OFFICE OF ZONING AND ADMINISTRATIVE HEARINGS

FOR MONTGOMERY COUNTY

PETITION OF COSTCO WHOLESALE CORPORATION	:	**Case No. S-2863** **OZAH No. 13-12**

A hearing in the above-entitled matter was held on June 19, 2013, commencing at 9:37 a.m., at the Office of Zoning and Administrative Hearings, 100 Maryland Avenue, 7th Floor Council Hearing Room, Rockville, Maryland 20850 before:

Martin L. Grossman

Hearing Examiner

A P P E A R A N C E S

For the Applicant:

Patricia Harris, Esq.

Mike Goecke, Esq.

Lerch, Early & Brewer, Chartered

3 Bethesda Metro Center, Suite 460

Bethesda, Maryland 20814

For Kensington Heights Civic Association:

Michele Rosenfeld, Esq.

The Law Office of Michele Rosenfeld, LLC

11913 Ambleside Drive

Potomac, Maryland 20854

C O N T E N T S

E X H I B I T S

P R O C E E D I N G S

MR. GROSSMAN: This is the seventh day of a public hearing in the matter of Costco Wholesale Corporation, Board of Appeals No. S-2863, OZAH No. 13-12, petition for a special exception pursuant to Zoning Ordinance 59-G-2.06 to allow petitioner to construct and operate an automobile filling station which would include 16 pumps. The subject site is located at 11160 Veirs Mill Road, Silver Spring, Maryland. That's Lot N, 631 Wheaton Plaza, Parcel 10, also known as Westfield Wheaton Mall, and it is zoned C-2, general commercial.

The hearing was begun on April 26, 2013, resumed on May 1, May 6, May 23, June 4, and June 17. It was noticed to resume again today in this room, the seventh floor council hearing room. The next session has been noticed for Monday, July 8, in the second floor OZAH hearing room in this building, Council Office Building, at 9:30 a.m.

This hearing is conducted on behalf of the Board of Appeals. My name is Martin Grossman, the Hearing Examiner, which means I will take evidence and write a report and recommendation to the Board of Appeals which will make the decision in the case. Will the parties identify themselves for the record, please?

MS. HARRIS: Good morning. Pat Harris with Lerch, Early, & Brewer here on behalf of the applicant.

MR. GROSSMAN: Good morning, Ms. Harris.

MR. GOECKE: Good morning. Mike Goecke on behalf of the applicant.

MR. GROSSMAN: Mr. Goecke.

MS. CORDRY: Karen Cordry, Kensington Heights Civic Association.

MR. GROSSMAN: Okay, welcome.

MS. ROSENFELD: Michele Rosenfeld with Kensington Heights, and Eleanor Duckett asked me to let you know that she would not be here today but she expects to be at the next hearing --

MR. GROSSMAN: All right.

MS. ROSENFELD: -- and Donna Savage will be arriving late.

MR. GROSSMAN: I'm sorry. I missed the last part of that.

MS. ROSENFELD: Donna Savage will be here but arriving late.

MR. GROSSMAN: Okay. All right.

MR. SILVERMAN: Larry Silverman for Stop Costco.

MR. GROSSMAN: Mr. Silverman.

MR. COLE: Henry Cole.

MR. GROSSMAN: Mr. Cole.

MS. ADELMAN: Abigail Adelman, Stop Costco Gas Coalition.

MR. GROSSMAN: Hello.
MR. ADELMAN: Mark Adelman, SCGC.
MR. GROSSMAN: Dr. Adelman, how are you? Anybody else in the audience who wishes to be heard today?
(No audible response.)
MR. GROSSMAN: Seeing no hands, I'll turn to a couple of preliminary matters. There was an updated e-mail exchange on June 18, that's yesterday, between Renee Kamen and myself with technical staff regarding the concerns that technical staff had mentioned regarding the plan changes. I forwarded copies, and so did Ms. Kamen, to the parties; and it's made, been made a part of the public record as Exhibit 172. I should note, there's an error on the exhibit list. It says, Exhibit 172 says e-mail exchange dated June 17. It's actually June 18, 2013.
MS. ROSENFELD: And, Mr. Grossman, if I may speak to that e-mail exchange just for a moment --
MR. GROSSMAN: Can you hold off for one second?
MS. ROSENFELD: Oh, certainly. Certainly.
MR. GROSSMAN: I should mention that there was also, I just received, just before I came down here, an e-mail from Ms. Kamen. It's dated today at 9:17, and let me mark that as Exhibit 173, and I'll read it to you since it's short. It's an e-mail from Renee Kamen to me regarding the proposed pedestrian path and that e-mail reads: Marty, the

applicant is correct regarding the ADA Accessibility because of the bump-outs, parens, and the fact that there was supposedly no wall obstructing a wheelchair for movement, closed parens, semicolon; however, comma, we have never accepted that, parens, from my recollections in talking with other site planners in our area team, closed parens, and we require a minimum five-foot standard, parens, which can be found in the road code, closed parens, period. Yes, we understand that this is on private property; however, staff is looking from a practical standpoint and whether or not that would really provide the best circulation for pedestrians and anyone who uses this, quote, path, unquote, and safety, period. We collectively agree that no, comma, three feet is not acceptable, period. It is not safe and it does not provide a good circulation, period. In addition, there is no, quote, protection, unquote, from a vehicle swinging into the pedestrian path, period. Hope this helps. So that's Exhibit 173.
All right. Now, did you want to say something regarding the e-mail exchange, Ms. Rosenfeld?
(Exhibit No. 173 was marked for identification.)
MS. ROSENFELD: Yes. Ms. Kamen in her e-mail had suggested that Kensington Heights Civic Association had requested that the Planning Board hold a hearing on the

proposed amendments. We did ask that the Board supplement its comments but didn't realize that it would evidently feel compelled to hold a public hearing. We are not seeking another Planning Board hearing, and we will follow up in writing to confirm to you and Ms. Kamen as well --
MR. GROSSMAN: All right.
MS. ROSENFELD: -- that that's the case.
MR. GROSSMAN: Yes. I indicated in one of my responses, which should be part of Exhibit 172, that when Ms. Kamen finally formally responds to all of this, I asked her to indicate whether the Planning Board intends any further commentary or action. So we'll see, but yes, I think that would be helpful, if that's your position, that you do let the technical staff know in writing so there's no misinterpretation.
Any preliminary matters, Ms. Harris?
MS. HARRIS: Yes, and I hesitate to mention this. Unfortunately, I'm concerned that we don't have enough hearing dates, just knowing where we are now and the fact that we still have four witnesses that have not yet been on that we need to put on, plus we need to call Dan Duke back to discuss the revised plan. And so rather than waiting until August 2nd, I think it may be efficient if we start thinking about that, and so either by the end of today or the beginning of the next hearing we can have identified

additional dates.
MR. GROSSMAN: All right. What I'd ask the parties to do then is to get together off the record and see if you can agree on a series of additional dates. How many additional dates do you think we're going to need here? You're concerned about too few. I'm concerned that we have too many in terms of summarizing testimony.
MS. HARRIS: I understand that. To be safe, I would say three or four, just to have them identified, and hopefully we don't need three or four additional dates.
MR. GROSSMAN: All right.
MS. HARRIS: I mean, it's a little difficult for me to judge how long opponents' case will be.
MR. GROSSMAN: All right. When you do this, would you check to make sure that you're not in conflict with hearings that are already scheduled, and -- because we'd prefer to use our hearing room; it's much easier for my administrative staff -- and also that Wednesdays, as you know, are taken up by the Board of Appeals in that hearing room, although I'm not sure what their schedule is for the summer. You can check with Katherine Freeman and the Board of Appeals and see if they're meeting this summer. So they may conceivably be free on Wednesdays. Mondays and Fridays are usually the best days to do it in light of that.
MS. HARRIS: And are there any dates that you are

not going to be available in August or --
MR. GROSSMAN: I don't know. My wife hasn't told me yet. So, so --
MS. HARRIS: Okay. Well --
MR. GROSSMAN: -- let's see what, you know, if we have agreeable dates by the parties, and then I'll also check our schedule --
MS. HARRIS: Okay.
MR. GROSSMAN: -- and we can see.
MS. HARRIS: Thank you.
MR. GROSSMAN: Okay. Any other preliminary matters?
MS. HARRIS: Not from me.
MR. GROSSMAN: Ms. Rosenfeld?
MS. ROSENFELD: Yes. The exhibit that Mr. Sullivan was testifying about yesterday which had some modifications from his prior submission, I just would like to ask that that be marked as a separate exhibit. We did receive copies, thank you.
MR. GROSSMAN: Okay. Yes, I haven't -- that hasn't been filed with me yet --
MS. ROSENFELD: Oh.
MR. GROSSMAN: -- any amended version.
MR. GOECKE: I sent a copy to you yesterday.
MR. GROSSMAN: You sent a copy?

MR. GOECKE: I did. I e-mailed everybody yesterday. Didn't come through?
MR. GROSSMAN: Oh, I did not get that, I don't believe.
MS. CORDRY: Yes, I doubt it. It's pretty big.
MS. HARRIS: Oh, it may have gotten kicked back.
MR. GOECKE: It may have been too big.
MR. GROSSMAN: Yes, we have, we're the government, we have limited capacity, unless you're in the NSA. So --
MR. GOECKE: I will --
MR. GROSSMAN: So, yes, if you could give us a hard copy as well as a disk, that would be helpful.
MR. GOECKE: I will do that.
MR. GROSSMAN: I understand the NSA keeps things in, what is it called, yottabytes. I didn't even know what a yottabyte was until I heard that.
MR. GOECKE: It's very small but very powerful maybe.
MS. CORDRY: I think it's actually a --
MR. GROSSMAN: No. I think it's very large. It's a --
MS. CORDRY: -- I think it's a, I think it's a yottabyte. I think --
MR. GROSSMAN: Yotta?
MS. CORDRY: -- Yoda is the guy with the ears.

It's a yottabyte.
MR. GROSSMAN: Yes, they -- well, you're right. It's actually pronounced yotta, I guess, because it's Y-O-T-T-A, although they pronounced it Yoda on the, on TV. So --
MS. CORDRY: Hopefully we don't have, we don't have any other Star Wars aspects play here.
MR. GROSSMAN: Okay. But in any event, sure, we'll make it an exhibit.
MS. ROSENFELD: Okay.
MR. GROSSMAN: Do you have an extra hard copy, Mr. Goecke?
MR. GOECKE: I don't know. I don't know if Mr. Sullivan has an extra.
MR. SULLIVAN: I don't of the marked -- the changes are some highlighted red --
MR. GROSSMAN: Right.
MR. SULLIVAN: -- portions, and I don't have a copy of that with me.
MR. GROSSMAN: All right. Well, we'll --
MR. GOECKE: We'll bring one.
MR. GROSSMAN: Yes. We'll make that Exhibit 174, and this is modified Sullivan -- is it a slide presentation or PowerPoint?
MS. ROSENFELD: PowerPoint.

MR. GOECKE: PowerPoint presentation, sure.
MR. GROSSMAN: PowerPoint presentation.
(Exhibit No. 174 was marked for identification.)
MR. GROSSMAN: Okay. Anything else that we need to cover preliminarily?
(No audible response.)
MR. GROSSMAN: All right. Then we should resume with the cross-examination of Mr. Sullivan. Mr. Sullivan, you're still under oath.
(Witness was previously sworn.)
THE WITNESS: Understood.
MR. GROSSMAN: Okay.
MR. GOECKE: Both Mr. Sullivan's testimony as well as slightly preliminary, but an issue came up when he testified on Monday about Slide 25 and some apparent discrepancies between the numbers he had on Slide 25, which was Table 1-12 in his environmental report, and you had asked us to come up with an explanation for that. We have that. Towards the end of the hearing, Ms. Cordry also approached me and said that the calculations he had done on the flip chart --
MR. GROSSMAN: Right.
MR. GOECKE: -- were a bit confusing and that it was difficult for her, at least, to follow some of them.

And so yesterday we took the liberty to put together sort of an explanation of his explanation --
MR. GROSSMAN: Are we going to let the witness --
MR. GOECKE: -- that we think may be helpful for everybody.
MR. GROSSMAN: All right. Let's let the witness testify as to what the explanation is.
MR. GOECKE: Okay. And I've got, I have hard copies I can distribute.
MR. GROSSMAN: All right. And I think I misspoke. I said continue with the cross-examination. I should have said the direct examination --
MR. GOECKE: The direct examination.
MR. GROSSMAN: -- of Mr. Sullivan.
MR. GOECKE: So I've got 10 copies here. That should be enough for everybody.
MR. GROSSMAN: Thank you, sir.
THE WITNESS: Uh-huh.
MR. GROSSMAN: All right. So this will be Exhibit 175, which is documentation of Mr. Sullivan's Slide 25 calculations. Okay.
(Exhibit No. 175 was marked for identification.)
MR. GOECKE: Okay.
MR. GROSSMAN: Shall we proceed?

DIRECT EXAMINATION (Resumed)
BY MR. GOECKE:
Q And, Mr. Sullivan, perhaps we should go to -- do you have your main PowerPoint? Do we have Slide 25 that we can pull up --
A Yes, we can.
Q -- just to refresh everyone's recollection about --
A You want me to go to the PowerPoint. Let's see, Slide --
Q Okay. So this is Slide 25 from Exhibit 173, I'm sorry, 174, and when you testified on Monday, the fourth bullet point down beneath the table or chart there, it talks about the carbon monoxide eight-hour level, and tell us again what it is that that bullet point states.
A What I was doing in this particular bullet point was using carbon monoxide eight hours as an example, and the example was simply intended to show that because the queue source is relatively small, that even if we were to scale up from 20 cars per day in queue, as average, eight hour, which we modeled it, we scaled up to 32 cars, increased the queuing numbers, that it would make a small difference in the overall concentrations, and I mentioned it would go from 28 percent, if I used the 20, up to 32 percent if I used the 32. And if I can go to the PowerPoint, I can explain --

Q And just let me stop you. So your model assumption was that there would be 20 cars queued. After going to Sterling, after Mr. Guckert went to Sterling and counted the cars, they actually counted 32 cars in the queue on --
A As the maximum eight-hour.
Q As the maximum eight-hour --
A Correct.
Q -- amount. And so --
MR. GROSSMAN: As the maximum eight-hour amount or as the average eight-hour amount?
THE WITNESS: It was the maximum eight hours that he had, had measured in his study.
MR. GROSSMAN: Well, let me understand. It was the maximum queue during an eight-hour period; is that what you're saying?
THE WITNESS: Correct.
MR. GROSSMAN: Okay. Because you say averaging time on the left-hand side column.
THE WITNESS: Right. For the modeling we used the eight-hour averaging for carbon monoxide for one of the analyses, and so we identified the max eight-hour queue to match up to that modeling, and it was higher than we originally had approximated.
MR. GROSSMAN: I just want to make sure I

understand what that, those 20 and 32 represent. If I understand correctly, you made the assumption that the maximum number of cars in the queue during an eight-hour period would be 20; you found from the experience at Sterling that it would be actually 32, is that correct?
THE WITNESS: That is correct.
MR. GROSSMAN: Okay.
MR. GOECKE: Okay.
MR. GROSSMAN: I see.
THE WITNESS: So this was used as an example to indicate that even with a change being made to that particular source, that because it was a small source, that it would make a small difference in the overall situation, where we'd go from 28 percent of the standard to 32 percent of the standard.
BY MR. GOECKE:
Q Okay. And when you say of the standard, what are you referring to?
A I'm referring to the eight-hour carbon monoxide standard of 10,000 micrograms per cubic meter.
Q Okay. So the EPA's NAAQS standard is 10,000 -- what's the unit again?
A Micrograms per cubic meter.
Q Micrograms per cubic meter, and --
MR. GROSSMAN: And just for clarity of the record,

when you use the term micrograms and it's written out, you use a mu, as I -- like a u with a little extra line down the left-hand side. That stands for micro, correct?
THE WITNESS: Yes, sir.
MR. GROSSMAN: Okay. And the word is mu with an m, not a u. It's mu from the Greek letter mu.
MR. GOECKE: Okay.
BY MR. GOECKE:
Q Okay. And so that conclusion is that the contribution of carbon monoxide from, from the gas station operations, including the queuing cars, would still be at about, less than a third of what the Ambient Air Quality Standards are?
A Correct.
Q Okay. And now I believe it was Ms. Rosenfeld who raised the point that on Table 1-12 of your environmental report, the numbers didn't seem to correspond to that. Can we go to Table 1-12 now?
A Yes. This is from the supplement we provided yesterday, but this is the table in question, and I can explain the basis for the numbers. We're using, they were based upon the rural --
MS. ROSENFELD: Excuse me.
THE WITNESS: -- treatment.
MR. GROSSMAN: Hold on one second.

MS. ROSENFELD: Just for clarification, which exhibit are you talking about?
MR. GROSSMAN: What exhibit is Table 1-12 in?
THE WITNESS: It's in the, that's in the November 2012 environmental report. That's where I extracted this from.
MR. GROSSMAN: So that would be Exhibit --
MR. GOECKE: And it's also contained in the document we handed out today.
MR. GROSSMAN: All right. The environmental report is 15(a).
MS. ROSENFELD: And what page in that report?
MR. GROSSMAN: Table 1-12.
THE WITNESS: CO tables, I believe it's on page 68. Let me confirm that.
MS. HARRIS: Page 67.
MR. GROSSMAN: Page 67.
THE WITNESS: That's correct.
MS. ROSENFELD: Thank you.
THE WITNESS: So the focus is on the rural values, and if you look at the total modeled, which would be the modeling of the incremental Costco gas station plus everything else we modeled, which would be the ring road, University, all those things, that we find it's 2798, which is approximately 28 percent of the standard of 10,000.

So my, when I was looking -- on Monday I was looking down the row in the bottom, the background plus modeled, this value. That did not add up. That 28 to 32 is based upon the total modeled value prior to background. So in order to get the 32 percent --
MR. GROSSMAN: Well, let's, before you get to the 32 percent, let me just understand what you're saying. Under the column headed CO eight-hour on Table 1-12, right under 10,000 it says 2,798.
THE WITNESS: Correct.
MR. GROSSMAN: You're saying because that is approximately 28 percent of 10,000, is that correct?
THE WITNESS: Yes, correct.
MR. GROSSMAN: So that's where the 28 percent comes from?
THE WITNESS: Yes, sir.
MR. GROSSMAN: Okay.
THE WITNESS: So the next step, if I look at the gas queuing, you see the contribution there. It's approximately 619. We have separated out the impacts on the left column here such that you can take any individual cell entry and you can factor it if you choose to. The emissions will go linear with the concentration. So the 619, if you multiply that --
MR. GROSSMAN: Well, let me -- explain. What do

you mean by emissions will go linear with the concentration --
THE WITNESS: If I --
MR. GROSSMAN: -- what does that phrase mean?
THE WITNESS: If I were to double the emissions for the gas queue, I would double the concentration --
MR. GROSSMAN: Okay.
THE WITNESS: -- from that incremental source.
MR. GROSSMAN: Okay. Is it also linear with the amount of gas that's pumped?
THE WITNESS: No, not exactly, because these, these contributions include other sources, such as the ring road --
MR. GROSSMAN: Okay.
THE WITNESS: -- and so forth. It would not be, it would not be directly linear.
MR. GROSSMAN: Okay.
THE WITNESS: So we took, we have taken this 619 incremental gas queue, multiplied it by 32, divided it by 20. In other words, we've linearly scaled up those emissions -- and therefore it would scale up the concentrations -- by that factor.
MR. GROSSMAN: You multiplied it by 32 -- why did you multiply it by 32?
THE WITNESS: Because the previous slide was

showing that the actual maximum queue was 32 cars and we modeled it with 20 cars.

MR. GROSSMAN: Okay. Oh, I see. So you scaled it up by 32 over 20, in effect; there's a factor that you scaled it up by?

THE WITNESS: Correct, or another way to look at it, we've divided out the 20 --

MR. GROSSMAN: Right. I understand.

THE WITNESS: -- multiplied it times the 32.

MR. GROSSMAN: I understand. Okay.

THE WITNESS: So if you take that, that value you get from that mathematical calculation and identify how much that increased and added it on to the total modeled of 2798, you would get approximately 3200, which is 32 percent of the standard.

MR. GROSSMAN: Okay.

THE WITNESS: In the supplemental document, I provide those numbers and the basis for those calculations and also show what the difference would be if you had, we had used the total modeled plus the background, and in both examples it's a four percent increase shown. So that's --

BY MR. GOECKE:

Q And you're talking about Exhibit 175 that we handed out today?

A Correct, the current supplement. Now, there were

other aspects to that supplement. Should we go through those now or just --

Q Let's talk a little bit about those. So I don't want to get into a great amount of detail, but as I said a moment ago, this is an effort to respond to Ms. Cordry's request that some of the calculations done in the flip chart on Monday's hearing were a bit difficult to follow. And so if you could just generally describe what it is that you were trying to accomplish with those calculations on the flip chart and how they pertain to your conclusions in this case.

A Yes. After Monday I, I agreed that the flip chart calculations need to be quality-controlled and checked, and I'm sure that Dr. Cole and others would like to do so, and in this document I have provided the basis for those calculations so they can replicate the calculations themselves, and I'll just summarize. The, the first was we made the statement that there's quite a bit of embedded conservatism in the modeling.

Q And what do you mean by that?

A Meaning that because of the assumptions that we've made that act to overstate the emissions from Costco, that the modeling is substantially higher than you expect to get if you were to more accurately and less conservatively model those sources. We have built-in conservatism to overstate.

And I gave you some examples the other day, and this information here provides documentation that can be confirmed and checked, and this first one is, we mentioned the fact that the parking lot calculations that we made for those two Costco parking lots substantially overstate the parking lot impact from the entire mall.

Q And why is that?

A There were two main factors, and I give the basis, which I won't go through all of the details unless there's questions. The first was the time to get into a parking space and then the time to leave a parking space. We assumed it would take five minutes for the average car to find a place to park and then leave, so two-and-a-half minutes each way, and clearly that has a substantial amount of excessive conservatism because I'll challenge anyone to go into a parking lot, try to drive five miles an hour. I contend, I tried it a few a times. I can't go much less than seven-and-a-half miles an hour. You feel like you're walking.

So these calculations are based upon seven-and-a-half miles an hour. We show the distances to the lot in the center of the parking garage and the western parking lot and show that it really is more like two minutes. And so that factor alone acts to increase the emissions from the Costco lots by a factor of 2.5.

Q So, basically, you assumed that cars would be traveling for a longer period of time than in reality they probably will?

A Correct --

Q Okay.

A -- traveling and emitting much longer than they actually would, and the basis is provided there --

Q Okay.

A -- and we show the figures, and so the map can be replicated and the distances can be checked and so forth in the documentation.

MR. GROSSMAN: What you're referencing now is Exhibit 175? This is --

THE WITNESS: Yes.

MR. GROSSMAN: -- in your charts? Okay.

THE WITNESS: Now, the other assumption that we made -- and this is a general assumption -- is that within the mall, which would be the ring road, the parking lots and so forth, we don't have data specifically on how emissions change hour by hour during the day. We do have estimates for the roadways. So we made the conservative assumption that within the ring road and the parking lots, we would take the peak-hour traffic flow and assume that that happens all the time the mall is open. We purposely overstated traffic. And the intent of this overstating is to try to

reach consensus that we are not understating the impacts from Costco. And if you look, I mean, using the --

MR. GROSSMAN: The impacts from Costco gas station?

THE WITNESS: Incremental Costco gas station, thank you.

MR. GROSSMAN: Yes. We have to make the distinction because Costco has a warehouse too.

THE WITNESS: Correct, thank you.

MR. GROSSMAN: Okay.

THE WITNESS: So the, what we have done in this example is saying, well, using as a default estimate, let's use the hourly factors that we used on the roadways themselves to show you when the traffic tends to peak and when it tends to ebb and let's identify the peak value there relative to the mean, assess the peak-to-mean ratio. And when we do that, the peak is about 84 percent higher than the mean.

So using that as an indication of conservatism within the mall, we have a factor of 1.84 that would be multiplied times the factor of 2.5. Both of those factors combine to produce substantial overestimation within the parking lots.

MR. GROSSMAN: I don't understand. Why are you multiplying it by 2.5?

THE WITNESS: Two point five is for the fact that, much like the queuing, we assumed they went for five hours. They -- five minutes, rather -- they actually went, in parking, they went two minutes. So we overstated by a factor of five divided by two.

MR. GROSSMAN: Right.

THE WITNESS: In the case of the peak-to-mean, we overstated by a factor of 1.84 divided by one.

MR. GROSSMAN: All right.

BY MR. GOECKE:

Q So the 1.84 represents, you're modeling for 1.84 times the actual amount of cars that are probably going to be in the parking lots?

A Correct, because the peak, the p.m. peak, which is the peak, that doesn't happen every hour the mall is open --

Q Okay. And the --

A -- there's light and there's heavy periods. We assumed it's heavy all the time.

Q And the 2.5 represents the, the 2.5 times the -- I'm sorry. You multiplied by 2.5 because the duration for which you're modeling the emissions to come from the cars is 2.5 times what you would really expect it to be?

A Correct.

Q So it's 1.84 times the amount of cars that are coming to the mall and 2.5 times the amount of time that

they're actually driving around the mall?

A Correct.

MR. GROSSMAN: I understand what you did. Now I'm trying to understand why it is, what piece of useful information the factoring or multiplying 1.84 times 2.5 gives you. What does that number, the resulting number, what does that mean?

