We began the -- which -- I mean, which work?

Q. The work designed or with the goal of fully

1 determining the horizontal and vertical extent of
2 pollution emanating from the site.
3 MR. SCHICK: Objection. Form.
4 A. If you're -- if you're talking within the
5 AOC, that was work that started in probably the 2014,
6 2015 time frame. Actually, probably -- no, I take --
7 I take that back. It was in -- later in 2015, and
8 that work is continuing.
9 Q. (By Mr. Nidel) Okay. And I understand that
10 you may be -- that work may be limited to the AOC, but
11 I just am trying to understand there's a work in
12 progress to fully delineate or determine the
13 horizontal and vertical extent of pollution emanating
14 from the site and I believe it's your testimony that
15 that work started in around 2014 or 2015. Is that
16 correct?
17 A. That's correct, as part of the AOC work. I
18 mean, the ISDA work, which was kind of a prelude to
19 the AOC, you know, Phase 1 before Phase 2, you know,
20 started in 2013, I believe.
21 Q. Okay. I want to know the earliest date that
22 that work in progress started. So would that be 2013?
23 A. When we first started ISDA sampling I believe
24 that was 2013. It may have been in 2012. I don't

1 remember the exact date.
2 Q. Okay. 2012 or 2013. So that sampling work
3 would have been the first of your efforts to fully
4 determine the horizontal and vertical extent of
5 pollutants emanating from the site. Correct?
6 A. I'd say that's correct.
7 Q. Where did the metals in Carteret come from?
8 MR. SCHICK: Objection. Form.
9 A. Metals in Carteret could have come from a
10 variety of sources. The USMR smelter is a potential
11 source, lead-based paint, arsenic-containing wood,
12 leaded gasoline, all of the things that I've mentioned
13 previously, including other industries. We're talking
14 central New Jersey here and there's a lot of other
15 industry in the area that, you know, could have
16 contributed to, you know, what you're very generally
17 referring to as metals in Carteret.
18 Q. (By Mr. Nidel) Was the work to delineate the
19 horizontal and vertical extent of pollutants emanating
20 from the site, was that work important to protect the
21 public?
22 MR. SCHICK: Objection. Form.
23 A. The DEP requested that the company evaluate
24 metals concentrations in the soil outward from the

historic area and, where necessary, to remediate that.

Q. Was that work important to the protection of the public?

MR. SCHICK: Objection. Form.

A. You'd probably have to ask the DEP as to, you know, what their motivation was to require the sampling to be -- the sampling and remediation to be done whether there was a health-based reason or other. We were -- we are required by the State to do it and they -- we -- we followed suit.

Q. (By Mr. Nidel) Okay. Right now I'm asking USMR and I'm asking if that was important to protect the public.

A. Help me understand what you're meaning by protect.

Q. You don't know what I mean by protect?

A. I need you to be a little more specific on -- protecting the public is pretty broad.

Q. Okay. You understand that we're on video today. Right?

A. I do.

Q. Okay. And you understand that that video of your testimony can be played to the jury. Correct?

A. I -- I assume.

Q. Okay. You're not understanding what I mean by protect. Is that right?

A. I'm asking you to be more specific on where you're -- where you're going with this.

Q. Okay. You would agree that lead is toxic. Do you know that?

MR. SCHICK: Objection. Form.

A. What concentrations are you -- are you talking about here?

Q. (By Mr. Nidel) Is any amount of lead good for a child?

MR. SCHICK: Objection. Form.

A. I -- I don't know.

Q. (By Mr. Nidel) You don't know if lead is good for children?

A. Again, yeah, you're making a very broad statement. What's -- you know, what's good? I mean, every -- there's lead in the environment. It's present in certain concentrations everywhere. So, you know, in certain concentrations it's -- it's probably not good; in certain other concentrations it may not be an issue, so. . .

Q. What concentrations of lead are good for kids?

MR. SCHICK: Objection. Form. Beyond the scope.

A. It's -- it's my opinion that there are residential cleanup standards established in the state of New Jersey that prescribes 400 parts per million lead as -- as a cleanup standard.

Q. (By Mr. Nidel) And that level of lead is -- if you're at 399 that's good for kids?

MR. SCHICK: Objection. Form.

A. Based on, you know, my understanding of the standard, 399 is a level at which there would be no risk as compared to 401.

Q. (By Mr. Nidel) So there's no risk at 399, but there becomes a risk requiring cleanup and remediation at 401. Is that your testimony?

MR. SCHICK: Objection. Form. Calls for expert testimony.

A. The residential cleanup -- the residential direct contact cleanup standard in New Jersey is 400. So if you're saying that there's a concentration of 401, then based on the New Jersey regulations that particular property would require cleaning up. If the concentration is 399, it would not require cleaning up. The standard is 400.

Q. (By Mr. Nidel) Okay. Is exposure of kids to lead in their front yards at 399 good for them?

MR. SCHICK: Objection. Form. Overly broad. Beyond the scope and calls for expert testimony.

A. I don't know what you mean by good for them, but the State of New Jersey has determined that a concentration of 399 does not pose a risk.

Q. (By Mr. Nidel) They've decided that it does not pose a risk or they've decided that they're not going to require you by law to clean it up?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Which one of those, or you can pick your own?

A. I believe it's both. The risk-based cleanup standard is 400, so by definition 399 does not pose a risk nor require cleanup.

Q. Okay. What about arsenic? What's a safe level of arsenic in a kid's front yard?

MR. SCHICK: Objection. Form.

A. The DEP, again, has determined that the residential direct contact cleanup standard for arsenic is 19 parts per million.

Q. (By Mr. Nidel) Okay. Lead is a neurotoxin.

Correct?

MR. SCHICK: Objection. Form. Calls for expert testimony.

A. I -- I believe that's the case.

Q. (By Mr. Nidel) Do you understand lead to be a neurotoxin?

A. I believe I do.

Q. Okay. Do you understand that arsenic is a carcinogen?

A. I believe I do, yes.

Q. Okay. What level of arsenic exposure for kids is safe?

MR. SCHICK: Objection. Form.

A. Again, I'm deferring to the New Jersey residential direct contact cleanup number of 19. So anything below 19 by definition as defined by the DEP is considered safe.

Q. (By Mr. Nidel) Okay. Did you -- and again, throughout the day when I use you I mean USMR and related defendants, but did you ever consult a toxicologist or an epidemiologist as to what levels the company would feel were safe for its community members to be exposed to in their soil?

A. In the development of the Phase 2 remedial

action work plan, we utilized the cleanup numbers that were prescribed by the State of New Jersey.

Q. Okay. My question was: Did you ever consult a toxicologist or an epidemiologist as to what you, the company, thought would be safe for its community?

MR. SCHICK: Objection. Form.

A. No. I believe that the company chose to utilize the standards which were prescribed by the state regulators.

Q. (By Mr. Nidel) Okay. Did you, the company, ever investigate what other states had other cleanup standards to see that -- to ensure that the New Jersey cleanup standards were protective of the public that were surrounding your facility?

MR. SCHICK: Objection. Form.

A. Well, the State of New Jersey is charged with protecting the residents of New Jersey and the cleanup standards that are prescribed by the State are what the State of New Jersey deems to be protective to its citizens.

Q. (By Mr. Nidel) Okay. Do you agree that people should not be exposed to hazardous pollutants?

A. What kind of hazardous pollutants are you talking about here?

Q. Ones that are neurotoxins or ones that are carcinogenic or both.

A. At -- you know, at what concentrations? I mean arsenic, lead, I mean, all of these things that you're probably broadly defining as hazardous materials are in our everyday environment. So help me understand what, you know, specifically, you know, where, what concentrations, what specific chemicals you're talking about.

Q. I'm talking about neurotoxins and carcinogens and I'm just asking you if you agree that people should not be exposed to them?

MR. SCHICK: Objection. Form. Beyond the scope.

A. Again, at -- at what concentrations?

Q. (By Mr. Nidel) At any concentration unnecessarily. Do you agree that people should not be exposed to carcinogens and neurotoxins unnecessarily?

MR. SCHICK: Objection. Form. Beyond the scope.

A. Again, you know, we're -- we're exposed to, you know, these materials every day just by virtue of breathing, breathing in air. So, you know, again, I'm not -- I'm not trying to be evasive here.

Q. (By Mr. Nidel) No.
A. I'm just trying to understand.
Q. Nope, nope. I just want to know can you answer with a yes or no that you agree that people should not be unnecessarily exposed to carcinogens and neurotoxins, yes or no?
MR. SCHICK: Objection. Form. He does not have to answer yes or no to the question.
MR. NIDEL: That's fine. If he can't answer --
Q. (By Mr. Nidel) My question is: Can you answer with a yes or no?
A. I don't think I can answer with a yes or no.
Q. Okay. Do you agree that a company that releases hazardous chemicals or pollutants into the environment should clean them up?
MR. SCHICK: Objection. Form.
A. How are they being released and what concentrations are they being released, what's being released, what's the regulatory, you know, regime that they're being released pursuant to? You're asking very broad questions.
Q. (By Mr. Nidel) I guess I would start with the way that USMR released those chemicals into the

1 surrounding community when it operated. So do you
2 agree that a company like USMR that releases through
3 its stacks or its fugitive emissions hazardous
4 neurotoxins and carcinogens should clean them up?
5 MR. SCHICK: Objection. Form. Beyond
6 the scope.
7 A. Again, you know, it would depend on what's
8 being released, how much, you know, what the exposure
9 is to a resident.
10 Q. (By Mr. Nidel) She corrected me for making
11 that noise before.
12 What's being released, lead, arsenic,
13 cadmium, dioxin?
14 MR. SCHICK: Objection. Form.
15 Q. (By Mr. Nidel) Do you agree that a company
16 like USMR that releases like USMR did, lead, cadmium,
17 dioxin, arsenic, should clean those things up?
18 MR. SCHICK: Objection. Form.
19 A. Not -- not necessarily. It would depend on,
20 you know, what was being released, how much was being
21 released, where it was being -- where it was being
22 released to. You know, that's a very -- you know,
23 it's not a yes or no answer. There's a lot of, you
24 know, underlying clarifications that, you know, I need

to understand before I can give a more precise answer.

Q. (By Mr. Nidel) Okay. I'm going to clarify them for you. Being released to a neighborhood, okay? Would you agree that a company that releases, as USMR did, lead, cadmium, arsenic and dioxin into a residential neighborhood should clean them up?

MR. SCHICK: Objection. Form.

A. Again, were they being released in excess of standards of regulatory obligations, of, you know -- I can't say yes or no.

Q. (By Mr. Nidel) Okay. You cannot answer the question yes or no unless I specify whether they're being released in excess of some regulatory obligation that may or may not have existed in 1940. Is that your testimony?

MR. SCHICK: Objection. Form.

A. I need to understand, you know, kind of, you know, what the releases were, what the impact on the community, you know, might have been and, you know -- you know, you're not -- you've not given me that clarification.

Q. (By Mr. Nidel) You know how they were released by USMR. Correct?

A. Generally they were released through stack

and fugitive emissions, if you're talking about the operation of the -- of the historic smelter.

Q. Okay. The smelter and the related other things that went on at that facility. Correct?

MR. SCHICK: Objection. Form.

A. Other things?

Q. (By Mr. Nidel) The other furnaces, the lead plant, those things. Right?

A. Okay.

Q. That's part of the facility. Right?

A. That'll be part of the -- yeah, the larger facility, yes.

Q. And assuming that the hazardous pollutants including lead, arsenic, cadmium, dioxin, were released in a way that was through the stacks and through fugitive emissions into a residential community, would you agree that a company should then clean them up?

MR. SCHICK: Objection. Form. Beyond the scope.

A. Again, released at what concentrations from the source and, you know, what concentration within the community?

Q. (By Mr. Nidel) What concentration did USMR

1 release pollutants into the community?
2 A. I don't know those numbers. That might have
3 been something you would have obtained from Mr. Fenn
4 from historic operations.
5 Q. Unfortunately he couldn't really provide
6 those.
7 A. I'm equally unable to cite any specifics.
8 Q. Okay. So as part of your cleanup on the
9 site, you did not go back and try to understand what
10 the nature of USMR's emissions were?
11 A. As part of the onsite cleanup?
12 Q. No. As part of your offsite cleanup, did you
13 not go back to determine how those -- you're
14 struggling to answer my question. I said the way USMR
15 did. Do you not know how USMR released pollutants
16 into the environment?
17 MR. SCHICK: Objection. Form. He's
18 already answered that.
19 A. They were released through stacks and through
20 fugitive emissions.
21 Q. (By Mr. Nidel) Okay. What was?
22 A. Various -- various metals.
23 Q. Okay. Name them.
24 A. I don't have a comprehensive list in my head,

1 but copper, lead, arsenic, zinc, cadmium, a couple of
2 others potentially, selenium.
3 Q. Dioxin?
4 A. There was stack testing performed that
5 indicated that there were levels of dioxin emitted, as
6 well.
7 Q. Okay. So -- and were they in compliance with
8 regulatory standards or not?
9 MR. SCHICK: Objection. Form.
10 A. When?
11 Q. (By Mr. Nidel) Historically. Were they ever
12 out of compliance with regulatory standards?
13 MR. SCHICK: Objection. Form.
14 A. It's my understanding that there were some
15 notices of violation issued by the DEP during the '70s
16 and '80s.
17 Q. (By Mr. Nidel) In the '60s?
18 A. I'm not aware of any in the '60s.
19 Q. Okay. When did regulations with respect to
20 USMR's emission of pollutants, when did they start
21 regulating those?
22 A. I don't know precisely, but it was more
23 than -- more than likely with the advent of the Clean
24 Air Act in the early '70s.

Q. Okay. So if we go back into the '40s and '50s there were no regulations as to how much they could emit. Correct?

A. I'm not aware of any that dated back to the '40s and '50s.

Q. Okay. So would you agree that a company that releases arsenic, lead, cadmium, dioxin the way USMR did through its stacks and fugitive emissions without any regulatory limits should -- into a residential community should clean them up?

MR. SCHICK: Objection. Form.

A. Again, you know, what were the -- what were the concentrations back then, you know, what was -- what was the impact to the community.

Q. (By Mr. Nidel) Do you know how much lead was released by the facility?

MR. SCHICK: Objection. Form.

A. No.

Q. (By Mr. Nidel) Do you know how much arsenic was released from the facility?

MR. SCHICK: Same objection.

A. No.

Q. (By Mr. Nidel) Do you know how much dioxin was released from the facility?

MR. SCHICK: Objection. Form.

A. No.

Q. (By Mr. Nidel) Would the level of -- would the amount of lead released from the facility historically be important to assessing the horizontal and vertical extent of contamination that was released from that site?

A. I'd say no.

Q. You relied on some air modeling from various USMR folks as well as consultants. Correct?

A. To a certain extent, yes.

Q. Okay. And that air modeling used various estimates of amounts called emissions inventories for the facility. Right?

A. I'm not an air modeler, but I don't know what you'd call that, an emissions inventory. I'm not sure all of the parameters that went into the -- into the models. But yeah, I mean, your term of emissions inventory I don't really think fits.

Q. Okay. But you know that they relied on the amounts of pollutants that came from the facility. Correct?

MR. SCHICK: Objection. Form.

A. It's -- it's my understanding that the models

used some very broad estimates of plant throughputs, stack heights, things -- things of that sort because there was really not a lot of site-specific information so the models were -- used the best data that they could put together. But it certainly wouldn't be what I call a thorough air quality -- air emissions model.

Q. (By Mr. Nidel) Okay. But the -- the point was that they used emissions data, the best data they could find, to do that modeling. Correct?

A. Generally, yes.

Q. Okay. And you would agree that the amount of a pollutant that's emitted from a site affects how far and how -- how far horizontally and how deep vertically it's going to go ultimately. Correct?

MR. SCHICK: Objection. Form.

A. Repeat that, please.

Q. (By Mr. Nidel) Okay. Would you agree that the amount of some pollutant that's released from a facility is going to play some role in determining how far and how deep that pollutant will travel?

A. Well, if -- if --

MR. SCHICK: Objection. Form.

A. If you look at it from an air modeling

standpoint, I mean, certainly those are important factors. I mean, they're not the only factors. I mean, there's meteorological conditions, all sorts of things that go into a model, all of which when you're looking back over the operation of a facility that operated as long as USMR they're -- you know, they're somewhat estimates. So you use the -- you know, the best data that you can to put a model together, qualifying it that it's based on -- on estimates.

What was -- what was important for the model that was developed was, it substantiated the conceptual site model that we had developed and in that, you know, emissions from the facility generally dropped out in fairly close proximity to the site and then dropped exponentially, asymptotically, whatever word you want to use, as you moved away from the site. That was the basis for our conceptual model which we attempted to validate through the sampling and the ISDA.

Q. (By Mr. Nidel) Okay. And did the sampling and the ISDA as well as all the other sampling, did it in fact validate that model?

A. The ISDA sampling did validate that model. We looked at -- essentially followed the DEP

guidelines on establishing essentially a set of concentric arcs that gradually go away from the facility. Sampling within those arcs showed a decrease in the metals that we were analyzing for consistent with our conceptual site model.

Q. So it's your testimony that it's not important to you to know -- to your work in delineating the horizontal and vertical extent of contaminants from the site to know how much of those contaminants were released from the site and what the historical breakdown was of those releases?

MR. SCHICK: Objection. Form.

A. At the end of the day, frankly, it's not that important. What's important is -- I mean, you can -- you can do the best air quality model in the world and, you know, it's still going to be exactly that, a model. What we think is the most appropriate way to determine what the impacts are are to get actual samples.

Q. (By Mr. Nidel) Okay. And that's what you guys decided, was that you were going to rely on actual samples rather than modeling. Correct?

A. We used modeling to inform, you know, what the likely boundary of the ISDA and then ultimately

the AOC would be, but it was through the collection of actual data that allowed us to substantiate the conceptual site model and to then affirm that the ISDA, which became the -- generally the AOC, was an appropriate boundary that was likely where contaminants from the facility came to be.

Q. And you don't know how much lead, arsenic, or dioxin were released from the site. Correct?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) The facility.

A. No.

Q. Okay. Where did the metals go that were released?

MR. SCHICK: Objection. Form.

A. Where did the metals go?

Q. (By Mr. Nidel) Yeah. You talked about arsenic, lead, cadmium, selenium. Where did they go?

A. They were generally emitted to the air and came to rest in fairly close proximity to the site.

Q. Okay. So they went into the Arthur Kill?

A. A few --

MR. SCHICK: Objection. Form.

A. Yeah, it's likely that there was some in the Arthur Kill.

Q. (By Mr. Nidel) Okay. They also went into Carteret?

A. I believe our modeling and subsequent sampling indicates that there's potentially, you know, metals from the facility in portions of Carteret.

Q. Okay. What about Port Reading?

A. I'm not sure where Port Reading is.

Q. Okay. What metals ratio is consistent with USMR smelter emissions?

MR. SCHICK: Objection. Form. Beyond the scope.

Q. (By Mr. Nidel) I mean, this is -- this is in all their remedial work plans, remedial investigative action work plans, sampling action plans. What metals ratio is consistent with USMR smelter emissions?

MR. SCHICK: Same objections.

A. I don't know off the top of my head.

Q. (By Mr. Nidel) Okay. What was the ratio of metals in the smelter emissions themselves?

MR. SCHICK: Objection. Form.

A. I don't know off the top of my head.

MR. NIDEL: What's the objection?

MR. SCHICK: It's overly broad. Calls for expert testimony and it's not anything in the

1 topics for this witness.
2 MR. NIDEL: It's absolutely in the
3 topics. The metals ratio was used as a means of
4 delineating the extent of contamination. So it's
5 absolutely relevant and the metals ratio consistent
6 with USMR smelter operations is a quote from his own
7 documentation from his consultants.
8 Q. (By Mr. Nidel) So I will ask again: What
9 metals ratio is consistent with USMR smelter
10 emissions?
11 MR. SCHICK: Same objection.
12 A. I don't know off the top of my head.
13 Q. (By Mr. Nidel) You understand you were
14 prepared to answer questions about the soil
15 investigation and delineation of pollutants from the
16 site. Correct?
17 A. Yes, and I'm prepared to do that.
18 Q. Okay. And the metals ratio is one of the
19 things that was used by your consultant Geosyntec to
20 tell you that you could argue that the contaminants in
21 the AOC were not yours. Correct?
22 MR. SCHICK: Objection. Form.
23 A. It's -- yeah, it's my understanding that was
24 one aspect of what Geosyntec is looking at, but I

1 don't have a precise number for a metals ratio. And
2 certainly when you're looking at the probably tens of
3 thousands of samples that we've taken within the AOC,
4 you know, there's no specific number that's the ratio.
5 Q. (By Mr. Nidel) Okay. What was the ratio of
6 metals in the smelter emissions?
7 MR. SCHICK: Objection. Form.
8 A. I don't know.
9 Q. (By Mr. Nidel) Okay. What was the
10 arsenic-to-copper ratio in smelter emissions?
11 MR. SCHICK: Objection. Form.
12 A. I don't know.
13 Q. (By Mr. Nidel) How is the arsenic-to-copper
14 ratio an indicator of the use of arsenic-based
15 pesticides?
16 MR. SCHICK: Objection. Form. Calls
17 for expert testimony.
18 MR. NIDEL: And to be clear, I'm not
19 asking for expert testimony. This is -- this is --
20 this is something that was used by Mr. Brunner and his
21 consultants to make an argument that arsenic-based
22 pesticides were used.
23 Q. (By Mr. Nidel) So what arsenic-to-copper
24 ratio indicates the use of arsenic-based pesticides?

A. If you're looking for a specific number, I can't give you that, but if you -- if you look at a trend of the arsenic-to-copper ratio of the, you know, thousands of samples that have been obtained, you know, through the -- through the sampling program and you observe an arsenic-to-copper number that is way higher than, you know, what the rest of the data is you can assume that there's something else going on with that sample potentially, in the case of arsenic, arsenic-based wood treatment, pesticides, something of that sort.

Q. So it's just a question of high or low?

MR. SCHICK: Objection. Form.

A. It would be an expert's determination of a significant deviation from what the rest of the data suggests.

Q. (By Mr. Nidel) How much copper was released from the facility relative to arsenic?

MR. SCHICK: Objection. Form.

A. I don't know.

Q. (By Mr. Nidel) How much lead was released relative to copper?

MR. SCHICK: Same objection.

A. I don't know.

Q. (By Mr. Nidel) Why do you expect that the arsenic-to-copper ratio to be any specific thing?

MR. SCHICK: Objection. Form.

A. I'm not sure I understand that question. Can you repeat it, please?

Q. (By Mr. Nidel) Yeah. Why is it that you would expect in sampling and analyzing your soil samples that the arsenic -- arsenic level would have anything particularly to do with the copper level?

MR. SCHICK: Same objection.

A. Again, you know, it probably calls for, you know, more of an expert opinion than mine, but. . .

Q. (By Mr. Nidel) You used these ratios to determine whether you had adequately delineated the site. You made arguments based on these ratios to the LSRP and to the Borough and to the State that you had delineated the site based on what you saw in the samples and how it reflected these ratios. Correct?

A. You're -- you're acting as if this study has been completed and, you know, I think once -- once the study is completed, that's going to be one line of evidence.

Q. You can keep talking. She's recording it.

A. I'm not talking.

Q. I'm not acting as if it's completed. I'm acting as if you have made statements, you specifically have made statements and your consultants have made statements about these ratios, which is why I'm asking to try and understand them. I don't know if you're complete or not. You've said you're not complete, but you've made arguments and I'm asking what's the logic of those arguments? Okay. Do you understand that?

A. Go on. I mean. . .

Q. Do you understand that?

A. I mean, I understand what you're -- what you're getting at, but I'm also trying to explain that, you know, this is a work in progress. You know, we haven't shared, you know, a lot of specific information about the adequacy of the AOC boundary at this point. We're saying that the use of metal ratios is one thing that is being looked at as part of a larger study.

Q. Okay. And I'm asking you what the logic is of those metals ratios because when you come out with a conclusion, which I believe you've already argued through your remedial action work plan addendum, that I can understand what the basis is for expecting that

the lead ratio -- that the lead amount would have anything to do with the copper amount or the arsenic amount would have anything to do with the copper amount or the arsenic amount would have anything to do with the lead amount. That's what I'm trying to understand. Okay?

So what is your expectation of the arsenic-to-copper ratio as reflected in the smelter emissions?

MR. SCHICK: Objection. Beyond the scope.

A. Part of the study that the consultants will, you know -- is working on and will -- will discuss or will, you know, ultimately present to the LSRP is the theory that metals ratios are one technique to fingerprint, if you will, emissions that may have come from the smelter. Now, once, you know, we compare that fingerprint with the AOC fingerprint with the fingerprint from the various samples obtained from the transects, that will inform the decision on whether or not the AOC is appropriately sized.

Q. (By Mr. Nidel) What is the fingerprint of metals in the -- in the facilities emissions?

MR. SCHICK: Objection. Overbroad.

Beyond the scope.

A. Yeah. Off the top of my head, I don't know.

Q. (By Mr. Nidel) I'm not asking you off the top of your head.

MR. NIDEL: This is perfectly within the scope. This is something that he just told us was being used to delineate whether they were responsible for the contaminants.

MR. SCHICK: He told you as a general proposition ratios are used for that purpose.

MR. NIDEL: Right, and I need to know --

MR. SCHICK: It's not -- it's not within his purview or within --

MR. NIDEL: Absolutely it is.

MR. SCHICK: -- the topics that you've asked for for him --

MR. NIDEL: Absolutely it is.

MR. SCHICK: -- to provide expert testimony --

MR. NIDEL: I'm not asking for --

MR. SCHICK: -- with respect to the --

MR. NIDEL: -- expert testimony.

(Simultaneous discussion interrupted by the reporter.)

MR. NIDEL: Go ahead.

MR. SCHICK: -- with respect to precisely what those ratios are.

MR. NIDEL: I'm not asking for expert testimony. I'm not even asking for precision. I'm asking for an answer.

Q. (By Mr. Nidel) What is the fingerprint of the facility's emissions in terms of metals?

MR. SCHICK: Same objection.

A. Now, I mean, you've now gone from metals ratio to fingerprint. What --

Q. (By Mr. Nidel) You went to fingerprint.

A. Well, I used that as in a generic way, but. . .

Q. Okay. Well, I'm going to that, then. I go where you go. So I'm asking what the fingerprint of metals is in what was emitted from the facility.

A. I don't know at this time.

Q. The metals were emitted from what sources on the site?

A. Primarily the historic smelter.

Q. How about the lead plant?

A. There may have been emissions from the lead plant.

Q. Okay. How tall of a stack was in the lead plant?

A. I don't know.

Q. Okay. When did the lead plant begin its operations?

A. I don't know.

Q. When did it shut down?

A. I don't know.

Q. How about fugitive sources on the site?

A. What about them?

Q. Were they a source of metal emissions?

A. Yes.

Q. Okay. What about upset conditions?

MR. SCHICK: Objection. Form.

A. What do you -- what specifically?

Q. (By Mr. Nidel) Well, how about when -- how about when the wire furnace exploded?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Was that a source of emissions from the site?

A. I don't know.

Q. Okay. Was the wire furnace a source of emissions from the site?

A. I don't know.

Q. Was the open burning of insulated wire a source of emissions from the site?

A. It could have been.

Q. Okay. What emissions would have come from that?

A. Help me understand about what kind of wire are you talking about.

Q. Insulated wire.

A. Insulated with?

Q. PVC.

A. If there was open burning of insulated wire, then various hydrocarbons could have been emitted, potentially PAHs and dioxins.

Q. Okay. And what sampling have you seen of the open burning activities that were done on the facility?

MR. SCHICK: Objection. Form.

A. I've not seen any sampling of open burning.

Q. (By Mr. Nidel) Okay. You did investigate dioxins. Right?

A. Yes, we looked at dioxins several times.

Q. Okay. And you compared the dioxins that you saw in some limited offsite sampling to dioxins that went -- that were tested coming out of the stack.

Correct?

A. Yes.

Q. Okay. And you didn't see a match in the fingerprint. Right?

A. That's correct.

Q. Okay. And you made a bunch of arguments that because you didn't see what was coming out of the stack and what you saw in the limited portion of the neighborhood that you were not responsible or the facility was not responsible for the dioxins that you saw in the neighborhood. Correct?

MR. SCHICK: Objection. Form.

A. We were required by the LSRP to investigate dioxin that may have come from the site. We developed a work plan to sample and we made a determination that the dioxins on -- that were coming from the site were adequately delineated essentially onsite and that the offsite dioxins that were analyzed for and seen at very low concentrations were not consistent with the dioxin fingerprint from the onsite sampling. Based -- based on that information, the LSRP was satisfied that we had adequately delineated dioxin.

Q. (By Mr. Nidel) What do you know about the emissions from the facility?

MR. SCHICK: Objection. Form.

A. Specifically what?

Q. (By Mr. Nidel) What do you know? How much they were, whether -- how much lead there was, how much copper there was, how much arsenic there was, how much -- what the ratio of arsenic to copper was, how it changed over time. What do you know specifically about those emissions?

MR. SCHICK: Objection. Asked and answered.

A. Based on our testing that I understand was performed primarily in the '70s and '80s there were emissions from the facility, both stack and fugitive, and those emissions contained varying levels of metals.

Q. (By Mr. Nidel) What was the particle size of those emissions?

MR. SCHICK: Objection. Form.

A. I don't know.

MR. NIDEL: Again, what's the objection?

MR. SCHICK: It's overly broad. You said what's the particle size of the emissions.

MR. NIDEL: Yeah. Well, he's only able to tell me emissions.

MR. SCHICK: As if there's one size.

Q. (By Mr. Nidel) No. What's the particle size distribution of those emissions?

A. I don't know.

Q. What's the ratios of metals in those emissions?

MR. SCHICK: Asked and answered.

A. Again, I don't know.

Q. (By Mr. Nidel) How high were the stacks that released those emissions?

A. It's my understanding there were a couple of stacks over time. I believe one was a shorter 200-foot stack, another one was a taller 400-foot stack. I don't know if there were other -- other stacks historically that may have or may have not existed.

Q. Does the height of a stack impact the extent to which you would expect contamination from that stack, the lateral, horizontal extent of contamination?

A. I mean, can you be more specific on contamination?

Q. Particulate. If a particulate is emitted from a stack, the higher the stack -- does the height

of the stack give you, as someone that's in charge of remediation and identification and cleanup and delineation, does it indicate to you what the likely extent of that contamination is?

A. In -- in very general terms, a higher stack will distribute the same amount of mass of a contaminant over a broader area but at a much lower concentration.

Q. Okay. So emissions from a higher stack will go farther than emissions from a smaller stack. Correct?

A. They'll go --

MR. SCHICK: Objection. Form.

A. They'll go farther but at much lower concentration, depending on the height of the stack.

Q. (By Mr. Nidel) Okay. Assuming the same level -- same amount of emission. Correct?

A. On a mass basis, yes.

Q. Okay. So if the same amount is emitted from a higher stack than a lower stack, the higher stack would emit -- sorry, would contaminate a larger area at a lower concentration, where the smaller stack would contaminate or impact a smaller area at a higher concentration. Is that fair?

A. It would -- it would -- yeah, your representation of the relative impact is correct.

Q. Okay. And the fugitive emissions that were released from the ground and from stacks and from rooftops -- I'm sorry, stacks -- correct -- stacks of -- stacks of dust or stacks of slag, do you understand that there were -- stacks is not a good word. I will strike the entire question.

Area sources. Okay. There were area sources of certain heights. You understand that there were slag piles. How about the word piles?

A. I've seen a slag pile before, yes.

Q. Okay. And you understand there were slag piles that caused fugitive emissions on the site. Is that fair?

MR. SCHICK: Objection. Form.

A. Yeah, I -- it's been -- it's been my experience with slag piles that, you know, they're generally, you know, large particle sizes that don't become airborne.

Q. (By Mr. Nidel) Okay. Even when you get a front-end loader in there and start moving them around?

A. There could be, you know, very localized

amounts of dust generated, you know, by that activity.

Q. Okay. That gets to my point. So the fugitive emissions that are released from some height, you know, no higher than a rooftop, those would go the shortest distance, correct, compared to the short stack that we talked about and then the tall stack. Is that fair?

A. Yeah, I think it's fair to say that generally fugitive emissions travel a much shorter distance than emissions that are directed through a stack.

Q. Okay. And your conceptual site model was air deposition. Right?

A. That's correct.

Q. Okay. Was it air deposition from a stack, a tall stack, a short stack, a medium stack, or a pile or a rooftop?

A. I believe the model which was used to support the -- I mean the air model which was used to support the conceptual site model used both stack and fugitive emissions, to my recollection.

Q. And what height of stacks did it use?

A. I believe there may have been several different models run based on different stack heights, whether it was both the 200 or the 400 stack. I

1 believe that was the case.
2 Q. Did you review the modeling work that was
3 done by Radian in 1986?
4 A. Very generally. It was a pretty long report.
5 Q. But you reviewed it for your deposition.
6 Right?
7 A. Yeah, quite a while ago, but yeah, I did look
8 at it.
9 Q. Okay. Did you review it as part of your work
10 in delineating the extent of contamination in
11 Carteret?
12 A. The work?
13 Q. Yeah. Prior -- other than for your
14 deposition, did you review it for your -- for purposes
15 of your work?
16 A. Not really. You know, we used what's been
17 represented as the McVehil model to support the
18 conceptual site model. But again, what's really
19 informed are ongoing work and the AOC was actual
20 sampling data.
21 Q. Who did the model that supports the
22 conceptual site model?
23 A. Who did the model?
24 Q. Who performed it, yeah?

A. I believe it was Mr. -- Dr. McVehil.
Q. What -- did you communicate with Dr. McVehil?
A. I did not. That was all done prior to my direct involvement as project manager.
Q. Okay. Do you know if Michael Leach communicated with Mr. -- or Dr. McVehil?
A. I don't know if Mr. Leach did or not.
Q. Have you ever reviewed the McVehil modeling work?
A. Again, I'm not a -- I'm not a modeler so I really couldn't opine on the actual, you know, guts of the model itself, but I did review the output -- output of the model.
Q. Okay. Did they provide you with the inputs of the model? And by you I mean USMR again. I understand you may not be a modeler but you were chosen for some reason to testify today so I'm asking you was USMR provided the inputs to the model?
A. At some point I'm assuming that USMR was provided with the inputs.
MR. NIDEL: Okay. We have not been given those inputs. I would ask for those inputs.
Q. (By Mr. Nidel) But you said that you relied on the McVehil model to support or validate the

conceptual site model. Correct?

A. Yes.

Q. Can you identify all the sources of lead from the site, from the facility?

A. No.

Q. Okay. You can't tell me the cupola, the arc furnace, the reverberatory furnace, the converter, you can't identify the sources of lead from the site?

A. No, I didn't -- didn't review historic operations as part of preparing.

Q. Okay. I'm not asking you if you reviewed for this deposition, but what you did is you did a bunch of work on delineating the site contaminants and I would think that part of that would be knowing how those contaminants theoretically and in fact historically were released from the site. Is that not part of your investigation as to where those contaminants might have gone?

MR. SCHICK: Objection. Asked and answered.

A. Yeah, I'm not sure I understand the question. Can you --

Q. (By Mr. Nidel) Yeah. Is understanding how pollutants are released from a site and what locations

on a site they're released from important to understanding where they may have gone?

A. We did a very thorough remedial investigation of the site back in the late '80s and early '90s as a requirement of the DEP and that sampling, as I understand it, used the location of historic operations of the facility to focus the data collection efforts for that remedial investigation, which was reviewed and approved by -- ultimately by the DEP.

Q. Okay. What I'm asking about is pollutants that were released from the site, not pollution on the site. Okay. And I'm asking you if as part of your understanding of the vertical and lateral extent of contamination from the site it's important to understand where on the site and how on the site pollutants were released?

MR. SCHICK: Objection. Form.

A. Help me again with that question.

Q. (By Mr. Nidel) Is it important for you in delineating the extent of contamination from a site to understand the source of contaminations -- contamination from the site?

A. In general terms, yes. That's why we

developed, you know, a model to support a conceptual site model which was then used to get actual data to determine what, if any, impacts beyond the site boundaries had occurred.

Q. What can you tell me about the source of contaminations from -- contamination from the facility?

A. The -- I'm sure Mr. Fenn went through this in a lot more detail than I did, but there was a historic copper smelter in the appurtenant facilities. There was feedstock and revert piles that were all part of the -- part of the smelter complex. The facility generated slag. The facility recovered various metals over time. Is that -- is that what you're -- what you're after?

Q. I don't care about what Mr. Fenn told us. Okay?

A. Just --

Q. What I understand is that one of the three inputs to a conceptual site model, the first one is understanding the source. Okay. Would you agree with that?

A. Yes.

Q. The source, the pathway and the receptors.

Right?

A. Yes.

Q. Okay. So I want to know what you know about the source because you were responsible for identifying where that conceptual site model puts pollutants from your facility. Right? And I don't think -- this isn't a question about what happened historically, it's a question about what you know about what happened historically because that informs where you think those pollutants went. Right?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Right?

A. The model that was developed, you know, used as the source the smelter and the fugitive and stack emissions associated with that facility. It was, to my understanding, not detailed to the exact location of all of the, you know, emitting sources, the throughputs. It was used in a generic way, if I can use that word, to demonstrate what the emissions would look like from a facility like that.

Q. Okay. How many acres did USMR own, the full extent?

A. The entire facilities is 170 acres more or less.

Q. Okay. So does it matter where on that site a pollutant is emitted from as to what you might expect it to go in one direction or another?

A. That's -- that's one of the things that would go into a model, yes.

Q. Okay. So where was the lead plant?

A. I don't know with respect to the model how that was incorporated.

Q. Okay. I want to be clear, because my understanding of your conceptual site model is that it's a model in terms of a description of how things happen. They happen through air dispersion. Is that fair?

A. Yeah, the conceptual site model is an air dispersion -- is an air dispersion pathway.

Q. Okay. And you did modeling to support that, but the modeling is not your conceptual site model. Right?

A. Correct.

Q. Okay. So I understand the model might have been limited in its detail and estimates, but your conceptual site model is based on what your best understanding is of the source at the facility. Right?

A. Yes.

Q. Okay. So tell me about the source.

A. I think I have.

Q. I need to know everything you know -- you, USMR, knew about the source when you came up with a conceptual site model that said air deposition and it's going to decrease rapidly when it gets right over the fence line.

MR. SCHICK: Objection. Form.

A. Again, the model was developed to show what the emissions from the facility in that location would do under, you know, the limited amount of information that was available for stacks and fugitives, the limited amount of meteorological information. It showed that emissions from that source would be deposited fairly close to that source and then that those emissions would tail off fairly rapidly as you moved away from the source. That was the model.

We used that model to establish the ISDA and the AOC and, again, recognizing that really the only way to determine is there an impact or is there not an impact is to get real on-the-ground data, not relying on a model. And, again, we are getting that data. If the data shows that the AOC is appropriately sized,

great. If the data shows that the AOC needs to be modified, then we'll handle that at the appropriate time. But just -- just putting together a model based on uncertain inputs, even putting together a model based on very well-defined inputs is still that. It's still a model and the only way to validate a model is to go and get physical data.

Q. (By Mr. Nidel) Okay.

A. And that's what we're doing.

Q. I'm not asking you about a model and I'm going to ask, and I'll try to do this, when we're talking about a model -- computer model try to call it air model just because we have a conceptual site model and we have --

A. Sure.

Q. We may or may not be able to stick on that tract, but I'm going to try if -- I'll ask if you can try because we're both morphing between the two. Right?

A. Yes.

Q. I'm asking about your conceptual site model and I'm asking you what you know about the source of that facility starting in 1902 that was releasing lead starting in 1902 until it shut down that informed your

conceptual site model. And if it's simply that there was a couple of stacks and some of them were 200 and some of them were 400 and they released lead, okay, but I want to know what informed your conceptual site model so that I understand what you're thinking when you're deciding you're only going to test out to Roosevelt Avenue.

MR. SCHICK: Objection. Form.

A. And I think I've explained what's gone into the model, recognizing that it is just an air model, let's use that. Roosevelt Avenue was the starting point for the outer boundary of the ISDA based on the model outputs that showed that air deposition from the historic smelter operations increased very close to the site, dropped out very close to the site and tailed off very rapidly as you moved generally northward from the site.

So Roosevelt Avenue was determined to be a starting point for the ISDA. That was deemed to be an appropriate starting point by the LSRP and we moved forward from there.

Q. Okay.

MR. NIDEL: Let's take a break. Maybe we can -- go off the record.

THE VIDEOGRAPHER: We are off the record. It's 11:44. It's the tend of Tape 2.

(Break.)

THE VIDEOGRAPHER: Okay. We are back on the record. It's 11:58 p.m. -- a.m. and it's the beginning of Tape 3.

Q. (By Mr. Nidel) We've been talking a lot about the source that you used for your conceptual site model, and what I need to understand is -- and you can tell me in broad terms and then specific terms, but if you don't -- you know, depending on how much you know, but I need to know what USMR knew about the source of contaminants on the facility in developing and assessing your conceptual site model.

A. We -- it was our opinion that air emissions were the source of the -- of any impacts from the smelter. Air emissions would then, you know, naturally lend themselves to a conceptual site model, which, you know, indicated that air emissions would be the conceptual site model.

The air quality -- or sorry, the air model was developed, again, you know, using fairly limited information, but, you know, where the site was located, you know, whatever historic information on,

you know, stack heights that was available. The model indicated that pursuant to a conceptual site model of air deposition, those emissions from the facility would tend to drop off fairly quickly as you moved away from the source and then, you know, rapidly would reach -- would decline exponentially with distance from the source.

So that conceptual site model, as well as the air emissions model, informed the general location of what was prescribed to be the ISDA. And again, the model was just a tool to develop that first ISDA and the sampling program conducted pursuant to that to determine if the conceptual site model was accurate. And based on the ISDA sampling, it was determined and approved by the LSRP that that was an appropriate sampling exercise that supported the conceptual site model and that could be used to -- to prescribe what the AOC would be and the more detailed sampling and remediation program that's currently underway within the AOC.

Q. Okay. Just so I understand, so you cannot tell me what the point source emissions were or where -- what the point sources for emissions were at the facility?

A. The point source -- the point sources were the stacks by definition. That's generally what a point source is.

Q. Okay. Can you tell me how many stacks there were at any given time or how tall they were?

A. I don't know that number. I don't know when they were constructed or how tall they all were. It's just my understanding that there were multiple stacks at the site that were used for different periods throughout the operation of the facility.

Q. Can you tell me what the stack height was, for example, on the converter or on the cupola?

A. I believe that the converter stack was the tall stack, which would have been the 400-foot stack. I believe the cupola stack was the shorter stack, which was 220 feet. I mean, that number is sticking in my head for some reason. But I think those were the large stacks at the site.

Q. Okay. And that's the extent of what you know about the point source emissions on the site. Is that fair?

A. I think that's fair.

Q. Okay. Do you know what the volume or weight amount of lead or any other pollutant was released

from the site?

A. No.

Q. Okay. And you don't know what the ratio of any point source or fugitive source of dust was, the ratio of any of the metals in there?

A. No.

Q. Okay. You said in your answer here a second ago, you said the model was a tool and I think you meant the air model, just per our --

A. The air model, correct.

Q. Okay. The air model was a tool to confirm the conceptual site model. I just wanted to be clear on that.

And then you said that the sampling then supported your conceptual site model, and was that in that it supported -- well, was the conceptual site model that it was the pollutants were carried by air deposition and that they were deposited in close proximity to the site or to the facility?

A. Say that again, please.

Q. Is the conceptual site model that the pathway was air deposition and that it was -- that air deposition deposited contaminants in close proximity to the facility with a rapid decrease in the amounts

as you get farther from the site?

A. That's -- that's the key -- the key point because the sampling under Phase 1 that was done as part of the ISDA was done in the residential areas of Carteret and the -- I think I've gone through this before, but for purposes of the ISDA sampling we established three sampling arcs at increasing distance from the historic smelter. Sampling was done on numerous properties within each of those three arcs and when we looked at the data that we obtained from that sampling, it showed a consistent decrease in concentrations of constituents from the closest arc outwards towards the most distant arc.

Q. Okay. So I want to take those things piece by piece. So the conceptual -- the ISDA sampling confirmed the conceptual site model of a proximate deposition and a rapid decrease. Is that true?

A. The sampling confirmed that.

Q. Okay. And that confirmation comes from the use of concentric zones and sampling within those zones and then comparison of the results of the sampling within those zones. Is that correct?

A. That's correct.

Q. And the sampling that was done in those zones

was part of the ISDA. Correct?

A. Yes.

Q. Okay. And the sampling in those zones was the Series 60 sampling and there were 60 samples taken, 20 within each zone. Is that correct?

A. More or less, yeah.

Q. Okay. Was the later sampling that was done as part of Phase 2 considered as part of your confirmation or -- of the conceptual site model?

A. Say that again, please.

Q. Yes. Did you go back and reanalyze those zones with the additional sampling that was done?

A. I don't believe we did any additional data refinement beyond that. The sampling in Phase 2, the AOC sampling was much more detailed and was really to determine the -- essentially the horizontal and vertical extent of impacts on each particular property down to whatever depth those impacts were still present.

Q. Okay. How were the zones chosen? I understand there were concentric arcs. How were they chosen?

A. With Roosevelt Avenue considered generally a northern bound for the initial look at the ISDA, the

three arcs were generally equal -- equal width, if you will, radiating outward towards Roosevelt Avenue from the source.

Q. Okay. When were those arcs -- when was the location of those zones determined?

A. Umm.

Q. What was the date that you decided well, we're going to have an arc at Roosevelt, then we're going to have one at equal -- when was that done?

A. That was probably in -- sometime in 2013 when that, you know, kind of sampling strategy was developed and then discussed with and approved by the LSRP.

Q. Have you preserved the samples that were sent to the labs?

A. I believe the samples have been preserved in some fashion. I'm not sure how much is left of each particular sample, but I know we were preserving samples or the lab was preserving samples for us.

Q. Do you know -- what do you know about the baghouse dust piles that were on the facility, if anything?

A. I don't know anything about the baghouse dust piles.

Q. Do you know if they were ever tested for dioxins?

MR. SCHICK: Objection. Form.

A. I don't know.

Q. (By Mr. Nidel) Do you know what the particle size of the dust was in those -- in that baghouse dust?

MR. SCHICK: Objection. Form.

A. No, I don't.

Q. (By Mr. Nidel) Can you explain to me, you probably have done it at least in pieces, but USMR's conclusions regarding the extent of lead that emanated from its operations? What conclusions have you reached about the extent of lead from the facility?

A. It's our opinion that there may be lead from the facility that went beyond the boundaries of the facility, but likely not in a concentration that would exceed residential cleanup standards solely attributable to USMR's operations.

Q. Okay. And you said maybe, but did lead from USMR's facility go into Carteret?

A. Yes, I think, you know, some amount of lead from USMR's facility went beyond the boundaries of the facility.

Q. Okay. And some of that went into Carteret. Correct?

A. Assuming that the boundary of the facility's contiguous with the boundary of Carteret that would be true.

Q. The reason -- I wasn't trying to be smart. The reason I asked is because there are other boundaries, for example, at the Arthur Kill. So my question is did it go into Carteret?

A. I thought we were talking about Carteret, so yes.

Q. And did arsenic from the site go into Carteret?

A. Similarly it's possible that some arsenic from the facility went beyond the facility boundaries.

Q. Okay. Did arsenic from the facility go into Carteret?

A. It's possible.

Q. Is it possible? I mean --

A. It's --

Q. -- if your answer is it's possible, that's fine, but I need to be clear. I'm asking did it go there?

A. It's possible.

Q. You don't -- you don't believe that it in fact went there. Is that your testimony?

A. You asked if it was possible. I said --

Q. No, no -- well, if I did ask if it was possible, then I'm -- I'm --

A. Okay.

Q. I need more Mountain Dew. My question is: Did it go into Carteret, arsenic, from the facility?

MR. SCHICK: Objection -- objection. Form.

A. Similar to lead it's possible that arsenic from the facility went into Carteret.

Q. (By Mr. Nidel) Okay. Did dioxin from the facility go into Carteret?

MR. SCHICK: Objection. Form.

A. We believe that, you know, we have delineated dioxin impacts from the facility very close to the Carteret -- boundary of the Borough of Carteret. Again, is it possible that, you know, one molecule of dioxin from the facility went into Carteret, yes.

Q. (By Mr. Nidel) Okay. Did -- I'm not asking about possible. I just -- I want to make sure I don't use that word. Did dioxin from the facility go into Carteret?

MR. SCHICK: Objection. Form.

A. I think I just answered that.

Q. (By Mr. Nidel) You can't answer that with a yes or no?

A. I just answered it with -- I said is it possible that one molecule of dioxin may have gotten from the facility into Carteret and yes, it's possible.

Q. Okay. So my question right now is not -- I'm not trying to force you to answer that with a yes or no. My question is can you answer the question did dioxin go from the facility into Carteret with a yes or a no?

A. Is it possible that a molecule of dioxin from the facility went into Carteret, yes.

Q. Okay. My question is not is it possible. My question is did dioxin from the facility go into Carteret?

MR. SCHICK: Objection. Form.

A. We've not made any attempt to attribute dioxin which may be in Carteret to the facility beyond the delineation that we've already done. Is it possible that a molecule of dioxin from the facility went into Carteret, yes, it is possible.

Q. (By Mr. Nidel) Okay. What are the background levels of arsenic in industrialized areas of New Jersey?

A. I don't know off the top of my head, but I would project it's something probably fairly close to 15 parts per million. I'm just -- I'm just guessing.

Q. Okay. Did you review as part of your work on the cleanup what the background levels were of the metals in --

A. I don't recall reviewing that specifically with respect to arsenic, but I believe I reviewed some information that indicated that the background level of lead in that general area of New Jersey was on the order of 290 parts per million.

Q. What was that -- where did you get that information from?

A. I think it was maybe a USGS report or something that came out of the DEP. I don't recall exactly. That's just a number that I recall seeing.

Q. Do you recall discussing background levels or comparison to background levels with your consultants?

A. No.

(Exhibit No. 51 marked.)

Q. I hand you Exhibit 51. Exhibit 51 is a

1 document produced by U.S. Metals Bates labeled 65062
2 and it's a summary of selected soil constituents and
3 contaminants at background locations in New Jersey.
4 Is that fair?
5 A. That's the title, yes.
6 Q. Okay. As part of your work on the site, did
7 you review these background levels?
8 A. I don't recall personally reviewing this. It
9 was possibly done during Mr. Leach's tenure as project
10 manager.
11 Q. Okay. Again, did U.S. Metals review this?
12 A. I don't know whether Mr. Leach reviewed them
13 so I can't say for sure whether USMR reviewed them.
14 Q. Do you know if U.S. Metals was aware what the
15 background levels were for these metal contaminants in
16 New Jersey?
17 A. Say that again, please.
18 Q. Do you know if U.S. Metals was aware what the
19 background levels of these metals were in New Jersey?
20 A. I don't know.
21 Q. What was the lab QC issue that arose? Was
22 there a quality control issue?
23 MR. SCHICK: Objection. Form.
24 Q. (By Mr. Nidel) Do you recall a lab quality

control issue coming up where there was some question about the validity of sample results?

A. As I recall early on in the AOC sampling, there was observed a difference between the sample -- the reported sample number with respect to the lab duplicates that were being performed and it was identified that there might be some issues with the lab on data validity. So we essentially worked with the lab. We looked at two different methods of doing the sampling and a -- I'm sorry -- doing the analysis and identified that there really was not a problem with the data validity.

Q. So there was some QC issue that you can recall but that ended up being investigated and revolved or there was not an issue?

A. That's my understanding.

Q. If you turn to Page 20 in Exhibit 51 there is data on the background of arsenic. I understand you said that you thought -- you thought it might be as high as 15. Does that clarify what the background of arsenic is in New Jersey for you?

A. Yeah, it -- I mean, which -- which number do you want me to refer to?

Q. It's not 15. Correct?

A. No. It's -- for the arithmetic mean, well, for urban areas is 8.3 and the 90th percentile is just under 11.

Q. Okay. Who were the community ambassadors?

A. The community ambassadors were two ladies that were retained. One of the goals of our AOC Stage 2 program was to get approval from each of the individual property owners to allow us to get onto their property and, you know, do the sampling and, if it were necessary, remediation. We were using Arcadis to make contact with the various residents to solicit their approval. Arcadis did a great job, but there was, as was really expected, people in the community that weren't exactly sure, you know, what's going on, why are we doing this. So we retained two ladies who were very well-known in the community to assist Arcadis with reaching out to those residents that had not yet given us approval to sample their properties in an attempt to get that approval, the theory being if they see a familiar face that they know and trust that they'll be more likely to understand what we're doing and to give us access.