THE WITNESS: Well, when we, when we take those two numbers and multiply them and also multiply it times what fraction of the cars actually do go to those lots, you know, based upon the traffic study, we can project what the actual percentage of the total mall parking we're putting into those two parking lots at Costco, and these calculations show the four numbers that are multiplied to get there, as shown in the flip chart that's visible to the right of the screen.

That shows 38 percent of the vehicles that, you know, should be in the Costco lots times, we assumed 90 percent of the cars that were going along that portion of the ring road would pull into those lots, and then you see the multiplying times the five over two to account for the conservatism in the travel time, then times 1.84 because we used a peak emission rate. I showed in that calculation that that would end up, effectively, assuming that 157 percent of the parking lot emissions -- which is more than

100 percent, obviously -- occur in the two Costco lots which, obviously, that doesn't happen but that would give it a conservatism of approximately 50 percent overall.

MR. GROSSMAN: All right. So you're, in essence, you're doing that multiplication of these three factors in order to estimate a level of conservatism which you say is, comes out to about 57 percent more than the, the actuality would be?

THE WITNESS: That's correct.

MR. GROSSMAN: Okay.

THE WITNESS: And just one point of clarification that is in this document. When I wrote on the board 38 percent, it's actually 35 percent and that's clarified in my response.

MR. GROSSMAN: Okay.

BY MR. GOECKE:

Q And, again, the purpose of all these calculations is your modeling of what?

A It's really showing that the modeling was designed to overstate. I mean, generally, that's how modeling is done. We do not want to understate exposure or risk. I mean, that's how our practice has operated since we were established, and so that's the nature of why we did it. And we could have removed some of this conservatism. Our goal was to seek consensus, and we expected by having additional

conservatism that we could probably have a better chance of achieving that.

MR. GROSSMAN: All right. And, Mr. Goecke, when you provide, don't forget to provide me with --

MR. GOECKE: An electronic copy?

MR. GROSSMAN: -- a -- pardon me?

MR. GOECKE: An electronic copy?

MR. GROSSMAN: Electronic copy of Exhibit 175 as well, preferably in Microsoft Word.

MR. GOECKE: I will.

MR. GROSSMAN: Thank you.

THE WITNESS: We have a piece in here also clarifying the statements made in the flip charts that the idling of trucks at the Costco warehouse were conservatively addressed in terms of the idling time, and this explains it in detail. And I won't go through each calculation unless you want me to, but basically, the flip chart showed yesterday that based upon the MOBILE6.2 emission rates, that the cars -- the trucks would be, each one, idling 96 minutes. The policy of Costco is 10 minutes.

MR. GROSSMAN: Ninety-six minutes out of what period of time?

THE WITNESS: Each -- there's 10 heavy-duty trucks, 10 light-duty trucks that in the course of one day, each of those trucks would idle for 96 minutes.

MR. GROSSMAN: Wait a minute. Each of those trucks would idle for 96 minutes, or the total combined idling of those trucks would be 96 minutes?

THE WITNESS: Each truck. Each truck would idle for 96 minutes. I further clarify in this document, I mean, relative to the information that Dr. Cole has provided that shows that the MOVES model will produce more emissions at idle, that I have, if I were to scale up on that basis, it would be approximately a factor of 2.4 conservatism or 24 minutes instead of the 10. So I show it both ways in this documentation for clarity.

Either way, it's showing that the assumptions that we've made in terms of the trucks idling at the warehouse are overstating what they actually will be allowed to do by, by policy. And what that means is that if a statement were to be made that Costco modeling understates the impacts from warehouse operations, my response would be, well, looking at the conservatism, the approximately, at least a 2.5-fold conservatism, and looking at the proximity of the Costco warehouse to the neighborhood, the school, and the pool, that it's clear that we are not underestimating but, rather, overestimating the contribution from warehouses in general.

MR. GROSSMAN: All right. I have to say, I don't follow the figures involving the 96 minutes of idling time per vehicle. So hold on a second while I look at what you

said here. All right. Would you explain this to me again? How did you get to 96 minutes of idling time per truck when you say that's -- and how does that, how does that match the 10-mile, the 10 minutes of idling time per truck that Costco has as a national policy? I don't understand how that connects.

THE WITNESS: May I go to the flip chart to make it easier?

MR. GROSSMAN: You may.

THE WITNESS: In the supplement we provided today, we identify for the record what file we're referring to and what spreadsheet and what worksheet this 100, this value of 100 miles comes from. What we're assuming in the modeling is that for light-duty vehicles and heavy-duty vehicles, that the amount of miles that we're modeling the idle is 100. Now, I know when you're idling, you're not going anywhere, but in MOBILE6.2, the emission model we used, 2.5 miles an hour is the lowest speed and that's used for idling.

So we have 100 miles we're accounting for, and I'm just talking right now about heavy-duty diesel trucks --

MR. GROSSMAN: Well, where does the 100-mile figure come from?

THE WITNESS: The 100 miles was the assumption that we made, and I can, I'll derive it here now, but we

assumed it's 100 miles of travel. If you divide the 100 miles by 2.5 -- and the reason we're doing this division is because, according to the MOBILE6 guidance, that the model understates an idle and it recommends taking the emissions from 2.5 miles an hour and multiplying those times a value of 2.5.

BY MR. GOECKE:

Q Where does the 100 miles come from?

A Well, that was the assumption that we used, and basically, what the assumption means is we're assuming that each, each truck will be idling there for, for four minutes. We assumed a four-minute idle period for each truck during their operations -- four miles, rather, of idling --

MS. CORDRY: Could I --

THE WITNESS: -- per truck. That's our assumption.

MS. CORDRY: Is it possible to ask questions as we go along? Would it --

MR. GROSSMAN: I'm sorry?

MS. CORDRY: Can we ask questions as we go along?

MR. GROSSMAN: Well, let me ask the questions as we go along --

MS. CORDRY: Okay.

MR. GROSSMAN: -- and then I'll open it up to anybody else --

MS. CORDRY: Okay.
MR. GROSSMAN: -- who needs it for clarification purposes. All right. Why don't you repeat that, Mr. Sullivan.
THE WITNESS: In other words, the bottom line is we assumed that each truck would have the equivalent emissions of four miles. That was the assumption that we made. That's a given. So I was describing it ends up totaling 100 miles of travel and, because of the fact that --
MR. GROSSMAN: That's what I don't understand because four times 2.5 is 10, not 100. I don't understand where you get the 100 from.
THE WITNESS: Well, let me work backwards here. We have four miles per truck --
MR. GROSSMAN: Right.
THE WITNESS: -- times 10 trucks, is 40 miles.
MR. GROSSMAN: Okay.
THE WITNESS: And then we had the factor of 2.5 built in with this here, the fact that MOBILE6 is low on idling emissions. So we worked our way backwards. We take that 100. We divided it -- we divide it down to 40 miles because it understates emissions. Take our 40, is 10 trucks. It ends up being the equivalent of four miles per truck on idling emissions. So it works its way down to that

point and that was our, that was our basic assumption right here.
If it's four miles per truck and your trucks are traveling at two-and-a-half miles an hour equivalent, it's going to take 1.6 hours to get to four miles emitted. One point six hours is 96, is 96 miles, 96 -- 96 minutes, I'm sorry.
MR. GROSSMAN: Minutes, all right.
THE WITNESS: So it's 96 -- 96 minutes is what the actual assumption is, and actually, Costco's policy is 10 minutes. So, on that basis, it's approximately 10 times higher emissions than Costco's policy would allow. And the, like I said, the spreadsheets, all the way to replicate, you know, this value, which is the key value, is shown in the document that I will get to this morning.
I also clarified that if we were to use Dr. Cole's data, which describes the fact that MOVES does understate an idle, particularly emissions, by more than a factor of 2.5 -- and I don't contest that -- is that if we were to then apply that extra safety factor, it would go from being 96 minutes of idle down to 24 minutes of idle, but then it would be an approximate factor of 2.5.
MR. GROSSMAN: I don't understand that. Why would adding an extra factor reduce the amount of minutes that you're assuming per truck? How does that increase the --

THE WITNESS: The emissions would be two and a half --
MR. GROSSMAN: -- conservatism?
THE WITNESS: Each minute they operated, they'd emit 2.5 times more particulate emissions. They're emitting more per minute; therefore, you'd have fewer minutes.
MR. GROSSMAN: Well, I guess, I guess what I don't understand is how you get from that to any projections. So, okay, they're idling fewer minutes. I don't see how that particularly adds conservatism to your model. I just don't.
THE WITNESS: Well, if I go with that, with that approach -- and I will accept the fact that the 10x may be on the high side because, you know, MOBILE6 versus MOVES is an issue -- but if you work out the math and you look at the actual idling time, if you use the values more like MOVES, if we applied, increased our emission rates on MOBILE6, we would have an idle time in this case of 24 minutes to produce the amount of emissions that we're showing. Take 24 minutes we're projecting with MOVES, 96 minutes with MOBILE6.2, but Costco only allows them to idle for 10 minutes. So either way you look at it, it's either a factor of two-and-a-half or a factor of tenfold extra idling that's being allowed for as compared to what would be allowed by the policy.
MR. GROSSMAN: What do you mean by being allowed

for? You mean that your model is projecting a possible amount of pollution that's a factor of either 2.5 or 10 times the amount? Is that what you mean by allowed for?
THE WITNESS: That is correct. We're modeling more idling and, therefore, more emissions than will actually occur because of the policy that Costco has in place.
MR. GROSSMAN: So what you're saying is, your 96 minutes of idling time in your model is an overstatement by a significant factor over what will actually occur?
THE WITNESS: That is correct.
MR. GROSSMAN: And therefore your estimates of the amount of pollutants would be an overstatement of what would actually occur?
THE WITNESS: That is correct, and the relevance to this matter would be the fact -- the point has been brought up that we are not modeling all of the loading docks at the mall, and this analysis does not do that, but the fact that we're modeling Costco, the closest loading dock to the school, the pool, and the homes, by at least a factor of 2.5 conservatism, that that more than compensates for if we had tried to model the Target or the general loading docks at the mall.
MR. GROSSMAN: All right. Ms. Cordry, did you have questions for clarification?

MS. CORDRY: Okay. I guess the one question is, you say you're starting with 100 miles an hour, right?
THE WITNESS: Correct.
MS. CORDRY: Now, if that's understated, you should presumably be multiplying that by 2.5, shouldn't you, as opposed to dividing? It looks to me like you're really working the other way up. You're starting with the 40 miles an hour, and you're saying that translates up to 100 miles an hour --
THE WITNESS: No. Look at it --
MS. CORDRY: -- because of the understatement factor.
THE WITNESS: Look at it this way: We're saying that MOBILE6.2 direct output is two-and-a-half times low. So, so --
MS. CORDRY: Okay. So shouldn't you multiply?
THE WITNESS: -- the 100 miles really is equivalent to the 40 miles.
MS. CORDRY: Well, no. If it's low, it should be higher, shouldn't it?
THE WITNESS: Well, no. We -- this, this factor we put into all our modeling. In other words, for the queues we have a factor of 2.5 scale-up in all our modeling. I'm just taking this factor out of this equation, saying we're already accounting for that, and I'm using the 40 over

10 as my basis.
MS. CORDRY: Well, that's what I mean. You're really assuming a 40-miles-an-hour being driven around here: four miles per truck, 96 miles --
THE WITNESS: Well, if you look at the -- the spreadsheet will show 100 miles is built in there.
MS. CORDRY: Well, I understand, but if, I -- my understanding is, if you say a number is too low, you ought to be scaling it up, not dividing it.
MR. GROSSMAN: I had the same reaction, Ms. Cordry.
THE WITNESS: Right.
MR. GROSSMAN: So either you're, there's -- either there's something wrong with your model, something wrong with your explanation, or something wrong with us.
THE WITNESS: It's my explanation.
MR. GROSSMAN: I prefer the first two --
THE WITNESS: We're saying this is really, this is really 40 miles.
MS. CORDRY: Right. That's what I mean.
THE WITNESS: Right.
MS. CORDRY: It's over 40 miles an hour --
THE WITNESS: Right.
MS. CORDRY: -- is what you're saying these trucks are driving, not 100.

THE WITNESS: So that's why we do have -- I'm saying it's really 40 miles, that's why I'm showing this, and there's 10 trucks; so it's really four miles. If I didn't put this in, it'd be, it'd be more. So I'm acknowledging your fact. I'm saying it's 40 miles. It's not really 100 miles because MOBILE6.2.
MS. CORDRY: That's what I thought. We're not really talking about these trucks driving 100 miles; we're talking about the trucks driving 40 miles.
THE WITNESS: Correct.
MS. CORDRY: Okay.
THE WITNESS: And that's how -- and the math, it's shown in there. Hopefully that will clarify it.
MS. CORDRY: I think I understand it. I just understand that you're really not talking about 100 miles; you're talking about 40.
THE WITNESS: Correct. And so the main, the whole reason we're doing this is to try to put in context the Costco warehouse versus what would happen if all the loading docks were modeled, and I was hoping to provide some clarity that we have overstated the nearby loading dock at Costco and that if you had modeled Giant, Target, any of the other ones, it would be substantially lower impacts than you'd have here because Costco's is quite close relative to the other loading docks themselves.

BY MR. GOECKE:
Q So even using the 40 miles, you think it's still 2.5; it still overstates the actual emissions by 2.5?
A Correct.
MS. CORDRY: And just to clarify, we've actually got two different 2.5s going here that have nothing to do with each other. That 2.5 where you're dividing the four down there by the 2.5 --
THE WITNESS: Right.
MS. CORDRY: -- that's completely coincidental that it's -- that's a miles per hour, which is --
THE WITNESS: Right.
MS. CORDRY: -- it's completely coincidental with the other 2.5, and that's an --
MR. GROSSMAN: I understand.
THE WITNESS: Correct.
MS. CORDRY: -- underestimation of emissions. So --
THE WITNESS: Correct, yes.
MS. CORDRY: -- that's part of where we were getting confused before, that you had --
THE WITNESS: Coincidentally, the traffic, parking lot traffic was also two-and-a-half, just to make it confusing. I agree.
MR. GROSSMAN: Okay.

THE WITNESS: Is this, is this clear at this point?
MR. GROSSMAN: Ms. Rosenfeld, clarification questions?
MS. ROSENFELD: Yes --
MR. GROSSMAN: Okay.
MS. ROSENFELD: -- two questions. Number one, could we mark that as an exhibit?
MR. GROSSMAN: Sure.
MS. ROSENFELD: And number two, maybe it would be helpful if you identified it in words, at least, just what those numbers mean. Like, you have the two 2.5s.
THE WITNESS: Certainly. I mean, the 100 --
MS. ROSENFELD: Like, maybe, maybe write it on there so that -- in particular, 2.5s are confusing.
THE WITNESS: Okay. The 100 refers to miles, and this is in the spreadsheet file that's referenced in the documentation.
MR. GROSSMAN: Miles per truck, correct?
THE WITNESS: Total miles.
MR. GROSSMAN: Total miles?
THE WITNESS: Total miles.
MR. GROSSMAN: Oh, because you said it was -- oh, it's 96 minutes, I'm sorry.
THE WITNESS: It gets to be down to truck down at

this point.
MR. GROSSMAN: Yes, that's okay, total miles. Okay.
MS. CORDRY: And one quick question. Can you tell us which spreadsheet or what, where that --
MS. ROSENFELD: This one?
THE WITNESS: It's in, this particular spreadsheet is defined in the documentation we provided this morning.
MR. GROSSMAN: That's Exhibit 175.
THE WITNESS: Correct. It's described, it's described -- the actual spreadsheet and worksheet is described in that particular document.
MS. ROSENFELD: Table 1-12?
MS. CORDRY: No. No. He's talking about a spreadsheet.
THE WITNESS: No. We'll get further into it. I believe it's the emissions spreadsheet. I don't remember the worksheet, but it's described in there.
MS. CORDRY: Well, I'm just wondering where we would find that as an exhibit or a document.
THE WITNESS: It's in the document that describes the Slide 25. It's further back into the same clarification document.
MS. CORDRY: I mean, I know there's a reference to it. So I'm just wondering where that, physically that

spreadsheet --
THE WITNESS: It's in this document.
MS. CORDRY: Is it hyperlinked in there or something?
THE WITNESS: Let's see. It's in the -- idling of warehouses. It's the emissions dot xls spreadsheet, and the worksheet is emissions. That's where the 100 miles --
MS. CORDRY: I understand. I'm just saying, where is that file?
MS. HARRIS: Is it part of your --
MS. CORDRY: Is it hyperlinked into your spreadsheet?
THE WITNESS: It's part of our record that was provided a long time ago. It's --
MS. HARRIS: Of your main report?
THE WITNESS: Correct. It's our main modeling that we had done in November of 2012.
MS. ROSENFELD: So it's the, it's part of --
MS. CORDRY: It's in one of the appendices?
MS. ROSENFELD: -- of that.
MS. CORDRY: At some point, could we get identified where in the --
MR. GOECKE: Yes.
THE WITNESS: It would be a separate disk that we've given --

MS. CORDRY: Okay. I mean, I have the appendices disk. So I'm just --
THE WITNESS: Okay.
MS. CORDRY: -- if we could find where on that it is, I --
THE WITNESS: That does define it. The two and a half is a factor, although I'll call it a, a correction factor for lack of a better word, of MOBILE6.2 idle, idle emissions. That's the 2.5. The 40 is what we'll call, that could be called the effective miles, taking into account the 2.5 factor. And what is this exhibit number? I should refer --
MR. GROSSMAN: We haven't given it one, but we, we'll give it Exhibit 176, will be this whole page that you're working on now.
THE WITNESS: So I'm referring to Exhibit 176. So we end up with 40 effective miles, 10 trucks, heavy-duty trucks, four miles of travel, equivalent travel -- they're obviously not moving -- and then it ends up being either 96 minutes, if you use MOBILE6, and two-and-a-half, correct, is accurate, or ends up being 24 minutes if you use the 10x scale-up with MOVES versus MOBILE6.2.
The bottom line, either way, it's substantially higher than would expect to occur, and my judgment is that that will substantially overstate, not understate, the total

loading dock emissions from the entire mall.
MS. CORDRY: And just a last --
THE WITNESS: And we have modeling later on in this, in my spreadsheet that shows an example of what other loading docks do. So there are three key receptors we've been modeling.
MR. GROSSMAN: Would you write on that Exhibit 176, please?
THE WITNESS: Yes, sir.
(Exhibit No. 176 was marked for identification.)
MR. GROSSMAN: And that's called that written worksheet explaining model of emissions from the Costco warehouse loading dock. Is that a fair description of it?
MR. GOECKE: Yes.
THE WITNESS: Yes, sir.
MR. GROSSMAN: Okay.
MR. SHEVEIKO: Mr. Grossman, could we request --
MR. GROSSMAN: Yes, sir.
MR. SHEVEIKO: -- can Kensington take down the Marc Elrich nameplate from, from the desk so -- because it's in the line of a camera and I don't want the audience to think that Mr. Sullivan is Mr. Elrich. I believe it just slots out.
MR. GROSSMAN: All right, kind of like that.

MR. SHEVEIKO: If I could do that, slip it out?
MR. GROSSMAN: I guess you could pull that out. I think it's the next -- okay.
MR. SHEVEIKO: Well, you can keep Mr. Leventhal. I --
MR. GROSSMAN: Okay. Well --
THE WITNESS: Who is that? Oh, Marc Elrich, yeah.
MR. GROSSMAN: All right.
MR. SHEVEIKO: Okay, great. Thank you.
THE WITNESS: Should we move on?
MR. GROSSMAN: We should.
MR. SHEVEIKO: Thank you.
MR. GROSSMAN: Thank you.
THE WITNESS: I also made some statements regarding, because of the conservative nature of using EPA background terms --
MR. GROSSMAN: Yes.
THE WITNESS: -- and I made a statement, I showed a hypothetical example that there are approximately 3,000 eight-hour periods in three years, just take it as a number --
MR. GROSSMAN: Okay.
THE WITNESS: -- and if we have two independent sites, what are the odds that the peak eight-hour would coincide between the two, and I, I said it's about 10 in a

million that that, that would occur. I've embellished that example a little bit more here. That number stands. We can debate how independent each site is, and we can add some more clarifiers if we choose to, but my point is that EPA's procedure is extremely conservative, much more conservative than if we would have tried to model every single source of air pollution in the county and beyond. And the fact that this is done for all of the 8116 receptors we're modeling, we assumed that every one of them has its peak the same time as the highest monitor has its peak, it's conservative. And --
BY MR. GOECKE:
Q And what do you mean by that, you assume that it's the, that the level is the highest of any monitoring peak?
A We -- and this applies to the acute exposures, not for the annual, let's say; I should clarify -- it assumes that the highest measured value at any of the three sites in the region that we used --
Q And that's Beltsville, Arlington, or Rockville.
A Correct, the highest of those sites over three years, the highest eight-hour average in this example, that that value we're going to add to every modeled value we have. So we're assuming that there's coincidence between the maximum background value, as measured, and the maximum value for that particular receptor. That's physically

impossible to happen for all of those receptors. That's why it's implicitly a conservative approach.
EPA does that because of the fact that it's virtually impractical for them to require every factory, every chemical plant, every power plant that's coming into a region to do a study, to get three years' worth of measured air quality data for their site. It's impractical. It doesn't happen, really. It happens under extremely rare conditions. So the situation is, that's an EPA standard policy, is to do what we've done.
Q And when you took these peak levels, where did you get the peak? Where did you get those numbers from, the peak level numbers?
A EPA's database that shows the measured values. We extracted data from EPA's Web site.
Q And so the EPA publishes the data collected at Beltsville, Rockville, and Arlington, is that correct?
A That's correct.
Q And are those three locations EPA sites?
A They're accepted by EPA and reviewed by EPA. They're sites -- the one in Arlington is maintained by the Virginia Department of Environmental Quality, and the two in Maryland are maintained and operated by the Maryland Department of the Environment. So they're --
Q Are they --

A -- run by the states; they're submitted to EPA.
Q Are the states required to submit that data to the EPA?
A Yes, they are. So that's -- that procedure is standard procedure. When I've been talking about the loading docks and the parking lots and the various things here, I'm addressing questions that have been raised, but it's not standard practice on a modeling analysis to -- of this nature especially -- to be adding on parking lots and other loading docks for incremental gas station operation. I'm doing that for perspective.
The standard procedure is to model only the source in question and other nearby sources that'll create significant gradients in concentration. That's what EPA guidance calls for. We've done that plus more, and by this discussion today, I've just tried to clarify that our modeling, in spite of following EPA's procedures, has extra conservatism built in. Frankly, because there's been a lot of concern raised in the community, we tried to do the modeling in a way that would overstate rather than understate, again, to try to achieve consensus.
MR. GROSSMAN: Okay.
THE WITNESS: And, lastly, a point I want to clarify is that when we modeled gasoline delivery trucks -- there's four of them on average per day that deliver

gasoline to the gas station -- these trucks are diesel trucks; they are unlike the gas station operations. There's no diesel vehicles going to the gas station, but there are four, on average, four diesel trucks per day, delivering gasoline. These are not normal diesels. These are called clean diesel technology. Clean diesel technology has substantially lower particulates, ultrafines, and what's called carbon, elemental carbon, which can be carriers of organic chemicals and other toxic chemicals. So it's nothing like a traditional diesel vehicle.
However, because of the fact that we did not feel we had good coverage with diesel emission rates throughout the range of speeds from, say, you know, from low speed up to 30 miles an hour traveled on University, we ended up using, for all the roadway emissions, for those four diesel trucks, the standard 2013 diesel fleet emission rates, the .1, you know, gram per mile. We are substantially overstating, not understating, the diesel emissions -- another step that was taken to ensure that we did not understate any of the emissions affecting the community, the school, or the pool.
MR. GROSSMAN: I think somebody suggested that the air coming out of these clean diesel trucks was cleaner than the air going into these clean diesel trucks. Is that hyperbolic, or is that an accurate statement?

THE WITNESS: It, it, in my judgment, it can be accurate, and it depends on what the ambient air quality is in the city you're talking about, but these new diesel trucks, it's very different technology; plus they have very efficient filters built in. So it's certainly possible that the air coming out of the exhaust can be cleaner than the air going into the system, into the engine itself.
BY MR. GOECKE:
Q Do you know what the levels of particulate matter coming out of the clean diesel trucks is or are?
A Well, based on the information we've seen so far, I'm going to project -- and this can be clarified in the future -- we're modeling these emissions as .1 gram per second -- per mile, rather -- and it's most likely more like on the order of .04 based on the literature we've seen. So it's on the order of maybe two-and-a-half times less than what we're modeling, but the only time that we modeled diesels with that low .04 value was when we were confident they're going around two-and-a-half miles an hour and they're pulling into the entrance. So a very tiny amount of the travel we used that value, but to be safe, we used the high value for everything else.
So I want to make sure, when people are reviewing our model in general, they recognize that, you know, some of these steps are subtle but we've done our best to make sure

we don't underestimate these emissions. And I can state with great certainty that we're overstating, definitely not understating, the concentrations that will occur when this gas station is built.
MR. GROSSMAN: But I want to return to this question of the clean diesel trucks and the statement that yes, the air could be cleaner coming out than it is going in. Are you talking about all emissions, or are you just talking about particulate matter? What are you talking about?
THE WITNESS: I was talking about particulate matter that's filtered on the way out. The clean diesels do have lower emissions in general.
MR. GROSSMAN: Lower emissions than other diesel trucks?
THE WITNESS: Correct.
MR. GROSSMAN: But in terms of all emissions, you're not suggesting that all emissions from these clean diesel trucks is, are -- all the emissions are lower than the air going into the truck?
THE WITNESS: No, I'm not saying that at all, no. What I'm saying is that it's possible that the air coming, in certain environments, that the air coming out of the exhaust, because of the filtration system, could be less than the air going in.