And these two ladies proved to be amazingly effective. We were -- you know, at that time when we

1 started the embassador program -- please don't quote
2 me on the exact numbers, but kind of log-jammed at
3 120, 140 approvals and very quickly they were able to
4 get 60, 70, 80 additional approvals which allowed us
5 to continue our sampling program. They did great.
6 Q. Okay. Were they paid?
7 A. I believe we did pay them for their time.
8 Q. And how much did you pay them? Do you know?
9 A. I can't remember. It was a fairly nominal
10 amount.
11 Q. And what would you call -- I mean, can you
12 tell me what you paid them?
13 A. I can't remember exactly.
14 Q. Okay. So you indicated that there maybe were
15 some trust or other issues. Was it important to use
16 these ambassadors to gain the trust of the community?
17 A. It was an effective use of the ambassadors to
18 get permission to sample properties that we had
19 otherwise not been able to get approval from the
20 property owners for. So did I -- did that answer your
21 question?
22 Q. I thought I heard you saying it was a trust
23 issue and that doesn't seem like you like that word,
24 so --

A. Well, I mean, this -- you know, you're a citizen, you know, you're getting a letter out of the blue saying, you know, this is -- this program is ongoing, we want to come onto your property. Certainly some people are going to meet that letter or, you know, follow up face-to-face contacts with some skepticism. And this is a small community and, you know, they really appreciate a familiar face rather than, you know, some guy from Phoenix or some consultant out of -- you know, even some consultant out of New Jersey. They want to see a familiar face to explain, you know, what's going on.

Q. Was it important in that situation to be honest with them?

A. We've always been honest with the residents in my opinion.

Q. Okay. And you sent them letters. Correct?

A. We had various means to try to reach out to them, letters, Arcadis prior to the use of the ambassadors' conducted door-to-door campaigns. You know, the ambassadors are no longer working for us but Arcadis continues to do door-to-door solicitations. We held an open house. There's been all different kinds of ways to get the public to participate in the

program.

Q. And it's important to give them honest information when you hold things like an open house and when you send them letters. Correct?

A. Yes.

Q. Okay. Who paid the ambassadors?

A. I believe they were retained through Arcadis and then Arcadis, in turn, billed USMR.

Q. Did Arcadis bill USMR or Freeport Minerals or someone else?

A. The Arcadis service order is with USMR.

Q. Arcadis's contract is with Freeport Minerals. Correct?

A. The service order is issued through USMR. Arcadis has a master agreement with Freeport for a variety of sites, but their work under this project is specific to USMR.

Q. What level of arsenic is safe for gardening?

MR. SCHICK: Objection. Form. Beyond the scope.

A. I don't know.

Q. (By Mr. Nidel) Okay. Do you know what level of lead is safe for gardening?

MR. SCHICK: Same objection.

A. I don't know.

Q. (By Mr. Nidel) Do you know what level of dioxin is safe for gardening?

MR. SCHICK: Same.

A. I don't know.

Q. (By Mr. Nidel) Why did -- why did you initiate the testing in the neighborhood, the whole project?

A. Which testing? Are you talking about the original ISDA or --

Q. Phase 1. Why did you start going into the neighborhood and doing testing?

A. We received a letter from the DEP indicating that they felt the company needed to delineate offsite impacts from its facility and suggested that we retain the use of the services of an LSRP to work towards that goal.

Q. And what year was that letter?

A. I believe it was received at the end of 2012.

Q. And was that after a USA Today article that talked about the history of the site?

A. It was around the same time. I can't remember which preceded which.

Q. Did you provide residents --

A. I'm sorry. That letter I believe was at the end of 2011, not 2012.

Q. Okay. And would that -- would your answer as to the USA Today coverage be the same, it was around the same time?

A. Yes.

Q. Were -- did you provide residents with the results of your testing?

A. Yes.

Q. You provided them the sample results?

A. We provided them with the results of the sampling, yes.

Q. Were properties remediated that had levels that were determined to be above the cleanup standard?

A. There are properties within the AOC that are above the cleanup standard and cleanup of those properties is underway. Some properties have been completed, others are in progress, and others are pending.

Q. Okay. I said determine. I just want to -- I want to change my question a little bit. I don't know if it makes a difference to you, but were properties remediated that sampling showed levels above the cleanup standard?

A. Didn't I just answer that?
Q. I think you might have, but I want to make sure that you did. So were sample -- were properties remediated or slated to be remediated that had sample results above the cleanup standard?
A. Yes, that's what determines whether a property is cleaned up or not.
Q. Are there any properties that were sampled above the cleanup standard that you determined that you were not going to remediate?
A. Properties that exceeded the cleanup standards that we've determined are not going to be cleaned up?
Q. Yes.
A. Not to my knowledge.
Q. Okay. What is required by a remedial investigation? Does a remedial investigation require that you fully delineate the extent of contaminants? Is that part of a remedial investigation?
A. Under the New Jersey regulations, that is the purpose of a remedial investigation.
Q. Okay. And that includes both onsite and offsite contaminants. Correct?
A. Yes.

Q. You reviewed the development history of the Carteret neighborhood when you -- as part of your investigation into offsite contamination. Correct?

A. The development history, you know, like how -- how the -- how the borough evolved over time?

Q. Aerial photos, Sanborn maps?

A. That was part of our review process, yes.

Q. The modeling that was done, air modeling that was done, in support of or in furtherance of the conceptual site model, did it attempt to replicate or model any certain time frame at the plant or was it -- did it -- in terms -- do you understand what I'm saying? Was it trying to model 1986 or a period from '80 to '86 or '02 to '86?

A. I don't -- I don't think the model is that granular.

Q. What -- did your review of the developmental history of the area that we just talked about, aerial photos, Sanborn maps, was there anything else involved in that? Like you talked about fill maps or other things. Was there anything other than aerial photos and Sanborn maps that you used to inform your knowledge about when an area or a neighborhood was developed or redeveloped or changed in use?

A. I think those were the two things that were used to kind of understand how Carteret evolved over time.

Q. Okay. Did that review lead to determining that any areas were specifically not representative of -- for sampling purposes, so for purposes of conceptual site model or ISDA that you looked and you saw oh, there used to be a factory here so we don't want to use that or some other use so we don't want to sample there because that may have some factual explanation for a difference in results?

A. I'm not aware that we excluded any properties within the AOC from sampling for any reason. If the property is within the AOC, it's sampled, vertical delineation is determined, remediation is done where appropriate and where necessary based on the concentrations that we're seeing.

Your comment on maybe historic use of a particular property for one thing or another may inform this ongoing investigation on the appropriateness of the boundary. If we know that, you know, for instance, lead in a particular area came from a lead paint factory -- I'm just using that as an example -- and, you know, that's another data point

that will be useful in our ongoing analysis.

Q. Okay. For purposes -- I know there was different phases of sampling, but for purposes of that ISDA work that confirmed the rapid -- the proximate deposition and the rapid decline, were there any properties that were excluded or included because they were representative or not representative of what you would expect from the history of deposition in the neighborhood?

A. I don't believe that any properties were excluded for that reason. I think we moved some sample locations around. We originally had a plan where, you know, we wanted to sample here, here, here, here and here but sampling in those locations was obviously contingent on getting property owner approval to do that. So in some cases we weren't able to get property owner approval so we went to the next property. So there was some movement of the sample locations, but it was more based on our ability to access the property.

Q. Okay. So you didn't look at the developmental history and then decide we want to sample or don't want to sample in a certain area. Is that correct?

A. That's correct.

Q. Okay. And then was there any other exclusions or inclusions that you did based on statistics so there was some discussions of outliers? Were there samples that were rejected or metals results that were rejected based on them being outliers for some reason?

A. I don't believe in the ISDA that any were rejected.

Q. Okay. And -- well, let me -- I will ask you with respect to the ISDA because that's how you answered it. But was there any -- were there any samples that were rejected from the ISDA because they were statistically different than the other samples?

A. Not to my knowledge.

Q. Okay. Were there any samples, now I'm talking more broadly, that were rejected for their statistical deviation from the rest of the crowd?

A. Are you talking now within the greater AOC area?

Q. Greater area. All the sampling you've done.

A. The short answer is yes, as part of our sampling and analysis program we utilized the services of a statistician and that's part of our approved

remedial action work plan. That statistician -- and please keep in mind that under the AOC we are generating orders of magnitude more data on, you know, the site-wide basis than we did under the ISDA.

The statistician looks at the data that's obtained for -- and I don't want to get too much in the weeds here, but I will for now. For each particular use area that's established there are ten samples obtained at each 6-inch interval going downward until delineation is achieved. The statistician will look at all of those ten samples for a particular 6-inch depth interval and using his -- well, using EPA methodology and EPA tools on calculating, you know, 90 percent upward confidence limit numbers, looking at the data and determining, okay, for this particular data set of ten is one of these an outlier. The statistician can and has tossed a data point out as being an outlier, potentially either an outlier on the high side or on the low side. But that's -- that's a determination that the statistician makes independent of USMR and anybody else.

Q. And who is the statistician?

A. I don't know his name actually, but it's an

Arcadis employee.

Q. Okay. And it's your testimony that they do this both on the high side and the low side?

A. As far as I know they've got the ability to do that both on the high and the low side.

Q. Have you ever seen it done on the low side in this data set?

A. Not to my knowledge. I don't -- I don't recall any on the low side being dropped, but I have no reason to believe that there -- you know, that there haven't been.

Q. But you have not seen any. Correct?

A. Correct.

Q. Okay. And you have seen them being dropped at the high side. Correct?

A. It's my understanding that that's true, but it's very rare. I mean, generally the data sets are statistically valid, I guess.

Q. Okay. And your own conceptual site model assumes that despite air deposition, that there would be exchange of soils, there could be development, there could be gardening, there could be landscaping, there could be a lot of things that would create inconsistencies from one sample to the next. Correct,

that's part of your site model?

A. Say that again, please.

Q. Your site model, after saying that it's air deposition and that rapidly decreases, goes on to say that there would be some expectation that the levels of metals may vary from sample to sample because of the historical use of the soil, the potential use of fill, the potential use of landscaping and mulch and other soils in these areas so that you wouldn't expect a clean profile from sample to sample. Correct?

A. Some variability across a particular use area is not unexpected.

Q. Okay. And there's nothing in the history that you know of the source that would tell you that you would expect some normal or log-normal or Gaussian distribution of metals in these soils, is there?

A. Say that again.

Q. Okay. What basis do you have to expect that the distribution of metals in any one property's soil would fit any statistical distribution?

A. Well, I mean, under, you know, the conceptual site model and, you know, over -- over many decades of operation of the facility you would expect there to be, you know, this general decrease of constituents as

you moved away from the site. I'm not sure I answered that question but. . .

Q. You didn't because I'm talking about on a specific piece of property how is it you can throw one sample away? How do you know that's not sitting on the drip line and picked up lead or sitting next to a fence and picked up lead or sitting where somebody decided to put a garden in and they found that their neighbor who had a lot of lead had good soil so they grabbed some soil from their neighbor and put it in their garden?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) How do you know you can get rid of any sample?

MR. SCHICK: Objection. Form. Scope.

A. It's a determination made by the statistician.

Q. (By Mr. Nidel) But you as manager of this project have allowed that statistician to make that determination. Correct?

A. The statistician is working consistent with the remedial action work plan which has been approved by the LSRP. So yes, the statistician has that authority to independently make a determination that a

1 particular sample in a yard area is an outlier.
2 Q. And you, U.S. Metals, gave him that authority
3 by asking the LSRP to agree to that. Correct?
4 MR. SCHICK: Objection. Form.
5 A. USMR developed a work plan which was
6 subsequently approved by the LSRP, yes.
7 Q. (By Mr. Nidel) Okay. The LSRP that works
8 for ELM who you're also paying ELM millions of dollars
9 to do other work for you. Correct?
10 MR. SCHICK: Objection. Form.
11 A. I think I've already said the LSRP works for
12 ELM.
13 Q. (By Mr. Nidel) Okay. How does the ISDA
14 differ from the AOC? We're going to eat in a sec, but
15 I just want to. . .
16 A. Oh, okay. Generally it really doesn't differ
17 very much. There was, I believe, a small area of the
18 ISDA that was not included in the AOC because of the
19 sampling results that were obtained and I believe that
20 was on the northwestmost portion of the ISDA. And
21 there was another portion along the northeast part of
22 the ISDA that was expanded slightly due to some
23 concentrations that were in that area. So it
24 generally stayed the same configuration, it just got

sort of re-jiggered a little bit.

Q. So the data from the ISDA was used to I think your word was morph into the AOC, or I think that was your word earlier. But data from the ISDA investigation was used to define, with the two changes, the AOC boundary. Correct?

A. Yes.

Q. Okay. And the modeling that you've talked about -- air modeling that you've talked about, that -- was that used to define the AOC or was that used to define the ISDA?

A. That was used as part of the ISDA determination.

Q. Okay. And then the sample data from the ISDA was used to define the boundaries of the AOC?

A. Yes.

Q. Okay. Who is Dr. McDaniel?

A. Uh. . .

Q. Mary McDaniel.

A. Yes. Dr. McDaniel is a -- how -- best for her is sort of a -- she's a physician that specializes in communicating health risks to individuals.

Q. And you were using her in the community to answer questions about cancer risks and other health

concerns. Correct?

MR. SCHICK: Objection. Form.

A. To the extent that members of the public had questions about what was being done as part of the implementation of the soil program, USMR, we are not, you know, doctors or toxicologists but we retained the services of Dr. McDaniel to provide information to residents upon their request.

Q. (By Mr. Nidel) Was she paid by anyone that you know of?

A. Yes, I believe she was paid by USMR.

Q. Okay. I might have missed it. Who does Dr. McDaniel work for?

A. She has her own firm. I can't remember what the firm is. She's based out of somewhere in -- along the West Coast in southern California.

Q. Okay. And she -- but she is a consultant or a paid --

A. I would -- I would call her a consultant.

Q. Okay. And USMR made her available to the community if they had questions like this?

A. If they had questions.

Q. Okay. And one last little question: What metals are the best indicators of impacts from the

facility?

MR. SCHICK: Objection. Form.

A. You know, in my opinion, the best indicator of metals from a copper smelter is copper.

MR. NIDEL: Okay. Let's eat.

THE VIDEOGRAPHER: We are off the record. It is 12:45. It's the end of Tape 3.

(Lunch recess.)

THE VIDEOGRAPHER: Okay. We are back on the record. It's 1:40 p.m. and it's the beginning of Tape 4.

MR. NIDEL: I hope everybody got something to eat. I'm waiting for the fingers to be on the right spot.

Q. (By Mr. Nidel) We were talking earlier about the process and I just wanted to understand the process a little bit better. So you identified the ISDA based on your conceptual site model. Correct?

A. Yeah, based on the conceptual site model and the air -- air model.

Q. Okay. And the air model helped to confirm the conceptual site model which defined the ISDA. The sampling from the ISDA then was used to adjust the boundaries to form the AOC. Is that fair?

A. Say that again because I think you might have gotten one thing backwards.

Q. The sampling in the ISDA was used to adjust the boundaries in small degrees to form what then became the AOC?

A. Yes.

Q. Okay. And then within the AOC you treated every property the same with respect to sampling and remediation. Is that true?

A. The sampling approach on each property is the same. It's prescribed in the remedial action work plan. So that much is consistent from property to property. As far as remediation goes, it's different from property to property. Some properties don't require any remediation and other properties where remediation is required, that remediation is done to varying depths based on the vertical delineation work and the individual sample concentrations.

Q. Okay. I understand that the remediation that was done, if any, was determined by the sample results, but as far as how those properties were treated and what the standards for remediation were or not remediation, that approach was the same across the AOC. Correct?

A. We used a consistent methodology at each property to determine whether or not remediation was required or not.

Q. And then to do the remediation you used the same standards and methodologies albeit the application of those may have been different based on the results?

A. Correct. The remediation methodology is generally removal of the impacted soils and replacement with clean fill. So, you know, in a very general way that's the remediation approach, well, followed by restoration, of course, but then, yeah, you're correct that the depth of excavation, the lateral extent of remediation is different from property to property based on the property-specific sampling results.

Q. Okay. And your vertical delineation, you actually delineated down to a result that was below the residential cleanup standard. Correct?

A. Yes, the New Jersey tech regs require that vertical delineation be conducted until it's, quote/unquote, clean.

Q. Okay. And clean in that context is being defined as below the cleanup standard. Correct?

A. That's correct.

Q. Okay.

A. For any particular constituent.

Q. Right. For the constituents that you were looking for, why did you not do that on the horizontal delineation?

MR. SCHICK: Objection. Form.

A. Yeah, I'm not understanding.

Q. (By Mr. Nidel) Well, at the boundaries of the AOC you're still receiving -- getting sample results that are above the -- that are, quote/unquote, not clean. Is that fair?

A. Near the -- near the boundary there are still samples that exceed the cleanup standard.

Q. Okay. So why are you not continuing to go further and further from the source to delineate that back to a clean -- a, quote/unquote, clean hit?

A. We haven't yet made a determination that those levels near the boundary that exceed standards are attributable to our operations. That's something that's part of the boundary evaluation study that's ongoing. But certainly should the boundary be determined to need to be expanded, then we would go further and do additional sampling on a

property-by-property basis beyond into whatever the revised AOC boundary is determined by the LSRP to be.

Q. Okay. Is there a name for the boundary evaluation study?

A. No. I don't think it's got an official -- I mean, boundary evaluation study is probably what it's going to be called once it's all prepared and submitted to the LSRP.

Q. Is there a plan for the boundary evaluation that's been submitted?

A. There hasn't -- the detailed study has not yet been submitted. I think I testified early this morning that we hope to have that information to the LSRP probably sometime later this summer.

Q. Okay. Is that going to be based primarily on the data from the transects?

A. It will be based on data from both the transects and within the -- within the AOC.

Q. Okay. I had asked you earlier about this, but I just want to make sure I ask about all of these issues. In your sampling plans you avoided drip lines for lead paint. Correct?

A. We attempted to avoid drip lines to the extent that we could.

Q. You avoided wooded -- pressure-treated wood such as fenced areas and sheds. Correct?

A. I believe so, yes.

Q. Okay. You avoided known or identified dumping areas. Correct?

A. I believe so.

Q. Okay. Do you agree that although air deposition may initially deposit these metals in a relatively uniform pattern, the cumulative localized disturbances -- although air deposition may initially deposit these metals in a relatively uniform pattern, the cumulative localized disturbance such as excavations, grading, landscaping and wind erosion, of soil at any given location that can occur in this case over a period of 80 years can redistribute these metals and result in localized variances in soil metal concentrations?

A. I would -- I would agree that disturbances to the soil with any -- within any particular yard area can cause different distribution of the constituents contained in that soil.

Q. But your conceptual site model essentially was based on a blanketing of decreasing deposition across the neighborhood. Correct?

A. That's the conceptual site model, yes.
Q. Who is Brian Pederson or Pederson?
A. Brian Pederson?
Q. And I just read documents. I don't know who he is.
A. I don't know.
Q. Was he an early LSRP involved in the work?
A. Not to my knowledge. The only LSRP that we've retained on this site is Mr. McNally.
Q. How soon after you received the results of the lab testing -- well, let me start. You submitted the samples to the lab. What was the turnaround time for the samples that you submitted?
A. For which?
Q. I assume -- I was assuming for metal sampling that there was a routine of 14 or 21 days.
MR. SCHICK: ISDA? AOC?
Q. (By Mr. Nidel) If it was different I understand. I was assuming it wasn't and I thought we could quickly cut to the chase, but --
A. I think the normal turnaround time is typically two weeks.
Q. Okay.
A. From receipt at the lab.

Q. Okay. Was the normal turnaround time something that you normally used with the lab?

A. I believe that's true.

Q. Okay. You didn't pay for an expedited turnaround time. Correct?

A. Not typically.

Q. And you didn't get a discount for delaying your turnaround. Right?

A. No.

Q. Okay. So you took the samples and it's fair to assume that within roughly two weeks you would have results. Is that fair?

A. Not necessarily. I mean, once the -- once the results are received by the consultant, in this case Arcadis, it goes through a process of, you know, quality control, quality assurance, to validate the samples -- or sorry, to validate the analytical results. So it's additional weeks beyond receipt of the data from the lab that the results are finalized.

Q. So how many -- from sample -- from the date that Arcadis sampled to the day that you had results, how long would that be?

A. Again, it would -- it depends somewhat on the number of samples that are, you know, being taken. If

we, you know, took a large number of samples in any, you know, short period of time, it would take Arcadis longer to work through the validation process than, you know, it would otherwise take if they just had a small number of samples. So, I mean, typically it's probably a couple of months between the time the samples are first taken and when the first results are received, but that can be extended, like I said, if there's a large sample volume to be addressed.

Q. Okay. And I just want to be clear. I think I understand what you're saying but I want the record to be clear. There would be a couple of months from when you would receive the full data set of the samples that were taken as opposed to your consultant would receive the results within approximately two weeks or, say, two to three weeks. Is that fair?

MR. SCHICK: Objection. Form.

A. Yeah. The -- yes, the consultant received the analytical results directly from the lab, but then, you know, they have to then perform their data validation work to ensure that the data quality objectives and the sampling and analysis plan were met before those sample results were considered final and then entered into the system.

Q. (By Mr. Nidel) I understand that. You -- I find no fault with my questions and only fault with your answers, which is a joke, but you said they were received and I just wanted to understand that your consultant would receive the results in a matter of two to three weeks but then they would go through a process and they would be finalized and provided to you, the client, in some period of a couple of months. Is that fair?

A. I think that's fair.

Q. Okay. You talked earlier that you reported to I think it was William Cobb. Right?

A. Yes.

Q. And I think you talked about you would -- you sort of made decisions with Mr. Cobb's input at times. Correct?

A. Yes.

Q. Okay. And based on reporting to him he had some oversight of your decision-making and your work on the site. Is that fair?

A. Yes, as my supervisor, that's accurate.

Q. Okay. What was the conceptual site model for dioxins?

A. I don't believe there was a different site

model for dioxin as compared to any other constituent. To the extent that it was an air release, it would follow the same general pattern where higher concentrations would be expected close to the facility boundary and lessing -- lessening concentrations as you moved away from the boundary.

Q. Okay. And I talked a lot about conceptual site models and the source, and without going through the same exercise, what was your understanding in the conceptual site model of what the source was of dioxins on the site?

A. Likely, it was the incorporation of scrap materials containing plastics into the secondary smelting process.

Q. Okay. And was that the -- I appreciate that answer. So the process was the burning of plastic-bearing scrap material, the source on the site, was that the cupola stack?

A. It was probably one of the sources. You know, I can't rule out that there weren't fugitive emissions, as well, that were associated with that. You can't -- you can't look at one, you know, stack source without also considering a fugitive source.

Q. Okay. What other sources of dioxins did you

consider other than the cupola stack?

MR. SCHICK: Objection. Form.

A. Can you repeat that?

Q. (By Mr. Nidel) Yeah. In order to have a conceptual site model you have to have an understanding of the source, and I'm asking you what other sources of dioxins from the facility did you consider other than the cupola stack?

A. We didn't consider any different sources of dioxin as compared to sources of metals that we've talked about earlier. These were all emissions from the facility. These were emitted consistent with what we believed to be the conceptual site model and I don't believe we indicated that dioxin behaved any differently in a general sense from, you know, other constituents of the stack or fugitive emissions. But again, it was the actual physical sampling of the soil material that informed us as to what was going on as opposed to, you know, any particular modeling exercise.

Q. I'm not talking about modeling at this point. Your -- I'm talking about the conceptual site model. Your assessment of dioxins specifically compared those dioxin congeners to what was found in the cupola

stack. Correct, by EPA?

A. The sampling which was done as part of our delineation effort on dioxin was compared to the information that was obtained from stack testing back in the 1980s.

Q. Okay. What other sources of dioxin onsite was it compared to?

A. I don't believe it was compared to any others besides the stack testing data which we had.

Q. Okay. The LSRP was concerned about dioxins from the site. Correct?

MR. SCHICK: Objection. Form.

A. While we were doing the onsite delineation, which, you know, expanded into the offsite, the LSRP indicated that he felt that additional dioxin delineation should be performed. And to address that request from the LSRP, we did additional dioxin soil sampling generally on the northern boundary of the facility.

Q. (By Mr. Nidel) You reviewed a number of data sets of dioxin analysis. Correct?

A. Are you talking historic information or --

Q. Yeah. You reviewed a number of data sets when you did some reviews of dioxins. Right?

A. There was a review of the dioxin information that was generated in the 1980s as part of stack testing, as well as soil testing that was performed as part of the onsite remedial investigation.

Q. Okay. So you reviewed stack testing that was done by both EPA and Radian. Correct?

A. Yes, I believe that was part of the review.

Q. You reviewed site testing that was done by both EPA and Radian. Correct, site soils?

A. I believe that's correct.

Q. Okay. And you also reviewed testing that was done by EPA of baghouse dust. Correct?

A. I don't recall the EPA baghouse dust review. Sorry.

Q. Okay. Why did you only compare the offsite dioxin samples and their congeners to the stack testing?

A. The stack testing information I think had the best detail on the relative quantities of the various dioxin congeners as compared to some of the other data is my recollection.

Q. Okay. Well, the same EPA that tested this stack also tested the baghouse dust and the baghouse dust was more highly chlorinated. Correct?

A. I don't know. I told you I don't recall the baghouse dust data.

Q. Okay. You recall that Radian identified the baghouse dust as the most significant source of fugitive emissions from the site. Is that correct?

MR. SCHICK: Objection. Form.

A. I don't recall that from the Radian report.

Q. (By Mr. Nidel) If the baghouse dust did have dioxins and if the baghouse dust congener profile was different than the stack testing profile and if Radian, your consultant, previously identified the baghouse dust as a significant source or the most significant fugitive source of emissions from the site, would you agree that that would be relevant to your fingerprinting assessment of the dioxins that you found offsite?

MR. SCHICK: Objection. Form.

A. I'd say not necessarily and, you know, fugitive emissions would tend to drop off very quickly in proximity to the source as compared to the stack emissions.

Q. (By Mr. Nidel) Okay. So the stack emissions don't drop off very quickly --

A. They --

Q. -- from the source?

A. They don't drop off as quickly as the fugitives because of the dispersion.

Q. Okay. How quickly do the stack emissions drop off, then?

A. Again, you know, based on -- based on the model they both drop off -- based on the air model they both drop off fairly quickly. And again, it's more appropriate to do actual sampling than to hang your hat on the results of a model, regardless of whether that's fugitive or stack-derived emissions.