MR. GROSSMAN: Could be less, you mean would have fewer particulate matter coming out --
THE WITNESS: Correct.
MR. GROSSMAN: -- not less emissions?
THE WITNESS: Fewer particulate matter coming out than went into the intake of the engine.
MR. GROSSMAN: Right, but other than -- but other emissions would be higher, is that correct?
THE WITNESS: Emissions --
MR. GROSSMAN: If you're asthmatic, you don't go sucking on a truck's exhaust to cure yourself?
THE WITNESS: No, sir. That would be a bad idea. There's many other, of course, chemicals in exhaust, including some carbon monoxide --
MR. GROSSMAN: Right.
THE WITNESS: -- but what's been stated in the peer-reviewed literature is that it's possible to have cleaner air coming out of the, in terms of particulate matter --
MR. GROSSMAN: Right.
THE WITNESS: -- than went into the engine in the first place.
MR. GROSSMAN: Okay. I just wanted to make sure we knew --
THE WITNESS: So that's just not my opinion but

that's peer-reviewed science.
MR. GROSSMAN: Right. I just wanted to make sure that we knew what was being said when that, when that figure was bandied about.
THE WITNESS: Correct.
MR. GROSSMAN: Okay.
THE WITNESS: I'm not suggesting the air coming out of a diesel, a clean diesel exhaust, is healthy to breathe --
MR. GROSSMAN: Okay.
THE WITNESS: -- directly from the tailpipe.
MR. GROSSMAN: All right.
THE WITNESS: Well, that, that completes that, that document.
BY MR. GOECKE:
Q Exhibit 175.
A Right.
Q That's right. And so let's turn back to your main PowerPoint presentation now, which is Exhibit 174, and I believe we left off at Slide 44.
A Okay. Starting with this slide, I wanted to clarify that in doing risk assessment, that -- the standard policy that the EPA has is that for residential exposures we should assume a person lives there 24/7 for 70 years. That's a safe, conservative way to address it. We know they

go off sometime and go places but, to be safe, that's the assumption, and we accept that assumption and did.
Q And is that your standard? Is that the EPA's standard? Where do you get that protocol from?
A That's in the EPA guidelines. I don't, off the top of my head, remember the exact guideline but that's been EPA policy for many years; that for cancer risk assessment, which I've done quite a bit for EPA, that we always assume a 70-year lifetime for residential exposures for toxic air pollution studies. However, when you have a situation like we're looking at here, where we have a swimming pool complex and we have an elementary school, it's not EPA policy to assume that people live their entire life at a swimming pool or spend their entire life at school. That's not a reasonable or plausible assumption.
So what we have done in our analysis when we show the risk assessment, we show it both ways. So for the school and the pool, we show what the risk would be if a child did stay there 24/7 for their entire life, but then we also show, well, what's the most time that a student could be at school and what's the most time that anybody could be at, reasonably expect to be at a swimming pool, and we made assumptions that I'll describe here that -- let me see, I went too far -- I'll make assumptions here that will, that I think are very conservative, hard to say that anyone would

be there longer, then end up reducing what's called the occupancy factor, how much they could be expected to plausibly be at that location. And when that adjustment is made, as you'll see, the risks at the school and the pool go down to extremely low levels, on the order of .003 in a million at both the school and also the pool.
MR. GROSSMAN: Now, what factor did you use to reduce the occupancy assumption?
THE WITNESS: I have a slide in here which I think is going to come up next. I can come back to this other slide. The assumptions that we made are listed in this particular slide. So in terms of the school, we showed the average life expectancy to be six hundred thirteen, two hundred thousand hours, 70-year lifetime, and we're assuming that the children go to school for 180 days a year, seven hours a day for 18 years. That gives a total exposure of 22,680 hours spent at school. If you divide that value of 22680 by the lifetime, approximately 3.7 percent of their lifetime would be at school.
Now, we can, other people can have different assumptions, but it's hard, the 18 -- they can only go to school basically for 18 years. I mean, that's a pretty reasonable number, and school is a seven-hour-a-day proposition, and the school year is 180 days, maybe give or take a day or two, depending on the year. I'm saying that

the number clearly is less than five percent. I believe that 3.7 percent is a substantial overstatement, but it's three percent approximately, 3.7 percent of a lifetime.

BY MR. GOECKE:

Q And that's if they were outside of the school or inside the school?

A I'll argue that the -- we'll assume the air is, the concentration is equivalent outside or inside, which is implied in our calculations.

Q Is that in fact the case, or is that a conservative assumption?

A It can go either way. I mean, the concentration of toxics inside a building can be higher than the concentrations outside.

Q But would that be because of the potential emissions from the proposed Costco gas station, or would that be because of the conditions that are inside the school?

A No. It's because of the materials in the school and the uses of, for example, water in the school. Water has chlorine in it and creates chloroform. The high levels of chloroform in most structures, especially a home -- when you take a shower or wash your clothes in the dishwasher or use your, I mean wash your clothes in the wash machine, use your dishwasher, you're creating chloroform. Take a shower,

you're creating chloroform. Take a shower at school, you'd be creating chloroform. Carpets can have formaldehyde in them. And so there's various -- air toxics can be quite a bit higher inside a building than outside.

What I'm assuming is that the emissions of benzene and formaldehyde from the gas station operations will be the same outside and inside. I'm only accounting for the contribution, incremental contribution, from the gas station operations themselves. I'm not assuming any reduction as it goes inside but to realize there's other sources of toxics inside the structure that's completely independent of this analysis that would be present.

Q Okay.

A So the occupancy factor for the pool -- similarly, a same lifetime value. A pool is open typically 75 days per year. We're assuming the child or the lifeguard, whoever that may be, spends eight hours a day at the pool, they do that for 18 years, they spend 10,800 hours, their lifetime, at that pool. That's 1.8 percent occupancy.

I want to go back to this calculation I skipped.

Q Yes.

A This just provided some, some background on how EPA uses risk assessment. When EPA does a risk assessment -- and we've done risk assessments for EPA that have gone to the Science Advisory Board -- is that EPA doesn't contend,

if the risk is six in a million, for example, that they'd expect to have six cases of cancer per million people. In fact, I've published reports with the EPA that very explicitly state that the risk could be a lot less than shown, in fact, could be zero -- and I can, I can provide the quote from EPA reports -- that it's a tool. In air toxics analysis, we use risk assessment as a tool to manage risk. You can manage risk on a relative basis in that manner, but it should not be implied that if we say the risk is one in a million, that it's actually one in a million.

Most of these cancer potency scores -- and in order to get risk, you multiply your concentration by a cancer potency score; a highly potent carcinogen has a higher number, gives you more cancer bases -- you shouldn't assume that that, the equivalent to expect a number of cancer cases. So I think it's very important that that be understood at the outset.

MR. GROSSMAN: What do the initials CARB stand for that you have in all caps in the first line?

THE WITNESS: The California Air Resources Board. That's the state air quality agency of California.

BY MR. GOECKE:

Q And why do you talk about the California Air Resources board on this slide?

A California is the only state that I'm aware of

that does have a regulatory structure that requires notification if your cancer risk assessment calculations -- and that's incremental for the source in question -- exceed 10 in a million. They have a notification where you have to notify the state that your new source is going to be above 10. If it's above 10, they would review the application to determine if further mitigation is required to reduce concentrations.

Q Have you ever worked on a project that has a level of more than 10 in a million?

A I have.

Q And what types of projects do those involve?

A I worked in the, in Charleston, West Virginia, the Kanawha Valley of West Virginia that has some of the biggest chemical plants in the United States, and in one instance, we found a cancer risk of one in 100 in residential property, which was resolved by the project. That was, that was solved, but I've seen it go as high as one in a 100. Does that mean that one out of 100 people, if they lived there, would contract cancer? It doesn't mean that. The cancer potency scores tend to be upper-bound values. EPA does the same thing that I'm saying we did here. They, you want to err on the side of health and safety, of protection, and EPA clearly does in these cancer risk assessment scores.

But for comparison purposes, EPA has done NATA --

they're called NATA, which is a program EPA has -- where they've modeled the Montgomery County area and much of the rest of the country, and based upon modeling of a number of pollutants, not everything that's here, but they came up with an estimate of 65 in a million as a background risk for this county. Recall that we're talking about risks from --

MR. GROSSMAN: Once again, identify what the units mean. Sixty-five in a million is what?

THE WITNESS: That by the risk assessment paradigm, 65 cases of cancer per million population.

MR. GROSSMAN: Okay.

BY MR. GOECKE:

Q So that's sort of the background expectation for modeling purposes about what residents of Montgomery County will develop cancer?

A Correct, and just to be, to be clear, that on cancer risk assessment -- this is just showing background for perspective -- cancer risk assessment, the way it's done in California and the way it's done, you know, at EPA, all the studies that I've done for EPA and others have done, it's done on an incremental basis. So if we're looking at a particular facility, let's say we're looking at a Union Carbide plant in West Virginia, that we're looking at the incremental risk from that facility. That's what's studied.

Now, it's also, EPA also has monitoring data in

the area too, and I've added this. That's one of the additions I put on here. This is from our report. Based on monitoring of a select number of pollutants, EPA projected 70 to 370 cases per million. This is not for 2013. This is an earlier time period and it's described in my report, but my point is that the general background values are on the order of, let's say, 50 to 400, somewhere in that range, based on modeling or measurements -- doesn't mean you're going to get cancer, but that's what the background values are. So when we say the risk from the Costco at the closest home is 0.5, it needs to be put in context with background concentrations.

The bottom line is that based upon the applicable urban modeling which applies to the three closest receptors, that Costco operations are significantly below one in a million cases, which EPA terms as de minimis, but again, in clarification, EPA does not have a regulatory program that has a standard for cancer risk assessment.

MR. GROSSMAN: Just so I understand what you're saying about the projection for the gas station at the nearest home, you're saying that that would be the incremental increase; that is, 0.5 cases of cancer per million at the nearest home would be the incremental increase estimated for the gas station?

THE WITNESS: That's correct.

BY MR. GOECKE:

Q Is it .5 or .05?

A It's .5-something, and we'll get to the slide, but it's, I believe if you use the urban values and the, account for the canister technology, that it's .5-something in a million, and we'll bring the table up, but my point is it's less, less, substantially less than one. That incremental value is from the gas station operations. So it would be the cars traveling along Georgia and University and Veirs Mill and the ring road to get to the gas station, the idling cars at the gas station, the delivery trucks, the minor spills, the major spills, fueling operation emissions, and vent emissions, and our risk assessment is based upon the four carcinogens that are emitted by these operations where EPA's I-R-I-S, IRIS database has cancer potency scores.

Q And so you said it's under -- it's well under one in a million, it sounds like.

A Correct.

Q And the CARB standard for notification level is 10 in a million?

A They require notification at 10, and I can again further clarify, we're doing modeling; we're saying, you know, a risk of .5, I guess .57, but it's .5-something in a million. That's looking at primarily 2013. There's going to be steps taken over a 70-year lifetime, from that point

onward, that'll further reduce the emission of volatile organics. As the cancer technology takes place and the Stage II is removed, as I mentioned before, VOCs will drop. President Obama has an initiative for 2017 to try to have further, 40 percent reduction of VOCs from mobile sources. These steps will all act to further reduce the carcinogens we're talking about in this analysis well beyond the modeling I'm showing here.

So when I say around .5 in a million, that's based -- that doesn't take into account the things that are in the pipeline that are going to further reduce those risks. And important to keep in mind that cancer risk assessment is a 70-year composite assessment. It's not for like the next year or just 2013. It's for the 70-year period of time.

MR. GROSSMAN: Did you do any, any modeling for what portion of that additional risk results from the operation of the gas station itself as opposed to traffic coming to it?

THE WITNESS: We could, we can -- our tables show the results as a function of source category. So we could tease that out of the results, and it can be shown in a particular -- in our report of November of 2012. I don't remember the exhibit number for that but that report does show that value.

MR. GROSSMAN: The reason I asked that question is

presumably, if there was some other pad use put there that would attract an equivalent number of cars to it --
THE WITNESS: Correct.
MR. GROSSMAN: -- those would kind of cancel out. So the question I'd have is comparing this potential use to other potential uses in terms of the incremental cancer risk from the use.
THE WITNESS: We can certainly tease out those values and provide that.
MR. GROSSMAN: Because I know you had a comparison of fast-food stores in terms of particulate matters. I'm not sure if they also covered potentially other forms of carcinogens.
THE WITNESS: Can you repeat that question? I'm sorry.
MR. GROSSMAN: You've made a comparison in one of your papers that you filed in this case between the increase in particulate matter anticipated from cooking a hamburger --
THE WITNESS: Uh-huh.
MR. GROSSMAN: -- in a, in a fast-food joint compared to running a diesel truck --
THE WITNESS: Right.
MR. GROSSMAN: -- and I don't know if you've made a similar kind of comparison to other potential uses for the

production of other forms of pollutants, not just particulate matter.
THE WITNESS: We haven't, but we certainly can, because it depends what use were to go into that facility. For example, we described earlier that there was a Montgomery Ward service station there. Well, a service station uses solvents, and solvents, called, you know, degreasers, are typically a focus of air toxics assessments. So they can have fairly toxic material used there, and for example, how, what would be the difference between a gas station compared to a service station, a gas station as Costco is going to operate, and that comparison could be made, but I do know from my past work that degreasing operations, depending upon the solvents they're using, can be quite, quite high in terms of risk.
MR. GROSSMAN: All right.
BY MR. GOECKE:
Q Can you provide us any comparison? So the risk from the gas station functioning at the site, what would that be comparable to? Would it be comparable to a fast-food location or --
A No. A fast-food location, in terms of particulates, would be substantially higher. I mean, I showed from the fast-food analysis that it'd be about 60 times higher than the gas queue, for example. You know, we

talked a lot about gas queues, I mean, we've talked about this for two years now, but you know, the situation is yes. I mean, if you look at the study done by the University of California-Riverside in conjunction with the California Air Resources Board, the study with the hamburgers, I mean, they show, you know, five grams of emissions per charbroiled hamburger on control. Five grams, that's a lot compared to what we're talking about here. I mean, the gas queue in the course of a day is producing, you know, 60 times less emissions of particulate matter, fine particulate matter, than a typical fast-food restaurant, and we're saying that using the average McDonald's as our template, and we're assuming that if it's charbroiled hamburgers, which emit a lot more than griddled hamburgers, that they have controls. We don't know for a fact that they do. We're assuming they have controls, 85 percent controls per that study that I referenced, and if you use those controls, you find that even at that level, it's 60 to one.
And so when we talk about mass comparisons, I brought my bottle of water here, and I think I have something else sitting right -- sometimes a visual can tell us stories better than I can with words. If I take a tablespoon measure and I compare it, I make a comparison here -- and unfortunately, do I have a tablespoon? This is a half tablespoon. Double this. A liter of water weighs

2.2 pounds. This is about how much particulate matter is emitted by a fast-food restaurant. Costco --
MR. GROSSMAN: In what period of time?
THE WITNESS: The course of a day.
MR. GROSSMAN: Okay.
THE WITNESS: And Costco would emit to about a tablespoon in terms of mass, as a rough comparison. So, you know, I'm not, I'm not suggesting that fast-food restaurants are dangerous. I'm not saying that. I'm saying on a comparative basis, fast-food restaurants, this kind of mass; Costco queue, two of these. And so --
MR. GROSSMAN: Is the particulate matter of the same nature that's produced?
THE WITNESS: It's similar in the sense that they both emit quite a, quite, you know, the fast-food emits quite a lot of ultrafine particles that Dr. Cole and I both have talked about a bit. Fast-food also emits carcinogens. So in those ultrafine particles, as have been reported in the literature, there are also organic chemicals in there that are carcinogenic.
So we can't assume because it's food, that it's benign, and that's the reason why in California, especially, they've been aggressively going after better controls on fast-food restaurants. In Maryland, we made contact with the Maryland Department of the Environment, and their

requirement is on opacity basis, you know, can you see visible smoke coming out, and if they're violating the opacity regulations, they most likely have to go to controls. But we don't know the control status, of course, of all these, these fast-food restaurants near Wheaton, but what we can say is, you know, if in a typical day it's one of these emitted by one --

MR. GROSSMAN: One of these, holding up a liter bottle.

THE WITNESS: One liter of water, 2.2 pounds approximately, we know there's over 50 fast-food restaurants in the vicinity of the Wheaton area, I show that in my report, so if we do the math, 3,000 to one, and I could add that fast-food restaurants are permitted quite regularly throughout the county and the United States. Costco emits quite a bit less particulate matter.

BY MR. GOECKE:

Q And so the cancer risk would also be lower for the Costco gas station than for a generic fast-food restaurant?

A Yes. I mean, I haven't run the numbers, but I certainly would expect that would be the case.

Q And the .5-in-a-million number that you came up with, is that number higher because of the conservative approach you took to your modeling?

A Oh, yes. Yes, it is.

Q So you actually expect that number to be lower?

A I've done calculations. If I were to assume, for example, that -- if I were to assume that the cancer technology on cars was fully kicked in, three or four years, and the penalty now of having two systems -- the Stage II and the canisters -- kind of conflicting, that I would reduce my cancer risk by about 40 percent; if President Obama's initiative to reduce tailpipe exhaust or VOCs by 40 percent is successful, that'll be another 40 percent, we'd be down, most likely, even on that, down to near the .2-to-million range, and again, it's a 70-year calculation.

MR. GROSSMAN: I don't think we can count on that.

THE WITNESS: No, I think you're right on that part. It's a proposal. Well, you can count on the fact that the canisters will be coming into effect because the cars, they don't make them without the canisters any longer. So that'll happen. So you take the 40 percent, multiply it .4 times, even, you know, .6; you're taking off about .25. We're down to the .2 to .3 range in a million once the canister technology kicks in, which will be well before 70 years down the road.

BY MR. GOECKE:

Q Okay. Let's move along to a slide. I believe you already covered 46. We're on 47 now.

A Okay. This particular slide is showing the cancer

risk assessment at Slide No. 47, and this is without considering the reduction for canister controls. I want to clarify, the reason in our report why we show what we call VOCs and then VOC 2 is, in our protocol we developed with Dr. Cole, we didn't, we didn't refine the canister emission rates.

Q And tell us again what a canister control is.

A Charcoal canisters are required in cars I believe from 2006 or so onward that are designed to capture the fumes, the gasoline vapors, when you fuel.

MR. GROSSMAN: This is an internal canister within the car?

THE WITNESS: Correct. It's on an on-board system.

MR. GROSSMAN: And how large is that canister, by the way?

THE WITNESS: I've never seen one.

MR. GROSSMAN: All right.

THE WITNESS: My car is 2003. So we didn't -- I don't have one on my car.

MR. GROSSMAN: So it's something, presumably, that's quite close to the intake for gasoline?

THE WITNESS: I really don't know where it is in the car --

MR. GROSSMAN: Okay.

THE WITNESS: -- and it's a, I expect it's a charcoal system that will absorb those vapors. Most likely it has to be replaced from time to time as maintenance on that vehicle, and it's designed to very effectively reduce gasoline marketing-related emissions. That's what --

MR. GROSSMAN: Okay.

THE WITNESS: -- it's designed to do, but we show the results both ways in fairness to Dr. Cole because we did not refine and put the canisters in initially. So we show it both ways. So when you see VOC 2, that's with the canister technology I included.

This is without that step. This is the more conservative analysis, and again, Slide 47 is showing incremental, incremental risks. And I'm showing that the total modeled values of VOCs, volatile organic carbon, I'm showing the risks in a million based upon the 2013 fleet. I'm looking at the, one, two, three, fourth row that's --

MR. GROSSMAN: Once again, this is cancer risks?

THE WITNESS: Correct.

MR. GROSSMAN: Okay.

THE WITNESS: This is all cancer risk. Look at the row that says risk per million, and here I'm showing -- and this is based upon urban dispersion coefficients -- I'm showing 0.84 for the home, 0.09 for the school, and 0.19 for the pool. I'm, I also show the 70-year concentrations of

VOCs.
BY MR. GOECKE:
Q And that's based on 100 percent occupancy modeling?
A Correct. And the line that says 70-year risk per million for projected fleet, this is where we say, well, we know the 2013 fleet is not going to be driving around for the next 70 years, and if we look at MOBILE6.2, we could get emission factors for cars going to the year 2035. So in this calculation we used an average fleet mix, and you know, it reduced the risk a little bit, from .84 to .77.
And, finally, we took into account the occupancy factors that are described in the previous, several slides ago, and the home, of course, stays the same at .77, but if we apply the occupancy factor, applied to the school and also the pool, they coincidentally come up with the same risk number: .003 in a million, which is a very small risk. So that's based upon the more conservative approach, not taking credit for the fact that the cars have canister technology.
Q So, now you said .003. How does that compare to the .5 that you were talking about a moment ago? Why is this number so much lower?
A Well, let me get to the .5. It's the, I was talking about the, the urban -- this is the urban value with

the canister technology. This is the 0.59 value.
Q So that's at the home?
A That's at the closest home, and again, people will be at their home. A person that was an invalid could be at their home quite a few number of years without going out. They could be -- you know, 70 years may be pushing it, but we're assuming 70 years, 24/7 they never leave their property. That stays. So 0.59 is the assessment we're making for the 2013 analysis we did here, but with the canister technology, the school and the pool are further reduced from .003 to .002. And we call that canister technology Scenario 2, and I'm on Slide 48 right now.
Q Thank you.
A So it's just two different ways of looking at the same analysis. The second way is more accurate in terms of accounting for canister technology controls on gasoline marketing operations.
Q Now, the next portion of your presentation deals with some of the criticisms that have been levied by members of the opposition.
A Correct.
Q And we're on Slide 49, going to Slide 50 now.
A Okay. So in -- and I'm trying to be, in fairness, you know, actually describe their positions. If I haven't done so, I'm sure they'll let me know later on.

MR. GROSSMAN: Let me stop you for one second before you get into that. Earlier on slide 45 you also had the projection of a risk of less than one in a million. Is that also from the volatile organic compounds, or is that from something else?
THE WITNESS: This is from the volatile organic chemicals.
MR. GROSSMAN: So all of these cancer risk assessments were pertaining to volatile organic compounds --
THE WITNESS: Correct.
MR. GROSSMAN: -- not to particulate matter?
THE WITNESS: That's correct.
MR. GROSSMAN: Okay. Is there a factor to be included for the particulate matter in terms of cancer risk, or is that not known?
THE WITNESS: Well, in this case here especially, the fact they're not, they're not using diesel, there's no diesel fueling going on at this gas station, and the fact that they're using clean technology diesel vehicles, that the particulate risks are so small that it would not be necessary or appropriate, in my view, to do a cancer risk assessment. It would be very, very small. The old technology diesels, of course, did have a concern for cancer. That's why they made them convert to new technology diesels, but the -- at this point in time, to the best of my

knowledge, there isn't even a cancer potency score for diesel, new diesel technology particulate emissions.
MR. GROSSMAN: Okay.
THE WITNESS: So the topics we're going to discuss here will be the following: ultrafine particulates, risks at the school and the pool, long-term monitoring programs for air quality/meteorology, more broadly modeling the sources in the mall area beyond what's required by the EPA standard background treatments --
BY MR. GOECKE:
Q Yes.
A -- allegations that terrain complications could end up producing higher concentrations in Kensington Heights than the modeling is showing and, finally, addressing the issues of school-siting criteria guidance as produced by the California Air Resources Board and EPA.
First of all, in terms of ultrafine particles, I think it's important to keep perspective. You know, there's no question that ultrafine particles are not good for you. We agree with that. It's not good for asthmatics to breathe high quantities of ultrafine particles or particles in general. We agree with that, but the issue in all these discussions really boils down to dose. Anything could be dangerous at a high enough dose, and pretty much anything is not dangerous at a low enough dose. Dose matters. So if

we're -- we need to separate and make sure we do parse this out because if we're just going to talk about how bad ultrafine particles are without providing context on dose, we're not really providing to the decision maker, you know, balanced information.

The reality is that based upon the modeling of all the incremental Costco sources, we modeled at the maximum location .005 micrograms. We shouldn't have even, we shouldn't have even modeled particulates for this project. In fact, we didn't in the beginning, and Parks and Planning, now looking back on it, quite appropriately, said you better model the fine, the particulates. We've done --

Q Why do you say it was quite appropriate for them to suggest that?

A Because it's come up as a subject. They recognized that. It was a very good point, but we've done, I estimated before, probably 20 traffic studies in the D.C. area. We've never analyzed particulates in those studies, not one of them, and they've been accepted by the D.C. government every single time because the limiting factor is carbon monoxide. And so we knew going into this project that the particulates from cars in 2013 technology is so low that there's no reason to be worried about any standard, but here we are, we've modeled it. We have .005.

I do agree with Dr. Cole that the MOVES model --

MR. GROSSMAN: Well, hold on one second before you get to the second point. I noticed that your heading says ultrafine particles but that first bullet point says fine particles.

THE WITNESS: Correct.