Q. I understand it's more reliable to rely on sampling and you did sampling and you found dioxins. Correct?

A. We found low levels of dioxin near the facility boundary.

Q. Okay. Have you looked at -- are you familiar with dioxin cleanup standards from the rest of the 50 states?

A. No, I'm not.

Q. Okay. Are you aware of states that require cleanup of dioxins as low as 10 or 20 parts per trillion?

A. I think I just answered that. No.

Q. Okay. Do you know what a safe level of exposure to dioxins is?

A. I don't know.

Q. Okay. Was it your goal -- is it your goal in remediating the neighborhood to create a safe environment for people?

MR. SCHICK: Objection. Form.

A. Help me understand what you mean by a safe environment.

Q. (By Mr. Nidel) Okay. Well, you've found results within Zone 1 -- let's just talk about Zone 1. Do we agree that Zone 1 was impacted by the smelter?

A. I think it's possible that there are impacts from the smelter in Zone 1.

Q. Okay.

A. Of both, you know, lead, arsenic and copper.

Q. Okay. And those impacts lead to extremely high in some cases concentrations of lead and/or arsenic. Correct?

MR. SCHICK: Objection. Form.

A. Again, there -- it's possible that there are emissions from the facility of lead, arsenic and copper into Zone 1, but whether they are solely the cause of any exceedances beyond the residential

cleanup standards is not something I can say with any certainty.

Q. (By Mr. Nidel) Okay. But you agree that they're above the residential cleanup standards. Right?

A. No. What I -- what I agree is that there are properties within the AOC where lead, arsenic and copper are present in excess of cleanup standards. Whether those are attributable solely to the USMR operations, I can't agree to that.

Q. Okay. I'm not asking you would agree with that. I just asked if they exceeded cleanup standards.

A. Okay.

Q. And they do. Right?

A. Certain properties exceed cleanup standards for those constituents.

Q. Okay. And that would be a cause of concern for USMR. Correct?

MR. SCHICK: Objection. Form.

A. To the extent that we are -- I mean, USMR has committed to remediate properties within the AOC where those standards for those three constituents are present in excess of the cleanup standards regardless

of the attribution of those constituents.

Q. (By Mr. Nidel) Okay. So being a fine corporate citizen USMR has agreed to take responsibilities, you just said, to clean up regardless of the attribution. And is it the goal of that cleanup to remove all pollutants to below the cleanup standards?

MR. SCHICK: Objection. Form.

A. USMR has committed to clean up properties within the AOC where the three constituents, copper, lead or arsenic, are present in excess of the cleanup standards consistent with our remedial action work plan, which, again, has been approved by the LSRP.

Q. (By Mr. Nidel) Okay. I'm not asking about your remedial action work plan. I'm asking is it your goal to remove all pollutants to the -- to below the cleanup standard?

MR. SCHICK: Objection. Form.

A. Our work in the AOC is limited to the three constituents of concern, lead, arsenic, and copper, and we are remediating those two below the residential standard as provided for by our work plan.

Q. (By Mr. Nidel) What is the standard for arsenic, lead, and copper that's provided for in your

work plan?

A. 19 parts per million for arsenic, 400 parts per million for lead and I believe it's 3,900 parts per million for copper.

Q. How far did contaminants go from the facility?

A. I don't know.

MR. SCHICK: Objection. Form.

A. Are you -- what -- are you talking one molecule of contaminants from the facility or -- I mean, I don't understand.

Q. (By Mr. Nidel) How far did one molecule go?

A. I don't know.

Q. Miles?

A. I don't know.

Q. How far is Roosevelt Avenue from the smelter?

A. Half mile, more or less.

Q. Okay. What research did USMR do to determine how far smelter contaminants would have been gone in developing their conceptual site model?

A. Again, we -- we utilized the emissions model that we developed to provide an estimate of what the likely bounds of the ISDA were and based on that the AOC was established.

Q. Okay. What I need to know is what -- what other things they did, if anything. Did they research in a library? Did they look at studies from EPA on other smelters? Did they look at published literature on smelters and emissions from smelters? What other things did they look at other than their model and then the layout of Carteret and then the samples that they took within the ISDA?

A. I don't believe we looked at anything else in order to propose the ISDA boundaries. Again, I mean, we've been through this. We've relied on actual physical samples to really determine what's going on on the ground and not trying to apply examples from what may be a completely different circumstance to what's going on. We're letting the data drive our decision-making process.

Q. Okay. My problem with the data is you only went out half a mile, okay, and so I'm asking you if you looked at studies where there are other experiences, whether with USMR facilities or other facilities that are published in the literature or available in regulatory documents, that show how far particles under 10 microns travel when they're emitted from 400-foot stacks.

MR. SCHICK: Objection. Form.

A. I'm not aware that we looked at any of those studies.

Q. (By Mr. Nidel) Okay. Are some of the highest levels that you found in the subsurface or some of the deeper samples?

A. It seems that some of the higher samples are not located in the topmost soil horizon. There are lower -- lower horizons that have some pretty significant levels of particularly lead and arsenic.

Q. And what is your understanding of why that would be?

A. Again, part of the theory is that a lot of the material that is at depth is associated with historic fill and exhibits the concentrations of, you know, constituents consistent with historic fill. In, you know -- let me pull out a specific example. One of the borough park properties, which was sampled when we -- when we looked back at the Sanborn maps, which we talked about briefly before lunch, it was determined that the area which is now a park was formerly a subdivision.

So what likely happened, and this is what was validated during our sampling exercise, is rather than

demolishing and removing those buildings and doing that prior to the establishment of the park, some of these buildings were likely just demolished onsite so all of the material that was associated with the house and the basement, including, you know -- you know, the furnace, you know, the ash pile, the wood, the lead-containing paint, was all just simply buried there in advance of the park being placed or the park being constructed. So, I mean, that's -- that's one, I guess, really good example of why there are higher levels of certain contaminants at depth as compared to what would otherwise be on the surface.

Q. You're talking about Chrome Park?

A. I'm talking about Chrome Park, yes.

Q. Okay. And you also know from studying Chrome Park that many of the samples within Chrome Park are actually the lowest of the samples that you found. Correct?

MR. SCHICK: Objection. Form.

A. At the surface there's, you know, some of the lower -- some of the lower concentrations we're seeing. You know, the higher concentrations are definitely at depth.

Q. (By Mr. Nidel) Okay. And you know why that

was. Right?

A. We have a theory.

Q. Okay.

A. Which I just explained.

Q. And that was because there used to be a neighborhood on top of Chrome Park. Right?

A. At least on top of portions of Chrome Park.

Q. Okay. And that was redeveloped sometime between the '60s and '70s. Correct?

A. I believe that's the time frame, yes.

Q. Okay. It was turned into a park. Correct?

A. Yes.

Q. And the soils at the surface were replaced by some type of fill that doesn't have the high levels of lead and arsenic that the rest of the neighborhood has. Correct?

A. I don't know where the Borough obtained that fill from, so I can't speculate as to the concentrations of those constituents within the fill.

Q. Well, you've tested them and you know what the concentrations are today. Right?

A. Yeah, you asked what they were at the time when the Borough placed them there. I don't --

Q. I'm just asking what -- in Chrome Park you

1 know -- you saw that those samples are actually
2 different than the rest of the samples in the
3 neighborhood and you know from your Sanborn maps and
4 your aerial photos that they're different because that
5 property was developed in the '60s or '70s. Correct?
6 A. Yes, the Chrome Park was developed in the
7 '60s and '70s and the data indicates that the surface
8 level of -- the surface-level concentrations of
9 constituents are fairly low there and, you know, in
10 comparison with other portions of the AOC.
11 Q. And that's because of the redevelopment.
12 Correct?
13 A. I -- I don't know what the direct cause was.
14 All I know is what the data is telling.
15 Q. Right. But presumably it's from
16 redevelopment. This is not soil -- you know that it's
17 not soil that sat there from 1902 until you sampled it
18 in 19 -- sorry, in 2010 and beyond. Correct?
19 A. It was likely soil that was placed there by
20 the Borough in the '60s and '70s, but, you know, the
21 constituents in that soil at the time of placement we
22 don't know.
23 Q. Okay. But you know what they are currently
24 and in general that's one of the lowest spots that you

identified in the neighborhood. Correct?

A. It's one of the lower spots, yeah.

Q. Okay.

A. I wouldn't say lowest.

Q. Using the cleanup standard as you did earlier, it's one of the, quote/unquote, cleanest spots in the neighborhood. Correct?

A. Say that again.

Q. Using the word clean in quotes as you used it before, that's one of the cleanest spots in the neighborhood. Correct?

MR. SCHICK: Objection. Form.

A. I'd say not -- not completely. You know, some of the shallow soil horizons are cleaner than, you know, maybe some others, but the impacts at depth are pretty significant. So, you know, saying that, you know, that particular parcel is relatively clean, I can't agree with that because you need to take a look at the entire vertical delineation to determine, you know, clean versus dirty.

Q. (By Mr. Nidel) Okay. Let me ask the question again, then. The surface soils are some of the cleanest of those that you sampled in the neighborhood. Correct, in Chrome Park?

MR. SCHICK: Objection. Form.

A. There are some -- there are some properties within the AOC that are cleaner and some that are dirtier, if you will.

Q. (By Mr. Nidel) Okay. We're going to look at your sample results from your TIA database. Okay? You're not -- you can't agree with me right now that Chrome Park has a vast chunk of green samples in the north of the park and in the south of the park. We can't agree to that?

A. We can agree to that on specific soil horizons, but not --

Q. Okay.

A. -- not as a whole.

Q. Okay. That's why I limited my question to the surface.

A. Okay.

Q. But you couldn't agree to it. So would you agree now that the sample -- the surface samples in Chrome Park are some of the cleanest that you found?

MR. SCHICK: Objection. Form.

A. I would agree that there -- they are relatively clean compared to other properties and, you know, dirtier than certain others. I wouldn't

represent them as the cleanest.

Q. (By Mr. Nidel) Okay. They have the highest percentage of samples that are in compliance with the cleanup standard?

A. Again, are you talking at the surface?

Q. At the surface, yes.

A. There's a high percentage of surface samples in Chrome Park that are relatively clean.

Q. A higher percentage than any other 10-acre parcel that you investigated. Correct?

A. I'm not sure there was any other 10-acre parcel, so if you're just talking about Chrome Park standing, you know, by itself.

Q. I don't mean parcel as defined by streets. I'm asking any other -- can you tell me anywhere on -- anywhere else onsite that you could find as many clean samples in the surface there that are compliant with the standard that you found as you did in Chrome Park?

A. Probably not any physically contiguous samples or use areas, if you will, as compared to Chrome Park.

Q. And you knew when you did the ISDA -- sorry. You knew when you did the ISDA and evaluated the samples that that area had been developed at some

point in the '60s or '70s. Correct?

A. I'm not sure we knew that at the time.

Q. When did you find that out?

A. I believe after we started getting into the Sanborn maps. So, again, that was before my tenure as project manager, but, you know, I believe that the ISDA samples were located regardless -- you know, without regard to any redevelopment history of a particular parcel.

Q. Sure. And maybe I will criticize my questions because they don't seem to be clear. My question wasn't whether the sample locations were chosen based on that. I'm saying your analysis, when you did your analysis of the sample results with your zones, you knew that Chrome Park had been redeveloped. Correct?

A. I don't know if that's true.

Q. Okay. I need to know if you knew if it was true, and I know it might have been before your time, but it wasn't before U.S. Metals' time. So I'm asking U.S. Metals when did you know that Chrome Park was redeveloped?

A. I don't know when we became aware of that specific piece of information.

Q. Okay. When did you do the Sanborn investigations?

A. I believe it was done subsequent to the ISDA work and when we had already begun the more detailed work in the AOC.

Q. Okay. Well, you know now that those areas were redeveloped. Correct?

A. We do know that now.

Q. Okay. And you know that there's a factual reason as to why those surface samples are more compliant than any other similar contiguous area on the -- in the community. Correct?

A. That's one possible line of evidence, but I don't know why that, you know, was, you know, unilaterally the case.

Q. Okay. You wouldn't include samples that you know either had a lead plant on them or had industrial soils dumped on them or had clean soils dumped on them in your analysis of where to find soils that you contaminated for the last 85 years, would you?

MR. SCHICK: Objection. Form.

A. I don't understand that question.

Q. (By Mr. Nidel) Okay. It doesn't make sense -- you know the property was redeveloped sometime

after 1960. Correct?

A. We do know that now.

Q. Okay. You knew that the site emitted pollutants, whether they went offsite or not you can debate, they omitted pollutants starting in 1902 when it started its furnaces. Correct?

MR. SCHICK: Objection. Form.

A. Say that again.

Q. (By Mr. Nidel) You know that the facility started emitting pollutants when it started its furnaces up in 1902. Correct?

MR. SCHICK: Objection. Form.

A. I'm not aware of the precise date that the furnaces, if you will, were started. I don't think they were started as early as 1902.

Q. (By Mr. Nidel) Okay. They were started long before 1960. Is that fair?

A. It's my understanding they were started several decades before the 1960s.

Q. Okay. And so if you're looking for pollutants from your operations that started several decades before the 1960s, you would agree with me that looking at soil that was placed sometime in the '60s or '70s probably is not the place to find those

pollutants. Correct?

MR. SCHICK: Objection. Form.

A. We took a large number of samples throughout the ISDA regardless of what the site development history of a particular parcel was. So, yeah, we didn't intend or, you know, intentionally bias sampling one way or the other.

Q. (By Mr. Nidel) Roughly 20. Right, per zone?

A. 20 per zone, yes.

(Exhibit No. 52 and 53 marked.)

Q. Okay. I'm going to hand you Exhibits 52 and 53. Exhibit 52 -- we saw those yesterday. I just couldn't find them. 52 is a 19 I think 61 aerial. I have -- it's got my writing of the date. These were produced by defendants.

A. Okay.

Q. 53 is a 1974 aerial, I believe. Is that fair?

A. That's what they say on the drawings.

Q. Okay. All I can do is they were produced to me. That was the file name.

A. Okay.

Q. So I'm assuming that was produced by defendants for that reason. Okay. Can you identify

where Chrome Park is on those aerials? I've given you a blue marker. Can you outline Chrome Park?

A. Sure. Let's see. (Complying.) I think I got it right.

Q. Okay. There was another area that was developed during that same time period on the -- I think it's the northeast portion of AOC. Is that correct?

A. That's correct.

Q. Okay. Can you circle that area that was also redeveloped during that period of time?

A. I assume you're talking about this area right here or (indicating).

Q. You reviewed Sanborn maps, you got -- I gave you the benefit of those aerials. If you can tell me what areas were redeveloped between the '60s and early '70s on that map, on those two aerials, I'd appreciate it.

A. Well, based on -- it's kind of hard to superimpose these two together, but. . .

Q. It's hard to superimpose them because one was predevelopment. Correct?

A. Yeah.

Q. The roads didn't even exist in some of the

portions. Correct?

A. That's why I'm having trouble.

Q. Yep.

A. Something like that.

MR. NIDEL: So just for the record, the witness has outlined in blue on both Exhibits 52 and 53 portions of the site that are Chrome Park, as well as another area on the northeast corner of the AOC that was redeveloped sometime between the '60s and '70s.

Q. (By Mr. Nidel) And if we could have the assistance of the videographer, maybe, then you could hold up starting with Exhibit 52 for the camera?

A. (Complying.)

Q. And then we can go to 53.

A. (Complying.)

Q. All right. I think we're good.

So you talked about a sample area on Chrome Park where there was historical evidence of a house that had been demolished and just basically buried onsite. Do you recall that discussion?

A. I do.

Q. Was there a sample taken in that area that identified that as an outlier or an anomaly?

A. During which sampling?

Q. How did you find out -- how did you come to find out that there was a house there that must be -- must have had some lead paint that was buried?

A. Because during our sampling program as part of the AOC when we were drilling down to obtain samples, we were pulling up bits of wood and other debris that would be associated with the dwelling.

Q. Okay. Did you take samples and analyze them or did you then determine that that was not an appropriate place to sample, given its factual history?

A. I think we included that in our sampling program because we are -- we're required to delineate vertically the constituents of concern and the regulations don't allows us to simply disregard samples because of, you know, what they may have been derived from. They're -- the samples are what they are. We obtain samples from the various depth intervals and ran them for sampling.

Q. But your regulations allow you to disregard samples based on some statistical analysis that someone does. Right?

MR. SCHICK: Objection. Form.

A. The statistician is allowed to disregard certain individual samples which he or she considers to be an outlier.

Q. (By Mr. Nidel) And that's provided for in the regulation?

A. As far as I know, yes.

Q. What regulation?

A. Those would be the New Jersey tech regs, to my understanding.

Q. Okay. What regulation specifically?

A. I don't know. I don't have an encyclopedic knowledge of the tech regs.

Q. Okay. Well, I remember discussion from your reports of a house that was buried. So I understand that you didn't -- you may have sampled but you then explained that sample away as being the result of some other impact factually in the history of that site. Right?

MR. SCHICK: Objection. Form.

A. We may have included a notation to that effect in the drill log and the sample database.

Q. (By Mr. Nidel) Okay. And did you include a notation to that effect in your discussions with the LSRP?

A. I believe the LSRP is aware that there, you know, is and continues to be buried residential debris in portions of Chrome Park.

Q. Okay. Why -- why did you make him aware of that?

A. It's an important fact as part of the sampling program. It helps to explain in part why constituent concentrations at depth are as high as they are in that area as compared to the more surficial samples.

Q. Okay. And the redevelopment history of Chrome Park in the area to the northeast also is important in understanding why constituents are in those areas particularly low at the surface, isn't it?

A. It's part of the story, yes.

Q. Okay. That would be important in assessing whether, for example, your pollution is decreasing as you get further and further from the site as you go across Chrome Park. Right?

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

Q. Okay. The samples in Chrome Park we've agreed, after much discussion, are generally lower at the surface. Right?

A. Right.

Q. Okay. And you put zones in and you cut up Chrome Park and you kept it out of Zone 1 but you got it in Zone 2 and you got it in Zone 3 and then you got that northeast corridor in Zone 3 and it looks like the numbers line up for you. Right?

MR. SCHICK: Objection. Form.

A. There's -- there's numerous other samples in all three zones that are not associated with Chrome Park or the other undeveloped area to the northeast.

Q. (By Mr. Nidel) Numerous. You took 20 in each zone. Correct?

A. Approximately.

Q. Do you know how many samples of those were taken in Chrome Park or the area that you've outlined as being redeveloped in the northeast?

A. Off the top of my head, I do not.

Q. Okay. Do you know how much those samples influenced the averaging that you did?

A. No.

Q. Do you think that would be important to know?

A. When taken as a whole with all of the other samples, I believe that we had a representative set of tests for each of the zones.

(Exhibit No. 54 marked.)

Q. Okay. I'm handing you Exhibit 54 to your deposition. Exhibit 54 is a copy of an administrative consent order from 1988 Bates labeled USMR 17658. Have you ever seen this document before?

A. Yes, I have seen this document.

Q. Okay. And if you turn to Page 17674 of that?

A. 674?

Q. It includes a remedial investigation scope of work required as part of the consent order from 1988. And the requirement number C is to fully determine the horizontal and vertical extent of pollution at and/or emanating from the site. Do you see that?

A. I do.

Q. You understand the site to be the USMR facility that we've been talking about?

A. I do.

Q. Okay. And this document, among other things, was -- has been attached to a number of reports that were done by consultants for you. Correct?

A. (No response.)

Q. In the history of -- in their discussion of the history of the cleanup they referenced this document. Correct?

A. I believe that's true.

Q. Okay. So USMR was required as early as 1988 by the State of New Jersey to fully determine the horizontal and vertical extent of pollution that emanated from its site. Correct?

MR. SCHICK: Objection. Form.

A. I believe the, you know, wording in I-C of this document kind of stands -- stands on its own.

Q. (By Mr. Nidel) Stands on its own to say that New Jersey was requiring you to determine the vertical and horizontal extent of pollutants that emanated from your property. Correct?

A. That's what that paragraph -- subparagraph says.

Q. Okay. Why were there two methods used for metal, 6010 and 6020?

A. They're both EPA-approved methods to determine metals concentrations and we were originally -- and we talked about this before lunch as well when we were looking at potential issues with the data early on in the AOC study. One of the things that we looked at was Method 6010 or 6020, both of which are EPA-approved methods, better to do the analysis for the samples we were obtaining.

Q. Okay. Did you determine whether one was

better or not?

A. I think ultimately we stuck with 6010, but I can't remember for sure.

Q. Do you know why that was?

A. No, I don't.

Q. Okay. Why did you stop testing for zinc and other metals?

A. As part of the AOC?

Q. Yeah. I mean, you stopped at some point. Why did you stop?

A. Well, the ISDA sampling did not identify exceedances of zinc or a couple of the other metals in excess of cleanup standards within the ISDA, so the only constituents that were carried through to the AOC were the three that we've been talking about all day.

Q. Okay. But your consultants were telling you on multiple occasions that zinc and cadmium were the best indicator of smelter emissions from the site. Right?

MR. SCHICK: Objection. Form.

A. Again, we selected the three analytes which we did based on their being present in the ISDA in excess of cleanup standards. All the other metals were well below cleanup standard.

Q. (By Mr. Nidel) Okay. My question is not that. My question is whether your consultants were telling you that zinc and cadmium would provide the best indications for you of impacts from the smelter and its associated operations?

MR. SCHICK: Objection. Form.

A. I'm not aware that we were being told that by the consultants at that time.

Q. (By Mr. Nidel) Okay.

A. I may be wrong, but I -- that's my -- that's my recollection.

Q. Okay. Zinc was emitted from the facility. Correct?

A. Zinc is something that the facility emitted, yes.

Q. Okay. And just so the jury can understand, the cleanup standard for zinc is several tens of thousands, I think, parts per million. Correct?

A. I believe that's true.

Q. Okay. So it's not in fact surprising that the zinc levels didn't exceed that cleanup standard. Correct?

MR. SCHICK: Objection. Form.

A. I -- I don't know. If the -- if the levels

of zinc that we had identified through the ISDA work were found to be in excess of the cleanup standards, we would have carried that through as a constituent on the AOC program.

Q. (By Mr. Nidel) Okay. What other sources of zinc were there in the -- into the neighborhood?

A. What other sources of zinc?

Q. Yes.

A. I don't know.

Q. You don't know of any other sources of zinc, do you?

A. I don't know.

Q. What other sources of cadmium did you identify for pollution in the neighborhood?

MR. SCHICK: Objection. Form.

A. I don't know.

Q. (By Mr. Nidel) How did you go about determining whether elevated metals concentrations within an individual sample location were not necessarily an indicator that exceedances of cleanup levels at that particular location was due to air deposition from the historical operations of the smelter?

A. Say that again.

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Yeah. How did you go about determining whether elevated metals concentrations within an individual sample location were necessarily an indicator that exceedances of cleanup levels at that location was due to air deposition from the historical operation of the smelter?

MR. SCHICK: Objection. Form.

A. We sampled for, as part of the ISDA, a number of constituents which, based on the sampling onsite which had been performed back in the '80s, were present onsite in elevated concentrations. So in addition to copper, lead and arsenic we sampled the ISDA for zinc, selenium, cadmium I believe, and there might have been one or two other -- other metals. Based on the sample results, the only constituents that resulted in exceedance of the cleanup standards were lead, arsenic and copper, and as a result we did not do any additional sampling as part of the AOC program for the other metals.

Q. (By Mr. Nidel) What is an OR? With respect to data, your spreadsheets, you have OR indicated, crossed out data?

A. I don't know.

Q. You don't know why data would be crossed out in your spreadsheet or in your TIA database?

MR. SCHICK: Objection. Form.

A. I don't know the specific reason.

Q. (By Mr. Nidel) Okay. There's data with an OR and it indicates that it's -- it was disregarded and it's crossed out so I'm trying to understand why that is.

A. I don't know the specific reason.

Q. Okay. Is there any reason why data would be specifically rejected or crossed out in your assessment? So you took a sample, you sampled for three metals, the lead number is the lead number and it's crossed out.

MR. SCHICK: Objection. Form.

A. As -- as far as I know, the reason that an individual sample result would be crossed out would be either it was an outlier as determined by the statistician or it didn't pass the validation process.

Q. (By Mr. Nidel) You talked about clean fill, and when I asked you about the Chrome Park you said you don't know the source of the clean fill that was used. Right?

A. That's correct.

Q. You don't know the source of any fill that was used in Carteret, do you?
A. No.
Q. Okay. You don't know the metals levels of any of the fill that was used because you don't know the source. Correct?
A. That would -- that would be true.
Q. What lab did you use for the analysis, or labs?
A. I believe we were using ALS.
Q. Is that the only lab that you used for the residential portion of the investigation?
A. I believe so. We may have used -- we may have used another lab early on in the process, but I don't recall. ALS has been the lab we primarily used.
Q. And they charge $10 per metal. Correct?
MR. SCHICK: Objection. Form.
A. Yeah, I'm not -- I'm not sure what they charge.
Q. (By Mr. Nidel) Okay. You don't remember being told that they charge $10 per metal?
A. No.
Q. I understand you don't remember, but does U.S. Metals recall being informed that it was $10 a

metal?

A. I'm sure at some point in the process somebody at USMR was made aware of the per-metal analytical cost.

Q. Did anyone ever suggest testing blood in the neighborhood, either adults or kids, for lead?

A. I'm not aware that USMR has requested that testing be performed.

Q. No. Did anyone ever request that USMR do that testing?

A. Not to my knowledge.

Q. Did you do any of that testing?

A. No.

Q. Did you request blood lead levels from local schools?

A. Not that I'm aware of.

Q. Okay.

MR. NIDEL: I need to take a break and I feel like my Court Reporter might need a break so I'm going to take a break.

THE VIDEOGRAPHER: Okay. We are off the record. It is 2:42. It's the send of Tape 4.

(Break.)

THE VIDEOGRAPHER: Okay. We are back on

the record. It's 2:52 and it's the beginning of Tape 5.

Q. (By Mr. Nidel) What guidelines did you use for sensitive populations in the community?

MR. SCHICK: Objection. Form.

A. What guidelines did we use?

Q. (By Mr. Nidel) Yeah. Did you have any guidelines for sensitive populations, kids, children, young children?

A. I believe we prioritized work on properties where lead was in excess of 1,200 ppm and there was a sensitive population that would be, I believe, a child less than six years old. That would be the highest priority property. The second one was concentrations less that 1,200 with a -- with a sensitive population, and then the third tier would be less than 1,200 without a -- without sensitive population.

Q. Okay. What -- when you say you prioritized them, what did you do to prioritize them?

A. When we were preparing to do the remediation work, those properties that had the highest priority were addressed first in the remediation program.

Q. Okay. Was there any other way that you treated those properties any differently or with any

other priority?