MR. GROSSMAN: Are you telling me that you're modeling fine particles or ultrafine particles?

THE WITNESS: We're modeling the class of particles called PM 2.5, which are all particles less than 2.5 microns. So ultrafines start at .1 microns. So we are modeling ultrafines plus particles larger than ultrafines and less than 2.5 microns.

BY MR. GOECKE:

Q So what's the difference between a fine particulate and an ultrafine particulate?

A Its size. I mean, the ultrafine particles are much smaller particles, very tiny particles. As Dr. Cole has pointed out, the particle counts with them can be much higher. I totally agree with that statement. The issue, my point here on this first bullet point is, if the fine particulate fraction is .005, the ultrafine fraction is going to be a lot smaller than that.

Q Why is that?

A Well, it's a subset of it. It's a subset of it. And so that if the background, for example, in this area is

10 and we're at .005, we know that the background ultrafine particle levels, especially near highways or fast-food restaurants, are going to be enormously higher than what we're going to have in this .005. So my point, yes, it's apples and oranges, as you appropriately pointed out, but it's a subset. Ultrafines is a subset. If you start with a very small number, the subset is going to be even smaller.

MR. GROSSMAN: Well, you defined it as a subset. I'm just wondering in terms of your measurement process whether it's in fact a subset or -- you just said a moment ago that you agree that there's a higher amount of ultrafine particulate than fine particulates. I don't understand how those two sentences jive.

THE WITNESS: Well, basically, we agree. Dr. Cole is absolutely correct that the MOBILE6.2, which is a computer program that estimates emission rates from mobile sources, it was tending to understate the fine particulate emission rates in general. Now, the guidance from that model says to scale up, for example, low speeds by a factor of 2.5, which partially compensates, but the new model, MOVES, shows on the order of tenfold increase at idle. So that's where this next slide, if I take my idling emissions and the effect that those have and instead of scaling up by 2.5, I scale up by 10, if I do that, my overall concentrations at the maximum home increase from .005 to

.01.

MR. GROSSMAN: Well, that's not true, not if you're -- not if it's a factor of 10.

THE WITNESS: Well --

MR. GROSSMAN: It should be .05, not .01, right?

THE WITNESS: No. That would be true if, if the queuing emissions were as large as the other emissions. I could show on the flip chart the math to go from .005 to .01 if that would be helpful.

MR. GROSSMAN: All right.

THE WITNESS: And I can back this up, if necessary, with the documentation. I know it's difficult to track flip chart calculations, but let me, let me put that in perspective.

MR. GROSSMAN: And, Mr. Goecke, would you make sure that when we finish for the day, that that exhibit marked 176 gets into our --

MR. GOECKE: Collection?

MR. GROSSMAN: -- pile of exhibits? Thank you.

MR. GOECKE: Sure.

MS. ROSENFELD: And will this be a new exhibit?

MR. GROSSMAN: Well, we haven't made it an exhibit yet, but let's see if it's, if you think it's worthy of being exhibitized.

THE WITNESS: So if you look at the, as we call

it, culpability tables when we show by source category what the contribution is for the closest home and the school and the pool, if you look at the culpability, you find that one-third of the impacts are from queues; two-thirds are from the gas delivery trucks, the roadways, and the entrance and the exits to the gas station. This is for, I'm talking about particulate matter. So, basically, you think of it this way: one part queues plus two parts other. That equals three, okay?

MR. GROSSMAN: Right.

THE WITNESS: So what we've done basically in our analysis, we take our one -- and we agree with Dr. Cole that MOVES has higher idle emissions; I expect that MOBILE6, they must have missed some of the fine fraction in their monitoring program -- so we say we agree, let's multiply it times 10. Now, we already have incorporated the MOBILE6 factor of 2.5. That's already in our numbers. So, you know, we've already, we've scaled up by a factor of 2.5. It should have been four times more than that, according to MOVES.

BY MR. GOECKE:

Q But again, you say you're scaling up by 2.5, but you're dividing it by 2.5.

A This is already in our modeling. We've already increased our emissions 2.5-fold. Dr. Cole suggested more

like tenfold. We agree with him. So 2.5 times four is 10. We're matching his number. Effectively, I'm increasing my numbers by four times right here.

MR. GROSSMAN: Okay.

THE WITNESS: Then I have my two over here. If you work out the, if you work out the math, that goes to now four. So I have, you know, four plus the two. I have six. I had three before. So it's the waiting factor and the fact we already had a scaler in there for two and a half already. Those two factors combine to end up, if I have a .005 at the closest home, that now becomes 0.01.

BY MR. GOECKE:

Q And why does the two in both equations remain the same?

A Because the, in this context here, the issue with, between MOBILE6 and MOVES, but they're primarily at low speeds, and at high speeds the models are much more similar, and we could refine this analysis, and maybe before this process is done, we will, but the issue is, gas delivery trucks, we know we overstated those. We already discussed that. The roads and the exits, we know we're overstating the roads. The ring road is overstated by -- we're using peak values all the time. So if we want to refine things, it's probably less than this. We probably would scale up to something less than .01. I'm simplifying the calculations.

There's a lot of conservatism built into this two-third step. And what exhibit number should I write on here, or is that something that needs to be done?

MR. GROSSMAN: Do we need this as an exhibit, this explanation?

(No audible response.)

MR. GROSSMAN: Okay. This will be 177. And while you're at it, show me the math. I still don't see the math that got you from .005 to .01. You say it yields it somehow. How does that six that you came out with move you from .005 to .01?

(Exhibit No. 177 was marked for identification.)

THE WITNESS: I started with -- I simplified this, this math here to say one plus two is three.

MR. GROSSMAN: I understood, and I understood you down to where you got to the six. Now explain how you get from .005 to .01.

THE WITNESS: Six divided by three is a twofold scale-up --

MR. GROSSMAN: I see. So that's --

THE WITNESS: -- and two times .005 is 0.01.

MR. GROSSMAN: I see. So what you're saying is you've increased it by a factor of two for this and that's why -- okay. I understand that now.

THE WITNESS: Correct.

MR. GROSSMAN: All right.

THE WITNESS: And, you know, our goal -- and we tried quite hard, as I mentioned before -- was to run MOVES. We're still trying to get the data to run MOVES, not necessarily for this project, but we do traffic studies. The guidance hopefully will come out this summer, but it's not here now, and so we're using literature to make this scale up. This could be refined, but as a ballpark number, this is probably pretty, pretty reasonable.

BY MR. GOECKE:

Q But whether --

MR. GROSSMAN: Okay. So how will we describe this exhibit? Written worksheet explaining how --

THE WITNESS: How the MOVES -- scaling up for the expected MOVES particulate emissions as compared to MOBILE6.2.

MR. GROSSMAN: Okay. How --

MS. ROSENFELD: The second bullet on page 51 of the PowerPoint --

MR. GOECKE: Slide 51.

MR. GROSSMAN: -- MOVES --

MS. ROSENFELD: -- that's what you were, you were explaining, right?

MR. GROSSMAN: Hold on one second. How MOVES

model scales up fine particulate matter from 0.05 micrograms per cubic meter to 0.01 micrograms per cubic meter, but I'm sure my administrative staff is going to ask where does she find a mu on the keyboard.

THE WITNESS: You can find it in Word. You go to symbols; it pops up.

MR. GROSSMAN: Okay. It's in symbols?

THE WITNESS: You have to get your Greek going and it's there.

MR. GROSSMAN: Okay. All right.

BY MR. GOECKE:

Q So the bottom line is whether to use MOBILE6 or MOVES. Would using MOVES change your ultimate conclusion here?

A Not at all.

Q And what is your ultimate conclusion about the potential dangers from particulate matter?

A This gas station is creating no significant impacts for particulate matter at all. The concentrations are so low relative to the background and other sources that it's really not an issue.

Q Okay. And let's talk about background levels a little bit. I see on Bullet Point 3 you talk about the standard for background levels of fine particulates. Tell us a bit about that.

A The background levels are relative to the standard, you asked? I'm sorry.

Q Yes.

A The standard was changed late 2012 from, the annual standard, from 15 micrograms per cubic meter to 12. The background that we have calculated -- and this, we've documented this in substantial detail -- by 2013 is 10.8. That's in agreement with the Washington Council of Governments. That's in agreement with the data, using the more conservative of the three stations that are in this area.

My point is, by 2014, when this station opens, the trend lines certainly suggest that the background concentrations should be on the order of 10 micrograms or less. That's what the trend lines show. The standard is 12.

Q And based on what trend lines?

A Based on the trend lines from Rockville, Beltsville, and Arlington, PM 10 -- PM 2.5, I'm sorry, concentrations. So it's relatively close. I mean, the background on fine particulate matter is higher than the, relative to standard, as compared to, say, carbon monoxide or nitrogen oxide. That's true. However, this particulate gas station is, as I'm showing above, is contributing at the maximum location 0.01.

Now, when EPA defines a standard, develops a standard -- in this case, 12 -- that standard is not developed so that at 12.01 or 13, you know, you're going to have health problems as defined by the Clean Air Act. What it's saying is that the 12 has a built-in margin of safety to protect the most sensitive members of society with a reasonable margin of safety. It's the U.S. EPA's administrator's job to make that judgment and that judgment is made in consultation with the Clean Air Act Science Advisory Committee, CASAC.

So they're a standing committee, part of the Science Advisory Board process at EPA that provides ranges to the EPA administrator based upon their review of the literature. And from that range the administrator has the sole authority to make the judgment of we're in the net range or outside that range that he or she chooses to regulate from, balancing the fact that some of these -- sometimes in the CASAC analysis they will have projections; they'll extrapolate down to very low concentrations in the case of, say, particulates, and there may, there may be a lot of uncertainty down there, and they also, they have risks that are quite trivial down there. It's up to the administrator to balance off the evidence-based analysis and the risk analysis, weighing uncertainty and severity of the impact to determine is this risk, does it rise to the level

of protection under the Clean Air Act or not. And I'll leave it up to the medical folks to talk in more detail about that, but this process is a weighing job by the EPA administrator based upon input from the CASAC committee and from a tremendous amount of public input by industry, environmental groups, and the general public.

So after this extensive process, EPA retained the 24-hour standard at 35 micrograms per cubic meter but made the determination that the 15 micrograms per cubic meter was too high, it was not sufficiently protective, and they dropped the standard down to 12. So when we're saying --

Q Is it fair, Mr. Sullivan, is it fair to say that if you're below the 12 standard, that there's no adverse health effects?

A Well, I think it depends how you define adverse health effect, frankly. I mean, for example, let's say that asthmatics would -- and I'm talking not as an expert in medical but just an example -- let's say an asthmatic would have a .1 percent decrease in lung volume, and I'll let Dr. Chase later get into that in greater detail, but is that significant? Is a .1 percent reduction in lung volume, does that rise to the level of the administrator saying, well, we're going to have to control it -- because that's, that could happen, and it's pretty uncertain, it's very uncertain down, projecting that far -- but should we have to lower the

standard to the point that we can protect that? The Clean Air Act doesn't say what adverse level the administrator has to protect to. That's a judgment call.

So it's hard to say. Is that an adverse effect? Well, the administrator makes that determination, but my, my argument is, if it's less than 12, it's meeting the EPA standards that are designed to be protective of public health and welfare with an adequate margin of safety. That's the only benchmark we have.

MR. GROSSMAN: What would the total measure be under your model, including background and the Costco gas station?

THE WITNESS: Ten point eight one at the closest home.

MR. GROSSMAN: Okay. I'm not sure that I heard an answer yet to my question about the ultrafine particulate matter versus fine. You said definitionally it's a subset of the PM 2.5 measurement --

THE WITNESS: Uh-huh.

MR. GROSSMAN: -- but in terms of actuality, is it measured? You know, how is it measured versus the fine particles?

THE WITNESS: They, they have different monitoring equipment to do the ultrafine, and there are studies, of course, that have been done near, near highways and other

locations where they measure particle counts for ultrafines, as well as mass with ultrafines -- a totally different technology. If your question is can I estimate what fraction of this .01 would be ultrafines, it certainly is possible to make a rough estimate of that. I can't off the top of my head. I'd have to do some research.

MR. GROSSMAN: Well, I guess my question was, went even further than that, is, is it actually a fraction of the .01 or is it something else entirely and maybe there are more parts per million per cubic meter than would be indicated by the .01 if you're talking about ultrafine particles? That's my question.

THE WITNESS: I think, if I understand your question --

MR. GROSSMAN: You're talking about parts; in other words, I guess you're talking micrograms. So you're talking a portion of a weight, but I guess in terms of number of particles, you would have presumably a higher number of ultrafine particles, and does that difference in the number make a difference in terms of potential effects?

THE WITNESS: Well, there's certainly people that believe that it will, and there's others, if you look at the literature, that says the jury is still out on that. The reality is EPA has not made the call on ultrafines. They're studying it right now, but you know, will they -- if they do

regulate it, will they regulate it by counts, by mass? What will the standard be? That's not known at this point in time.

MR. GROSSMAN: See, I just don't want us to be confused about the question of whether or not -- when you said it's a subset of the .01 micrograms per cubic meter, it's a subset in terms of weight but not in terms of numbers or particles, is that correct?

THE WITNESS: That's what I -- yeah, absolutely correct. I'm referring to weight when I made that statement. The particle counts can be evaluated, and I do have some slides that, you know, that get into particle counts to some extent, and we can get to those soon. And as I show later, I mean, the particle counts inside a home from various activities are quite a bit higher than particle counts near a freeway. I showed references, peer-reviewed references that support that, that statement.

MR. GROSSMAN: And that statement, you're referring to particle counts by number or particle counts by weight?

THE WITNESS: By number.

MR. GROSSMAN: Okay. And so it's your statement that at this point there are no agreed-upon conclusions regarding the impacts of the number of ultrafine particles versus fine particles?

THE WITNESS: There is no, let me put it this way, there is no EPA position at this point in time in terms of regulating ultrafine particles that I can find anywhere in the literature.

MR. GROSSMAN: All right. But that's not really responsive to my question, and I take that as some, a piece of information, but in terms of, in terms of impacts of the number of ultrafine particles, is there any consensus as to the health impacts in terms of numbers of ultrafine particles?

MR. SILVERMAN: Can I object to -- the question is excellent, but I'm not sure Mr. Sullivan is qualified to answer it.

MR. GROSSMAN: Well, he may or may not be, and I take that as a fair observation, and I'll qualify the weight I give his answer by that objection.

THE WITNESS: The honest answer, I don't know the answer to your question in terms of ultimately how, how they'll regulate and on what basis they regulate and what --

MR. GROSSMAN: I'm not talking about regulation. I'm talking about impacts. I understand -- and I think it's significant that it's not regulated if that's what you're stating --

THE WITNESS: It is.

MR. GROSSMAN: -- but I don't know that that's the

only question that I would consider. It may be. I'm not sure yet where I go on that as a legal matter but just wanted to know also in reference to the impacts of it, in terms of health, whether you know if there is any consensus regarding impacts in terms of numbers or ultrafine particles.

THE WITNESS: The articles that I've read on this subject indicate there's not a consensus --

MR. GROSSMAN: Okay.

THE WITNESS: -- that it's a work in progress.

MR. GROSSMAN: Okay. All right.

THE WITNESS: So we're down now to the, one, two, three four, the fifth bullet point. The issue is how important is .01 micrograms per cubic meter in terms of PM 2.5. EPA does define at what level -- and this is a Class 2 region in terms of how EPA designates air regions -- that 0.3 micrograms per cubic meter of fine particulates on an annual basis is where they define significance versus insignificance for an incremental source. Using .01, the scaled-up version, in comparison to .3 shows approximately a 30-fold lower concentration at the closest home to the Costco operation than what EPA defines as being significant. On that basis, I would conclude that the contributions of fine particulates from Costco are clearly not significant, even at the closest home.

MR. SILVERMAN: Can I just, can I ask a clarification? Could you tell us where this is?

MR. GROSSMAN: Where what is?

MR. SILVERMAN: EPA defines. Where does it define it?

THE WITNESS: The prevention of significant deterioration regulations show 0.3 in EPA's, you know, the guidance documents, 0.3 micrograms per cubic meter as a significance level for a Class 2 region, PSD.

MR. SILVERMAN: So it's PSD. So --

THE WITNESS: I'm using that as a benchmark example of how they define significance.

MR. SILVERMAN: Right. And so, and when you say that you -- I don't know how far to go, but it seems it would be helpful to know that there was, on January 23rd, that the Circuit Court --

MR. GROSSMAN: No, no, no, no, no.

MR. SILVERMAN: No? Okay. Okay.

MR. GROSSMAN: No. We'll do that -- you save any of that for cross-examination.

MR. SILVERMAN: Thank you.

THE WITNESS: And, finally, based upon the above, in terms of ultrafine particles, there's no objective or rational basis for concern based upon ultrafine particulate concentrations from the Costco gas station. And I'm basing

that statement on the fact that it's so far below what's defined as in a significance level that the fraction of ultrafines would be, have to be so small that there's really not a reason, based upon the available facts at hand, to conclude that ultrafines at this particular gas station are causing a health concern.

MR. GROSSMAN: Based on weight, but you say there's no consensus regarding numbers of ultrafine particles?

THE WITNESS: That's correct.

MR. GROSSMAN: Okay.

MR. GOECKE: And, Mr. Grossman, this may be a good point to take a break.

MR. GROSSMAN: All right. It's approximately 11:34. So we'll come back at about 11:40.

MR. GOECKE: Thank you.

(Whereupon, a brief recess was taken.)

MR. GROSSMAN: All right. Back on the record. So we continue with the direct of Mr. Sullivan.

THE WITNESS: I'm on Slide 53 at this point, of the PowerPoint presentations.

MR. GROSSMAN: Okay.

BY MR. GOECKE:

Q Actually, I think you might have skipped 52.

A Did I? Yep, thank you. Fifty-two we did skip.

I'll start on Slide 52. This addresses the issue of the four a day of the diesel, clean diesel fuel at the Costco gas station. To clarify it, it's four clean diesel trucks per day. To put that in context, if you look at Veirs Mill and Georgia Avenue, it's on the order of 100,000 vehicles a day. Basically, in the fleet mix for this area, 1.25 percent of those vehicles are diesels. That would mean that 1250 diesel vehicles per day are traveling in this area. Costco has four. The four Costco vehicles are clean diesel vehicles. The other vehicles, some of them are, some of them aren't. So this -- for perspective, it's important to keep that, that in mind.

I'm quoting from a peer-reviewed article here authored by Dr. McClellan, who, if I recall correctly, used to be the chair of the CASAC committee and quite a well-respected scientist.

MR. GROSSMAN: What's the CASAC committee?

THE WITNESS: The Clean Air Act Science Advisory Committee.

MR. GROSSMAN: Okay.

THE WITNESS: And these quotes are from him, his article, basically, that states that the emissions of particulate mass in new technology diesel engines, clean diesels, are substantially less than one percent of those from 1998 engines.

MR. GROSSMAN: What does NTDE stand for?
THE WITNESS: New technology diesel engines.
MR. GROSSMAN: Okay.
BY MR. GOECKE:
Q And do you know when the new technology diesel engines became available?
A They've been phasing in the improvements over the last 10 or 15 years, but the term clean diesel technology had a different significance. Around 2006/2007 is when their major changes kicked in.
Q That's when the major improvements took place?
A Correct. So those vehicles are being entered into the fleet. Costco is using those vehicles now. In terms of the nanoparticle numbers, ultrafine particles, contained in this new technology diesel engines, are well below typical urban ambient air concentrations -- that's the source of the article, the statements made earlier -- and amount to a 10,000-fold reduction when compared against older diesel engines not equipped with diesel controls as defined in Barone et al., 2010.
MR. GROSSMAN: DPFs are diesel controls?
THE WITNESS: I don't know exactly what the DPF refers to --
MR. GROSSMAN: All right.
THE WITNESS: -- but it's diesel control

technology. So when individuals bring up articles that discuss diesel technology prior to new technology diesels, it's apples and oranges, doesn't compare. And most importantly, the point that's made on Bullet Point 4 is that the new diesel technology is virtually free of elemental carbon particles. Those are the carriers for toxic air pollutants that can get into the lungs. That's a, although the carbon -- elemental carbons themselves are not as, and perhaps, as dangerous, the toxic constituents that basically absorb onto those particles are the primary cause of concern. Those have been substantially reduced in the new technology.
So this is basically a success story. EPA and industry have worked together to take a technology that environmentally was not healthy and has made it a lot more so healthy.
MR. GROSSMAN: Excuse me one second. Mr. Goecke, I remember it being said earlier on the testimony that Costco will utilize these clean diesel trucks, but I also remember it being said that this was, that the fuel was delivered by various suppliers, not by Costco itself.
MR. GOECKE: Right.
MR. GROSSMAN: And how do we know for sure that they will all use these clean diesel trucks?
MR. GOECKE: My understanding is --

MR. BRANN: It's actually a State of Maryland requirement.
MR. GROSSMAN: Yes. Why don't you identify yourself for the record, Mr. Brann.
MR. BRANN: I apologize. It's Erich Brann with Costco. That clean diesel technology is a State of Maryland requirement. So they all have to meet certain requirements to operate within the state. It's not just Costco.
MR. GOECKE: And that requirement is for gas stations or for --
MR. BRANN: It's for operators of diesel vehicles within the State of Maryland. It's a --
MR. GROSSMAN: Do we know whether they were given a specific amount of time? And I'll take it that your answers are still under oath, Mr. Brann.
MR. BRANN: I agree. No, I don't know the answer to that question off the top of my head. I know this change occurred in 2007 when the technology change occurred. It was based on a combination of the fuels and the technology catching up with, with the -- the fuels catching up with the technology. But --
MR. GROSSMAN: So I take it that the applicant wouldn't object to a proposed condition that all the fuel trucks be this clean technology?
MR. BRANN: No.

MR. GROSSMAN: Okay. All right. I'm sorry. Go ahead, Mr. Sullivan.
THE WITNESS: So to conclude on this slide, based upon the available literature, my conclusion is the diesel emissions from the Costco gas station are not significant.
Now, this is Slide 53, which perhaps will provide some perspective on particle counts that we discussed earlier, before the break, and what I'm really providing here are comparisons between indoor sources of ultrafine particulate matter. First is outdoor sources from mobile source emissions. So this Glystsos et al. article, published in Atmospheric Environment (2010), is providing particle counts on the y-axis of Slide 53 in terms of number of particles per cubic centimeter for various types of things that occur in a home, and you see frying onions is over 100,000 count; smoking, roughly 180,000; burning a candle, over 300,000; use of a hair driver, 250,000-plus; vacuuming, not so much, which is a bit surprising to me; burning incense, about 140,000. But this is from a different reference that's on the next page, but this is particle counts next to I-110 in Los Angeles. If anyone's ever been to Los Angeles and been on Highway I-110, it's a really packed road; it's jammed most of the day when I've been there. It's very highly, highly traveled --
MR. GROSSMAN: Is there any reason why we moved

from counts per meter to -- per cubic meter to counts per cubic centimeter?

THE WITNESS: That's how they report it in the literature, you know. We could have, we can convert them if you'd like, but this is how they -- this is directly from the literature itself. We could divide by a, let's see, by 10 to the ninth -- 10 to the sixth divided by a million we'd have to do, but that's, it's just a unit standard. It's --

MR. GROSSMAN: Well, I'm just trying to get an idea compared to your other counts, and it's --

THE WITNESS: Right. Divide it by a million, you could, you know, this would become -- instead of being 300,000, it would be what, .3 --

MR. GROSSMAN: Okay.

THE WITNESS: -- to .1. But the main point I'm making here is that this is 130 meters from a very heavily congested roadway. It's difficult for me to imagine a roadway much more congested than the LA freeway system -- a lot lower in the ambient air near a major roadway, including rush-hour traffic, than you tend to see inside a home with these activities. So just for context on a relative basis, hopefully that provides some context. Smoking, and I could -- as an example, smoking, when you smoke a cigarette, you're inhaling, according to the EPA, on the order of 100,000 micrograms per cubic meter of fine particulates, not

ultrafines, but fine particulates. The fraction would be probably relatively high.

So there's a lot of things done in a home that are, that can create much higher levels of ultrafines than a gas station that maxes outdoors at .01, mass-wise, micrograms per cubic meter. In fact, according to EPA's statement that I could reference if need be, if you smoke one cigarette, you're getting enough exposure from that one cigarette that, according to the .01 we've modeled here, you have to breathe .01 for -- .01 micrograms per cubic meter -- for 274 years to get the equivalent exposure from smoking a, one cigarette. So indoor sources and other personal activities can result in way higher concentrations of fine particulates -- I'm not discussing the ultrafine particles right here -- as compared to outdoor sources.

BY MR. GOECKE:

Q So let's be clear about that. So you just compared the amount of particulates from smoking one cigarette to the emissions from the proposed Costco gas station?

A Correct. My statement was that EPA has stated that smoking a cigarette produces between, you ingest between 25,000 to 100,000 micrograms of, 25 -- 10,000 to 40,000 micrograms of PM 2.5. If you smoke a cigarette over 15 minutes to get that exposure, it would take -- you'd be

breathing air of 100,000 micrograms per cubic meter of PM 2.5.

Q Okay.

A So if you were to divide that exposure by what you'd be breathing at .01 micrograms per cubic meter, breathing 24 cubic meters a day of air, which EPA usually assumes, you have to breathe for 274 years to get a comparable exposure to that one cigarette.

Q Thank you.

MR. GROSSMAN: You didn't mix your cubic centimeters with your cubic meters there in that comparison?

THE WITNESS: No, because -- I mean, my comparison was about fine particulates, no, sir.

MR. GROSSMAN: Okay.

THE WITNESS: Now, this, these counts I showed, those are the last two I showed in the previous, on Slide 53. I'm on Slide 54 right now. And the point I'm making here -- this is the LA freeway study, and the reference is shown at the bottom of Slide 54 -- and what's very significant about these two bar charts is that the smaller one, this one here, occurred during the morning rush hour.

So during the rush hour itself, when we have direct emissions affecting those monitors, we have numbers on the order of 11,000 particle counts per cubic centimeter. During the period of 11:00 a.m. to 2:00 p.m., past the

morning rush hour, the highway is probably still a mess but it's not, most likely, as jammed as it was in the morning rush hour. You notice that, even though it's off peak, the concentrations are higher. They went from approximately 11,000 counts to 17,000 counts, and as the authors in this peer-reviewed article state, that's, they're hypothesizing, that's due to secondary-produced particles on a regional basis. In other words, the regional air in the metropolitan area has many gases emitted by particles and other source of emissions. Under the influence of the sun and photochemical activities and other actions in the atmosphere, fine particles and ultrafine particles are produced in the atmosphere over miles of travel across the city. That's what you're seeing here, according to the authors.

So my point is, if the concern is ultrafines and EPA in the future is going to address ultrafine particles, it's going to go, in this case, go after automobile emissions and other sources that are created in that regional mixture of chemicals that's causing the creation of fine and ultrafine particles, and that's a good example of what occurs.

The article also goes on to state that the toxicity of these reactive pollutants is higher than the direct emissions in terms of toxicity and health issues, and that can be reviewed in this particular reference,

Atmospheric Environment, article published in 2009 by Varma et al.

BY MR. GOECKE:

Q Okay. And I believe your next slide starts to talk about ultrafine particulates and how they compare with fast-food restaurants or --

A Right. Now, do we, do we want to get into, this will be another -- what I'd like to do at this point, if it's acceptable, is go into -- we submitted a report on this. If I can use the report as my, my prop to talk from, because I don't have slides necessarily in here from that.

MR. GROSSMAN: All right. Which exhibit number are we talking about? Are you talking about your, from your original report?

THE WITNESS: No. It's the fast-food report --

MR. GROSSMAN: Oh, okay. Yes.

THE WITNESS: -- that was submitted several weeks ago.

MR. GROSSMAN: Right. I know the piece of paper you're talking about, and I have a copy of it here. Let me see if I indicated the exhibit number on my copy of it.

THE WITNESS: My question, Mr. Grossman, do we, do we want to get into a topic like that before lunch? Do you want me to start it now, or do you want me to do it after?

MR. GROSSMAN: Oh, sure. We're not hungry yet,

are we?

MR. SILVERMAN: Oh, we are.

MR. GOECKE: I think it's 125.

MR. GROSSMAN: All right. So this is -- I have two things. I have the Exploratory Assessment of Terrain Flow. That's not the one you're talking about. You're talking about the one from --

MR. GOECKE: 125.

MR. GROSSMAN: -- May 3, 2013, Focus on Fine Particulates Emitted from a Gas Station are Misguided and Focused on the Wrong Sources --

MR. GOECKE: I think that's right.

MR. GROSSMAN: -- is that the one you're talking about?

THE WITNESS: I don't think that's the title I had, but it was fast-food restaurants. It was the -- well, let me bring that up. I'll show you what it looks like.

MR. GROSSMAN: Yes. That does the comparison with fast-food.

THE WITNESS: Oh, yes, sir, that is my, that is my title.

MR. GROSSMAN: Okay. And I'm sorry, Mr. Goecke. What exhibit number was that?

MR. GOECKE: This is 125(a).

MR. GROSSMAN: Okay, Exhibit 125(a), and just so I

label it here, his other submission, the Exploratory Assessment of Terrain Flow, what was that one?

MR. GOECKE: We've got that as 125(b).

MR. GROSSMAN: Okay. All right. So let's turn to Exhibit 125(a) and --

THE WITNESS: And I'll just read this as an intro to that particular report.

MS. ROSENFELD: Pat, do you have an extra copy?

MS. HARRIS: No, I don't unfortunately. I don't have it with me, sorry.

MR. GROSSMAN: Is that okay, Mr. Goecke?

MR. GOECKE: I'm sorry?

MR. GROSSMAN: Do you want your witness to read that as an intro?

MR. GOECKE: Sure.

MR. GROSSMAN: All right.

THE WITNESS: The first point -- and this is Slide 55 -- is that fast-food restaurants are a common commercial facility in Montgomery County and throughout the United States. They're not an unusual source in any respect. I'm providing a quote in here from this particulate referenced study that introduces the topic that fast-food restaurants or any, any restaurant that grills food, especially those that use charbroiling, which has higher temperatures, create a fair, quite a high level in many cases of ultrafine

particles, and this statement here is that those levels can be similar to those near major freeways, and I'm sure it really depends on how close you are to the exhaust from these particular restaurants. But based upon that article, I, I went and looked further into the topic and produced the report that's Exhibit No. -- I'm sorry. What is it again?

BY MR. GOECKE:

Q 125(a).

A 125(a). And I can shrink this a little bit. I want to, I want to preface my remarks by saying this is not an attack on the fast-food industry. I'm not taking a position that they're dangerous and should be outlawed or anything like that.

MR. GROSSMAN: My wife says they're dangerous. So --

THE WITNESS: Oh.

MR. GROSSMAN: For different reasons.

THE WITNESS: Different reasons. But I am using it as a point of comparison and a point of perspective. And the issue, the issue here really is that -- I want to give this quote from Mr. Wallerstein, who at least was, I'm not sure he still is, the director of the South Coast Air Quality Management District, which is part of CARB that we discussed earlier, and his quote is: For comparison, the average diesel-engine truck on the road would have to drive

10 miles on the freeway to throw out the same mass of particles as a single charbroiled hamburger patty. Well, that, that was a true statement back in 1997 or so. It's more in miles now because, at this point in time, the 2013 fleet heavy-duty diesel-truck emissions is approximately .1 gram per mile and the hamburger puts out five grams. So do the math. It would be 50 miles of travel for an 18-wheeler at the current fleet, not clean diesel, but the current fleet, it would take, it would take 50 miles of travel on the freeway for the same amount, massive particles, fine particles, as a single charbroiled hamburger patty.

Now, in fairness, this statement is based upon uncontrolled emissions. The control is 85 percent. So you could reduce it. You know, obviously, it would go from, from 10 miles down to what, one-and-a-half miles in mine if it was controlled. In the -- one-and-a-half for the, for the current technology would be different, but it would probably be about, well, six or seven miles. But the point is taken that it may be surprising to a lot of people, it frankly was surprising to me that the emissions from these restaurants were as high as they were.

It's based upon a study, as I mentioned before, that was, that was sponsored by the South Coast Air Quality Management District. It was conducted by University of California at Riverside, and they developed chambers and

they would grill hamburgers in the chambers, and they would measure what the particulate levels were, mass as well as the particle counts, and they did that to determine if further controls were deemed necessary, and they also did it to determine what the effectiveness of controls would be. So that's the, let me go to the -- let's see where I want to go from here.

MS. ADELMAN: Mr. Grossman --

MR. GROSSMAN: Yes.

MS. ADELMAN: -- may I ask just for a point of clarification, the particles that the quote refers to are PM 2.5s?

MR. GROSSMAN: Just for the record, this is Ms. Adelman --

THE WITNESS: Correct.

MR. GROSSMAN: -- asking a clarification question. Go ahead.

THE WITNESS: Yes. They show PM 2.5. They also show particle counts in the report itself, but I'm referring to PM 2.5 right now.

MS. ADELMAN: Thank you.

THE WITNESS: So what we have done -- and this is for demonstrations purposes only. We aren't, you know, picking on Wendy's or Elevation Burger or any of the ones near the mall. We're just using some general numbers here,

and what I'm, what I'm showing is, first of all, this is Slide -- well, it's not a slide. It's Exhibit No. 125 --

BY MR. GOECKE:

Q (A).

A -- (a), and on the first column, I'm showing examples of different types of sources, and first I'm showing the griddle grilling of a hamburger, charbroiling a hamburger, because they evaluated both in the UC-Riverside study, how much emissions, grams per second, there are from a gas-idling queue at Costco, the incremental ring road from the four diesel trucks, and the 300-meter stretch of Georgia Avenue. These are grams per second, and this would be during the operational time period of the mall or Costco, and I'm assuming the same type of hourly, hourly factors for the fast-food as well. But the issue here -- this is uncontrolled in the second column, and I'm showing controlled emissions in the third column. And so basically you can see that the gas queue idling source -- and this is on average; this is based upon a 10-car queue, the average, annual average -- is .00008. The controlled griddle source is .001. That's, I'm saying it's approximately a 60-fold difference.

Q And again, when you say controlled, what do you mean?

A This is assuming that 85 percent of the PM 2.5

will be removed by catalytic converters or other filtration -- or filtration systems that are put in place at the restaurant. Now, they don't have to do this per se, and Maryland doesn't have a requirement, based upon our conversations with them, that if you do grilling of food, you have to have a catalytic converter, but they do have, as I mentioned before, opacity regulations in the books, and if you see it in the opacity requirements, you might certainly have force to put on a control device. But basically, what this is showing is that -- it puts the gas-idling queue in perspective, all I'm trying to do here, is that the, showing the potential for emissions from these sources is tremendously higher than the gas queue. Even after control, if you do the math -- I'm projecting approximately a controlled griddle operation where you're having the amount of hamburgers grilled like a typical McDonald's average -- you'd be putting out on the order of 60 times more PM 2.5 per restaurant than the gas queue at Costco.

MR. GROSSMAN: Let me ask a question about that. Assuming that these figures are correct in terms of the production of these particles, is there any study done as to whether or not the kind of particles emitted would have the same likelihood of being dispersed in the atmosphere over a distance compared to those produced by either diesel trucks or idling cars?

THE WITNESS: Well, I mean, the situation with the, with the exhaust fan at the, at the restaurant, it'll be, it'll be hot. It won't be like a smokestack hot, but it'll be relatively hot. It'll be coming out with some momentum with exhaust, and it'll then be, gather some dilution from the building its attached to.

So I would say in that context, yes, there'll be greater dilution than from the cars. I won't say it'll be a factor that'll make up the 60-fold different emission rates, but it would be, it would tend to form some additional dilution beyond what you get from the queues at the gas station, that's correct.

MR. GROSSMAN: Okay.

MS. CORDRY: Could we ask one --

THE WITNESS: We didn't do a modeling analysis to compare --

MR. GROSSMAN: Go ahead, finish your sentence.

THE WITNESS: We didn't do a modeling analysis to compare a fast-food restaurant's exhaust and model those emissions relative to the gas station.

MR. GROSSMAN: Right, because these are remarkable comparisons, but I just wonder whether their ultimate impact, assuming they're correct, whether their ultimate impact is reflected by the numbers. That's the reason for my question.

THE WITNESS: I would say, you know, considering if we had done a modeling analysis of a particular fast-food restaurant, which I'm not advocating doing, but if we did, that we would find, it would be somewhat less than 60. It would still be much higher than a gas station, but they would get some dilution from the fact that it does have an exhaust fan and it's not really hot but it's going to be hotter than the ambient air and that would tend to give greater dilution before it hits the ground.

BY MR. GOECKE:

Q But, Mr. Sullivan, to put it another way, are particulates from a fast-food restaurant different or more toxic than particulates from a gas station or from a candle or from other sources?

A The, this particular study I'm referring to did do some assessment of the VOCs, and if I could recall correctly -- volatile organic compounds -- and they did mention some carcinogens that are present in the exhaust stream from the fast-food restaurants. So I can say they both have carcinogens in them. Of course, tailpipe exhaust has, you know, 1,3-butadiene, has benzene in it, those are carcinogens, and the fast-food restaurant does as well. I can't, as I sit here today, do a direct comparison, do the analysis of, as Mr. Grossman said, the actual dilution conditions and compare the different carcinogens and the

potency of those carcinogens, but they both have them, and emission-wise, of course, the fast-food restaurant puts out a lot more mass of particles.

MR. GROSSMAN: Yes. So my question didn't go to toxicity. It went to how, how they would spread over the neighborhood.

MR. GOECKE: Okay.

MR. GROSSMAN: Okay.

THE WITNESS: And so I'm showing other points of comparison, but I think the main, the main take-home message here is, in terms of, of potential to emit and actual emissions that have control, that it would seem inconsistent if the County were to take the position -- this is just my opinion -- that, take the position that the emissions from Costco's gas queuing, for example, or the overall emissions from the Costco facility were a significant problem, but in this example here, there's, I think I counted 56, I have a figure coming up, 56 fast-food restaurants near the triangle comprised of Georgia Avenue, Veirs Mill, and University, and I'm just putting that for perspective.

And this, if I can shrink this down, this shows what I just said more graphically. This is a graphical comparison to the previous slide, and this is, this is again from 125(a) or (b).

BY MR. GOECKE:

Q (A).

A (A). Uncontrolled charbroiling, .0135; this is showing the grilling, grilling of hamburgers, and this is with control in place -- I can get the top of this -- yeah, with control in place; gas queue at Costco, very small; ring road with the four diesel trucks, and this is based upon using peak emissions all the time and assuming that we're using not clean diesel but 2013 fleet diesel, that's overstated; and then this is comparing a 300- -- I can't read my writing here. It's comparing a stretch of Georgia Avenue, and make sure I get this, I guess it's a 900-meter stretch of Georgia Avenue, those emissions for another point of comparison, so -- with the point well-taken that the dispersion is somewhat different. As you get, as you get any distance from that restaurant, those effects of the vent and so forth become less and less with distance, and the effect of this kind of a source on the homes nearby would be greater than this, much greater, than the gas queue and other sources at Costco, and that's my take-home message from this slide.

MR. GROSSMAN: Are those figures for the charbroiling and the grilling, are they with the pollution controls or not?

THE WITNESS: With 85 percent control.

MR. GROSSMAN: Those are with, okay.

THE WITNESS: And this is the map I was referring to earlier, and this was based upon doing a, a search, online search of fast-food. I've highlighted a couple of the, of the fast-food restaurants near the gas station, near Wheaton Mall or at Wheaton Mall, and as you can see, here's the location of the gas station, the school is located right there, and the homes are, of course, right in this area here. We have Elevation Burger, McDonald's, Arby's, Wendy's right in this area here, plus a few others that grill, and these are showing other restaurants, fast-food-type restaurants that are in the area. I counted 56 of them. I might have missed it. It's kind of hard to do this count. My point is, there's a lot of them. We've talked about what one would do. Composite-wise, of course, they're a much larger source than we're talking about from gas station emissions.

MR. GROSSMAN: So your motto is eat them, don't breathe them, right?

THE WITNESS: Correct, eat them and get away quickly. I didn't -- the rest of it can be read. It's documentation, but those are the slides that I intended to show.

BY MR. GOECKE:

Q Yes, thanks. Why don't we move back to the main PowerPoint presentation now.

MR. GROSSMAN: Mr. Goecke, how much longer do you anticipate Mr. Sullivan's direct?

MR. GOECKE: At our current pace, I think it will take at least an hour.

MR. GROSSMAN: Okay. Ms. Rosenfeld has promised to keep her cross under 10 minutes. So -- she's drinking something now; she can't even respond.

MR. GOECKE: Five-hour energy drinks?

MS. ROSENFELD: Do I need to respond for the record?

MR. GROSSMAN: Okay. Go ahead then.

THE WITNESS: In a lot of the public hearings that have been held for this project and in community meetings, there's been a lot of discussion about the risk at the school and the pool, and frankly, a lot of people have gotten alarmed based upon those discussions, based upon my participation in those meetings. And I've tried to make the point as objectively and honestly as I can that I feel that in some ways that some folks are getting alarmed when they really shouldn't be and particularly at the school, the Stephen Knolls School, talked a lot about asthma and how children are affected by particulate matter that have asthma, totally true, but to then try to link this to Costco's .01 micrograms and take the position, well, it's at 10.8 now and, you know, 10.80-something, small, will be a

problem, is just not supported by fact. There's no science that supports that position. We showed those data for the risk, for the cancer risk. It was .003. Some parents are alarmed about the fact the kid is going to get cancer going to that school because the gas station is going in. We heard this at public meetings. There's no rational basis for those concerns.

Secondly, if you compare the risk at the school --

MS. ROSENFELD: Objection. Mr. Grossman --

MR. GROSSMAN: Yes.

MS. ROSENFELD: -- Mr. Grossman, he's opining now on health effects, not risk standards, and I do think that's beyond the scope of his expertise.

MR. GROSSMAN: I'll take, once again, I'll take that objection as going to the weight of what he -- the weight to be given what he says. I think that, if I understand him correctly, he's basing this on a statistical comparison, not on an evaluation of health per se, if I understand correctly what he's saying.

THE WITNESS: I'm basing it on --

MS. ROSENFELD: I think you need to ask him what he said.

THE WITNESS: I'm basing it on, for example, on health risk assessment of VOCs. I'm basing it upon the California 10-in-a-million criteria for reporting, as an

example. And in terms of all the other pollutants, I'm basing it upon the Clean Air Act-established thresholds, which are established by experts in health. Again, I'm like the traffic policeman, seeing if you're going over or under the speed limit. I'm not setting the speed limit. If the limit on fine particulates is 12 and we're at less than 12, I'm making the statement that it's less than the standard that was designed to be protective, and therefore I'm concluding that it's acceptable based upon EPA criteria.

MS. ROSENFELD: To the extent his testimony is going to the standards, that's, that's fine. To the extent he's opining on the effect on health, I do think that's beyond the scope of his expertise.

MR. GROSSMAN: Right. I understand. I overruled the objection to the extent that we, that I discussed. That is, I think that it's -- I don't think you have to be a medical expert to comment on the standards that have been set which have a health aspect to them. So I think it's legitimately within his area of expertise as defined, having done so many of these studies as conceded in, in his, the opening voir dire.

THE WITNESS: So my point here -- and this is now talking about the National Ambient Air Quality Standards -- these are developed to be protective of the most sensitive subpopulations, with a regional margin of safety, and

specifically for children and asthmatics. That's in the Clean Air Act. That's not an optional thing for the administrator. So I'm accepting those as a meteorologist, not a health expert, that if we are under those standards in this modeling, that it's, that the air quality is acceptable. It is acceptable on that basis --

MR. GROSSMAN: By under those standards, once again, you mean compliant with those standards?

THE WITNESS: Correct.

MR. GROSSMAN: Okay.

THE WITNESS: It's less, the air concentrations are modeled in a manner that's extremely conservative -- overstating is under those standards -- that the air quality is acceptable. It's the only benchmark, again, that we have that's objective and can be reviewed in an objective matter. All standards in risk assessment guidance are met with wide margins at both the school and the pool, and on that basis, I'm concluding that the risks in terms of the incremental Costco gas station emissions are not significant at either one of those locations or in the neighborhood.

Now, this topic, No., Slide No. 57, is one of the areas that Dr. Cole and I have diverged on. Again, we, we had a good meeting. We tried to come to a consensus. We came a lot closer, and frankly, I wish we had more meetings because I did enjoy meeting with Dr. Cole. But this is one

place we didn't agree, and I'll do my best in laying out Dr. Cole's position, and I'm sure when he testifies, he'll let me know if I didn't do it quite right, but I'm going to try.

His position is that for this, for this gas station, that Costco should have done long-term air quality monitoring to more specifically evaluate the background concentrations at this location in Wheaton. Furthermore, his position was, because of the fact that there was some terrain complications -- that is, a hill close-by to the gas station that goes downhill towards the community -- that micrometeorological assessment should have been done at the location to bolster and support dispersion modeling. I mean, I think I'm fairly stating his position, and I would ask when he testifies, any of these things he can clarify if I'm not.

I'm a meteorologist. I've been a meteorologist, practicing since 1974. I've done micrometeorological assessment hundreds of times, put up MOD towers and collected data. I've never set up a meteorological station to support air quality permits. It's not done unless it's an extremely complicated case or a tall-stack power plant, you want to get winds way high up. It's just not the practice.

The practice is you use regional data, unless

you're in an extremely unusual situation, in a valley somewhere with no data, you use regional data in Washington, D.C., especially, to conduct dispersion modeling. I can't think of one instance in my career, which spans 39 years, where I've seen an applicant asked to collect data for a meteorological assessment in a manner like this, for an industry. I have seen it for power plants; in tall stacks it can happen. It's certainly happened for nuclear power plant sites, which I've done it there, but for a gas station, probably isn't a gas station in the United States that had a micrometeorological study done for it or a special air quality monitoring study done for it as well. It's just not standard practice. And with all due respect to Dr. Cole, who I, he's an excellent scientist and I respect his abilities, that is not, that's not a standard practice.

This would be very novel to ask Costco to do so because, for example, if we were to do a micrometeorological study in depth, you'd be collecting meteorological data for months, possibly for years. And, if you're going to collect air quality data to define background concentrations -- to do it the way EPA wants it done, it's a three-year study -- you'd be collecting data for three years.

BY MR. GOECKE:

Q And why do they require the three-year period?

A Because, if you have a small data set, it's unstable, meaning you may get real high values, real low values. When you have three years of data, you have distributions that are pretty stable. If you had another three-year period, it would tend to look similar, taking away the trends that may be happening in emissions. So that's, that's the practice. That's why EPA says use regional data but use it conservatively, take the high values and assume that happens all the time. I suppose if the applicant didn't want to do that and said no, I don't want to do that, I want to get my own data, they'd probably let him do it. He would delay the project for three years and spend a tremendous amount of money, and you know, and it just is not standard practice, is not necessary.

So we didn't agree on that point, and the meteorological data that we're using, which is National Airport, is very standard for modeling in this area. I don't believe we had a disagreement on using National for the modeling. I know Dr. Cole would like to have seen some, you know, local data, but we did, in our protocol, call for National Airport. That's what we used, and I will argue, in my professional judgment, that would be acceptable to Maryland Department of the Environment, Virginia Department of Environmental Quality, or any of the regulatory agencies I've worked with over the years. It's not -- it's a fairly

flat area; there's no terrain complications in terms of being near a valley or an ocean interface. It's not Charleston, West Virginia, where we have a winding river valley, we'll talk about later. It's a pretty flat area. In the modeling I've done in Washington, D.C., for the last 35 years, I never had any problem using National Airport. So I'll let that go at that.

We spent a lot of time talking about the modeling of the mall, and I won't, I won't go into great detail here because we've made that argument, we went to the flip chart, we have the supplement. My -- Dr. Cole's point, if I'm stating it correctly, is that in his judgment we should have modeled the mall more completely and we should have modeled the loading docks, the parking lots, and perhaps more. I don't want to put words in his mouth, but he felt that it'd been more accurate to model more things.

I'm an applied modeler. We do modeling all the time. When you're modeling a source such as this, you don't model all the facilities in the neighborhood. That's not what's done. You model those sources that have a significant impact on your key areas you're worried about. You might model more sources, that's true, but you're not going to do a broad modeling. I mean, I've modeled Baltimore, the entire -- eight counties of Baltimore. I've modeled Philadelphia, many cities for EPA. We don't model

every factory. We model all inventory factories. We don't model every gas station or dry cleaners or fast-food restaurants. We model it as a group. We'll cover them in a more simplistic manner, because it's not possible. You can't model everything. And this is one area why we diverged, and I did -- well, I think we both did our best to come to agreement. We both, you know, tried hard to do that, but I didn't agree to modeling beyond the sources we're modeling, and frankly, I didn't because that never ends. I mean, if we agreed to model the loading docks at Target, Giant, and the other places in the mall and all the parking lots, we'd then be modeling the fast-food restaurants and the nearby gas stations. I mean, where do you draw that line? I drew the line where EPA does. We're modeling per EPA's guidance. It's conservative, and I just, extending the scope would be, in my view, it wouldn't add to this project, it would tremendously complicate the scope and the review of the data, and would not be helpful to the finder of fact.

MR. GROSSMAN: Okay.

THE WITNESS: We've talked a lot about the parking lots, and just to leave the topic, these are the two lots that we modeled. This is the parking garage. This is the parking lots near, near Costco. There are other parking lots. There's other loading docks. What we did in this

analysis is that we, we said let's just do an analysis to say let's take a look at the Costco loading dock -- which we've already acknowledged is modeled high, at least two-and-a-half, 2.4 times too high -- and what would happen if we had assumed the same emissions would have come from the loading dock at Target and this general mall loading dock right here, also in the same general vicinity as Kensington --

MR. GROSSMAN: The right here, you're talking about the northeast corner of the parking lot.

THE WITNESS: Thank you. Yes, I am. So we modeled -- we put in the same emission rate we modeled at Costco, which has a lot greater volume of turnover of trucks, I presume, but I can't state this with fact, than probably Target does or the general mall does, and we assumed it happened the same as it did at Costco. Then we took the other parking lots shown in red. We put the same emission rates we have from Costco, which was shown, substantially overstated, and we used the same emission rates on all those other lots to say what would happen if we had modeled other loading docks on the parking lots, what effect would it have on the core three receptors -- the closest home, the Stephen Knolls School, and the swimming pool. And that's a close-up of the loading docks, that we modeled these two as well, and this is showing the results

of that analysis. This is showing the background in blue. This is looking at Slide No. --

BY MR. GOECKE:

Q I think it's 60, even though it's not numbered.