A. As far as cleanup I don't believe we did.

Q. Okay. As far as any other thing, communications with the people that live there, you give them hotel rooms. Was there anything else that you did other than you sampled, you got the results, eventually you communicated those results to them and then you got their permission to remediate and then when you had them queue it up you put them at the front of the queue to remediate?

A. I think that's accurate, yes.

Q. Okay. Was there anything else that you did to prioritize them? Did you send them a letter that said you're above 1,200 and you should not use the yard until further notice or anything?

A. There was information for those properties where lead exceeded the standard. Included in the data packet was information developed by the New Jersey Department of Health, I believe, that talked about lead impacts and what a person could do to protect themselves.

Q. Okay. Did it talk about how to protect yourself from lead paint or how to protect yourself from lead in your front yard?

A. I'm not sure it was specific to yards or paint. I believe it was a general publication prepared by the New Jersey Department of Health.

Q. Okay. Did USMR tell those people anything about the lead that was in their yard?

MR. SCHICK: Objection. Form.

A. We provided the sample results to all property owners and that included the concentrations of lead, arsenic and copper.

Q. (By Mr. Nidel) Okay. Did you tell them anything about -- else about the concentrations of lead, arsenic or copper that you provided to them specifically for those people that were above 1,200, say?

A. Not to my knowledge.

Q. Did you provide anyone with any different information? So my understanding is that for anyone that had an exceedance of lead, arsenic or copper, you provided them the same information. Is that fair?

A. I believe that's true.

Q. Okay. Did you provide anyone with an opportunity to stay in a hotel while you prioritized remediation of their property?

MR. SCHICK: Objection. Form.

A. Not to my knowledge.

Q. (By Mr. Nidel) What other air models did you review or use as part of your work on the site?

A. What other air models?

Q. Yes. So did you review or use -- reference the Dunk modeling that was done?

A. I -- I -- we reviewed the Dunk modeling.

Q. Okay. That was my question. What other --

A. Okay.

Q. -- air models did you review or use and you just said you reviewed it. Right?

A. That's right.

Q. Okay. What other ones did you review or use?

A. There was the -- as far as modeling, I believe Arcadis did a dioxin air model. I believe Radian did a model, as well.

Q. That was for the ambient air quality standard?

A. I believe so.

Q. And you reviewed and used that. Correct?

A. We reviewed and -- you know, the information.

Q. Okay. Any other air models that were done?

A. Well, and the --

Q. McVehil?

A. -- McVehil model.

Q. You actually used some of the Dunk modeling in your presentation in support of the conceptual site model. Correct?

A. I believe that's true, yes.

Q. Okay. You used the later modeling with the added emissions controls. Correct?

A. I believe the Dunk model incorporated the controls that were in place at the time that the modeling was done.

Q. Okay. You were aware that he did multiple modeling runs with different scenarios at different times. Correct?

A. Dr. Dunk did a number of models, I believe.

Q. Okay. And you reviewed those and then you chose to incorporate that one that he did after he had added all the controls. Is that right?

MR. SCHICK: Objection. Form.

A. I mean, to the extent that the Dunk models, if I recall correctly, they all generally supported the conceptual site model and the McVehil model to show that, again, the emissions were highest in close proximity to the facility and exponentially decreased as you -- as you move away from the facility. I don't

1 think the Dunk models contradicted anything that was
2 done by the McVehil model. It still showed the same
3 general exponential decrease of concentrations as you
4 moved away from the facility. And again, that was the
5 basis of the conceptual site model, which was further
6 validated by actual data.
7 Q. (By Mr. Nidel) Okay. That -- that
8 exponential decay is -- that's the basis for the
9 equations that form an air model. Correct?
10 A. Well, it's my understanding that's correct,
11 because that's how things behave in the real world.
12 Q. Okay. So the only question is going to be
13 how -- what your particle size distribution is and how
14 much of the stuff you put out and then your
15 meteorological conditions and that's going to tell you
16 how far it goes. Correct?
17 A. Generally, yes.
18 Q. Okay. So that's why it's important to
19 understand how much your consultants assumed was going
20 out the stacks and what the particle size distribution
21 was that they used. Do you understand that?
22 MR. SCHICK: Objection. Form.
23 A. I understand that to fine-tune a model all of
24 that information is helpful, but at the end of the day

that does not take away from the fact that emissions behave a certain way. The way those emissions behave is consistent with our conceptual site model and they are generally consistent with the sampling that we've done to validate that site model.

Q. (By Mr. Nidel) Okay. I'm not talking about fine-tuning. I'm talking about coarse-tuning. I'm talking about understanding whether it was 3 pounds that went out per hour or whether it was 3,000 pounds that went out per hour. Do you understand the difference?

MR. SCHICK: Objection. Form.

A. I know the difference between 3 and 3,000.

Q. (By Mr. Nidel) Okay. And you understand that if 3,000 went out and 3 went out, the distance which is going to remain significant in terms of deposition is going to be much greater when you have 3,000 going out versus 3. Correct?

MR. SCHICK: Objection. Form.

A. Your modeled emissions will be greater if your input or your output model -- your input to the model on a mass basis is greater.

Q. (By Mr. Nidel) Okay. And it's going to asymptote to zero at a much further distance from the

plant when you have 3,000 going out versus 3 going out. Correct?

MR. SCHICK: Objection. Form.

A. I'm not an air modeler, but I assume there's other -- other factors including, you know, meteorological parameters that come into play.

Q. (By Mr. Nidel) Okay. All those being equal.

A. You know, I'm not a modeler. You know, the 3,000 may -- may drop off at the same rate as the 3 does under the same meteorological conditions. Again, what's important here is that we are getting actual data. So in -- you know, from one standpoint it really doesn't matter what the inputs to the model are. What's important is the on-the-ground information that we're getting from our sampling.

Q. Okay. So was the model used to determine anything or to inform anything about the distance for which the smelter may be responsible for contaminants?

A. The McVehil model informed generally the use of Roosevelt Avenue was an outer bound for the ISDA.

Q. Okay. How did it do that if you don't even know if the amount was accurate? You don't know if the particle size choice distribution of the particles was accurate to any extent. So -- and you agreed with

me that the particle size is going to change the distance and you agree with me the amount is going to change the distance. That same meteorological file being used, those things are going to change the distance. So what does the McVehil model tell you about Roosevelt Avenue?

MR. SCHICK: Objection. Form.

A. It tells us that there is a significant exponential decrease in the anticipated emissions at that distance from the smelter. And again, Roosevelt Avenue was used as a starting point for the ISDA. If the findings of the ISDA didn't corroborate the conceptual site model, then it would have been expanded at that time. It was the opinion of the company as confirmed by the LSRP that Roosevelt Avenue was an appropriate northern boundary for the AOC with the caveat that additional sampling would be used as the basis for any future evaluation of the AOC boundary.

Q. (By Mr. Nidel) Okay. Why did you not use the Dunk model that showed air quality lead exceedances that go out as far as 10 kilometers from the site?

MR. SCHICK: Objection. Form.

A. What -- what lead exceedances are you referring to that go out 10 kilometers?

Q. (By Mr. Nidel) The modeling that Mr. Dunk did -- or Dr. Dunk did to show the compliance with the ambient air quality standards or lack thereof?

MR. SCHICK: Objection. Form.

A. I think you're comparing apples and oranges here. The ambient air quality standard, you know, compliance or noncompliance with that does not necessarily translate to lead or arsenic concentration in soil that would exceed a cleanup standard.

Q. (By Mr. Nidel) The same exact air model that you attached to your little analysis. Right? Same thing that Dr. Dunk did, I think it was actually the same modeling that was for ambient air quality standards that was after the controls that you attached in your documentation. Correct?

MR. SCHICK: Objection. Form.

A. Repeat that.

Q. (By Mr. Nidel) The model that you attached that --

A. Attached to what?

Q. That looked a little something like that (indicating).

A. Uh-huh. What's the document that you're --
Q. I don't -- I'm just showing you what it looked like --
A. Okay.
Q. -- to refresh your recollection because --
A. If you'd show me the whole document I'd be more refreshed.
Q. I thought you prepared for this deposition.
MR. SCHICK: Objection to sidebar.
Q. (By Mr. Nidel) You attached a graph that looked like that from Mr. Dunk --
MR. SCHICK: To what?
Q. (By Mr. Nidel) -- to your documentation. Correct?
A. To which document?
Q. To your justification for the conceptual site model.
A. We used the McVehil model as our supporting for the conceptual site model.
Q. And you also relied on some of Mr. Dunk's modeling as we previously discussed. Correct?
A. We may have in part, yes.
Q. Okay. And it was air modeling that he did for compliance questions with respect to ambient air

quality standards. Correct?

A. Again, you're -- you're attempting to draw a conclusion that an exceedance of an ambient air quality standard necessarily causes an exceedance of a residential soil cleanup standard, which is not the case.

Q. The modeling that McVehil did not also model exceedances of a soil cleanup standard, did it?

A. No, it didn't.

Q. Okay. So you're comparing apples and oranges. Correct?

MR. SCHICK: Objection. Form.

A. I don't think so.

Q. (By Mr. Nidel) Okay. Well, you just told me I was because I was using an air quality -- an ambient air dispersion model to use and compare to air -- to soil deposition and concentrations in the soil, but that's what you did. Right, to justify your conceptual site model?

A. We used an air quality model to justify a conceptual site model which prescribed a point or a line distant from the smelter which would be a starting point for our sampling as part of the ISDA.

Q. Okay. And that air quality model that you

used, someone later determined what the concentrations would be reflected in the soil based on the amount of deposition and I think it was around 100 ppm. Is that right?

A. I believe that's generally the case.

Q. Okay. Do you know how many samples that you had in the soil -- in the surface soil in the AOC that exceeded 1,200?

A. There are quite a few from the surface, yes.

Q. Okay. So what good -- how accurate was that McVehil model as far as the total amount that was deposited in the neighborhood?

A. You're -- you're attempting to attribute everything that is in those samples from -- from the smelter and we don't believe that's the case.

Q. You've identified lead paint, gasoline. I'm going to give you one more chance. What else you got?

A. Arsenic pesticides, arsenic wood treatment, other industries, historic fill. There's multiple other potential sources of this -- you know, these constituents beyond the smelter. So, you know, just attributing, you know, everything, you know, be it, you know, 600, 1,200, 1,200 or 12,000 to the USMR facility is not appropriate and it doesn't change the

general deposition model that McVehil or Dunk put together.

Q. Who is John Gilpin?

A. I don't know a John Gilpin.

Q. You don't know who John Gilpin is?

A. No, sir.

Q. Who is Integral Consulting?

A. They're a consulting firm.

Q. Okay. Did you work with them on the site?

A. I'm not working with Integral on the site.

Q. Did you?

A. I don't believe we've work with Integral on the site.

Q. It's your testimony that you did not -- that Integral did no work on the site. Is that your testimony?

A. That's my testimony.

Q. Okay. Who is GBH?

A. GBH?

Q. Yeah. Why is there a SharePoint GBH. Why are all your documents on a GBH SharePoint?

A. They're not on a GBH website.

Q. Okay. Well, that's --

A. Are you thinking --

MR. SCHICK: You mean GH --

A. Are you thinking GHD?

Q. (By Mr. Nidel) OKAY. GHB. Who is GHB? I may be --

MR. SCHICK: D.

Q. (By Mr. Nidel) -- dyslexic.

A. D.

Q. GHD? All right. Let's get -- let's get my facts straight.

A. GHD is a consultant that the company uses.

Q. Okay. Were they used with respect to this site?

A. Only with respect to the archiving and management of the data.

Q. Okay. Why didn't you mention them when I asked you about consultants?

A. Because they're not doing any work at the site other than providing servers and programming to archive the data.

Q. Okay. Was that my question?

A. I guess I was more focused on consultants that were actually, you know, doing work.

Q. So them providing a SharePoint for you to use is not doing work?

A. No.

MR. SCHICK: Objection. Form.

A. Yeah. I mean, they're not -- they're not out there, you know, obtaining samples, analyzing samples, doing remediation, anything of that sort. They're simply providing data archiving service.

Q. (By Mr. Nidel) Zinc was one of the largest metals emitted. Right?

MR. SCHICK: Objection. Form.

A. From where and from --

Q. (By Mr. Nidel) From the facility.

A. I -- zinc was emitted. Whether it was the largest emission, I'm not sure.

Q. You don't know?

A. I don't know if zinc was the largest.

Q. Okay. Do you know --

A. I know zinc was emitted.

Q. Do you know if it was one of the largest?

A. It was likely one of the larger constituents emitted.

Q. Okay. The consultants that you used, where did they get their information from?

A. What information?

Q. Oh, like about -- you know -- I don't know --

McVehil did a model. Where did they get their information from about the operations at the site?

MR. SCHICK: Objection. Form.

A. I don't know where specifically McVehil got his information from.

Q. (By Mr. Nidel) Okay. Where did your other consultants get information from? Did they rely on USMR to get their information? That's my question.

MR. SCHICK: Objection. Form.

A. Much of the information about the site was generated back in the '80s by HydroQual in the context of the remedial investigation report that was -- that was submitted in the late '80s. That -- that report provided an extensive background on the operation of the facility, as well as the onsite remedial investigation results. So that was the source of much of the information which was, in turn, used by ELM on the onsite and then Arcadis on the offsite.

Q. (By Mr. Nidel) I think I'm going to try and simplify it, but did your consultants rely on you, U.S. Metals, to get their information?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) About the operations on the facility. Okay? I'm not -- maybe they had a -- they

did their own research, but as far as what happened at the facility, did they rely on U.S. Metals to provide them that information?

A. We provided the consultants with copies of various reports that had been generated over the years and as I mentioned, the '88 and '89 remedial investigation -- supplemental remedial investigation reports were very informative, you know, in that regard.

Q. Did you provide them things like the Dunk modeling and all these other historical documents, as well?

A. I believe the -- a number of the historical documents were provided to our consultants who are working there now. Specifically which documents were and were not provided I don't know, but I know that a number of historical documents were provided to both ELM and to Arcadis.

Q. How did you provide those documents to those consultants?

A. Generally electronically.

Q. I mean, did you e-mail them, did you set up a Dropbox, did you set up a SharePoint that they had access to? Did you share a drive with them? How did

that work?

A. We don't use Dropbox. I don't believe when a lot of these reports went back and forth that the -- that the SharePoint site which GHD hosts was up and running. So it was likely either in the form of e-mails with attachments or equally likely back in those days we didn't use thumb drives as regularly as we do now, but it might have been on a DVD or a CD.

(Exhibit No. 55 marked.)

Q. Okay. I'm going to hand you Exhibit 55. Can you identify Exhibit 55?

A. Yes. That's my business card.

Q. What -- what were the percentages of various feedstocks to the cupola?

MR. SCHICK: Objection. Form. Beyond the scope.

A. The percentage of the various feedstocks to the --

Q. (By Mr. Nidel) Yeah.

A. -- cupola?

Q. What was fed to the cupola?

A. I don't know precisely. I know that up until approximately 1960 the facility operated as a primary smelter, primary copper smelter and post-1960

approximately the availability of primary copper concentrate feed was limited and it transitioned into a secondary smelter.

Q. Okay. What can you tell me about the percentages of insulated wire that were fed to the cupola?

MR. SCHICK: Objection. Form. Beyond the scope.

A. I don't know.

Q. (By Mr. Nidel) You don't know anything about the variation in percentages of insulated wire to the cupola?

A. I don't.

Q. Okay. What do you know about the maintenance of certain temperatures in the furnace in the cupola?

MR. SCHICK: Same objection.

A. I don't know how the temperature was maintained or what the temperature was maintained at.

Q. (By Mr. Nidel) Do you know if telephones were burned in the cupola?

MR. SCHICK: Objection. Form. Scope.

A. I don't know for a fact that telephones were burned. That might have been something Mr. Fenn reviewed.

Q. (By Mr. Nidel) Do you know how long the insulated wire furnace was in operation?

MR. SCHICK: Same objections.

A. No, I don't.

Q. (By Mr. Nidel) Do you know where it was located on the property?

MR. SCHICK: Same objections.

A. No, I don't.

Q. (By Mr. Nidel) Do you know what the baghouse efficiencies were?

MR. SCHICK: Same objection.

A. No, I don't.

Q. (By Mr. Nidel) Do you know what McVehil assumed that the baghouse efficiencies were?

A. No, I do not.

Q. Do you know what Arcadis assumed that the baghouse efficiencies were when they did their dioxin model?

A. No, I don't.

Q. Did the inputs to the cupola change over time?

MR. SCHICK: Same objections.

A. It's my understanding that they did change over time as the facility transitioned from a primary

smelter to a secondary smelter.

Q. (By Mr. Nidel) But within either the primary smelting or the secondary smelting, do you know how they changed other than to have changed from smelting primary copper sources to secondary copper sources?

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

Q. So from 19 -- when did the cupola start?

A. I don't know exactly.

Q. Okay. From when it started until your testimony in 1960 it -- what was it smelting?

A. I don't know exactly, but a primary copper smelter generally smelts copper concentrates.

Q. Okay. And is it your testimony that up until 1960 that the cupola smelted primary copper concentrates?

A. That's -- that's my understanding, but, again, Mr. Fenn probably provided more clarity on that.

Q. And after 1960 do you know what the ratio of any of the several feedstocks was or how that varied over time?

MR. SCHICK: Objection. Form and scope.

A. No, I don't. Again, that's something I believe Mr. Fenn addressed with you.

Q. (By Mr. Nidel) The reason I'm asking you this is because -- and I need to explain this because I keep getting objections but I've already explained it -- is because it's my understanding that the levels of dioxin and the types of dioxin that are emitted by burning certain things are going to change depending on how much you burn and at what temperature you burn them at. And so my question for you is, since you did the fingerprint analysis and made a spreadsheet of the dioxin numbers to compare them, I'd like to know what you know about the sources of dioxin at the site including the burning of plastic wire in the cupola. So what do you know about it?

MR. SCHICK: Same objections.

A. I don't know details about the burning of plastic wire in the cupola. I know that our consultant looked at the speciation of dioxin congeners and compared that to the speciation in the soil samples that were obtained and the determination was made that the congener fingerprinting in the onsite was different than what we were seeing in the offsite and that was an argument that the LSRP found persuasive and agreed with.

Q. (By Mr. Nidel) Did you tell the consultant

that there was also testing of baghouse dust for dioxins? Did you share those results with the consultant?

A. I'm not aware that those were shared with the consultant.

Q. Okay. Did you share with the consultant that there was a practice of open burning of plastic wire?

A. That was probably shared with the consultant in the context of the historical information that was part of the '88 remedial investigation report.

Q. Did you share with them that there was a wire-burning furnace onsite?

A. I believe that the remedial investigation report from 1988 went into a fair amount of detail on what historically was being done at the plant. So I would assume that there would be -- you know, that type of facility would have been referenced in that document.

Q. Okay. With respect to the consultants' analysis of dioxin, did you specifically share the fact that there was an open burning of wire -- plastic wire and that there was a wire furnace onsite?

A. To the extent that that information is documented in some of the background reports,

including the remedial investigation report, I'd say yes, that information was shared with the consultants.

Q. Did you share that to the LSRP?

A. The LSRP has copies of all of the background documents that the consultants have, to the best of my knowledge.

Q. Okay. When you did your fingerprint analysis, why did you not include the fact that there was open burning of wire and a wire furnace prior to -- several years, 25 years prior to EPA coming in and testing a stack on a given couple of days?

MR. SCHICK: Objection. Form.

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

Q. (By Mr. Nidel) Yeah. Why did you not look into what type of dioxins would have been emitted by, for example, open burning of wire?

MR. SCHICK: Objection. Form.

A. We used the analytical information that we had available to us.

Q. (By Mr. Nidel) You didn't compare it to the fingerprint from the baghouse, did you?

A. I don't know if that comparison was made or not.

Q. Okay. Well, you said that you compared it to

the analytical information you had. Was that your intent, to compare it to the analytical information that you had?

MR. SCHICK: Objection. Form. Scope.

A. It was -- it was our intent that the consultants use the information that was available to them and we believe that they had access to the same information that USMR had.

Q. (By Mr. Nidel) But you drafted an analysis of the dioxins. Okay? Or you edited it, and why didn't you include in there a discussion of oh, maybe this looks more like the baghouse dust or I wonder what would happen if you open burn this stuff at an uncontrolled temperature. Why was that not discussed?

MR. SCHICK: Same objections.

A. If that wasn't discussed, I'm not -- I'm not sure why -- why it wasn't. I believe the consultants had adequate information to come to their conclusion on the speciation.

Q. (By Mr. Nidel) Well, you did a thorough review of the dioxin history at the site, didn't you?

A. We evaluated it along with our -- with our consultants.

Q. Well, you knew that there were these things.

Right?

MR. SCHICK: Objection. Form.

A. I believe that the USMR provided its consultants with relevant information to make its determination.

Q. (By Mr. Nidel) Was compliance averaging used at every -- across depth intervals or just across one interval?

MR. SCHICK: Objection. Form.

MR. NIDEL: What's the objection?

MR. SCHICK: It's not called compliance averaging in New Jersey.

Q. (By Mr. Nidel) You can answer my question.

A. We -- we do -- we calculate for each depth interval a 95 percent upper confidence limit to determine the representative concentration for each constituent by depth interval and by use area.

Q. Okay. Do you know what I mean by compliance averaging?

A. Generally, yes.

Q. Okay. I mean, you were in meetings where you discussed compliance averaging, where your meeting minutes are titled compliance averaging discussion. Right?

A. Compliance averaging is more of a remediation tool rather than a remedial investigation tool.

Q. Okay.

A. We first -- you first determine what the 95 percent upper confidence limit is for each constituent by depth interval and then the regulations allow you to use what you're calling compliance averaging to determine what portions of each depth interval at each use area need to be remediated to come up with a final remediated state that's less than the residential cleanup number.

Q. Okay. You said that I'm calling it. The only reason I'm calling it anything is because I read it in your documents.

A. Yeah.

Q. Okay. So is there something else I should call it?

A. No, you can -- you can call it compliance averaging. I'm fine with that characterization.

Q. Okay. What does the State of New Jersey call it?

A. I don't know. I call it compliance averaging.

Q. Okay. All right. Well, I'm confused, then.

So the upper confidence, 95th percent confidence interval was calculated on each depth?

A. On each depth and for each constituent.

Q. Okay. For each constituent at each depth. Correct?

A. Yes.

Q. Okay. And then that was done zero to 6, 6 to 12, 12 to 18, et cetera. Is that right?

A. Yes.

Q. Okay. And then if there was any exceedance of that 95th percent confidence interval that was an exceedance. Is that true?

A. That would -- yes.

Q. Okay. And you included clean fill when you then -- when you used that compliance averaging, as we call it here in Texas, to determine if the site needed further cleaning. Right?

A. Well, it's a process whereby you'll then remove portions of the use area in selected areas that exceed the cleanup concentration, replace that with backfill and clean top soil fill for the top 6 inches at a known concentration and then recalculate your 95 percent UCL to determine whether you're in compliance with the residential standard for that particular use

area.

Q. So I'm trying to understand if you go to a person's home and let's say you're just looking at one depth. Right? You got to take your ten samples because you got a minimum of ten samples. Right?

A. We take ten samples per depth interval per use area.

Q. Okay. So you take your ten samples and you got, you know, three that are above 400 for lead. Right? And one of them is high enough that it skews that upper confidence limit to be also above 300. Right -- or 400. Sorry. Right?

A. Okay.

Q. Let's say one is 1,200, one is 401 and one's 450. Right? And the rest are all 75. Right?

A. Okay.

Q. Without doing the math, assuming that that 1,200 is high enough to get those 75s up above the 400. Right? But what's to stop you from cleaning up the 1,200, putting in clean fill, recalculating the average and then saying you're done?

A. The regulations afford that as being an acceptable remediation approach based on DEP tech regs.

Q. Okay. Do you recall someone raising a question to you of something like this: What would you do if this was your family and your home? By that, I mean what if it was your three-year-old that was playing in the front yard that was at 450 and your three-year-old had pica?

A. My understanding of the way the New Jersey regulations work is that that yard area or -- yard area would be considered clean.

Q. Would the mother of that three-year-old consider it clean?

MR. SCHICK: Objection. Form.

A. I can't project what a mother would consider clean or not.

Q. (By Mr. Nidel) Okay. Does USMR consider it clean?

A. Based on the scenario you've described, USMR, the LSRP and the State of New Jersey considers that clean.

Q. The LSRP was totally fine with that?

A. The LSRP -- LSRP is charged with implementing the New Jersey regulations, so I assume that that would be acceptable to the LSRP. We've shared that approach with them.

Q. Okay. I'm going to ask a question -- I'm not asking you about regulations. I'm asking you about something that's a little more human. It's called safety. Is that safe for a three-year-old to be in their front yard when the lead level is 450?

MR. SCHICK: Objection. Form and scope.

Q. (By Mr. Nidel) According to USMR?

MR. SCHICK: Same objection.

Q. (By Mr. Nidel) Okay.

A. In the opinion of USMR if the 95 percent UCL following remediation of that yard was below 400, then that would be considered safe.

Q. Did you talk to -- who was your doctor again, McDaniels? Dr. Daniels?

A. Dr. McDaniel.

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Yeah. Did you ask Dr. Mary McDaniel about whether that would be safe for kids to play out in the yard like that?

A. I'm not aware that we've posed that question to Dr. McDaniel.

Q. But you have Dr. McDaniel on some kind of retainer. Right?

A. Dr. McDaniel is under contract to provide

information to residents at their request.

Q. Okay. Do you think if she's under contract to provide information to residents that she might provide also information to guys like Joe Brunner?

A. If USMR asked Dr. McDaniel a question, I'm sure she would provide an answer.

Q. Okay. Why didn't you not ask her if it would be safe to continue to allow families with kids to play in their yards with lead levels that were above the New Jersey safe cleanup standard?

MR. SCHICK: Objection. Form.

A. Repeat that, please.

Q. (By Mr. Nidel) Why did you not ask Dr. McDaniel if she thought it would be safe for USMR to continue to allow children to play in yards that were above the cleanup standard?

MR. SCHICK: Objection. Form.

A. Well, I mean, consistent with the regulations that the DEP imposes, that is considered safe.

Q. (By Mr. Nidel) My question was about Dr. McDaniel. I don't -- I don't really love regulations myself. So my question is why didn't you talk to Dr. McDaniel and ask her -- strike that whole thing.

Is -- was it USMR's goal to make people's yards safe?

MR. SCHICK: Objection. Form. Scope.

A. It's USMR's goal to remediate yards in the AOC that exceed residential cleanup standards consistent with New Jersey DEP regulations.