A Yeah, thank you. Slide 60, and this is adding those other loading dock, those two loading dock sources and the parking lot sources, as I just described, and the background is shown, which is almost the whole bar. The original mall is shown in yellow, and the contribution of those other, the more distant sources is shown in red. The increase is all less than .1 percent.

Now, why is that? I mean, basically, parking lot emissions are diffused over large areas, to start with. Also, in the current fleet, they don't emit very much particulate matter. We've discussed that before. Tailpipe technology controls emissions tremendously for cars. So that -- and they're also far away compared to Costco's loading dock, which is not that far from the ring road. So when you add that in, if we had done what Dr. Cole had asked us to do -- and I didn't agree to do it for all the sources, but I just did an example here -- it doesn't make a big difference. So, first of all, we've overstated both parking lots and the loading dock, and secondly, the other effective, the more distant locations is not significant.

Now we're getting into the terrain issues, and we

had, we did have a discussion about this. I admit, I enjoyed our discussion about terrain, and this will be a long discussion. I don't know if you want to -- I'll keep going if you want, but I'm getting a little hungry.

MR. GROSSMAN: Mr. Silverman says he's not hungry yet. So --

MR. SILVERMAN: Well, I could take a break.

MR. GROSSMAN: When you say this will be a long discussion, I don't know that it has to be a long discussion. I'm going to rely on Mr. Goecke to tell me if he needs to have a long discussion on that.

MR. GOECKE: Define long.

MR. GROSSMAN: I'm going to let you define long because I don't want to cut off whatever you feel is necessary to have in your record, but he does have a document that he's already filed, Exhibit --

MR. GOECKE: 125(b).

MR. GROSSMAN: -- 125(b), which describes his exploratory assessment of terrain flow. So you have to assess for yourself whether or not it's necessary to have a lengthy discussion of it --

MR. GOECKE: I don't --

MR. GROSSMAN: -- as opposed to a smaller discussion.

MR. GOECKE: I feel like we could cover this and

conclude by 1 o'clock if that was our time to break for lunch.

MR. GROSSMAN: Does that sound fair?

THE WITNESS: Conclude the terrain discussion before lunch?

BY MR. GOECKE:

Q Yes. Yes.

A Okay. That sounds reasonable.

Q Yes.

A I wasn't thinking hours.

MR. GROSSMAN: I was hoping for even less than 1 o'clock in terms of the terrain discussion, but --

MR. GOECKE: Okay.

MR. GROSSMAN: -- I'll let you guide it then, Mr. Goecke.

MR. GOECKE: Okay.

THE WITNESS: Well, I think it deserves, you know, at least a thorough assessment in the context that it can be an important point. Dr. Cole and I did not agree on this point, and maybe we're closer now with the data on hand, maybe we're not, but Dr. Cole's position was that the modeling that we've done, based upon EPA's AERMOD dispersion model, is limited and perhaps inaccurate would be a fair assessment because it doesn't do justice to the fact that there's a terrain complication here that could act to

increase concentrations in the neighborhood relative to what we say it's going to be. In other words, he's made the, stated the position in public meetings and in writing that in his judgment, that the model is understating for some locations, possibly for the school and possibly for the homes in Kensington Heights. So in that context, where it does cut to the credibility of the AERMOD modeling, which is all the modeling, I think it's important.

MR. GROSSMAN: Okay. So go ahead.

BY MR. GOECKE:

Q Yes. And so why don't you tell us briefly what you did to test his hypothesis.

A I'm sorry. Repeat that.

Q Yes. Generally, what did you do to test Dr. Cole's hypothesis?

A There was two major things that we did. First, during our protocol meeting, we discussed this point in -- we had the protocol in September of 2012. We discussed the terrain issue, and I don't disagree in principle with Dr. Cole that if you have a hillside and when it gets cold at night, that the air can run down the hillside like water runs down a river. That certainly can happen. And his point was, well, if it does that, it needs to draw in air from somewhere else, a vacuum would be created, it's going to draw air in from the plateau where the gas station is

located and could go downhill towards the homes. In fact, it could go counterflow. We could say the wind's going up the hill, you know, from the homes towards the gas station where in fact, potentially, if that situation occurred, it could reverse. So we could understate the impact at those locations. That was the hypothesis. I hope I'm stating it fairly.

MR. GROSSMAN: And after cooking a hamburger in those homes, they could poison the people in the gas station.

THE WITNESS: That's exactly right. That would be the concern. It just takes three hamburgers a day to equal Costco's queue.

MR. GROSSMAN: All right.

THE WITNESS: So the issue, the issue is, we agreed to run another model. We ran a model called CALPUFF. CALPUFF is a more refined EPA dispersion model that can define complex wind fields. So we ran CALPUFF. There's limitations in CALPUFF. It couldn't do the wall justice. There's no question on that because of the scale of that wall, but we ran, we ran CALPUFF as agreed, to assess what effect it had on the wind flow and to see what difference did it make, like, on a month-to-month basis in the concentrations being modeled as compared to what AERMOD was showing. And we show those comparisons, and -- in the

report -- and basically, if you compare side by side the concentration fields from AERMOD and the concentration fields from this more complex model, CALPUFF, they're extremely similar. There was not a significant difference. So that's the first major thing that we, that we did and, but I don't want -- I'm not sure that was convincing totally to Dr. Cole. He'll have to describe that himself, but we did our best.

We've run CALPUFF quite a bit. We run it in many of our studies. We simulated the situation here as accurately as we could, but even CALPUFF has limitations. So CALPUFF can do a lot of things with heat flux terms and differential heating and all the things that Dr. Cole and I talk about all the time. It doesn't do a great job with evaluating the influence of the heat island effect that occurs at a shopping mall. And so that led us to conduct what I called an exploratory study, and we'll get to that perhaps in a few slides, but first of all, before I go there, I want to put this in context, that we're talking about a circumstance that only happens when all these following conditions are in alignment.

So in order for the air to roll down the hill and affect the community from the gas station, first of all, the gas station has to be open; secondly, to reverse the flow, we have to have flow basically from the southerly quadrants

so that we reverse and go back to the, we can reverse the flow through this gravity flow business and go towards the homes; thirdly, this is a nighttime phenomenon. Yes, there's some unusual circumstances Dr. Cole and I could define when it could happen in the daytime, but it's basically a nighttime phenomenon.

BY MR. GOECKE:

Q Why is that?

A At nighttime, when you have light winds and clear skies, the ground surface cools, gets much colder, the air above it, and when that occurs, that cold air will tend to roll downhill. It's denser. It rolls downhill, like, again, water going downstream, and that can only happen when it's nighttime, when it's clear skies, and when there's light winds; otherwise, you don't get the conditions necessary to create that.

Q And so how often do all of those circumstances exist at the same time?

A We did an overlay of these five conditions and found, based upon the DCA Washington Reagan data set, they could occur four percent of the time.

Q Okay.

A So we determined that as the maximum potential. So in terms of annual average, like fine particulate concentration, that's a pretty small portion. So 96 of the

time that's not happening; four percent of the time it might happen.

Q Okay. Let's go to Slide 64.

A Now, the -- my position on this gravity flow situation is, there's a number of reasons why this is not going to be an issue for this project. First of all, the terrain, the terrain slope, if you go to the location and carefully look at terrain maps, as you go towards the, from the gas station towards the ring road as you go south, that ring road has an increase in terrain before it goes downhill. Looking at it carefully, there's a slope up. So the cold air doesn't drain uphill. It drains downhill, takes a path of least resistance. So it would have to go up and over to go down the hillside to go towards the community.

Now, that doesn't mean it won't deflect, come down, and go around the ring road, because the ring road basically, it does slope up to the south; then it goes downhill to the east. So we can have flow going downhill to the east. That's exactly, could happen potentially, but the issue that's come up there is, well, what happens if it goes towards the school, how will that affect the children at the school.

MR. GROSSMAN: Well, before you get to that, doesn't that -- how much does it go, does the elevation

change go up from the level of the gas station to the ring road?

THE WITNESS: I don't know the number of feet, but it's a small increase. It doesn't take much in terms of terrain flow to keep it from going, of avoiding going uphill, but it's a matter of feet. It's not like a large increase.

MR. GROSSMAN: But doesn't your supposition there depend on whether or not the particular pollutants are created at absolute ground level rather than five feet above ground level?

THE WITNESS: Well, most of the, many of the emissions, for example, the tailpipe emissions, are coming out of the exhaust of car when they're queuing, and there'd be -- we're assuming some mixing because the car is not, has some height to it. But, yeah, there'll be some -- it's certainly possible, I suppose, some of it could go up and over, but primarily, by the time it got to that point, we expect, if that were to occur, there would be an unlimited potential to go over that hill, first of all; plus, if there's a wall there, that wall would screen it from going up there anyway.

MR. GROSSMAN: Okay.

THE WITNESS: And so if the air is going to then go down to the east, downhill, the question then was, would

it go to the school. Well, first of all, the school is open from 8:55 a.m. to 3:10 p.m. Even if we allow some time in the morning for the air to flush itself out of the school, there's a turnover rate inside the, any kind of building. All the time you assume one air exchange per hour or so. So the nighttime effect of this, if this were to occur, would be diminished or eliminated by the time the children were in school. Secondly, if you look at the slope of that ring road when you go to the east, towards the school, that slope, general slope of that terrain at that point slopes away from the school but towards the mall itself. There's not a slope going the other direction.

The fourth point is that much of the year the, the wooded barrier that's between the gas station and Kensington Heights is heavily vegetated; there's leaves on the trees. That's not the kind of surface that would cool and run downhill. It's going to be warm relative to other, other ground. Like, Mount McComas, for example, will be cooler, you know, having that forested area.

So my position, taking all these factors into account, even though there's a four percent potential for these things to occur, the basic terrain, hours of the day, and the vegetation situation and the land use situation doesn't support the hypothesis, in my judgment.

BY MR. GOECKE:

Q Thank you.

A So, at this point, I should go to the terrain. I'm going to go to the terrain study.

Q I think we can just move along to Slide 65.

A Okay. Are you sure?

Q I don't think we need to get into that study right now.

MR. GROSSMAN: All right.

THE WITNESS: School-siting guidance. This has come up a number of times where statements have been made that the CARB and EPA's siting guidance indicate that schools shouldn't be built within so many feet, 300 feet or 1,000 feet, from a gas station. First of all, the report, if you read it carefully, does not say that. It's a guidance document the board has developed to support school systems that are considering building a school, that they can avoid situations that could be a problem for them, and gas stations is, in this example, is something they looked into. It doesn't say you can't build a gas station within any certain number of feet from the school, but it does recommend as a guideline that if you are exceeding their simplistic guidelines they show, that a more site-specific analysis can be done to more site-specifically evaluate the significance of the gas station on the school. That's what it says in both the EPA- and the CARB-siting guidance.

MR. GROSSMAN: And what is their recommended distance or standard?

THE WITNESS: CARB is 300 feet, as I recall. If you're within 300 feet of a gas station and 300 feet of a school, they recommend that, you know, a site-specific analysis can be considered as an option to refine the analysis.

What they use is called a screening procedure, and a screening procedure is something that we use in modeling to assess if further work is needed. So in a screening procedure, you're going to grossly overstate the impacts. So in this particular screening procedure that was used by CARB and also similar for EPA, they assume a hypothetical location where the wind always blows at one meter per second all the time, really light wind that produces a lot of limited dilution of the atmosphere, and they use a limited dispersion characteristic, which is called E stability. That happens at night. They assumed it happens day and night. They assumed that children are in the school 100 percent of the time for a lifetime. They didn't, what they do not consider is what's the prevailing flow from the gas station towards the school, what controls are in place for the gas station. These things are not considered at all. So in the case of Costco, the fact that it has a 99.7 percent vent control system is not considered in the

analysis.

So if you look at the guidance carefully, they both explicitly state the guidance is overruled by site-specific analysis. That is a universal position in modeling.

MR. GROSSMAN: This is going to be more than 300 feet from the school. Why is it an issue that you're addressing here? I'm not quite sure.

THE WITNESS: Well, it's come up as a point of concern. One of the guidance documents, as I recall, did say 1,000 feet. And so in that context, if I recall correctly, the, the distance from the special exception boundary to the school, I think, was 878 feet; so it's just a little bit less than that. But my point is, if you read the guidance and recognize that -- I mean, Costco spent, it'll be three years this September evaluating air quality effects from this gas station. It certainly has been evaluated in great detail. That would trump any screening assessment. That's just standard procedure.

MR. GROSSMAN: Okay.

THE WITNESS: This is in my November 2012 environmental report, and I don't think I have to read all of these, it's in the record, but the CARB screening document, as an example, says: This methodology should be considered a screening methodology. Gasoline station owners

or the district may want to prepare a site-specific risk assessment to more accurately quantify risks if a significant risk is indicated using this methodology. They also say a gasoline station owner may want to more precisely characterize the risks from an individual gasoline station using site-specific data if the risk appears to be significant based upon this screening methodology. Well, that's been done, and so any discussion of the nomograms in these screening documents is now replaced by a site-specific analysis.

Now, in some cases, there's been statements made that bring up federal requirements and imply that Costco should have been doing various things to comply, and this slide tries to clarify that Costco's operation is not a federal action. It's not a major project in terms of EPA's designations. EPA has something called EPA's conformity rule, which does apply to federal actions, applies to transportation projects in many cases. It's a regionally significant issue. It doesn't apply to a gas station. Secondly --

BY MR. GOECKE:

Q I'm sorry. You're just responding to some of the criticism the opposition has made?

A Correct. These are points that have come up.

Q Yes.

A There's a National Environmental Policy Act called NEPA. That applies to major federal actions. It doesn't apply to a gas station being constructed. And, finally, the prevention of significant deterioration is one of the aspects of the Clean Area Act. That, again, does apply to some sources but not to this gas station.

Q Okay. Next slide.

A And forgive me, Larry, but I did want to bring up a couple of points you've mentioned in the past. I wanted to clarify for the record that this is a gas station, and it's important that it not be characterized as something that it's not. This --

Q Your point here is that Mr. Silverman has mischaracterized what the proposed gas station actually is?

A Correct. He's referred to it as a gas depot, resembling emissions from a small factory, and also as a regional gasoline distribution center, which would be more like a bulk terminal that processes huge amounts of gasoline. So I just want to clarify for the record that, with all due respect, that terminology doesn't apply in this circumstance.

Q Okay.

A And my, my final slide. This gets into the issue that the business model of Costco is to combine shopping with purchasing gasoline, and the objective, of course, of

that is to, for Costco to make a profit obviously, but the benefit to the County is that does end up with combined trips for shopping and gasoline.

The point of this slide is, on the county level, what is this project going to do in terms of the environment? And the circumstance is there'll be more combined trips which would tend to reduce travel, reduce emissions; reduced driving emissions through centralization of shopping; reduced driving for Costco members that now drive outside of Montgomery County to purchase gasoline; and, finally, the fact that there's greater controls in place at Costco as compared to most other gas stations, the fact that it has an Arid Permeator to reduce gasoline marketing emissions by about 40 percent and, secondly, the fact there's an attendant always on duty to respond to spills and to help customers, which I don't see at many gas stations, that a gallon of gasoline sold at Costco will tend to be a cleaner gallon. So the build scenario with Costco in place on a county-level analysis would be an environmental plus.

Q So in your professional opinion, on balance, the proposed Costco gas operations were actually beneficial to the community from an environmental perspective?

A Correct.

MS. ROSENFELD: Objection. That was a leading

question.

MR. GROSSMAN: It was leading, but he actually --

MS. ROSENFELD: Ah, come on, ask him a question.

MR. GROSSMAN: No. He didn't assume something that the witness hadn't already stated. He just summarized what the witness stated in his prior two sentences. So I don't think that's a fair objection in this particular case.

MS. CORDRY: One quick question. Did I hear you say 40 percent as opposed to 99.7 percent?

THE WITNESS: I was referring to, I was referring to 40 percent reduction in gasoline. If I remember correctly, I'm speaking off the top of my head here, but the venting emissions account for approximately 40 percent. If we didn't have it in there, it would be 40 percent higher --

MS. CORDRY: Okay. So not 99 point --

THE WITNESS: -- and we can look at the record later and get the exact numbers, but it reduces gasoline marketing by approximately 40 percent.

MS. CORDRY: Okay. But is that slide correct that 99.7 percent versus a standard gas station, or was it, it just reduces 99.7 percent of the emissions?

THE WITNESS: Just the vent emissions. I'm not saying it reduces the gasoline marketing emissions by 99.7. I'm saying it reduces the vent component of gasoline marketing.

MS. CORDRY: Okay. But what I'm asking you, is that slide --
MR. GROSSMAN: Well, no, no. You're going too far --
MS. CORDRY: Okay.
MR. GROSSMAN: -- in what's not a cross-examination.
MS. CORDRY: Okay. Well, I was just trying to understand what --
MR. GROSSMAN: No, no, but you've --
MS. CORDRY: Okay. All right. We'll come back to that.
MR. GROSSMAN: -- you've made the point and he's clarified it, and so --
MS. CORDRY: Well, he hasn't, but we'll get back to it.
MR. GROSSMAN: I mean, anything else you can ask on cross-examination.
BY MR. GOECKE:
Q Okay. So that concludes your PowerPoint presentation. Just a few questions to revisit your background. In the course of your career, your clients, are they always Costco, are they always industry or commercial clients?
A No, they're not.

Q Give us an example of some other types of organizations or entities you've worked for.
A We have worked for many chemical companies as well as industrial operations, ranging from, you know, lead smelter to power plants and beyond, but we also have worked for the Sierra Club, Piedmont Environmental Council, Coastal Conservation League, Allegheny County, Pennsylvania, which is Pittsburgh, U.S. EPA, the U.S. Trade and Development Agency and the work we did in Indonesia recently, and the World Bank.
We've worked for a variety of clients, and in terms of these kind of projects, we, this is the first community-type project. Like I say, I've worked for -- of this nature -- I've worked for industry, and the last three I worked for the community. So I try not to get in any particular camp. I try my best, honestly, to be objective and just to call the balls and strikes as I see them, which is what I've done in this matter as well.
Q So in this situation, are you just telling Costco what they want to hear?
MR. GROSSMAN: Well, no. That's, I think that's gilding the lily a little too much. He's already testified he's tried to call the balls and strikes as he sees them.
MR. GOECKE: Okay. I think that may conclude his testimony. I'd like the opportunity just to review my notes

at lunch. I might have a few follow-up questions after lunch, but otherwise I think we're done.
MR. GROSSMAN: Fair enough. All right. Well, it sounds like we're at a good breaking time for lunch. It's five to 1:00. Shall we come back at 1:45?
MR. GOECKE: Thank you.
MS. HARRIS: Thank you.
MR. GROSSMAN: That'll be the time.
(Whereupon, at 12:55 p.m., a luncheon recess was taken.).
MR. GROSSMAN: All right. Back on the record, and before we begin, you know, I realize, Mr. Goecke, I didn't mean to discourage you if you wanted to have the witness go into the terrain flow study he did. I didn't mean to discourage you if that's something you wanted to do. So I just wanted to you let you know that.
MR. GOECKE: No, I appreciate that, and we had planned to initially, but I think that we've covered it. It's part of the record, and if we need to get into that more --
MR. GROSSMAN: Well, none of the exhibits have been technically admitted yet. So I --
MR. GOECKE: True.
MR. GROSSMAN: -- I just wanted you to understand that in factoring it all.

MR. GOECKE: True.
MR. GROSSMAN: Okay.
MR. GOECKE: But, no, again, I appreciate that, but I think we're ready to move on, and I have no further questions for this witness.
MR. GROSSMAN: Okay. Is there any cross-examination?
MR. SILVERMAN: Yes.
MS. ROSENFELD: A little bit.
MR. GROSSMAN: And who wishes to proceed first?
MS. ROSENFELD: Mr. Sullivan said he'll start.
MR. GROSSMAN: Mr. Silverman?
MR. SILVERMAN: Yes. Yes.
MR. GROSSMAN: All right. You may proceed.
CROSS-EXAMINATION
BY MR. SILVERMAN:
Q Good afternoon, Mr. Sullivan, nice to see you again.
A Good afternoon.
MS. ROSENFELD: Silverman.
BY MR. SILVERMAN:
Q Mr. Sullivan, you've submitted quite a number of reports, and I just want to review them, and tell me if I've got them all. In December 20th, 2011, you did the report, some 400-and-some pages long --

MR. GROSSMAN: What exhibit number are you talking about?
MR. SILVERMAN: I don't know, I don't know if this is an exhibit. Did you folks introduce that report?
MR. GOECKE: All the reports we submitted are on the exhibit list. So has, if you're asking, has he prepared reports --
MR. SILVERMAN: I didn't see it on the list.
MR. GROSSMAN: So I don't know what report you're talking about. So --
MR. SILVERMAN: Well, I think Mr. Sullivan does, and maybe he could tell us about it, but I'm just, I'm just trying to get -- there's a lot of reports, and they started in December 20th, 2011.
MR. GROSSMAN: Do you know what report he, that Mr. Silverman --
BY MR. SILVERMAN:
Q Is that correct?
A I don't remember the dates of the reports, Mr. Silverman, but the most recent report that would, that would supersede the preceding reports would be the one in November of 2012.
Q I see, but so, but you did --
A And the supplements too.
Q -- you did a report on December 2011?

MR. GROSSMAN: Is this in another, in the previous case, you mean?
MR. SILVERMAN: Yes. Well, it's --
BY MR. SILVERMAN:
Q Is it not correct, Mr. Sullivan, that that report reflects your measurements at Sterling on which you rely and relied consistently?
A I don't remember the dates of that study. We did do a study that discussed some monitoring conducted at Sterling.
Q Right. And on the 23rd of March, 2012, did you submit another report?
A Again, I don't remember the dates. We have submitted a number of reports, that's true.
Q And on July 2nd, 2012 --
MR. GROSSMAN: He says he doesn't remember the dates. So what's the point in asking him over and over again about dating. If you have a document you want him to identify as some report that he has submitted, then you certainly may show it to him, but in fairness to the witness, he said he doesn't recall the dates. How you identify it by an exhibit number or show him a report you're talking about --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- and then he can say if it's

something he submitted.
BY MR. SILVERMAN:
Q So I don't have these with me, but would you, is it correct to say you did three significant reports for the previous application?
MR. GROSSMAN: Well, where are we going with this, Mr. Silverman? What's the, what is the question relating to previous, the previous application? I want to know --
MR. SILVERMAN: I am --
MR. GROSSMAN: -- are they in my record now that, that I'm looking at, or is there something that's been submitted in reference to this application, because I don't know what you're talking about. So it's difficult for me to be able to deal with your questions.
MR. SILVERMAN: Well, my reason for asking about these various, the previous statements is to see, is to test their consistency or lack of consistency.
MR. GROSSMAN: And it's perfectly acceptable to test a witness in terms of prior inconsistent statements, if that's your object --
MR. SILVERMAN: Right. Right.
MR. GROSSMAN: -- but you have to be able to show him --
MR. SILVERMAN: Gotcha.
MR. GROSSMAN: -- the statement that you're

talking about, in fairness, and you're identifying it in a way that he cannot recall the particular date.
MR. SILVERMAN: Okay.
MR. GROSSMAN: So I don't want to restrict your cross-examination, but I want to make sure we're all playing on a level field here.
MR. SILVERMAN: Fair enough. Fair enough.
BY MR. SILVERMAN:
Q With regard to exhibits submitted in this case, you did a report in November, a report in December, and a report in January, is that correct?
A November 2012 --
Q Yes.
A -- December 2012, and January 2013 --
Q Yes.
A -- that's correct. Two of those reports are the same, in other words, the report that was submitted in December, and the other report that replaced that was submitted on January 16th of 2013. There's really two reports.
Q Two reports. And can you tell me -- two of them are the same, one is different -- can you tell me why you submitted the two reports, three, but two -- when you say they're the same, the two last reports are identical?
A What I said was the December 2012 and January 2013

reports were the same report. So the 2013 version replaced the December version. It was an update of that report.
Q Okay. And the January 16th, is that a different, is that a -- what's the difference between that one and the previous two?
A The November of 2012 report was our main environmental report, stands by itself.
Q Right.
A We had met with staff at Parks and Planning in December and January, and the nature of those meetings was that they had requested that we present the data in a different light that was more consistent with how they usually look at applications like this. So they wanted to show -- show us the existing sources, show us the sources in the pipeline right now, which at that point was Dick's and Costco, and then show us the incremental, which is the Costco gas station.
So we did those figures as they asked; we showed the modified version, as I recall, of the background treatment that we also discussed in meetings; and finally, in those reports we clarified a small error in one of the terms in the, some of those tables that we showed in our reports, and we made that clarification.
Q Okay, good. Looking at your résumé, you have quite a lot of publications. You got one Review of Airborne

Emissions from Agricultural Fumigants: Design and Uncertainty Considerations for the Use of the Integrated Horizontal Flux Method. Do you remember that?
MR. GROSSMAN: What page of the résumé?
MR. SILVERMAN: This is page 9.
MR. GROSSMAN: I mean, I presume that -- I'm going to let you do it to some extent, even though it sounds more like a voir dire question --
MR. SILVERMAN: No, no, I'm not --
MR. GROSSMAN: -- in terms of his expertise, but they actually asked him a question after that regarding his past experience. So I'm going to let you go in, to some extent, to this. What page is this?
MR. SILVERMAN: Page 9, and I think it's 15 Exhibit.
MR. GROSSMAN: And that's Exhibit 17 --
MR. SILVERMAN: 17, right.
MR. GROSSMAN: -- F as in Frank. Okay.
BY MR. SILVERMAN:
Q Yes, I just, I don't, I'm not questioning your qualifications. I just want to ask you the meaning of a term you used here.
MR. GROSSMAN: Okay.
BY MR. SILVERMAN:
Q Uncertainty considerations, what's that mean?

A We -- that report, I believe, was published in 2012. Can you give me the date, please?
Q Well, it says, here it says: in press August 10th, 2010, Journal of Environmental Quality.
A Right. That was --
Q But I just, I'm just questioning the term uncertainty considerations?
A That study was describing -- a report, rather, a paper -- was describing work that we do in computing emission rates. It's an agricultural pesticide application. So it's doing the source characterization such as we've done here for power plants, no, I'm sorry, for gas stations, where we're using emission rates. Well, we developed emission rates for pesticides in response to EPA registration requirements, and that particular paper discussed the fact that when you use the method, the integrated horizontal flux method to compute flux -- flux means the emissions rates in the atmosphere -- that when you compute the emission rates, that there's a 95 percentile confidence bound around those emission rates, and we described statistically how to do that as part of that paper.
Q So by uncertainty, you mean -- can you say in sort of layman's terms what you mean by that?
A Well, if you have a best estimate of what your

emission rate is in this sense, let's say you say it's 10, well, you're saying, well, based upon the statistical analysis of the underlying data, that could range from, you know, five to 15 let's say, and the, the intent of an uncertainty analysis is to bound that based upon the standard error of the calculation procedure.
Q Do you recall at the, at the Planning Board hearing Dr. Brycee, one of the health experts from Johns Hopkins, saying that the type of modeling -- the accuracy of the type of modeling you do can vary by a factor of two. Do you recall him saying that?
A I think I recall that, yes.
Q And do you recall that you agreed with that?
A Well, I don't remember agreeing, but I can tell you what -- I don't remember agreeing to that. I'm not saying I didn't.
Q Do you agree to it? Do you agree that that's a fair statement, that the type of modeling -- let me refine it -- the type of modeling that you do, even if done correctly, could vary by a factor of two?
MR. GROSSMAN: The type of modeling he's done in this case, or the type of modeling referenced in the publication that you had mentioned?
MR. SILVERMAN: No, no, not that publication. I just wanted to get to the word uncertainty. I'm sorry. I

don't mean to distract you.
MR. GROSSMAN: Okay. So we're back to --
MR. SILVERMAN: Yes, right.
MR. GROSSMAN: So it could be very -- the question is, if I understand correctly, whether it could vary by a factor of two? Is that --
MR. SILVERMAN: Yes.
MR. GROSSMAN: Okay.
THE WITNESS: Well, if you're referring to modeling of air pollution as opposed to other ways of modeling deposition and other treatments, air pollution in my experience, the studies that I've done, I mean, I've done model-performance testing at the urban scale for EPA, and on a long-term basis, we, I've typically found within a factor of 50 percent. In some cases we've seen a factor of two, and EPA takes the position, in the range of 50 percent to a factor of two, plus or minus, in terms of uncertainty. That's my experience.
BY MR. SILVERMAN:
Q Did you state that anywhere in your written reports?
A Did I state an uncertainty range?
Q Yes.
A I did not.
Q I'd like to ask you about standards. I think the

issue which was raised by the Hearing Examiner is, how do you make judgments absent standards? Is there a, is there a standard for volatile organic compounds? Is there a National Ambient Air Quality Standard?
A There is a standard. It's designed to support ozone analysis. So there is a standard, but in this case, we were referring to VOCs in the context of risk assessment.
Q Right. So there's no, there's no air quality standard for benzene, for example, per se?
A No, there's not, not at the national level.
Q So does that mean you can't make intelligent judgments about benzene impacts at different levels?
A What do you mean by make intelligent judgments?
Q I mean, the fact that there's not a particular National Ambient Air Quality Standard, that doesn't mean that you're precluded from using other methods to make decisions as to whether something is safe or not safe, is that correct?
A Well, an analyst could decide to do whatever he or she chose to do. I'm not sure I understand your question.
MR. GROSSMAN: Well, I think I do. So let me ask you to follow up on that. The suggestion here is, let's take benzene, there's no national standard for it. Is it appropriate to use some other methodology, other than this standard, to assess potential effects on health?

THE WITNESS: Well, what, yes, what we did is -- I think maybe that's in response to your question -- we looked at benzene, which is one of the four pollutants that's covered by a cancer potency score in EPA's IRIS database. So there's no standard per se, but we looked at the cancer risk assessment within the community based upon EPA's cancer potency score.
BY MR. SILVERMAN:
Q So it's possible to do a cancer risk assessment even absent a standard?
A Certainly.
Q And to rely on it? It's prudent to rely on such an assessment?
A Who's going to rely upon it? I don't, I'm not following your question.
Q I mean, a risk assessment on a particular pollutant could provide the decision maker with reasonable grounds to make a decision?
A Well, I would think so. We have done a risk assessment in that context that's in the public record.
Q Right. And is there a, is there a standard for ultrafine particulates?
A No.
Q Would it be possible to do a risk assessment on those?

A At this point in time, I don't, I don't know of any EPA or other agencies having a position on what's a safe threshold for that. So my answer is I don't think that would be possible to do at this point in time.
Q Yes. When you talk about the standards, you say they, you said many times they have a wide margin of safety. Now --
A I didn't say that.
Q Pardon?
A I didn't say a wide -- I said they have, the administrator has the responsibility to maintain a reasonable margin of safety.
Q A reasonable margin of safety. And to take account of vulnerable populations?
A Correct.
Q So two years ago what was the standard for, for PM 2.5 particulates? What was the standard?
A Which averaging time?
Q Let's say the annual standard.
A It was 15 micrograms per cubic meter.
Q Now, did the administrator provide an adequate margin of safety? Did he consider at-risk populations?
MR. GROSSMAN: What administrator?
MR. SILVERMAN: Administrator of the EPA.
MR. GROSSMAN: Okay.

THE WITNESS: Did they provide an adequate margin of safety?
BY MR. SILVERMAN:
Q Yes.
A Well, I'm not, I have no basis of judging -- you're questioning it between 15 and 12. If they're at 15, it was an adequate margin. I don't know the answer to that question.
Q So you think the administrator, in setting the 15 standard previously, that he was -- was he following a different law or rule in setting that standard?
A No. He was following the same, the same rule, the issue being, if the, if the standard now is 12 and the standard before was 15, does that mean that the 15 was unprotective? I mean, that, that does require a health person to answer that question. What I'm responding to in my testimony here was that I can review air quality relative to established thresholds, established standards, and I can't say if the difference between 15 to 12, if we had an adequate margin of safety or not. I don't know.
Q Does the 12 standard have an adequate margin of safety? Does it protect vulnerable populations?
A It certainly does in the opinion of the EPA administrator.
Q And isn't it that same thing true of the 15

standard, the previous one?
A They both had the judgment that those levels were protective of public health.
Q When was the standard changed from 15 to 12?
A It was changed in December of 2012.
Q During the pendency of this case. So do you think there's any possibility that a year or two from now they'll change it again?
A I'd have to speculate. I really don't know when they'll change it again or if they'll change it again.
Q Are there not studies underway, looking at that standard, questioning that standard?
A There are health studies that happen, of course, all the time. I don't know if the studies are questioning the standard.
Q Yes. And have you reviewed -- you've mentioned several times the Science Advisory Board documents and so forth that the administrator relies on in making these standard judgments -- have you --
A When you say relied upon, what do you mean?
Q You have, maybe I misheard you, but --
MR. ADELMAN: Clean Air Science Advisory Committee.
BY MR. SILVERMAN:
Q Yes, the Clean, I'm sorry, the -- thank you. You

have referenced the Clean Air Science Advisory Committee a number of times. So have you actually reviewed their reports on the standards?
A I have reviewed reports by the Clean Air Science Advisory Committee.
Q Is there anything in those reports that would, that might lead one to believe that there's a possibility the standard could be ratcheted down further?
MR. GOECKE: Objection, calls for speculation.
MR. GROSSMAN: Well --
MR. SILVERMAN: No. It's just either he read it or he didn't.
MR. GROSSMAN: -- he's asking if there's anything in the reports. He's not asking if, for him to speculate on it. He's asking if there's anything in the reports. He can answer that. Overruled.
THE WITNESS: I don't, I don't recall statements in there that -- I know that the CASAC committee gave a range to the administrator. The administrator picked a number within that range, which ended up being 12, and in the judgment of the administrator, that was the appropriate level. I don't, I don't know if that means it'll be ratcheted in the future or not. That's what I've read.
BY MR. SILVERMAN:
Q And what was the range? Do you know?

A I'm going to recall, I think it was 11 to 13.
Q Eleven to 13. I think you said it would be unfair and -- we had a little philosophical colloquy -- it would be unfair and arbitrary to subject a source to meeting a standard below the official standard. Do you think it would be unfair and arbitrary if citizens -- if this project were approved and six months later the citizens learned that the standards were lowered to 11 or 10?
A Do I think it would be arbitrary to, if Montgomery County had its own standard of being 10 or 11 --
Q No, if --
A -- for all sources or this source?
Q No. I'm just saying, I'm just saying, should, should the standard change in the future, as it has in the past, and this project were approved on the basis of that standard and your measurements, would it be -- and then it turned out in a year or two that the standard was lowered, do you think that would be unfair to the people who have to breathe the air? Or does the unfairness only go to the, to the applicants?
A Would it be unfair for people to breathe the air? I don't, I really don't follow your question.
Q You --
MR. GROSSMAN: Well, I think he's --
MR. SILVERMAN: Yes.

MR. GROSSMAN: -- he's setting up a comparison between the suggestion you made that it wouldn't be fair to apply some measure that's not an accepted standard and he's asking, well, if what is now the accepted standard were to be lowered later, would that be unfair to the people if you used the previous higher standard. I think that's his question. Is that, is that a fair characterization of it, Mr. Silverman?

MR. SILVERMAN: That's a fair characterization, sir.

THE WITNESS: I don't think it would be. I think the fairness has to go both ways, and if the State of Maryland were to choose, for example, to have a more restrictive standard than the rest of the country, they can do so, it's allowed by the Clean Air Act, but it would have to be applied to all facilities in an equitable way to be fair. So, I mean, again, I think fairness has to go both ways. An undefined standard is inherently unfair.

BY MR. SILVERMAN:

Q Would it be, lead to misleading scientific results if, if a, if a risk assessment was done on, on a pollutant that has a standard and would that be an improper procedure, or should we just give up risk assessment when we have a standard, we don't have to do risk assessment?

A Well, risk assessment in this context is for

things that don't have a standard. That was a cancer risk assessment, which was done. If there is a standard, I would expect it would be more prudent to follow the standard that exists.

Q So would it be scientifically improper to do a risk assessment? I mean, the Hearing Examiner said how can I make a decision that doesn't follow the standards. There are other ways to come to rational decisions --

MR. GROSSMAN: Well, now you're --

BY MR. SILVERMAN:

Q -- about health.

MR. SILVERMAN: I hope I didn't mischaracterize you.

MR. GROSSMAN: I think you've asked two different, two different questions, would it -- and you asked initially, the implication was, is it improper for there to be scientific analysis of a risk assessment even if there is a standard, which is a little bit different from the follow-up that you --

MR. SILVERMAN: I withdraw the follow-up. We'll talk about that later.

BY MR. SILVERMAN:

Q But would there be anything wrong with doing that? I know it's the practice to go with the standards because you save money and time, but is there anything wrong with

doing a risk assessment?

MR. GROSSMAN: To an extent, I follow why the witness has a little problem. When you say anything wrong with it, I'm not sure that that is sufficiently honed in terms of what you, what you mean by anything wrong. Do you mean is it wrong for the fact finder -- in this case, myself -- to make an assessment based on it? Do you mean is it wrong for scientists to study something? I mean --

MR. SILVERMAN: Thank you.

MR. GROSSMAN: -- I'm not sure what you're getting at.

MR. SILVERMAN: Thank you. Let me clarify. I --

MR. GROSSMAN: Okay.

MR. SILVERMAN: -- appreciate that very much. These are difficult things and --

MR. GROSSMAN: Yes.

MR. SILVERMAN: -- I'm struggling.

MR. GROSSMAN: Thought-provoking cross-examination.

MR. SILVERMAN: Yes.

BY MR. SILVERMAN:

Q If a fact finder decided that he would look beyond the standard, perhaps because of the rapid changes in the field, and engage in some sort of risk assessment, would that be, would you consider that, would that be an

unacceptable or irrational exercise?

A Well, that presumes that the finder of fact -- in this case, Mr. Grossman -- either has a committee of scientists or he has a background himself to read toxicological and epidemiological studies and form a conclusion that would be in conflict with EPA's, and if the State of Maryland -- I mean, if that was at his disposal or any decision maker, I could see them doing so, but absent that, I don't see how a local jurisdiction would have the scientific staff available, such as EPA has, to, to make that kind of a judgment.

Q Well, he might have the benefit of expert testimony from public health experts. Do you think that might help him?

A That would be up to the decision maker to make that call. I won't prejudge that.

Q Okay. And if the standard should drop and it's found that the station causes a violation of the standard, should Costco still be allowed to operate?

A Which standard are we talking about?

Q Any one of the standards that we're talking about. Let's say PM 2.5 because that's a good one. If -- what happens if the Hearing Examiner or the Board adopts your view that this is a perfectly safe facility and it turns out a few years later that it's not? Should there be a

consequence to that or we just live with it?
MR. GROSSMAN: You know, that's kind of an imponderable that goes beyond what is really going to be before me. I mean, if in fact the Board of Appeals were to approve this application and later on there was some evidence that would come in, this would be before the Board of Appeals or some other body to review it based on that, if it were raised. It's not before me now. So let's try to stick with what's before me now.
MR. SILVERMAN: Thank you, sir.
BY MR. SILVERMAN:
Q You said you did a risk assessment, a cancer risk assessment, or was it benzene or all volatile organic chemicals?
A We did a risk assessment for all pollutants, organic pollutants emitted by gasoline marketing operations and tailpipe exhaust, all those species of VOCs that had an IRIS cancer potency score.
Q So did you do a risk assessment for non-cancer impacts?
A We did not.
Q Do you know if there are non-cancer impacts for VOCs?
A Non-cancer effects are usually addressed through thresholds and are not as commonly addressed as carcinogenic

end points. I had no reason to expect any problems with non-cancer health effect thresholds in this matter.
Q You have no reason to -- all right. You referenced President Obama is trying to increase the regulation of fuels to lower emissions. Have you examined the Federal Register proposal about doing that?
A I've read briefly about it. I know it does involve fuels as well as tailpipe exhaust. It won't take effect until in the future, and so I can't, I can't claim that I've read it in detail, no.
Q Well, I'm sure you know that when a rule is proposed, it's common for the administrator of EPA to publish a great deal of information about the subject, including health information. Is that correct, or do you agree with that?
A That would usually be the case, yeah.
Q Okay.
MR. SILVERMAN: Well, I don't quite know how to do this. I've got a Federal Register notice of May 21st, 2013, how rapidly this field was changing, quite voluminous, about this new proposal of the President's and that is, if I give you --
MR. GROSSMAN: Identify this again, please, sir.
MR. SILVERMAN: Yes. It's Federal Register, Volume 78, Tuesday, May 21st, 2013.

MR. GROSSMAN: May?
MR. SILVERMAN: 21st, 2013.
MR. GROSSMAN: Okay.
MR. SILVERMAN: And it starts on page 29815.
MR. GROSSMAN: 29815.
MR. SILVERMAN: And it's the --
MR. GROSSMAN: This is regarding a proposed --
MR. SILVERMAN: And it is called --
MR. GROSSMAN: -- proposed regulation?
MR. SILVERMAN: -- Control of Air Pollution for Motor Vehicles: Tier 3 Motor Vehicles Emission of Fuel Standards; Proposed Rule.
MR. GROSSMAN: Okay. And what's the relevance here?
MR. SILVERMAN: Well, the question I asked before was the discussion of health impacts, and I wonder if I could, or if you could read some language in here that discusses non-cancer health impacts of volatile organic chemicals.
MR. GOECKE: Mr. Silverman, do you have copies for everybody of this?
MR. SILVERMAN: I'm afraid I don't. My budget for copying is very limited, but I will certainly e-mail them to you.
MR. GROSSMAN: Well, how long is the item you want

read?
MR. SILVERMAN: The item that I want to point him, and there's a lot of other stuff, but the one I want to show is just a short paragraph.
MR. GROSSMAN: Okay. Let them read it right now. Show it to --
MR. SILVERMAN: Okay. I've got it, I've got it lined.
MR. GROSSMAN: -- show it to opposing counsel --
MR. SILVERMAN: Yes. Yes.
MR. GROSSMAN: -- and we'll give them a couple of minutes to take a look at it.
MR. GOECKE: We're struggling, Mr. Grossman, because Mr. Silverman's just handed us a document that's about 40 pages long and he wants to cite one paragraph that's being taken out of context. We haven't had a chance to look at this before.
MR. GROSSMAN: I understand. I certainly don't like these proceedings to be a game of gotcha. It is true that on cross-examination you are allowed to use a document that hasn't been previously produced. On the other hand, I think it's much more effective, in terms of getting intelligent answers to questions, if we all know in advance what is going to be the area of the inquiry. If you drop a document such as this, which is how many pages long?

MR. GOECKE: Thirty, 40.
MR. GROSSMAN: On a proposed rule that just came out, it does put the other side in a disadvantage --
MS. ROSENFELD: Well --
MR. GROSSMAN: -- and I would prefer to avoid that.
MR. SILVERMAN: Well, the witness referred to the proposed rule.
MS. ROSENFELD: If I --
MR. GROSSMAN: Pardon me?
MR. SILVERMAN: The witness referred to the proposed rule.
MS. ROSENFELD: Mr. Sullivan did talk about this proposed rule as supporting some of his conclusions. We're happy to provide a copy of this document --
MR. GROSSMAN: Okay.
MS. ROSENFELD: -- and call him back after they've all had a chance to review it.
MR. GROSSMAN: I didn't say I was precluding it. What I said was I think the best way for these things -- I've insisted that the applicant share things in advance with everybody to avoid any of these games of gotcha on either side, and I think that the most civilized and the most productive way to proceed in any of these things is for everybody to know what's on the table. So if we can avoid

this in the future. I'm not saying we're not going to allow it, but I'm going to give them some time to look at it.
MR. SILVERMAN: Yes, I certainly agree with that, and I have tried to be quite open within the course of it, but this was May 23rd and there's a lot of reading in this case. I just got to it.
MR. GROSSMAN: All right. Okay. Counsel has, for the applicant, has just handed it back to you. So you may --
MR. SILVERMAN: May I show the paragraph to the witness?
MR. GROSSMAN: Yes, absolutely. Be careful not to trip on any wires, if there are any --
MR. SILVERMAN: Yes, thank you.
BY MR. SILVERMAN:
Q Could you read the paragraph that I've put 20 by?
A Just for the record, I'd like to indicate that I'll read the paragraph as requested but, in order for me to make any comment on this document, I'll have to read the entire document and study it. So I'm not going to make, I cannot make any comment --
MR. GROSSMAN: All right. Right now I think he's just asking you to read it. So --
THE WITNESS: A number --
MR. GROSSMAN: Do you want him to read it out

loud, or do you want --
MS. ROSENFELD: Yes.
MR. SILVERMAN: No, I wish he'd read it out loud, yes.
MR. GROSSMAN: Okay.
THE WITNESS: A number of adverse non-cancer health effects including blood disorders, such as pre-leukemia and aplastic anemia, have also been associated with long-term exposure to benzene. The most sensitive non-cancer effect observed in humans, based on current data, is the depression of the absolute lymphocyte count in blood. EPA's inhalation reference concentration, RfC, for benzene is 30 micrograms per cubic meter. The RfC is based on suppressed absolute lymphocyte counts seen in humans under occupational exposure conditions. In addition, recent work, including studies sponsored by the Health Effects Institute, HEI, provides evidence that biochemical responses are occurring at lower levels of benzene exposure than previously known. That's the end of the paragraph.
BY MR. SILVERMAN:
Q Thank you. So keeping your -- having that in mind, do you think, do you think it would be prudent, given that sort of information -- and there's lots of it here, I just picked one paragraph -- to do a non-cancer risk assessment?

A As indicated, if I'm going to comment on that document, I'm going to review it first.
Q All right. I hope we can --
MR. GROSSMAN: I think that's fair.
MR. SILVERMAN: That's fair enough, very good.
BY MR. SILVERMAN:
Q I think in your, your testimony you said -- I wish I had the exact words -- you said that, not today, but in a previous meeting, I guess on Monday, that, that EPA doesn't regard gas stations as a big risk factor and they don't regulate it.
A I didn't say that.
Q Well, what did you say about EPA's attitude towards gasoline stations?
A I said that EPA regulates gas stations on a source-category basis, through engineering controls --
Q Through --
A -- and that they don't require permits in terms of modeling and evaluation of, of air quality relative to standards on a gasoline station-by-gasoline station basis.
Q And the way in which EPA regulates gas stations, it's the same for all gas stations, right?
A Well, the -- I don't know that it has any variability by size of the gas station, but the Stage I/Stage II and, you know, the various requirements they

have, as far as I know, are pretty standardized.
Q But the fact that EPA does not regulate particular gas stations, do you draw any inference from that that EPA thinks there's not a problem?
A I'll draw the inference that EPA does not consider a gas station to be a major source that requires a site-specific air quality analysis on a gas station-by-gas station basis.
Q Because, if they did, they'd require that?
A Well, either they or maybe the Maryland Department of the Environment would have such a requirement.
Q Does EPA have the authority to require a site-by-site assessment of gas stations? Do they have the legal authority?
A I'm not -- I don't know the answer. I mean, right now in the State of Maryland, Maryland Department of the Environment has primary responsibility for regulating air quality.
Q And does the Maryland Department of Environment have the authority to do individual assessments of individual stations?
A I don't know the answer to that question.
Q Well, perhaps we can help answer that one later.
MR. SILVERMAN: Excuse me, sir. I just, I tend to forget things if I don't make a note.

MR. GROSSMAN: Join the club.
BY MR. SILVERMAN:
Q Let's see. I wanted to ask you about the Arid Permeator; put a lot of stock in the Arid Permeator. Are you an expert on pollution abatement technology?
A I, I certainly use abatement technology in my modeling. I'm not an engineer and I don't set what the percent control is for any particular piece of equipment. I use that data.
Q And the data that you used in this case, where did it come from?
A The manufacturer certifies the equipment to be 99.27 percent effective in control and that came from the manufacturer's literature.
Q So has EPA opined about the Arid separator?
A I don't know.
Q You don't know. Is it a requirement that all stations use an Arid separator, an Arid --
MR. GROSSMAN: You mean Permeator?
BY MR. SILVERMAN:
Q -- Permeator? Excuse me.
A There is not that requirement.
Q You indicated that you were aware that there is some physical conflict between the Stage II controls and the in-car canisters, is that correct?

A That is correct.
Q And do you know what that conflict is?
A Right now, if a car comes up to a gas station that has canister technology, a more recent car, that there's a conflict between that technology and the Stage II control system, and I don't know the mechanical nature of the conflict, but I do know that it results in an emission penalty. Emissions are increased.
Q Did you know that, that the Arid Permeator is said to work better with the Stage II controls than without? Do you know that?
A Does it work better with the Stage II --
Q Yes.
A -- or without the Stage II? With canisters you're saying or -- I don't understand.
Q No, not the canister, the Stage II. Stage II has a control on the tanks.
A I'm going to ask you to repeat the question.
Q Yes. Do you know whether there is a conflict or if there's a harmony between the Arid Permeator and the Stage II controls?
A I do know that the Stage, well, the Stage II controls ends up producing vapors in the tank. The tank emissions that would have to go through the vent are controlled to a high level of control. So they're connected

in part of a system. Do I know of any incompatibility? I do not.
Q And do you know if they work, the Stage II controls and the, not the canisters, the Stage II controls and the Arid Permeators work well together? Do they get a higher, a higher degree of control when they're both present?
A Well, the manufacturer quotes 99.27 percent control. I'm well aware of the fact that Stage II is in effect throughout the country --
Q Right. And --
A -- so I'm taking that value to be with Stage II control in place.
Q Now, is it not true that Stage II controls are being phased out because of the on-board canister?
A They will be phased out, and some states, I believe, have phased them out. Maryland has not yet.
Q Right. Do you know whether the phase-out of Stage II will affect the performance of the Arid Permeator?
A I don't see why it -- I'm not an engineer, but if you're asking my opinion --
Q Which I just asked you if you knew. If you know --
A -- I can't imagine why it would. It condenses the vapors that are in the system and puts it back in the tank.