Q. (By Mr. Nidel) Okay. So it was not USMR's goal to make those residents' yards safe. Correct?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) That was not one of their goals. There goal was to comply with some regulation. It was not to make it safe. Right? Yes or no?

MR. SCHICK: Same objection.

A. It's our understanding and opinion that the New Jersey regulations are based on standards which are safe. So I believe that USMR's implementation of cleanup plans consistent with New Jersey guidelines and regulations is by definition safe.

Q. (By Mr. Nidel) I know you sent questionnaires to people to ask them if they have kids and other things. Right?

A. That was an attachment to sampling reports that were sent to residents.

Q. Okay. Did you ask them what portions of the

neighbor -- of their yards that the kids played in, their favorite spots?

A. I don't believe that was one of the questions that was asked.

Q. Okay. Was it one of your rules to not allow excessive sampling in clean areas such as those that you had clean fill suspected?

A. Say that again.

Q. Actually, I know where I'm getting it from. Is it one of the requirements of doing compliance averaging to -- and using the 95th percent upper confidence limit to not -- to avoid sampling -- excessive sampling in areas that are known to be clean or known to be different?

A. It's my understanding that the sample locations within a particular use area are determined on a random basis and there's not an attempt to include or avoid any particular area. These are -- these are ten random samples that are then sampled at each of the depth intervals.

Q. And, again, they're random with the exception of the fact that they were designed to avoid -- setbacks to avoid lead paint and also arsenic. Correct?

A. There were setbacks from the -- from the houses.

Q. Okay. Do you agree that -- well, tell me if this is what occurred. As an additional evaluation to be more protective of the public against direct contact issues, the 95 percent upper confidence limit mean will be calculated for the zero to 6 interval to determine if that interval exceeds the SRS for a specific TA. What's -- what's a TA?

A. Target analyte.

Q. If the zero to 6-inch interval 95th percent upper confidence limit of the mean exceeds the SRS for any TA, any locations in the zero to 6 interval that exceed the SRS will be excavated regardless of the 95th upper confidence limit of the mean calculated?

A. Read that again, please.

Q. Basically would you agree that if as an additional protection of public health that if the 95 percent upper confidence limit for the surface sampling zero to 6 interval exceeds the SRS for a target analyte, that all locations that exceed the SRS for that analyte will be remediated?

A. I believe that's generally correct.

Q. Okay. So for surface samples that exceed, your testimony is that all the surface samples that exceed would be cleaned up. Is that correct?

MR. SCHICK: Objection. Form.

A. I believe that's the case.

Q. (By Mr. Nidel) Now, if the surface samples did not exceed the upper confidence limit of the mean but did exceed the safety standard, those still would not be cleaned up. Correct?

MR. SCHICK: Objection. Form.

A. If the -- ask me that question again, please. I'm having a hard time following you.

Q. (By Mr. Nidel) Yeah, sometimes I'm like that. If the upper confidence limit of the mean was not exceeded --

A. Uh-huh.

Q. -- but there were exceedances in individual samples, those samples would not be cleaned up. Correct?

A. I believe that's consistent with what the remedial action work plan states.

Q. Okay. I'm just asking if that's what happened because that's my question. Is that right?

A. I believe that's true.

Q. Okay. So those -- the three-year-olds are still out and about on that stuff. Right?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Is that right?

MR. SCHICK: Same objection.

A. I think I've answered that earlier.

(Exhibit No. 56 marked.)

Q. (By Mr. Nidel) Okay. Hand you Exhibit 56. Exhibit 56 is a letter authored by you to property owners. Is that correct?

A. That's what it looks like.

Q. Okay. One, two, three -- four paragraphs down it says, When the sampling and laboratory testing are complete, you will receive a copy of the sampling results.

A. Hold on. Which paragraph?

Q. Fourth paragraph --

A. Okay, I see it.

Q. -- near the bottom of the paragraph.

A. Got it. Uh-huh.

Q. -- you will receive a copy of the sampling results and be informed on how they compare to the soil cleanup standards established by the NJDEP. Do you see that?

A. I do.

Q. Okay. They did not receive the sample results, did they?

A. They received the sample results.

Q. They received the sample results or they received some hocus-fiddle-pocus average?

MR. SCHICK: Objection. Form.

A. They receive the 95 percent UCL concentrations of each of the constituents at the various depth intervals.

Q. (By Mr. Nidel) Okay. You sent this letter out to them. Right?

A. Yes.

Q. Okay. Why did you tell them they were going to get the sample results?

A. I mean, the -- it's a matter -- it's somewhat semantic. We -- you know, the -- what's driving the cleanup or not cleanup are the 95 percent UCLs.

Q. Okay. Now I'm kind of angry because I don't see that it's semantic. If I'm the mother or the father of a three-year-old that's going to go out and play in the yard that could have 400, 450, 500, 600 parts per million lead and 25 parts per million arsenic as long as my backyard or the other part of my

front yard, if it's too small and it's not a complete UA of its own and I didn't have a big enough side yard, so that little place where Bobby and Jilly like to play is 600 but you didn't tell them that because you just gave them the average.

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) But you told them in a letter that they were getting the sampling results. Right? To me, if Jill is over in the corner digging in the dirt because that's where Jill likes to play with her dump trucks because Jill likes dump trucks, I don't think that's semantic, do you?

MR. SCHICK: Objection. Form. Argumentative.

A. It's USMR's position that they're provided with the sample results consistent with what's used to determine compliance with the cleanup standard.

Q. (By Mr. Nidel) Okay. Did you explain to them that they weren't really getting the results; they were getting some manipulated numbers that you determined should have been logarithmic or Chebyshev polynomials or some other mathematical garbage but not the results?

MR. SCHICK: Objection. Form. And you

don't have to answer that.

MR. NIDEL: You're going to instruct him not to answer?

MR. SCHICK: I am going to instruct him not to answer that particular question. It's inflammatory and argumentative. It constitutes harassment.

Q. (By Mr. Nidel) Did you give them the sample results?

A. We gave them the 95 percent UCL concentrations for each of the constituents by depth interval as is used to demonstrate compliance with the New Jersey cleanup standard.

Q. You go on to say, If the testing indicates that soil within one or more yard areas on your property exceeds any the relevant NJDEP soil cleanup standards, USMR will recommend that the soil within impacted yard area(s) on your property be removed and replaced. Do you see that?

A. I do.

Q. Okay. That's not what USMR intended to do. Correct?

MR. SCHICK: Objection. Form.

A. (No response.)

Q. (By Mr. Nidel) The soil cleanup standard for lead is 400. Right?

A. Correct.

Q. Okay. You didn't clean up all the lead that was above 400, did you?

A. Exceedance of the relevant standard is measured by the 95 percent UCL.

Q. Okay.

A. And that information was provided to the residents and in those cases where the UCL was exceeded, we offered to clean up the property consistent with our remedial action work plan.

Q. Okay. Here's what I want you to do. I'm going to help get the help of my videographer. I'd like for you to hold up the letter that you sent out to all the residents and I'd like for you to show the videographer and the jury where you said that they were going to get a copy of the sampling results after certain numbers were calculated or the upper confident limit was calculated. Where in -- where in that letter, because if you could show us, I'd like to see it.

A. Well, I'll show you right there. It's based on the relevant NJDEP soil cleanup standard.

Q. Where does it say based on -- with respect to the sample results, where does it say please show the video where it says based on the upper confidence limit or even the New Jersey regs -- because the New Jersey standard is 400. If I read this, and I've got a Master's Degree and a law degree, I would think the New Jersey standard is 400. I read that in all these documents I read, 400.

So I guess my question for you is: What's the average level of education in Carteret?

MR. SCHICK: Objection. Form. Scope.

A. I can't opine on that. I have no information.

Q. (By Mr. Nidel) Okay. Well, I'd like for you to show the jury where it says that they're going to be provided something other than the sample results.

A. I think the document is quite clear. It says if testing indicates that soil within one or more yard areas on your property exceeds the relevant standard and the measure of exceedance or non-exceedance in a yard area is based on the 95 percent UCL as explained in our remedial action work plan.

Q. First of all, I'm still on the other paragraph. I'm asking about a copy of the sampling

results. So let's get that to the jury. When did you tell them that they were actually not getting sampling results but some other mathematics that you're giving them?

MR. SCHICK: Objection. Form. He's answered the question.

MR. NIDEL: He's not. And he's written a --

MR. SCHICK: He's not limited to one paragraph.

MR. NIDEL: He's written a lot of letters. We have a lot of letters to go through, a lot of them.

Q. (By Mr. Nidel) When did you tell the public that they were going to get something other than the sample results?

A. The sample results that were provided to the public were the 95 percent UCL as explained on the sample report that was sent to them.

Q. As explained to people with a high school degree --

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) -- you gave a 95 percent UCLs and then you told them that if -- you told them they

were getting sample results.

A. And the sample results which were provided were the 95 percent UCL for each constituent for each depth interval.

Q. What did the lab provide?

MR. SCHICK: Objection. Form.

A. The lab provided sample results for each individual sample location at each depth interval for each constituent.

Q. (By Mr. Nidel) Okay. And those sample results were not provided to the public. Correct?

A. I think I've already explained what's been provided to the public is the 95 percent UCL of each constituent for each depth interval as is being used to demonstrate compliance or noncompliance with the New Jersey cleanup standard.

(Exhibit No. 57 marked.)

Q. Okay. I've handed you another exhibit. It's Exhibit 57. It's Bates labeled 2445. Is this a document that USMR sent out to the public?

A. I believe that's true.

Q. Okay. In the second paragraph it says, middle of second line, Current environmental practices for managing smokestack and other air emissions were

not in place during much of the era when the smelter operated. As a result, historical air emissions may have deposited copper, lead, arsenic or other materials in the area nearby the former smelter site. Do you see that?

A. I do.

Q. Okay. Why didn't you say that they did deposit copper, lead and arsenic in the area nearby the former smelter site? Why didn't you just tell them the truth?

MR. SCHICK: Objection. Form.

A. I think the verbiage stands as it's stated. It -- you know, historical air emissions may have deposited copper, lead and arsenic in the vicinity.

Q. (By Mr. Nidel) We talked about the fact that it did. Right? You agree that it did. You might say it only occurred in Zone 1 but it did deposit arsenic and lead in areas outside the smelter facility. Correct?

MR. SCHICK: Objection. Form.

A. Again, I think -- I think we've been -- we've been through this. As -- you know, can I say that not one molecule of lead, arsenic or zinc is on the offsite portion of the property, no.

Q. (By Mr. Nidel) No, I don't want to play the not one molecule game. Your conclusion was that Zone 1 was impacted by your facility, maybe not entirely, maybe not every molecule that you found there, but there were emissions from that facility. That was confirmed by the McVehil model. That was confirmed by your sampling. Correct?

A. There is, you know, potentially lead, arsenic and copper in the offsite potentially attributable to the smelter operation.

Q. But somewhere, maybe the first little 10 feet, there is lead and arsenic attributable to the smelter site. Right? You've determined that much.

MR. SCHICK: Objection. Form.

A. Again, is it -- is it possible, yes.

Q. (By Mr. Nidel) Okay. I believe that you've testified earlier that some of the lead and some of the arsenic came off the site and went into the neighborhood. Right?

A. Right, but, you know, at -- undetermined whether those concentrations in and of themselves caused an increase above the soil cleanup standards.

Q. I get that. That's a fair point. But you told them that it may have deposited, like it's

unknown. You know that it did. You don't know that it did on their yard, you don't know if it did across Roosevelt Avenue, but you know that it did. Right?

MR. SCHICK: Objection. Form.

A. I don't understand why you're suggesting that statement is not true. Historical air emissions may have deposited copper, lead and arsenic.

Q. (By Mr. Nidel) Okay. I may have put arsenic in your drink right there. I don't -- maybe. Does that make a difference to you?

MR. SCHICK: Objection. Form.

A. (No response.)

Q. (By Mr. Nidel) As opposed to telling you I did?

A. (No response.)

Q. That doesn't make a difference to you?

A. I think it's a strange question.

Q. Okay. I don't, not when we're talking about a community that was impacted by lead and arsenic. I don't think that's a strange question at all, but I'll go ahead and ask you questions about Exhibit 58.

(Exhibit No. 58 marked.)

MR. SCHICK: Objection to the sidebar and that event. And there's no question pending.

Q. (By Mr. Nidel) Exhibit 58 is a document produced by U.S. Metals Bates labeled 82514. Is that a document that you sent out for information to the public?

A. I believe it is.

Q. Okay. On the second page, the back there, it says, After the laboratory analysis is complete --

MR. SCHICK: Where are you?

Q. (By Mr. Nidel) Second page very last sentence above How to Participate. Sorry.

A. Oh, okay.

Q. After the laboratory analysis is complete, USMR will provide to each homeowner a summary of the sampling results for his or her property. Did you provide a summary of the sampling results?

A. We provided the 95 percent upper confidence limit information for each constituent for each depth interval.

Q. Okay. Did you provide -- are you done?

A. Sure.

Q. Did you provide the sample results that the lab provided you?

A. We did not provide sample results that the lab provided. I told you what we provided.

Q. Oh, what's -- yeah, I didn't mark it. That might help. Let me mark that for you so we've got a record of it.

A. Okay.

(Exhibit No. 62 marked.)

Q. I'm going to hand you Exhibit 62. It's a document provided by U.S. Metals Bates labeled --

MR. SCHICK: Excuse me. Wait. You said 62? What happened --

MR. NIDEL: Oh, oh, I skipped -- I did say 62.

MR. SCHICK: Okay. Then we'll come back to it.

MR. NIDEL: Sorry about that.

MR. SCHICK: That's all right.

MR. NIDEL: I'm glad you caught me. But it is 62.

Q. (By Mr. Nidel) Bates labeled 836336. It's got an e-mail from William Cobb to James Telle. Who is James Telle or Telle?

A. That would be James Telle. Mr. Telle is our manager of external communications.

Q. Okay. And just for clarity you got William Cobb. What's William Cobb's e-mail address?

A. It's probably wcobb@fmi.com.
Q. Okay. Freeport-McMoRan, Inc.?
A. FMI is our --
Q. Domain?
A. -- domain. I don't --
Q. Did you -- so what is -- what is Exhibit 62?
A. It looks like a draft of a Carteret soil program media statement.
Q. Okay. And at the bottom of the media statement it says, USMR will offer free soil cleanup to the owners of any of these properties with metals above NJDEP-approved levels that are attributable to USMR under the oversight of appropriate authorities. Do you see that?
A. I do.
Q. Okay. So the NJDEP-approved levels are for lead 400, for arsenic 19. Correct?
A. That's correct.
Q. Okay. So that's not what was done. Right?
A. What do you mean?
MR. SCHICK: Objection. Form.
A. Done when?
Q. (By Mr. Nidel) Anybody that had a level above 400 for lead was not cleaned up. Right?

MR. SCHICK: Objection. Form.

A. The compliance with the NJDEP-approved levels is measured by the 95 percent UCL.

Q. (By Mr. Nidel) It's not what the -- that's not what the outreach to the community says, is it?

A. Which outreach to the community?

Q. That we just read, the outreach that you're reading.

MR. SCHICK: Precisely what he read.

Q. (By Mr. Nidel) NJDEP-approved levels. It doesn't say averages, it doesn't say according with the regs, it doesn't say any of that. It says approved levels and I believe you sent out the levels, as well, saying they were 400 and 19, didn't you?

A. I mean, the statement is accurate. USMR will offer free soil cleanup to the owners of any of these properties with metals above NJDEP-approved levels that are attributable to USMR under the oversight of the appropriate authorities. And the determination for whether those metals are above NJD-approved [sic] levels is the 95 percent UCL.

Q. Okay. We'll let a jury decide whether they agree that that was the case.

(Exhibit No. 59 marked.)

Q. I handed you Exhibit 59. Exhibit 59 is an e-mail from William Cobb to James Telle. I forget how you said to pronounce that. Sorry.

A. Telle.

Q. Telle. 836332 is the Bates number. He's got a couple of edits. Is that -- what is that document?

A. It appears to be a draft of a newspaper ad that was placed by USMR.

Q. Do you know if that ad ever went out?

A. I believe it did.

Q. Okay. It says in the middle of the main paragraph, USMR will continue to investigate the off-site area until the extent of soil with metals or any other materials associated with the smelter detected above NJDEP standards is determined. Do you see that?

A. Yes.

Q. And then it says, USMR will work with affected property owners to remove soil impacted above NJDEP residential soil standards and replace it with clean soil to minimize potential impacts to human health and the environment. Do you see that?

A. I do.

Q. Okay. To remove soil impacted above NJDEP

residential soil standards, what is the NJDEP residential soil standard for lead?

A. It's 400 parts per million as -- based on a 95 percent UCL.

Q. Okay. So if I look up residential soil standards for New Jersey it's going to say 400 ppm, footnote, based on 95 percent confidence limit?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Is that what it's going to say?

A. It will probably say 400 ppm and you have to dig down further into -- into the guidance documents on how that 400 is determined and I believe that would then reference to the 95 percent UCL as a way to demonstrate compliance.

Q. How many people in the town of Carteret reading the whatever newspaper this went to, how many of them read those regs?

A. I don't know.

Q. Okay. Do you assume they read the regs?

A. I don't know.

Q. Why didn't you just tell them that you're going to take an average of high numbers and low numbers and if the low numbers won they didn't get

anything, if the high numbers won out they got cleanup?

MR. SCHICK: Objection. Form.

A. I think we're -- we're clear that, you know, the standards is what's being evaluated against.

(Exhibit No. 60 marked.)

Q. (By Mr. Nidel) All right. Well, I'm going to hand you some more exhibits. I only have this copy of this one. It's Exhibit 60. It's Bates labeled USMR 834109. And if you go -- well, you can confirm that that's what it is, I guess. You can show it to your counsel if you need to.

A. Yes.

Q. There's a highlighted portion on there. Can you read that highlighted portion?

A. On Page 2?

Q. Yeah.

A. Our analytical team assesses whether or not the metal concentrations exceed state standards. In either case, our outreach office then shares the results of soil tests with property owners.

Q. Okay. Your outreach office actually didn't share the results of the soil tests with the homeowners. Right?

MR. SCHICK: Objection. Form.

A. We shared the results as determined by the 95 percent UCL.

(Exhibit No. 61 marked.)

Q. (By Mr. Nidel) Okay. I'm going to hand you Exhibit 61. Exhibit 61 is a document provided by USMR. It's Bates labeled 834244 and I believe this was from one of your open houses. Right?

A. Yes.

Q. Okay. And your open houses were something you advertised for people to come and learn about your program in town?

A. That's correct.

Q. Okay. If you go to the third page, which is the second page, in the middle it says, How Soil is Cleaned Up. If soil testing indicates one or more of the sampled yard areas have concentrations of metals that exceed state cleanup levels, impacted soil will be removed and replaced at no cost to the property owner. Do you see that?

A. I do.

Q. Okay. If you'd turn to the back of that page. It says, bottom bullet point there, it says, Property owner will receive a letter with results and

analysis -- results and analysis of the soil testing, typically within eight to 12 weeks from the date samples were collected. Do you see that?

A. I do.

Q. Is there a distinction between results and analysis?

A. In my opinion here, I mean, the results would be the concentrations as expressed by the 95 percent UCL. The analysis would be determination of whether that particular UCL exceeds or does not exceed standards.

Q. Did you explain that at the open house, that people were not actually getting hotspots cleaned up; they were getting only areas cleaned up if average of those tests were above a certain number?

MR. SCHICK: Objection. Form.

A. I don't recall if that was a specific question by or from any of the participants at the open house.

Q. (By Mr. Nidel) Okay. I'm not asking if they asked. I'm asking if you explained it to them.

A. I don't believe that it was explained.

MR. SCHICK: Maybe we should take a break.

MR. NIDEL: Okay. I realize that my bladder was calling for breaks early.

THE VIDEOGRAPHER: Off the record. It is 4:06. This is the end of Tape 5.

(Break.)

THE VIDEOGRAPHER: Okay. We are back on the record. It is 4:22 and it's the beginning of Tape 6.

(Exhibit No. 63 marked.)

Q. (By Mr. Nidel) I'm going to hand you Exhibit 63. Can you identify Exhibit 63?

A. It's a draft of the remedial action work plan addendum boundary evaluation soil sampling program.

Q. Okay. Has that addendum been finalized?

A. I believe it has.

Q. Okay. If you turn to Page 2, Page No. 2 it says, Because extrapolation techniques --

MR. SCHICK: Wait. Where?

Q. (By Mr. Nidel) Sorry. Yeah, yeah, yeah. First full paragraph, second sentence, Because extrapolation techniques were used to estimate the limits of the Off-Site AOC, the Off-Site Area of Concern RIR provided that the extent of the Off-Site AOC would be subsequently verified by laboratory

analysis in accordance of the NJDEP Soil Guidance. Do you see that?

A. I do.

Q. I'm trying to understand what the extrapolation techniques were that were used.

A. Again, this goes back to what we've generally been talking about all day, you know, the extrapolation techniques were the combination of the McVehil model and the ISDA work that showed the concentrations of the constituents of concern were expected to decrease as you -- as we moved away from the source.

Q. Okay. So it's basically the air model that was done?

A. The air model and the subsequent ISDA sampling.

Q. Okay. But as far as extrapolation techniques, what was -- I mean, the sampling is the sampling. Right? So what was extrapolated?

A. The showing that the concentrations within the ISDA decreased as you moved away from the -- from the facility boundary.

Q. Okay. At this point in time -- this is a draft, this is a current sort of November 2016, you

had the sample results or at least currently you have the sample results for the rest of the AOC. Right?

A. For -- in -- in November 2016 we had sample results for a good portion of the AOC. So we still don't have samples for the entire AOC.

Q. But you weren't -- you weren't using those samples to do this extrapolation, were you?

A. That's correct.

Q. Okay. If you turn to the Page 3, there are some discussion of the McVehil model. It says, The air dispersion model concentration decline curves -- decline? Okay. Maybe it's the air dispersion model concentration decline curves with distance for two scenarios. Did I read that right?

A. You're putting the emphasis on the wrong decline. It's a -- a decline curve is one that decreases exponentially with distance from the source. That's what I was referring to as a decline curve.

Q. That's what I thought at first, but then when I read decline curves with distance that didn't make sense to me. That's why I stopped, but this is a draft, so I don't know if that was corrected but we'll go with the words that are on the page. Decline curves with distance for two scenarios: Scenario 1

representing air dispersion from historically short (100 foot) stack; and Scenario 2 representing air dispersion from a historically taller stack (225 feet) were used. Do you see that?

A. I do.

Q. What -- what stacks were used for the McVehil model?

A. I think it says on this paragraph, there were two scenarios, one using the hundred-foot stack and another one using the 225-foot stack.

Q. The reason I ask is because I think earlier you said that it was -- they used the 400-foot stack.

A. Yeah, I was -- I was not recalling correctly what was used.

Q. And I -- that's fine, but we had a record that said 400. That's why I asked what may appear to everyone in the room as a smart question, but it wasn't meant that way.

It goes on to say, Based on this evaluation, the following conclusions were made: The metals ratio (arsenic to copper and lead to copper) provide evidence of potential smelter impacts and also allow alternate sources to be distinguished. Okay. This is why I've asked you lots of questions about these

ratios.

A. Uh-huh.

Q. And what I'm trying to understand is why are you or your consultant, by saying that the metals ratios (arsenic to copper and lead to copper) provide evidence of smelter impacts, what is the -- is there a range of those ratios, is there above a certain level? What about those ratios provides evidence of smelter impacts?

MR. SCHICK: And again, I'll object and this calls for expert testimony, but you can answer to the extent you're able.

A. I can try to explain it in very general terms.

Q. (By Mr. Nidel) Please.

A. I mean, the various metal ratios of the three contaminants of concern to one another should provide a general, you know, I'll use the word fingerprint for emissions that are attributable to the smelter. Whereas, if there are samples when you apply those ratios that deviate considerably from those ratios, that would be one line of evidence that that particular sample is not derived from the smelter. For example, there could be a very high lead-to-copper

ratio, for example, that is completely different from the lead-to-copper ratio in the majority of the samples. That would indicate that there's another source of lead that was contributing to that high lead level.

Similarly, the same thing with arsenic. If there was a level of arsenic to -- in a, say, an arsenic-to-copper ratio that was considerably higher than the arsenic-to-copper ratio in the majority of the samples, that would indicate that the likely source of that particular sample was not something that came from the smelter. So that's -- it's one line of evidence that we're using to tease out, if you will, impacts that may have come from the smelter from impacts that likely did not come from the smelter.

Q. Okay. But you don't know what the ratio of these metals were -- was that came from the smelter. Right?

A. Off the top of my head, I don't -- I don't know that information.

Q. And I'm not asking you off the top of your head. I'm asking you -- if you need to look up a document, I got lots of documents, but I want to know what this means because you told me the best indicator

of smelter impacts from a copper smelter would be smelt -- would be copper. Right? That was the last thing we talked about before lunch.

A. Yes.

Q. And it's my understanding that many -- many of the sources on site, including some of the significant sources on site, emitted more lead or zinc than they did copper because copper was being sold for dollars and lead was not.

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) Does that make sense?

A. There -- I mean, there was still copper in the stack in fugitive emissions regardless of whether copper was the salable product of the facility. I mean, no process is 100 percent efficient on producing any particular constituent.

Q. Right. And now my question is, as it's been, because of this statement what was the ratio of arsenic to copper emitted from the facility?

MR. SCHICK: Same objection as earlier.

A. Yeah, as this is a study that's continuing, I don't know that information at this time. I mean, once -- once we complete our study, then this information will be available.

Q. (By Mr. Nidel) When you complete your study the information about what the facility emitted in terms of arsenic versus copper --

A. The boundary evaluation, which pulls -- which is going to pull all of this information together.

Q. I mean, I just don't understand. The assumption here seems to be that copper is coming out of high level and if you've got more lead than you've got copper, that must not be from the smelter because it's a copper smelter and copper smelters release a lot of copper. Is that your opinion?

MR. SCHICK: Objection. Form.

A. Are you implying that copper and lead come out at a one-to-one ratio or --

Q. (By Mr. Nidel) No. I'm implying like you're implying that they come out at some ratio.

A. And I think that it does come out at some ratio. I just don't have that particular ratio available to me right now.

Q. Okay. Did it come out at that same ratio all the time for 85 years?

A. I don't know.

Q. Did it come out at that same ratio from every pile, every fugitive rooftop and every stack or not?

A. I don't know.

Q. Okay. Did it come out at every stack with the same particle size for lead as the particle size for copper?

A. I don't know.

Q. Same questions with arsenic, you don't know?

A. Same answers for arsenic.

Q. Okay. So how can you rely on these ratios when you don't know when they came off, where they came off, at what particle size distribution each of those came off and in what ratio they came off?

MR. SCHICK: Objection. Form. Calls for expert testimony.

A. I was going to respond that this is something that's best left to the experts once the report is completed.

Q. (By Mr. Nidel) Okay. I'm not asking you for an expert opinion in this case. I'm asking you as someone who has worked to convince an LSRP that you're doing the right thing and you're cleaning up the site and you've identified everything you're responsible to do under the regs. You're telling the regulatory agency that this metals ratio provides evidence of smelter impacts and I'm trying to understand what your

basis is for saying that.

MR. SCHICK: Objection. Form.

A. Again, that's probably a question best answered by our experts who, you know, prepared this work plan and, you know, presumably the LSRP agreed with the approach based on the information provided.

Q. (By Mr. Nidel) Okay. The third -- the bottom bullet point there, it says, A highly conservative estimate was developed using air dispersion model. Is that the McVehil model?

A. I believe it's a combination of the McVehil model combined with the offsite sampling data that had been obtained up until the time this draft was prepared.

Q. And how -- what made that highly conservative?

A. I'm not -- I'm not sure what -- what made it highly conservative, but it was the opinion of our experts that helped prepare this and that did the preliminary analysis of the combination of the McVehil model with the soil data that the recommendations of the distance of the transects was conservative.

Q. You reviewed and edited this. Right?

A. I reviewed it. I'm not sure how much editing

I might have done to it.

Q. You provided comments and redlines. Right?

A. I may have provided comments on the document. Whether I provided them with a specific paragraph, I don't recall.

Q. Okay. Well, did you ask them well, why was it highly conservative?

A. I don't recall whether they were asked that or not.

Q. Okay. Then they go on to estimate sampling transects 500 meters past the outer edge. Right? Does that 500 meters come from the fact that Roosevelt Avenue was about .6 miles, or about a kilometer, from the smelter and then 500 meters, that that McVehil model estimated about a 1,600-meter decline curve?

A. Say that again, please.

Q. Well, what's the basis for 500 meters?

A. Well, there was -- there was figures that are, you know, attached to this in the final version that -- and I've explained where that 500-meter limit came from.

Q. Did it come from the McVehil modeling?

A. It came from a combination of the McVehil model and the actual AOC sampling data that was

available.

Q. What in the AOC sampling data told you 500 meters?

A. We used the metals ratio of all of the samples within the AOC and superimposed the McVehil model onto that to project out where it was likely that there would be no smelter impacts on a very conservative basis.

Q. What about those metals ratios and all that other stuff told you 500 meters?

A. I think it would be best to refer to the figures that were attached to the final version of this and that will -- that will explain where that number was derived from.

Q. It will explain that?

A. I believe there was some charts in there showing -- showing where that number came from.

Q. Okay. Do you have a copy of that document?

A. Not on me.

Q. Okay. I'm going to hand you Exhibit 25 from yesterday. Exhibit 25 is a document produced by USMR Bates labeled 752568, Supplemental Emissions Data and Calculations of Risks. Is that fair?

A. That's what it's titled, yes.

Q. Okay. Have you reviewed this document before?

A. I've seen the document. I can't say I've reviewed it in detail.

Q. Did you provide it to your consultants?

A. I don't know whether this was provided to the consultants or not.

Q. All right. If you turn to Page -- I'm just going to go by the last three of the Bates number. It would be 579. It's got air contaminants from source No. 1 of five sources. Just for background, the emissions prior to control and post-control are given there estimated at -- before this control was put on at over 3,000 pounds per hour. Okay. And then it gives a breakdown of the metal oxides that were emitted, zinc, combined zinc oxides, zinc chloride and zinc oxide of 10 and 2 or 10 and 2.9 and then lead being the next highest. Right?

A. That's what this table says, yes.

Q. And copper is roughly 60 percent of the lead?

A. Thereabouts. Maybe -- maybe a little higher.

Q. Okay.

A. Including copper oxide and copper sulphate.

Q. And zinc is by far the dominant pollutant

coming out at that point. Correct?

A. For this particular assay, it's the largest component.

Q. Okay. Do you know what that point source is on the site?

A. I don't know what source No. 1 is without finding where it is in this. Is there anywhere in the document where the sources are identified by number?

Q. Well, I can tell you if you look on the third page of the document it says -- it gives you some guidance as to that. So this is Page 1 and what it says is -- oh, it says, In Attachment 1, so it looks like it's from the cupola furnace according to Paragraph 1 on Page 3.

A. Paragraph 1 on Page 3.

Q. Do you see it's Attachment I?

A. I see Attachment I, but I'm not finding Attachment I in the -- oh, here we go. Okay. Yeah, that's --

Q. Okay?

A. I'm with you now.

Q. Okay. So that's one of the main sources as you understand it. Correct?

A. It's one of the sources as I understand it,

yes.

Q. One of the main ones. Right?

A. I believe that's the case, but I think Mr. Fenn probably may have clarified that yesterday.

Q. Well, that's the one that McVehil modeled. Correct?

A. The -- I believe McVehil modeled the stack associated with the cupola furnace.

Q. Right, which is -- okay. And that's also what the Arcadis modeled for dioxin. Correct?

A. I believe that's true.

Q. Okay. And if you turn to Page 586?

A. (Complying.) 586. Uh-huh.

Q. There's another source, the West converter, over 2,000 pounds before controls and, again, we see zinc at 7 pounds per hour and lead at 5.2 pounds per hour. Do you see that?

A. I do.

Q. Okay. And then copper is coming out at .87 plus your other at .66. Right?

A. Yes.

Q. Okay. So copper and zinc far exceed the amount of copper -- sorry, lead and zinc far exceed the amount of copper that's coming out of that

converter. Correct?

A. For purposes of this sample, yes.

Q. Okay. Do you have any reason to question that sample? Do you have another sample that gave you better information that you provided to your consultants?

A. No. I'm just saying that, you know, that the numbers you're quoting pertain to this sample and this measurement.

Q. Do you know how much variability there was in the West converter or the cupola's emissions of those metals?

A. I do not.

Q. Okay. Do you know if -- on a given day what the ratio of those metals was coming out given the meteorological data as far as which way the wind was blowing, if it was in the critical zone into the neighborhood or if it was blowing to Staten Island? Do you know what the metals ratio was when it blew into the neighborhood versus when it blew into Staten Island?

MR. SCHICK: Objection. Form.

A. I don't -- I'm not sure I understand the question, but I don't think that the meteorological

conditions would have impacted the relative ratios of any of the metals in stack emissions.

Q. (By Mr. Nidel) Okay. But the feed and the temperature and the operation of the baghouse would have affected the metals ratios coming out of the stack. Right?

A. Generally speaking, if there's variations in feed, then there would be variations in emissions.

Q. Okay. And there was variations from day to day in feed. Correct?

MR. SCHICK: Objection. Form.

A. I suspect that there were, you know, variations to some degree on a day-to-day basis.

Q. (By Mr. Nidel) Okay. So my point is if on Sunday it's blowing one way you're going to get one ratio and on Tuesday if it's blowing the other way you're going to get a different ratio. Right?

A. I would agree with that.

Q. Okay. I'm going to hand you Exhibits 20 through 23.

MR. SCHICK: What did you say?

MR. NIDEL: 20 through 23.

MR. SCHICK: Yep, yep.

Q. (By Mr. Nidel) Can you identify Exhibits 20,

21, 22 and 23 for the record?

A. Exhibit 20 is an interoffice memorandum from Mr. -- or to Mr. A. Filiaci from R. Dunk with various people copied and the subject is converter fugitive emissions dated December 19th, 1979. Exhibit 21 is a document dated March 21st, 1979, again an interoffice memorandum to a Mr. M. Hauser from R. Dunk with copies to it looks like several other gentlemen; subject: Total particulate and heavy metal loss factors resulting from cupola fugitive emissions.

Exhibit 22 is an interoffice memorandum dated March 23rd, 1979, again to a Mr. M. Hauser from R. Dunk copying several gentlemen; subject: Total particulate concentrations, trace metal concentrations and fugitive dust emission factors at the cupola baghouse pelletizer area.

And lastly, Exhibit 23 is an interoffice memorandum dated April 4th, 1979 to Mr. M. Hauser and from Mr. Dunk copying several gentlemen; subject: Air concentrations and fugitive emission rates in the general vicinity of the tough pitch anode furnace boiler floor.

Q. Okay. Did you -- have you seen these documents before?

A. I'm not sure I've seen all of them. I do recall seeing Exhibit 21 because of the picture on it and I don't recall seeing 22 or 23. I may have, but I don't recall seeing them.

Q. When did you see 21?

A. It was likely during my review of documents in preparation for the deposition today.

Q. Okay. Had you provided these documents previously to your consultants?

A. I'm not -- I'm not aware whether or not these documents have been provided to consultants.

Q. To the best of your knowledge, you don't know of the fact that they were provided to them. Is that fair?

A. To the best of my knowledge, I don't know whether they were or were not provided.

Q. Okay. You did not provide them to the consultants. Correct?

A. I did not provide these documents to the consultants.

Q. Okay. If you look at 21, for example?

A. Yes.

Q. The average fugitive emissions on Page 4, you see the zinc emissions are 27.3, copper is 4.2 and

lead is 17.6. Do you see that?

A. I do.

Q. Okay. If you turn to the next page, during the excessive emissions the zinc was 127, the copper was 21.3 and then the lead was 38.3. Do you see that?

A. I see it.

Q. If you look at Exhibit 22?

A. Yes.

Q. And you look at the air concentrations on Page 3?

A. I see it.

Q. You've got zinc, copper and lead of 3.9 and 1.1. Then you got zinc, copper and lead of 5.9, 1.2 and 2.6, and you've got zinc, copper and lead at 10.4, 10.2 and 33.5 for lead. And then you've got zinc, copper and lead at 1.5, .4 and .7. Do you see that?

A. I see those numbers, yes.

Q. Okay. Those are all coming from the same source. Right?

A. It looks like they're coming from the same source under different operating conditions and different sampling locations.

Q. So if one went out at noon with the wind blowing west and you get one ratio and one goes out at

1:30 and the wind is blowing east you get a different ratio to the east. Right?

MR. SCHICK: Objection. Form.

A. Generally speaking, what you're -- what you're saying is correct, there would be different concentrations depending on which way the wind was blowing under different operating conditions.

Q. (By Mr. Nidel) Okay. I think we've established, but I want to make sure we've established, nothing was done to try and assess what the ratio of emissions was on any kind of macro scale or micro scale as part of your conceptual site modeling or your Geosyntec assessment of metals ratios. Correct?

A. You got to say that again.

Q. Okay. There was no effort made to determine the metals ratio of the -- emitted by the facility. Correct?

MR. SCHICK: Objection. Form.

A. I believe the Geosyntec work focused on the metal ratios in the offsite AOC.

Q. (By Mr. Nidel) Okay. So there was no effort made to determine the metals ratios from the source of the potential contaminants. Right?

MR. SCHICK: Objection. Form.

A. I believe the Geosyntec work focused on the metals ratios in the offsite AOC.

Q. (By Mr. Nidel) Okay. So the Geosyntec work and no other work focused on the metals ratios coming from the facility itself. Correct?

MR. SCHICK: Objection. Form.

A. I believe that's correct.

Q. (By Mr. Nidel) I hand you Exhibit 19. Exhibit 19 is the Metallurgical Operations at U.S. Metals Refining, Carteret, New Jersey, Bates labeled 769256. Is that right?

A. That's correct.

Q. Have you reviewed this document before?

A. I do not recall seeing this document.

Q. Okay. I would think that would mean you did not provide it to your consultants?

A. I don't know whether the consultants were aware of this document or not. All I know is I did not provide it to them.

Q. Okay. Did U.S. Metals provide it to them?

A. Not that I'm aware of.

Q. Okay. If you turn to -- we'll go by Bates number -- 313. There's a diagram there of the small

insulated wire furnace in the present operations and it's emissions I think were -- I don't know if it's 384 pounds per hour going through some control systems there. Do you see that?

A. I do.

Q. And then below the proposed was to have the small insulated wire at 384 pounds per hour and the new insulated wire furnace at 910 pounds per hour emitting through the 400-foot stack as well. Right?

A. Yeah, eventually after passing through the scrubber and the Cottrell precipitator, but yes, that's correct.

Q. Do you know what the congener profile of dioxins was that was coming out of that 400-foot stack?

MR. SCHICK: Objection. Form. Calls for expert testimony.

Q. (By Mr. Nidel) During the time of these wire furnaces?

MR. SCHICK: And scope.

A. I -- I don't know.

Q. (By Mr. Nidel) Would that be relevant to an assessment of whether the dioxins that you found offsite were related to operations on the facility?

A. Say that again, please.

Q. Yeah. Would knowing what the congener profile was when the wire furnace was hot, would that be informative or helpful, important, to know for assessing the fingerprint that you found offsite for dioxins?

MR. SCHICK: Objection. Form. Beyond the scope.

A. It could have been important, but I believe that the congener information that was used in our delineation work was determined by our consultants and by the LSRP to be adequate and representative of historic operations and allowed the delineation to be completed.

Q. (By Mr. Nidel) Did you tell your consultants or the LSRP that there were 330 or 384 plus 910 pound per hour coming from insulated wire furnaces through various controls and out that 400-foot stack?

MR. SCHICK: Objection. Form and scope.

A. I'm not aware that this document was provided to our consultants.

Q. (By Mr. Nidel) Okay. And do you know how many years this -- either one of these setups, the present or proposed setups, were cooking onsite?

MR. SCHICK: Objection. Form and scope.

A. No, I don't.

Q. (By Mr. Nidel) If you turn to Page 318?

A. (Complying.)

Q. There's a summary there of the emissions that we just saw, basically total particulate matter, metal oxides and ashes of the 384 plus the 910. Do you see that?

A. Where is that now?

Q. It's the bottom table there, Emissions?

A. Okay.

Q. It's got the 384 without control, the 910 without control, and then a total of 1,294. Do you see that?

A. I do see that.

Q. Okay. And then the description of the raw materials is scrap copper wire with entire range of insulations such as fabrics, varnishes, plastics, rubber, et cetera. Do you see that?

A. I see where it says that.

Q. Did you review Mr. Dunk's modeling of odorous emissions from the property?

A. Of odorous emissions?

Q. Yeah.

A. I am not sure that I did.
Q. Well, never too late.
A. Okay.
Q. I hand you Exhibit 26 to your deposition. Exhibit 26 is a Study of USMR's Odorous Emissions Bates labeled 735937 by Richard Dunk. Is that right? It's dated November 1980. It's on the inside page.
A. Yes.
Q. Okay. Have you ever reviewed that document?
A. I don't recall ever seeing this document.
Q. Is it fair to say that you did not provide that to your consultants?
MR. SCHICK: Objection. Form.
A. I don't know whether this document was provided to our consultants or not.
Q. (By Mr. Nidel) Okay. If you turn to Page 2.
A. (Complying.)
Q. There's a diagram there of the -- I assume the current cupola operation with the sampling points and it shows the cupola going to 80-foot stack on one train and a 110-foot stack on the other. Do you see that?
A. Where? Help me here.
Q. The bottom of the diagram there. It shows

two stacks.

A. I see the --

Q. Baghouse No. 1 goes to the 80-foot stack and baghouse No. 2 goes to the 110-foot stack.

A. Where's the -- where's the 110-foot stack?

Q. Are we on the same diagram?

MR. SCHICK: All the way to the left is where he's trying to direct your attention.

Q. (By Mr. Nidel) 110-foot stack is on the left.

A. Is it labeled as 22? Is that the --

Q. The 110-foot stack is right here, stack -- there's one stack and there's another stack (indicating).

A. Oh, so is that the hundred -- is that the --

Q. No, no.

A. Help me.

Q. They're not drawn to scale.

A. Okay.

Q. They're clearly not drawn to scale.

A. Oh, okay. I'm sorry.

Q. Mr. Dunk didn't draw things to scale.

A. I'm normally very good at looking at diagrams.

Q. Are you with me now?
A. Yeah. Repeat the -- repeat the question.
Q. I'm just asking does this clarify as to what the stack height was for the cupola in 1980?
MR. SCHICK: Objection. Form. Beyond the scope.
A. Yeah, that's what's represented in this drawing as being present at 1980 time frame.
Q. (By Mr. Nidel) Okay. And we see -- if you go to -- if you look at the last page, the back page of the document, he did a decline curve with some modeling of the odorous emissions from the facility. It's the very back page, I think. Oh, is it not? Oh, you guys have more pages than I do. Sorry. It's 956 is the --
A. 956?
Q. He liked to have multiple --
MR. SCHICK: It looks like this (indicating).
A. Got it.
Q. (By Mr. Nidel) He did a decline curve for the odorous emissions and it shows the odorous emissions going literally off the chart and declining down at about what, 35,000 meters. Is that fair?

MR. SCHICK: Objection. Form and scope.

A. That appears to be what the -- what the graph shows.

Q. (By Mr. Nidel) Do you know how many miles 3,500 meters would be, roughly?

A. I'm sorry. 3,500 or 35,000?

Q. 35,000, you're right.

A. I'm converting my 10K mileage.

Q. Yeah, that's what I did.

A. About 20 miles, maybe a hair more.

Q. Okay. If I went through any other specific emissions of metal oxide particulates, you would not be able to tell me what the metal ratio is in those emissions point sources, would you?

A. Not without a calculator and the data in front of me.

Q. Okay. Not without -- that's not something -- that's not something that you used in your delineation of the offsite material. Is that correct?

MR. SCHICK: Just the top one.

THE WITNESS: Which one? This?

MR. SCHICK: Yeah.

A. I'm sorry, say that again.

Q. (By Mr. Nidel) That was not something that

you used or relied on in your delineation of the offsite materials. Correct, the ratios of any of these point sources?

A. At this point, no. We're using the ratios of the offsite samples, but to determine the ISDN and AOC areas we didn't use metal ratios.

Q. Okay. I handed you Exhibit -- I think it was 28. Is that right?

A. It is.

Q. All right. Exhibit 28 is another modeling exercise prepared by Richard Dunk, October 1981, Bates labeled 769086. Is that right?

A. That's correct.

Q. Did you review this modeling?

A. I don't believe I did.

Q. Okay. If you turn to Page 769100?

A. 100?

Q. Yep.

A. Uh-huh.

Q. There's a decline -- is that a decline curve?

A. In general terms, yes. I mean, it's obviously on a logarithmic scale on the X axis, so yeah, it's a logarithmic decline curve.

Q. Okay. And it models the ambient lead

concentrations resulting from the existing cupola emissions. Do you see that, the dark line?

A. Yes.

Q. And it shows the ambient air lead concentration going literally off the chart and coming back onto the chart and dropping down, crossing the ambient air quality standard at about 10K. Right?

A. That's what this graph shows, yes.

Q. Okay. Did you provide this document to your consultants?

MR. SCHICK: Objection. Form.

A. I don't know whether this document was provided to consultants or not.

Q. (By Mr. Nidel) Who other than you would have provided documents to the consultants that worked for you?

A. Generally speaking, it would have been either myself, Mr. Leach in advance of that, perhaps Dr. Buchanan or the various documents that were in the possession of our consultants HydroQual, which were then transitioned over to ELM and Arcadis.

Q. Okay. Did you look through any of your -- of the files of those individuals to prepare for your deposition to see what your consultants might have

been provided or relying on?

A. I did not.

Q. I'm going to hand you Exhibit 31. Exhibit 31 is a -- I believe it's a letter from Richard Dunk. It's dated November 15th, 1984 Bates labeled 39805. Is that fair?

A. That's correct.

Q. Okay. And have you reviewed this document before?

A. I believe I have seen this document that I saw in preparation for this deposition.

Q. Okay. Did USMR provide this to its consultants?

MR. SCHICK: Objection. Form.

A. I'm not aware of whether this was provided to our consultants or not.

Q. (By Mr. Nidel) To the best of your knowledge, it was not provided to them. Is that right?

A. To the best of my knowledge, I don't know whether it was or was not provided.

Q. Okay. Bottom of the first page, second paragraph there, middle of that but towards the bottom it says, Maximum ambient lead concentrations --

A. Hold on, please.

Q. Yep.

A. They were passing the document around. Okay. Go ahead.

Q. Maximum ambient lead concentrations from fugitive emissions and short stack are predicted to occur near the plant perimeter downwind from the center of the plant -- oh, sorry -- (250 to 750 meters downwind from the center of the plant) and maximum impacts from tall stacks (Cupola and Converter) are estimated to occur at 1,500 meters to 2,500 meters downwind of these specific point sources. Do you see that?

A. I do see that.

Q. Okay. So that would be -- well, those tall stacks would be having maximum impacts somewhere between what's that, about one to two miles. Right?

A. That's what the -- that's what the document says.

Q. And then they would decline from there. Right? That would be the maximum on the decline curve?

A. They would be expected to decline from there, but what's -- what's not indicated here is this is --

these are ambient air concentrations and they don't translate into soil lead concentration.

Q. What model was used by McVehil?

A. I don't know off the top of my head. I think it was referenced in one of the -- one of the documents. If I was an air quality modeler I would know that but that's not my field.

Q. The modeling that Mr. Dunk did that we just reviewed, it does, however, reflect where your lead was traveling, how far your lead was traveling, albeit in the air for someone to breathe or, you know, eventually depositing in the soil somewhere. Right?

A. I believe it was, yeah, that the model attempted to project that.

Q. And in fact if it was in the air at 2,500 meters downwind, it was going to deposit on the soil some point further downwind than even that point. Right?

A. If it was -- if it was indeed present because keep in mind these are just results of modeling. It's not validated by actual ambient data. But if the concentrations were present in that concentration at that distance, then we would expect there to be lower concentrations at a farther distance.

Q. Did USMR have any ambient monitors out at the 1, the 2 kilometer distance from the smelter?

A. I don't believe that there were monitors that far away.

Q. I'll hand you Exhibit 38. Exhibit 38 is the Radian lead compliance plan and their modeling. It's Bates labeled 829869. Is that correct?

A. 829869. No. This is --

Q. You might have another copy of it.

A. This is Exhibit 38.

Q. Yeah. I mean, there are multiple copies produced. Can you give us the Bates number for the record of that?

A. 740283.

Q. Okay. But it is the lead compliance plan from Radian. Is that correct?

A. That's the title of the document, yes, sir.

Q. And if you turn to Page --

MR. SCHICK: Excuse me. Just so it's clear it says draft.

A. That's correct, draft.

Q. (By Mr. Nidel) Did you ever -- did you review that document?

A. I don't believe I reviewed this.

Q. Okay. Do you know if that document was ever finalized?

A. I don't know if it was finalized.

Q. Okay. If you turn to Page 5-10?

A. (Complying.)

Q. The first paragraph there, the last sentence of it, it says, These fluctuations indicate that non-uniform or upset operating conditions at the plant are likely responsible for a significant portion of the lead emissions from the USMR/AMAX plant. Do you see that?

A. I do.

Q. Okay. Were you aware that non-uniform or upset conditions were responsible for a significant amount of the lead that was emitted from the site?

A. In general I'm aware that non-uniform or upset conditions at any plant would lead to potentially larger amounts of emissions than would be expected from a steady state operation.

Q. Okay. And if you turn to Page 6-5. There's a table of emissions estimates or what I might call an emissions inventory of various fugitive sources including the baghouse dust piles. Do you see that?

A. Are you on 6-5?

Q. 6-5, this table, yeah.
A. Okay.
Q. Do you see the baghouse dust piles?
A. I do.
Q. Do you see that they're the highest emissions rate of any of those fugitive sources?
A. I do see that.
Q. Okay. Was that something that you considered in determining your fingerprinting for dioxin?
A. I'm not aware that this was part of the fingerprinting exercise.
Q. Okay. To your knowledge, it was not. Correct?
A. To my knowledge, I don't know whether it was or was not.
Q. Okay. Who did the fingerprinting exercise?
A. For dioxin?
Q. Yes.
A. Arcadis.
Q. Okay. Did you provide this to Arcadis?
A. I don't recall providing this to Arcadis.
Q. Okay. Who else would have provided it to Arcadis?
A. I don't know who might have.

Q. Okay. You're not aware of anyone providing it to Arcadis. Correct?

A. No, I'm not.

Q. Okay. If you turn to 6-15.

A. (Complying.)

Q. It says, the first sentence there, The baghouse dust piles are the primary contributor to the maximum off-property lead concentration for each of the five highest receptors. Do you see that?

A. I see the language.

Q. Okay. Was that considered in determining the fingerprinting of the dioxin source?

A. Not to my knowledge. This was referring to lead concentrations, but I don't know whether it was considered as part of any dioxin evaluation.

Q. Well, you are aware that there was dioxin in the baghouse dust. Right?

A. I don't recall reading anything about dioxin specific to baghouse dust.

Q. Did you review the EPA testing that was done onsite?

A. I did.

Q. Okay. Do you recall them testing the baghouse dust?

A. They may have. I just don't recall specifically what they found.

(Exhibit No. 64 marked.)

Q. I'm going to hand you Exhibit 64 to your deposition. Exhibit 64 is a --

MR. SCHICK: Hang on. Let him get it in front of him. Okay.

MR. NIDEL: I mean, all I'm going to -- I think we all know the drill. I'm just going to read what it is. I think he --

MR. SCHICK: Yeah, but he needs to be with you and know what you're reading from.

MR. NIDEL: But I'm not going to -- all I'm doing is going to read the Bates number and get him to make a clear record that we're looking at the same document, but fair enough.

Q. (By Mr. Nidel) It's a memo January 3rd, 1989, Bates labeled 10877. Is that right?

A. Yes.

Q. Okay. And have you reviewed this document?

A. I don't recall seeing this document before.

Q. Okay. Is that fair to assume that you did not -- you or USMR did not provide this to your consultants?

MR. SCHICK: Objection. Form.

A. To the extent a great many HydroQual documents were provided to our consultants and given that this was authored by HydroQual, I would think it is likely that our consultants had access to this document.

Q. (By Mr. Nidel) Okay. Let me ask you a different way. Was that part of your analysis as to the fingerprinting of metals ratios?

A. I'm not -- I'm not aware whether this was used in the fingerprinting or not.

Q. Okay. Let me be even more clear. Was this provided to Geosyntec?

MR. SCHICK: Objection. Form.

A. I don't know if it was provided to Geosyntec or not.

Q. (By Mr. Nidel) You don't know that it was provided to them. Correct?

A. I don't know whether it was or was not provided.

Q. Okay. I just want to be clear because I understand that Arcadis, for example, or some of the other consultants may have relied on a number of documents which they reference and cite. I've not

seen anything as extensive from Geosyntec. So when you said that a number of HydroQual documents were provided to your consultants, my question is: Were you referring to Arcadis, Geosyntec or others or -- because I've never seen a report by Geosyntec that cites a number of reports from HydroQual.

A. The Geosyntec evaluation of the boundary is still a work in progress and, you know, whether that includes some of the information in any of these reports that you've shown to me, I don't know whether they're included in their report or not because I've not seen the report.

Q. Okay. I understand that it's still a work in progress, but I'm asking you if Geosyntec was provided this analysis of various slag piles?

A. I don't know whether they were or were not provided with this particular document.

Q. Okay. Who other than -- but you know that you did not provide it to them?

A. I did not personally provide this document to Geosyntec.

Q. Who other than you interfaces with Geosyntec from --

MR. SCHICK: Look at the date.

Q. (By Mr. Nidel) -- USMR.

MR. NIDEL: What's that?

MR. SCHICK: Look at the date of the document.

MR. NIDEL: Okay. I'm happy to. 1989.

MR. SCHICK: Uh-huh.

MR. NIDEL: Okay. Apparently I'm missing something.

MR. SCHICK: Yeah.

A. I'm not aware that this document was provided to Geosyntec for use in its boundary evaluation.

Q. (By Mr. Nidel) How can I find out what documents your consultants relied on?

A. I believe that the documents that the consultants relied on are described in the various reports that they've generated. I think they generally cite the reference documents at such a time that Geosyntec completes its evaluation of the boundary, the AOC boundary. I'm presuming that they will likewise cite the references that they used in developing their report.

(Exhibit No. 65 marked.)

Q. I'm going to hand you Exhibit 65. Exhibit 65 is a draft supplemental remedial investigation work

plan, Bates labeled 9390. Is that correct?

A. Yes.

Q. Okay. And I just want to take you to Page 9398.

A. 98? Uh-huh, yes.

Q. What was in the north portion of the facility?

A. What was in the north portion of the facility?

Q. Yeah, what type of operations were going on up north on the property?

A. I don't believe USMR conducted any activities in the north area beyond warehousing.

Q. Okay. So there was warehouse and otherwise there were no heavy industrial operations there. Correct?

A. I'm not aware that USMR had any activities in that area beyond warehousing.

Q. Okay. How did you pick your location for your dioxin sampling?

A. How did we pick the locations?

Q. Yeah.

A. Well, we identified -- well, I mean, if you -- if you understand a large part of the facility

had been redeveloped into warehouses by the time we did the additional dioxin testing in 2015 or whenever -- whenever that was. So we identified some locations that were immediately adjacent to the facility boundary that had not been essentially disturbed by site redevelopment activities. That's why if you look at the configuration of those sample locations they're all kind of immediately along the property boundary on the west side of Warehouse -- what is now Warehouse 2 and the north side of Warehouse 1.

Q. Okay. There has never been industrial operations in that north quadrant. Right?

A. (No response.)

Q. Because we can go through a lot of documents but you testified to it a second ago. There have not been industrial operations up there. Right?

A. I testified that there were no operations performed by USMR in that area.

Q. Okay.

A. It was an area that there was historic operations prior to USMR purchasing the facility, but there were no industrial operations that I'm aware of that USMR conducted in the north warehouse area.

Q. Okay. And for a hundred years there haven't been industrial operations up there. Right?

A. That wasn't what I testified to. I said that I'm not aware of any industrial activities that were performed by USMR in that area. There were other property owners at the time that had industrial activities in that particular area prior to USMR acquiring that portion of the property.

Q. Okay. Was the purpose of the dioxin sampling to see if there was dioxin that looked like the stack dioxin?

A. The purpose of the dioxin sampling was to delineate dioxin consistent with the New Jersey tech reg requirements.

Q. Okay. And based on a concern that what was coming out the stack might be polluting other areas. Correct?

MR. SCHICK: Objection. Form.

A. It was based on an evaluation of existing data by the LSRP who felt that dioxin delineation had not been adequately completed onsite.

Q. (By Mr. Nidel) Okay. Who chose the location of the north warehouse No. 2?

A. The location was proposed by Arcadis and

approved by the LSRP.

MR. SCHICK: Excuse me. I thought he said west of Warehouse 2, north of 1.

A. I did, yes. It's west of Warehouse 2, north of Warehouse 1.

Q. (By Mr. Nidel) Okay. And Arcadis had the EPA's assessment of dioxins onsite. Correct?

A. As far as I know, yes.

Q. Okay. And the area -- the warehouse area -- west warehouse area was actually the lowest, the absolute lowest dioxins sampled anywhere on that entire property. Correct?

A. Which sampling event are you referring to?

Q. And the EPA broke it into seven or ten quadrants and they took composite samples. Do you remember that?

A. If I can visualize the map.

Q. Okay. Why did you choose the lowest -- to sample on the perimeter of the lowest dioxin sample that you could find to see if there was maybe dioxin?

MR. SCHICK: Objection. Form.

A. The balance of the site had been redeveloped and that was the most appropriate undisturbed location where the consultants felt that given the location

there and the proximity to the residential areas where samples could be obtained that were representative and the LSRP agreed and approved of those locations.

Q. (By Mr. Nidel) Okay. Was LSRP given the EPA's dioxin sampling map?

A. I don't know whether the LSRP was provided with that or not.

Q. Okay. Did you give it to them?

A. I did not give it to them.

Q. Okay. Who else would have?

A. Perhaps Arcadis during the review of where the sample locations were made. I don't -- I don't know.

Q. Okay. No one that you know of gave it to them. Correct?

A. That's correct.

Q. Okay. And it actually was redeveloped there because you drilled down and ran into some cloth. Right?

A. It was part of the site that the NJDEP required we perform redevelopment which in the case of the onsite was site redevelopment in warehousing.

Q. Okay. So it was redeveloped. Right?

MR. SCHICK: Objection. Form.

Q. (By Mr. Nidel) That area had been redeveloped and you had to go down 3 to 3 1/2 feet to get a sample that you thought was undisturbed. Correct?

A. I don't recall the exact issues with sampling, but in the event that it was determined that there was -- this was in an area that had been redeveloped, there was step-outs done to go to areas that had not been redeveloped yet. As I recall, there was -- there was a couple of step-outs as part of this delineation exercise.

Q. How deep were the samples taken from?

A. I don't recall the exact depth.

Q. Do you recall, though, that they had to go deep because there was issues with development there. Correct?

A. The very first samples, that's correct, but as we stepped farther away from their redeveloped area, we were able to successfully get representative samples.

Q. I thought you went to the north warehouse area because it hadn't been redeveloped. That was your testimony. Right?

A. We went to an area adjacent to the north

warehouse area which had been redeveloped. I don't think I testified that the north area was not redeveloped. The north warehouse area was redeveloped as part of our remedial action on the onsite. We were attempting to find areas very close to the property line between the redeveloped area and the property line that did not show evidence of redevelopment where we could successfully get samples that were representative of site conditions as opposed to representative of redeveloped site conditions.

MR. SCHICK: Why don't we take a break?

MR. NIDEL: Sure.

THE VIDEOGRAPHER: We are off the record. It is 5:28. This is the end of Tape 6.

(Break.)

THE VIDEOGRAPHER: Okay. We are back on the record. It is 5:40 and this is the beginning of Tape 7.

(Exhibit No. 66 marked.)

Q. (By Mr. Nidel) All right. I handed you Exhibit 66. Exhibit 66 is a -- starts with a cover e-mail. It's Bates labeled 835988 from Michael Leach dated 3/22/2013. Is that right?

A. Yes.

Q. Okay. And this is a -- contains Revision 3 of Shaw Environmental's soil sampling and analysis plan. Is that right?

A. That's correct.

Q. I assume that you've reviewed that document?

A. I've -- I've seen this document and I've reviewed it.

Q. When was the -- when was the conceptual site model first sort of established in these documents? I mean, I see the same language throughout and I'm just wondering sort of what the first -- when it was born?

A. I'm not sure exactly when the conceptual site model was first established, but it was fairly early on after the DEP requested that we start looking offsite for potential site-related impacts.

Q. Okay. If you turn to let's just say 2-1 of the document?

A. Yes.

Q. The bottom paragraph there, the first sentence, it says, Based upon factors provided in Section 3.0, copper and zinc concentrations in offsite soils are considered to be the most reliable indicators of metals concentrations that may be associated with the former USMR operations. Do you

see that?

A. I see where it says that, yes.

Q. Okay. So I had asked you about I think that statement earlier. Would you agree that copper and zinc are -- were at that time considered to be most reliable indicators of metals concentrations?

A. At the time of this document, yeah, I'd say that's a correct statement.

Q. Okay. What metals -- metal or metals are the best indicators of associations of emissions from the former facility?

A. Say that again, please.

Q. Yeah. What metal or metals are the best indicators of impacts from USMR operations?

MR. SCHICK: Objection. Asked and answered.

A. I believe according to this document at the time this was developed it was speculated that copper and zinc would be the most reliable indicators.

Q. (By Mr. Nidel) It was just speculated then? This was submitted probably to the State. Right?

A. Well, it was -- it was done in, really, the absence of any specific offsite sampling data. It was based on the information that had been gathered as

1 part of the onsite remedial investigation.
2 Q. Okay. So what in USMR's view are the best
3 indicator metals of impacts from its operations?
4 A. I think it's USMR's opinion that the best
5 indicator of emissions from a copper smelter is
6 copper.
7 Q. Do you see the footnote there?
8 A. I do.
9 Q. One study found that over 19 percent of yard
10 areas has arsenic soil concentrations that would
11 exceed the SRS of 19. Do you see that?
12 A. I do.
13 Q. What is SRS?
14 A. Soil remediation standard.
15 Q. Okay. Is that the same thing we've been
16 talking about all day?
17 A. Yes.
18 Q. 400 for lead and 19 for arsenic?
19 A. Yes.
20 Q. Okay. Do you know why they don't say SRS of
21 19 exceeding 95 percent upper confidence limit of
22 log-normal distributions or something else like that?
23 A. I don't know why this EPA or Schmitt
24 reference states those numbers. You'd have to go back

to those documents and read them.

Q. Have you read those documents?

A. I don't believe I have.

Q. Okay. Do you know anything else that they say?

A. No, I haven't read the documents.

Q. Do you know why those documents were cited there?

A. I'm just -- I'm assuming that it was an attempt to indicate that there are other sources of arsenic and lead in urban yard areas that contribute to soil exceedances due to non -- non-smelter or nonindustrial sources.

(Exhibit No. 67 marked.)

Q. I hand you Exhibit 67. Exhibit 67 is a document I believe was provided from your files, but it's a remedial investigation and action work plan Phase 1 offsite area of concern, July 2015, Bates labeled 832350. Is that something that you reviewed?

A. Yes.

Q. Okay. Is that something that you provided edits and comments on?

A. I believe I probably reviewed and likely provided some edits and comments to this document.

Q. There is on Page -- well, it's going to be on Page 4, you know, number Page 4?
A. Uh-huh.
Q. And it says, a statement that might be familiar to you, Although air deposition may initially deposit these metals -- do you see that?
A. Yes.
Q. Okay. I'm trying to spare the court reporter here, but if you read that statement, that's a statement that I quoted to you earlier and asked you if you agreed with and I think you gave me some qualifications. So if you could read that statement on Page 4 and tell me if you agree with it.
A. Sure.
Q. And I'm going to ask you just to read it to yourself just to save her, but you're reading the paragraph that starts "Although air" and ends with "concentrations." Okay?
A. (Complying.)
Q. Do you agree with that?
A. Yes, I agree with that.
Q. If you turn to Page 7?
A. (Complying.)
Q. Another issue that I brought up, although not

I think word for word, but No. 2 says, Extrapolation of the ISDA data provides a line of evidence that offsite soils exceed the New Jersey DEP RDCSRSs, which are potentially associated with the historical smelter operations, would generally be expected to occur in close proximity to the former onsite area boundaries (i.e., within Zone 1). Do you see that?

A. I do.

Q. Okay. What is the extrapolation of the ISDA data? What does that mean?

A. I think it is the use of the continued decrease in constituent concentrations in the ISDA from Zone 1 to Zone 2 to Zone 3, which shows a continuing decrease in those concentrations.

Q. Okay. So is that -- I know there's an analysis and we may or may not get to it today, but you went from Zone 1 and then you said there's, like, a 50 percent drop in the average, and then you went to Zone 2 and you said there's another 50 or for some metals 75 or whatever, but there was a step-wise decrease from Zone 1 to 2 to 3. Is that what you're talking about?

A. Yeah, I don't recall if it was 50 percent for -- between each zone, but, you know, there was

a -- there was a decrease between -- you know, from Zone 1 to Zone 2 to Zone 3.

Q. Okay. And is the extrapolation, then, sort of an extension or a prediction of what would be happening beyond, say, Roosevelt Avenue based on that pattern that you saw from Zone 1 to Zone 2 to Zone 3 and then offsite?

A. I assume that you could use that line of evidence to show that anything beyond Zone 3 was similarly lower than what was measured in the Zone 3 of the ISDA.

Q. Okay. But what you found out when you tested those transects was not -- that that was not -- that didn't carry forward. Right?

A. The samples within the zero to 6 and 6 to 12-inch intervals within the transect areas do not generally continue that trend, but the determination of whether those metals concentrations in the transects are attributable to site operations is still something that's subject to an ongoing analysis.

Q. Okay. If you look at the Page 8, the top on the copper, it says, The copper soil concentration, do you see that, B?

A. Yes.

Q. Can you read B to yourself, please.
A. (Complying.) I need to read the whole thing. I can't read just B by itself.
Q. Are you good on B?
A. Yeah, I read what it says.
Q. Okay. So you were using zinc there to determine whether the copper concentration that was high would be site related. Right?
A. It was the absence of zinc to show that it was unlikely that the copper within the Zone 3 sample was associated with former smelter operations.
Q. Okay. And I'm assuming there was maybe some zinc there, but just the absence of an elevated level of zinc, but I don't know. Do you know?
A. I'm assuming that there was some level of zinc there.
Q. Okay.
A. I don't think we had any nondetects for those metals.
Q. Okay. So you would agree with me that you were using zinc to help you fingerprint even the copper as to whether it was site related. Right?
MR. SCHICK: Objection. Form.
A. For this particular interval in this

1 particular zone we used the absence of zinc to help us
2 with our conclusion.
3 Q. (By Mr. Nidel) Okay. And why do you not
4 continue sampling for zinc?
5 A. The decision to not continue sampling of zinc
6 was based on the fact that we weren't observing
7 zinc -- excuse me -- in the ISDA area in excess of
8 residential cleanup standards.
9 Q. Even though it could be useful for
10 fingerprinting or source tracking the metals that you
11 did find as was used in this example. Right?
12 MR. SCHICK: Objection. Form.
13 A. I believe that we felt that the use of
14 copper, lead and arsenic was adequate to determine
15 impacts, if any, from the smelter.
16 Q. (By Mr. Nidel) I'm going to show you just
17 this handwriting. Is that your handwriting
18 (indicating)?
19 A. Sorry. No.
20 Q. Do you know whose handwriting that is?
21 A. No.
22 Q. Why wasn't dioxin selected as a target
23 analyte?
24 A. Based on the speciation work that was -- that

was done, the delineation of dioxin was complete to the satisfaction of the LSRP and as a result there was no further need to continue to carry dioxin as a target analyte for the offsite work.

(Exhibit No. 68 marked.)

Q. I've handed you Exhibit 68 to your deposition. It's April 2016 sampling and analysis plan data report?

A. Uh-huh.

Q. Bates labeled 802403 from Arcadis. Are you familiar with that document?

A. I am.

Q. Okay. If you turn to Pages 5 and 6 -- sorry -- 6 and 7 -- wait. Huh, that's weird. Oh, mine? I don't know if anyone else's copy is like this, but for some odd reason mine goes 5, 7 and then 6, but if you turn to Page 5?

A. 5. Okay.

Q. Sort of there's the -- some of the language about the conceptual site model that you typically have. Correct?

A. Umm.

Q. Although air deposition, same language that we read before?

A. Yeah, that's similar language.

Q. Air concentrations of metals are assumed to decrease, all that language. Right?

A. Yes.

Q. So one question just practically: This is Arcadis. We haven't looked at, I don't think, anything written by Arcadis yet but we've seen this same language. So is it just common for your consultants to just lift language from one report from a previous consultant to another? Is that --

MR. SCHICK: Objection. Form.

A. I'm not sure what you mean by lift language.

Q. (By Mr. Nidel) Copy and paste or I don't know if they type it up and look at it, but there's -- the same language is throughout all your documents whether it was written by Arcadis or ELM or Shaw.

A. Yeah. I'm not sure what -- what you're questioning.

Q. I'm really not questioning anything. I'm just asking you if that was typical, that one consultant would take and adopt the work of another consultant. That's it.

A. I mean, to the extent this is a continuing project, I believe, you know, the work on one

component builds on those which were prepared previously. So to the extent that Arcadis in the preparation of this document agreed with the approach from previous documents and previous versions, they incorporated that into this document.

Q. I wasn't -- I may be implying things other ways, but I was just asking the question.

Page 7, I guess the Sampling and Analysis Approach and Rationale, I guess my question is when did you first -- I know I asked you when you first came up with Zone 1, 2 and 3. By this point in time, the data analysis report here, you had the data. Right?

A. We had the data from the ISDA. This is really a summary of that sampling effort.

Q. This is -- this is the money document. Right? This is the one that goes through and says you dropped from Zone 1 to Zone 2 to Zone 3. Right?

MR. SCHICK: Objection. Form.

MR. NIDEL: You didn't like my money document?

MR. SCHICK: Yeah.

Q. (By Mr. Nidel) This is where your conclusion is drawn from, the analysis in this document. Is that

right, that the boundaries were sufficient?

A. It's the document wherein the information that has been collected through the ISDA is reported and the conclusions of the ISDA in support of the conceptual site model and the extent of the AOC are put down in writing and presented to the LSRP in final form.

Q. Okay. That's probably a better way to characterize it. If you turn to Page 13?

A. (Complying.)

Q. It talks about the dioxin sampling that they relied on in their fingerprinting assessment. The only sampling it talks about was the stack sample taken by EPA and then it talks about the onsite sampling that we already talked about in the warehouse area. Right?

A. Yeah, that's what the two bullet points say.

Q. Okay. There's no discussion of the baghouse dioxin, there's no discussion of the congeners across the property either, the perimeter sampling by EPA or the composite interior sampling by EPA. Correct?

MR. SCHICK: Objection. Form. I'm hesitant to allow the witness to answer that question

because you're pointing him to one specific page -- one specific section in a page of a document that's I don't know how long. If -- if he knows the answer I'm happy for Mr. Brunner to answer it, but I don't want to handicap him by your suggesting that because this sample discusses X there's no other reference of it in the document.

Q. (By Mr. Nidel) Yeah. And to that point, I guess what I would like is just an answer to the question, then, what did Arcadis use -- what samples did Arcadis use to do its assessment of whether the boundary samples that you took more recently were associated with emissions from the operations at the site?

MR. SCHICK: Objection. Form.

A. What -- what samples?

Q. (By Mr. Nidel) Yeah. What -- what dioxin data did they rely on for their fingerprint assessment?

MR. SCHICK: Same objection.

A. They -- I believe the dioxin sampling is described here starting in Section 6, goes into the vertical and horizontal delineation activities that were done, the results of the data and I believe the

congener analysis is described later in the document, I believe specifically in Section 8.

Q. (By Mr. Nidel) Okay. So what data did U.S. Metals rely on to determine that the offsite dioxin was not from them?

A. Based on this evaluation, they used the data from the EPA study and the Radian study and compared that congener analysis to what was obtained from the soil samples on the close perimeter of the site.

Q. Okay. And I just want to be clear, the EPA study, you mean the EPA stack testing that was done. Correct?

A. I believe that was the stack testing.

Q. Okay. There was no -- it was not soil testing, it was not baghouse dust testing, it was the stack testing both by Radian and by EPA. Correct?

A. That's my understanding, yes.

Q. Okay. If we turn to Page 36. Okay. Is this the analysis that you're relying on to say that Zone 1 through Zone 3 showed a dramatic decrease in metals concentrations?

MR. SCHICK: Objection. Form. But go ahead.

A. Yes, it is.

Q. (By Mr. Nidel) Is this what you're relying on to show that there was a trend in decreasing metals concentrations that could be extrapolated to show that your boundary was sufficient?

MR. SCHICK: Same objection.

A. Yes.

Q. (By Mr. Nidel) Okay. The only reason I repeated it was because I think the objection was to my sharp or dramatic decrease. I got rid of that but I still got an objection. You can't say I didn't try.

So if we turn to Page 39, the last bullet point on dioxins and furans there, it says, The chemical signatures of air stack samples are significantly different. Right?

A. Yes, that's what it says.

Q. And it talks about what congeners are dominant versus not. It says octa is dominant in the offsite soil samples and it's the dominant congener in numerous combustion sources including emissions from incinerators, boilers and motorized vehicles. Do you see that?

A. Yeah, I see where it says that.

Q. Okay. We've talked about a number of other

dioxin sources that were actually operated by U.S. Metals today. Right?

A. I believe we've talked about other potential emission sources.

Q. Okay. And U.S. Metals operated incinerators on their site. Right? They had an incinerator. Right?

A. I'm not aware that they operated an incinerator. It might have been something Mr. Fenn was more appropriate to discuss.

Q. Well, if they did, that would kind of be important for this analysis because apparently incinerators could be a source of octa-chlorinated dibenzodioxin. Correct?

A. This sentence suggests that an incinerator is a potential source of octa-dioxin.

Q. Okay. And they had boilers onsite, too. Right?

A. I'm not aware if they had boilers onsite or not.

Q. If they did, that would be relevant to whether the operations at the site could be related to those. Correct?

A. I mean, again, the sentence indicates that

boilers are a potential source of octa-dioxin.

Q. Okay. If we could turn to 802488.

A. 488?

Q. 802488 is the -- some of the zonal analysis. Right, Figure 3-1?

A. Yes.

Q. Okay. And it shows the samples from the ISDA that are in Zone 1, Zone 2 and Zone 3. Correct?

A. That's correct.

Q. Okay. What -- can you outline on Figure 3-1 in this pink marker the areas that we discussed earlier that were Chrome Park that were redeveloped, as well as the areas in the northeastern portion of the site that were redeveloped?

A. Do you mind if I dig through the exhibits to make sure?

Q. I don't mind.

MR. SCHICK: I don't think you've got the northeast quadrant on this map.

MR. NIDEL: What do you need? Is there something I can get him?

MR. SCHICK: No, I don't think he had a copy of those. It's all right.

MR. NIDEL: Yeah, yeah, yeah, I think

you do from -- well, we do from -- yeah. Sorry.

MR. SCHICK: It's okay.

A. Okay.

Q. (By Mr. Nidel) Okay. You got both of them? Could you maybe fill them in just with hashmarks? You don't need to color them in.

A. (Complying.)

Q. So on Figure 3-1 --

MR. NIDEL: Do we want to have him hold it up?

THE WITNESS: (Complying.)

MR. NIDEL: Can we go ahead and maybe get a video of that?

THE WITNESS: (Complying.)

Q. (By Mr. Nidel) Do you know how many samples were in Zone 1 versus Zone 2 versus Zone 3?

A. The precise number?

Q. Yeah.

A. No. I can count the dots if you'd like, but. . .

Q. I just didn't know if you knew. The target was to get 20. Is that correct? 20 per zone?

A. It appears that there's more than 20 in Zone 1.

Q. Are there 60 total, do you know?

A. I think there's in excess of 60 because I believe there's more than 20 in both Zone 1 -- Zones 1 and 2. I haven't counted the number that's in Zone 3.

Q. What was the assessment that was done on -- well, were all those samples -- what depth were those samples taken?

A. I believe they were taken at 6-inch intervals down to 24 inches.

Q. And then how were -- how were they -- how were those central tendencies -- so how were they averaged so they -- were they averaged across the departments or were they averaged just for each department and then compared?

A. I'm not sure exactly how they were reviewed.

Q. If you go back to the text of that same exhibit that you're on?

A. Uh-huh.

Q. I think -- there's the discussion of the central tendencies. I'm trying to -- are you able to find that?

A. I'm still looking for it. I know it's in here somewhere.

Q. I thought it was in there too.

A. Yeah. If you generally look at Page 36 it discusses the central tendencies by zone.

Q. Okay. Does that help you answer my question as to whether it was -- those averages were taken across all departments or what?

A. It looks like they were taken across all departments by constituent by zone.

Q. Okay. And then they were compared from zone to zone and then that's where you drew your extrapolation pattern from or your --

A. That's -- that's correct.

Q. Was there a remedial investigation action work plan -- did that become a remedial action work plan?

A. Yes.

Q. Okay. And what was the distinction there or I'm just trying to understand --

A. We -- we pulled the investigation -- the remedial investigation part out and submitted that as a separate document that would be really the data report that we were just talking about for the last ten minutes.

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

THE VIDEOGRAPHER: We are off the

record. It is 6:14 p.m.

(Deposition concluded at 6:14 p.m.)

(Signature reserved.)

* * * * *

1 CHANGES AND SIGNATURE

2 WITNESS NAME: JOSEPH A. BRUNNER

3 DATE OF DEPOSITION: JUNE 6, 2018

4 PAGE/LINE CHANGE REASON

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I, JOSEPH A. BRUNNER, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

_____
JOSEPH A. BRUNNER

THE STATE OF _____)
COUNTY OF _____)

Before me, _____, on this day personally appeared JOSEPH A. BRUNNER, known to me (or proved to me under oath or through _____) (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, _____.

_____
NOTARY PUBLIC IN AND FOR
THE STATE OF _____
COMMISSION EXPIRES: _____

THE STATE OF TEXAS:
COUNTY OF FT. BEND:

I, Tamara Vinson, a Certified Shorthand Reporter and Notary Public in and for the State of Texas, do hereby certify that the facts as stated by me in the caption hereto are true; that the above and foregoing answers of the witness, JOSEPH A. BRUNNER, to the interrogatories as indicated were made before me by the said witness after being first duly sworn to testify the truth, and same were reduced to typewriting under my direction; that the above and foregoing deposition as set forth in typewriting is a full, true, and correct transcript of the proceedings had at the time of taking of said deposition.

I further certify that I am not, in any capacity, a regular employee of the party in whose behalf this deposition is taken, nor in the regular employ of his attorney; and I certify that I am not interested in the cause, nor of kin or counsel to either of the parties.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, on this, the 21st day of June, 2018.

_____
Tamara Vinson, Texas CSR No. 3015
Expiration Date: 12-31-2018

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