So I would have to presume it would keep on doing that whether we had Stage II controls or not.
Q Okay. As I recall your testimony, with some coaching, was that Costco's been using the Arid Permeators for about a year and a half?
A I don't know. I think Erich Brann mentioned they've been using them for a few years. I don't remember the exact number.
Q But they don't use them in Sterling, right?
A They do not.
Q So does Costco have any experience with the Arid Permeator five years into a station's life?
A You'd have to ask Costco. I don't know.
Q You don't know. Okay. Let me, let me ask you about the background levels. In one of your reports you had assessed the background levels at 12 micrograms per cubic meter, and then in a subsequent report you said the background levels were 10-something, is that correct?
A Are you referring to PM 2.5 annual background?
Q Yes. I'm sorry, yes.
A Yes. I'm sorry, 12.1 --
Q Yes.
A -- and then we refined that number, based upon measured data, more recent measured data, to 10.8.
Q Well, where did you get your first, your first

number?
A Initially we were using the highest, highest measured annual concentration, rather than the average, across a three-year period for any location. That's how we got the 12.1.
Q That was your conservative approach, is that not right?
A Well, we went back to 2009. We know what the trend has done since then. So, clearly, it was conservative.
Q And then you changed because you thought that was no longer a good approach, or for what reason did you change?
A I mentioned in earlier testimony that between the time that my report was released in November 2012 and the 1st of this year, that, first of all, the standard changed. I also mentioned we met with staff of Maryland Parks and Planning that requested, in light of that change and the fact that the Washington Council of Governments had a much lower background, that we strive for consistency with the Washington Council of Governments and reassess our, our background factor, and we did.
Q You said the standard had changed. Does the fact that the standard has changed, does that affect the measurements that you take?

A Well, frankly, if you're an analyst conducting conservative modeling, as we have demonstrated consistently that we have, we overstated a whole number of things --
Q No. I just asked you --
A Well, let me finish the statement, though, sir. We overestimated a whole lot of things, that if the standard is going to change, of course we would have reassessed the degree of conservatism in something like a background term. In that case, our conservative assumption, which was more conservative than EPA required, was higher than the standard.
MR. GROSSMAN: No, but I think his question is, the standard, you say, changed. How does that change the measurement, because you said the 12.1 was the highest measured, is that correct?
THE WITNESS: That's -- from the period of 2009 to 2011, that was the highest annual average PM 2.5 concentration in the region, and you know, why would it -- those numbers did not change, Mr. Silverman, but what did change was that EPA updated its standard and we relied upon more up-to-date information and, rather than conservatively represent background, we used EPA's standard approach, using the three-year running average, and that ended up being 10.8.
BY MR. SILVERMAN:

Q So you didn't use the EPA's conservative approach, using a three-year running average, previous to that?
A Previous to that, we used the highest to be more conservative.
Q So that's your assumption about the standards being -- the background being in the range of 10-something is not as conservative as your original?
A No, it's not.
Q And did you back down from some of your conservatism in connection with other measurements?
A I can't think of any I have.
Q Just this one?
A No. If you look at the record that I established in my direct testimony, I showed at least five things I can think of where I made the numbers more conservative.
Q Gotcha. But in terms of being less conservative, you didn't back -- this is the only one you retreated on, is that right?
A I wouldn't use the term retreat. This is the -- this is one of them that I refined, based upon a change in the circumstance, and ended up following EPA's, you know, procedures, which I believe is still very conservative, but I followed EPA's procedures rather than allowing extra conservatism in that background term.
Q And you did this at the urging of the Park and

Planning Commission's staff?
A Yes. They suggested that I reassess that background value.
Q I had understood you to be very critical of the Park and Planning staff's scientific work in connection with air pollution. Is that correct?
A Well, I, I haven't agreed with everything that they've done. That's --
Q But you agreed with that one?
A Well, it certainly made sense to me, if the standard has changed and we're using a very conservative number that's higher than the standard, it would make sense to reassess that particular value.
Q Okay. Could you tell us and -- excuse me a moment. Could you tell us the meaning of the words attainment and non-attainment?
A Attainment means that the area has been designated by EPA to be in attainment of the standards, the National Ambient Air Quality Standard in question.
Q And how does EPA determine whether a region is in attainment or non-attainment?
A They review measured air quality data to make that determination.
Q And where are these measurements from?
A The measurements are from monitors in the region.

Q And which in this case, the case of the Washington metropolitan region, which monitors would they be?
A In the case of which?
Q Of the Washington metro region, which monitors would they be?
A I don't know which specific monitors they would use to make that judgment.
Q Did they use the one, the monitors that you referred to in making your judgments?
A As I mentioned, I don't know which ones they'd choose to use for this area to make that judgment.
Q So you don't know if they used the Rockville monitor or the Beltsville monitor or the Arlington monitor?
A As I mentioned, I don't know which particular monitors they would choose to use for that judgment.
Q Do you think they might try to use all of them?
MR. GOECKE: Objection, asked and answered.
MR. GROSSMAN: Yes, sustained.
MR. SILVERMAN: Okay, fine.
BY MR. SILVERMAN:
Q But some monitor indicates that, for like CO, for example, the region is in attainment, is that right?
MR. GROSSMAN: Has it been stated that we are in attainment by the EPA?
BY MR. SILVERMAN:

Q Are we in attainment for CO?
A We are in attainment for CO.
Q Now, you testified that there's a lot of pollution on Georgia Avenue and Veirs Mill Road, did you not?
A What I said was that that was a relative hot spot, much higher CO concentrations than near the gas station.
Q And are they higher than the standard?
A We showed numbers up to the standard right at the roadway itself.
Q So that it may be that, at least on Georgia Avenue, Georgia Avenue and Veirs Mill Road may not be in attainment?
A Well, that would be up to the state and EPA to make that judgment.
Q Well, I mean, let's take, let's get rid of the word attainment. It may be that, that there are areas on Georgia Avenue and Veirs Mill Road, maybe next to one of these hamburger joints, that, that the standards are not being met. Is that possible?
MR. GROSSMAN: So if it's possible, what does that gain us in terms of the evidence?
MR. SILVERMAN: What it means, it tells you that even though a particular regional monitor says one thing, it doesn't mean that that is the condition throughout the region. It just means that those monitors tell you certain

things.
MR. GROSSMAN: All right. Is that correct?
THE WITNESS: It's possible.
MR. GROSSMAN: I don't know whether that, how that helps me in terms of assessing this case.
MR. SILVERMAN: Well, I'm trying to get some background, the background measurements --
MR. GROSSMAN: Okay.
MR. SILVERMAN: -- that's what we've been discussing, the background measurements.
BY MR. SILVERMAN:
Q Incidentally, you reference EPA's conservative approach to backgrounds, and can you tell me just what that is, and where could I find that approach?
A You could look in the EPA guideline on air quality models under background treatments, and they describe the approach I mentioned. EPA certainly allows less conservative treatments if one chooses to do so.
Q The NO2, that's a pollutant, right, has health --
A Yes.
Q -- has health effects, as far as you know?
A Yes, at certain concentrations, it would.
Q All right. Was the NO2 annual standard changed recently, last few years?
A I don't remember the year, but are you referring

to the one-hour NO2 standard?
Q Yes.
A Yeah, I don't remember when it was changed.
Q Pardon?
A I don't remember when it was changed.
Q And how about the annual standard?
A I don't recall the dates when those were set.
Q Would you say it's within the last five years?
A I just don't know.
MR. GOECKE: Objection, relevance.
MR. GROSSMAN: Well, it's been asked and answered. So --
MR. SILVERMAN: Thank you.
MR. GROSSMAN: -- he didn't remember the date.
BY MR. SILVERMAN:
Q In determining the backgrounds for NO2 in your various reports and statements, have you changed the number? Have you corrected it at all?
A We changed, we changed one of the numbers. We used a very conservative number. I believe it was for the annual term, and we since updated that, based upon following EPA's methods, and used a more accurate representation.
Q So is there a difference between accurate and conservative?
A No. I think we used the default of a different

averaging time initially because it was so far from the standard, but we then ended up following EPA's conservative approach. In some cases, we were too conservative in this analysis.
Q You know, I, I, listening to your testimony, I could never tell whether I'm in the city or the country. Can you tell me how you --
MR. GROSSMAN: Well, let's eliminate any prefaces --
MR. SILVERMAN: I'm sorry.
MR. GROSSMAN: -- to questions.
MR. SILVERMAN: I'm sorry.
BY MR. SILVERMAN:
Q Can you tell me how you choose for one particular measurement to use the urban values and for another measurement to use the rural values? What is guiding your judgment in that regard?
A Land use conditions.
Q Well, the land use conditions for the Wheaton Mall are the same. So do you always use, are you going to always use the urban or always use the rural for Wheaton Mall?
A For, let me -- it may help to explain.
Q Yes.
A When we do our analyses, we follow EPA procedures, and EPA -- so you're modeling the Wheaton area, like we

have. EPA has a specific procedure. Mr. Cole and I are both well aware there's a procedure, that you look at the three-kilometer radius of your source and you look at the land use within that three-kilometer radius. And EPA defines certain types of land use as what they call, quote/unquote, urban, and some they call, quote/unquote, rural, and you're determining which one has the preponderance of the land use, and you use that for your general modeling, and we did, and it ends up being rural for this area. There's a lot of driveways and lawns and that sort of thing, and it ends up being, in the big picture, rural. Because we're following EPA's procedures, we used rural, and for the plots that we've done, they're all based upon rural.
But, on the other hand, if the key points of review in this case is the closest home and the Stephen Knolls School is adjacent to the mall and the swimming pool is adjacent to the mall, the plume that's traveling from the gas station, the queuing and the fueling area and so forth, is going predominantly over mall property, asphalt, concrete. Clearly, land use is applicable to an urban setting, and in that setting you're not going to get the restricted dilution like you'll get in the lawns and the driveways; you're getting more of an urban, greater mixing going on in that zone.

And so when I'm interpreting it, if there's any results adjacent to the mall, I'm using what's the most applicable dispersion characteristics for the mall, and as you'll see in my work, I'm only using those for those three receptors. If we go significantly further away from that such that most of the flow is over rural conditions, we're using rural, and we've used that for all of our maps beyond those three places.
MR. SILVERMAN: Excuse me. Oh, yes, that's right. Thank you.
BY MR. SILVERMAN:
Q MOVES and the MOBILE6, which one of those has been superseded?
A March 2nd, 2013, the EPA officially transferred from MOBILE6.2 to MOVES, which is approximately, you know, five months after our report, four months after our report was completed.
Q And have you attempted to use the MOVES methodology?
A Yes, we have.
Q And did you use it?
A Did I what?
Q Did you use it? Sorry.
A We have, we have made some test runs just to try, to try the model, but we have not received from the

Metropolitan Council of Governments sufficient input on the options and switches and inputs of that model to make a run that would supersede MOBILE6.2. And to clarify, for the mobile source modeling exercises, there are switches and fleet mixtures and so forth that are used by those doing analysis in the region and it's standardized, and we approached the Council of Governments multiple times, saying we'd like to get your recommended inputs so we can run it for this project, and again, I said we asked them last week. They said sometime this summer they'll be available.

I am not going to recommend doing an analysis for a project of this magnitude, you know, guessing what those inputs are going to be. And so we maintained MOBILE6.2, and in fairness, we did make the statement in our report and we agreed with Dr. Cole that the MOVES is going to produce higher emissions for particulates and, if you also look at the literature, lower for VOCs and for CO. So, you know, we're -- so by that context, we're overstating CO and VOCs, and we acknowledge -- and we didn't change anything there -- we're acknowledging that for PM 2.5, that our numbers, if you scale up the queuing particularly, are going to be low, and we scaled up accordingly, in more of a qualitative basis, but we did scale up our modeling in the spirit of trying to be as consistent with where MOVES is going as we could.

Q But EPA regards the MOVES as a superior technology, giving you a more accurate picture of what's going on, whether it's higher or lower, is that correct?

A Well, I agree with that, and as soon as it's available with the inputs used, we're trying to get it as soon as we can.

Q So because, through no fault of yours perhaps, the fact it's not available, does that suggest to you that maybe your report is not so accurate as it could be if it were available?

A I'd rather refer to it, does it, if your question, does it mean our report is conservative or not, and I'll maintain that our report is very conservative, including with the caveat that we did scale up the queuing emissions by a factor of 10, that we've anticipated the change that MOVES is going to make.

Q Well, I think I asked you about accurate. Is your report -- would your report be more accurate if you had used the approach recommended now by EPA?

A Would it be more accurate?

MR. GROSSMAN: Well, I think there's a, frankly, there's a problem with that question. I think he's answered that from his perspective MOVES would be preferable if it were available but it's not available because he doesn't have the access to the inputs that are necessary. He's also

said that he's adjusted his figures in anticipation of applying MOVES, to take into account. And he said that the, that his figures under MOVES would overstate the VOCs but understate particulate matter, if I understood all of his testimony. I don't know how you can then fairly ask the question about accurate. I mean, I think he's answered that question by breaking it down into component parts.

BY MR. SILVERMAN:

Q Well, how would, how would one assess whether your adjustments were appropriate?

A My adjustments are based upon the available literature and testing that's been done to date, some of which Dr. Cole has put on the record, which I thought were helpful. I have no question the modeling done is overstating. There's no question in my mind at all.

MR. GROSSMAN: Is overstating what?

THE WITNESS: Overstating actual expected concentrations for fine particulates and all the other pollutants.

BY MR. SILVERMAN:

Q The model that you used, your MOBILE6 model overstates? Is that your testimony?

A No. I'm referring -- I said my dispersion modeling that we've conducted for this project, using peak emissions all the time within the ring road, overstating

the, the loading docks, overstating the parking lots, I mean, one step after another we have cascading conservatism here, trying to seek consensus, and frankly, our modeling is overstating by a lot. And so, you know, your question --

MR. GROSSMAN: Overstating what by a lot?

THE WITNESS: Overstating actual concentrations for all pollutants --

MR. GROSSMAN: Okay.

THE WITNESS: -- substantially.

BY MR. SILVERMAN:

Q You indicated that no one's ever done a study like this for a gas station, is that correct, to your knowledge?

A I don't think I said that. I don't believe I said that.

Q Okay.

A I wasn't aware of any location in the country, except I said maybe in California, that this much analysis has been done for a gas station.

Q Do you know of any situation in California, actually know of any situation where this type of analysis was done for gas stations?

A I do not.

Q Have you ever worked for Costco before this case?

A No.

Q Do you know if Costco has ever retained other

people to do this type of analysis on other gas stations?
A I don't know specifically. I presume they have.
Q Well, did they share that with you?
A Could -- I'm trying to recall. Three years ago, when I first started, I might have seen a copy of some earlier work, but I don't really recall any specifics.
Q So are there, like, peer-reviewed papers about evaluation of gas stations that, large gas stations and modeling for large gas stations, are there peer-reviewed articles that you relied on in doing your work?
A No. We rely upon the EPA guideline and air quality modeling and AP 42, both EPA methodology.
Q So this is a case of first impression, scientifically, is that, would that be fair?
A No, sir, that's not fair.
Q Well, as far as you know, it's not been done before?
A No, when you asked if it was fair, my point is, we have modeled every kind of facility you can imagine and the procedures are common: EPA emission factors such as AP 42, AERMOD dispersion modeling or its predecessor models. Whether it be a gas station, a print shop, dry cleaner, or chemical plant, the same fundamental methodology is employed.
Q And if you reach the conclusion that the same

methodology used for factories or print shops apply to gas stations, wouldn't that be a scientific finding of some significance?
MR. GOECKE: Objection.
MR. GROSSMAN: Yes, I'll sustain it. I don't know what that means.
MR. SILVERMAN: I'll try another route.
MR. GROSSMAN: Okay.
BY MR. SILVERMAN:
Q Did the Montgomery County Department of Health express an opinion about, about the safety of this gas station in terms of air pollution?
A My recollection is they, they indicated they didn't have the, the staff credentials or experience to be able to opine on that.
Q And how about the environment department here in the county?
A Are you referring to Parks --
Q Not Parks and Planning, the Department of Environment. I think that's what it's called.
A Maryland Department of the Environment?
Q No, no. The Department of Environmental Protection here in the county, did they express an opinion?
A I don't recall.
Q Is there any government official who expressed an

opinion about your, this particular station and your particular work?
A Any government official? You're referring to Parks and Planning, or I -- that's the only group that opined that I can recall, and I would --
Q Parks and Planning is the only, the first group to ever opine, as far as you know, on this?
A Well, that's the one I recall did opine.
Q Right. And did the state, Department of, Maryland Department of Environment, did they offer opinions to you about your work?
A I discussed it with them, yes.
Q Did they say it's good, we approve, or it's bad, we don't?
A What they told me was that the work we had done in one of our earlier reports had been shared with EPA's regional meteorologist in Region 3 and that he had no objection or concerns with our work. That's what I recall.
Q That's what they said to you about what Region 3 did?
A Well, and they had -- they didn't express any concerns either.
Q They didn't express any concerns?
A No.
Q Do you know that the, that the Department,

Maryland Department of the Environment did communicate with the County Council when they were considering the ZTA and --
MR. GROSSMAN: So, in fairness, is there a document that establishes that that you have?
MR. SILVERMAN: Yes. Well, I think, I think, Mr. Grossman, you said, when talking about legislative history, you said that the, the report that preceded the legislation was part of the legislative history.
MR. GROSSMAN: When you say preceded, they have an opinion that accompanied --
MR. SILVERMAN: Exactly, yes.
MR. GROSSMAN: -- and that is part of legislative history?
MR. SILVERMAN: Yes, that's right. That's right. Well, let me see if I can -- it's in the record --
MR. GROSSMAN: Right.
MR. SILVERMAN: -- that report.
MR. GROSSMAN: I put it in the record.
MR. SILVERMAN: Yes. And so there's reference to the state view, which was, as I think it --
MR. GROSSMAN: I don't recall off the top of my head. That's why I wanted you to tell me what this is.
MR. SILVERMAN: Yes.
MR. GROSSMAN: Maybe I have a copy of it here, and I can look. Yes, let me see if I can tell you what the

exhibit number is.
MS. ROSENFELD: Mr. Grossman, I think you might take a look at 90(c).
MR. SILVERMAN: Thank you.
MR. GROSSMAN: I'll tell you in a second. I have a copy of it here. I just didn't write the exhibit number on the copy I have loose. It was right at the beginning of the hearing. It would have been April 26, I believe, and yes, it's Exhibit 99, a copy of Council Ordinance 17-19. That's ZTA 12-07 and that contains the opinion as well. And what particular --
MR. SILVERMAN: They reference the letter from the air administrator to me, actually, expressing the state's viewpoint.
MR. GROSSMAN: Just refer me to the page of the opinion you're talking about.
MR. SILVERMAN: Give me a second. I'm sorry. This is attached as an attachment to the opinion. It's an April 1st, 2013, letter, and page --
MR. GROSSMAN: Well, I don't have any attachments, I don't think. Let's see. The opinion doesn't have an attachment that I see.
MR. SILVERMAN: Let's see. Hold on. I'll get a page number here. The third page from the end of --
MS. ROSENFELD: Mr. Grossman, I'm not certain

which exhibit you're looking at. This was in -- on my exhibit list, this is Exhibit 90(c).
MR. GROSSMAN: Oh, I'm looking at Exhibit 99. I put: A copy of the --
MR. SILVERMAN: No, that's not the one I want.
MS. ROSENFELD: 99?
MR. SILVERMAN: Yes, it's not the one I want.
MR. GROSSMAN: -- of the Council's action, Ordinance No. 17-19, which is Zoning Text Amendment 12-07.
MS. ROSENFELD: Yes. I don't know that it was -- I do have that. I'm not sure the EPA letter he's talking about is attached --
MR. SILVERMAN: No, it's not attached. It's a reference.
MS. ROSENFELD: -- to the Council's resolution.
MR. GROSSMAN: It's referenced, he says. That's what --
MR. SILVERMAN: Yes.
MR. GROSSMAN: -- I'm asking, what the reference, where the reference is.
MR. SILVERMAN: Right. I'm sorry.
MS. ROSENFELD: I do have a copy of the Council resolution.
MR. SILVERMAN: Yes. That's --
MR. GROSSMAN: Are you talking about -- I mean,

there is a sentence --
MR. SILVERMAN: Right, that's it.
MR. GROSSMAN: -- Item 5 says: As indicated by the comments of the Maryland Air and Radiation Management Administration. Is that what you're referencing?
MR. SILVERMAN: Yes, that's what I'm -- that's what I'm referencing.
MR. GROSSMAN: Okay. So that sentence is, this is, it's under the list of the Council -- this is on page 3 and that's their number for the, for the opinion. It's actually, the opinion itself is two pages, and it begins on page 2. So on page 3, Item listed as 5, and it's under a list: Council finds for a number of reasons to distinguish large gas stations, parens, designated for more, for 3.6 million or more gallons sold per year, comma, from smaller gas stations. And Item 5 says: As indicated by the comments of the Maryland Air and Radiation Management Administration and in academic literature, the gasoline station business changed in the early 1990s when the superstation or hypermarket first appeared on the scene. These stations are vastly different from the small town, low-volume local gasoline station. These, quote, superstations, unquote, have gone from zero percent of gasoline distribution in the country to 16 percent in the past two decades. Is that what you're referencing?

MR. SILVERMAN: I'm referencing that letter, yes. Well, let me move on because I'm obviously not quite ready with this one. Maybe --
MR. GROSSMAN: Okay.
MR. SILVERMAN: -- we'll have it better later.
BY MR. SILVERMAN:
Q Could we go to your slides?
A All right.
MR. GOECKE: Do we need to turn this back on, David?
THE WITNESS: Yeah, please.
BY MR. SILVERMAN:
Q And could we go to the slide that references the, the school-siting guidelines, which are also referenced by the County Council?
A Okay.
MR. GROSSMAN: I'm sorry. What was also referenced by the County Council?
MR. SILVERMAN: The school-siting guidelines, which I think is also in the record.
MR. GROSSMAN: And where was that referenced? Oh, I see, No. 2: The EPA, in its --
MR. SILVERMAN: Yes.
MR. GROSSMAN: -- 2011 school-siting guidelines --
MR. SILVERMAN: Right.

MR. GROSSMAN: -- recommended using 3.6 million gallons as the size at which gasoline stations should be treated differently.
MR. SILVERMAN: Yes.
MR. GROSSMAN: Is that what you're talking about --
MR. SILVERMAN: Yes.
MR. GROSSMAN: -- Item 2? Okay. Item 2 on page 3.
THE WITNESS: Do you have the slide number, Mr. Silverman?
BY MR. SILVERMAN:
Q I think it was the --
MR. BRANN: David, Mike said 65.
THE WITNESS: Which one?
MR. BRANN: Sixty-five.
THE WITNESS: Sixty-five?
BY MR. SILVERMAN:
Q Yes, I think it's one of the later slides.
A Wait, I'll get there. Here it is here.
Q Yes, that one. Yes, you --
A I'll bring it up properly.
Q -- referenced the CARB language, but below that there's language from the school-siting guidelines.
A Yeah. Let me just get this slide up.

Q Okay.
A Okay.
Q All right. As we all can see, it says: If -- what's an LEA?
A Yeah, I don't recall what the LEA stands for. This is a school-siting guidance. So I presume --
Q If I --
A -- it pertains to some government entity that is responsible for siting a school.
Q Yes. Local Education Authority, would that, would that --
A That sounds good.
Q That sounds good. Okay, good. So it suggests that when -- it suggests that the Local Education Authority in these cases, where there, where there's a risk identified, that they, they hire someone to perform risk assessment. Is that the same as an -- yes, in this case, I just want to get back to where we were, is there any, is there any government agency, any responsible, any agency responsible for health or environment that has stated that they agree with your conclusions, other -- well, no. Is there any? Is there any government agency or government official who has stated that they agree with your conclusions, they have studied your report and they concur with what you're saying?

MR. GOECKE: Objection, relevance.
MR. SILVERMAN: Well, he --
MR. GROSSMAN: I think it's, it's all right. I will overrule the objection. Do you know of any government agency that's reviewed your report in this case and approved it?
THE WITNESS: There's been no government agency that had staff with experience in air quality modeling that have reviewed this and opined. The only, the only government agency that opined was Parks and Planning, and during the hearing, I don't remember the date, they, Ms. Lindsey did indicate that she was not experienced in these matters.
MR. GROSSMAN: This is during the Planning Board hearing?
THE WITNESS: Yes, thank you.
BY MR. SILVERMAN:
Q Now, when you apply for a permit under the Clean Air Act, or a power plant or a solid waste facility or whatever, you indicated you do similar sorts of analyses to determine if you're in compliance with the air quality standards, is that right?
A Similar to the modeling we've done here?
Q Yes.
A That's correct.

Q But in those cases there is, there is an official of government with training and experience who is looking over your shoulder, is that not correct?
A Well, I mean, your report is submitted to the agency that's issuing the permit, and they evaluate it per their procedures --
Q Right.
A -- and either approve or disapprove.
Q And when the EPA is involved or certain states are involved, they generally have some knowledge and background in this, they've done it before, is that right?
A Well, certainly.
Q There's no such umpire now. We just have you.
MR. GROSSMAN: How about me?
MR. SILVERMAN: Well, that's what I was going to say. Where angels fear to tread, Mr. Grossman.
MR. GROSSMAN: I mean, I don't think that any applicant will suggest that there aren't enough government agencies overlooking them in this jurisdiction. They are reviewed by technical staff, they are reviewed by the Planning Board, they are reviewed by a hearing examiner, they will be reviewed by the Board of Appeals, and then if this goes to a court, they'll be reviewed by a court. So I don't know that you can make that assumption.
MR. SILVERMAN: Well, the agencies that normally

protect health and environment have sort of taken a pass because they don't have the qualifications.
MR. GROSSMAN: I don't know that you can say that. I mean, who's taken a pass?
MR. SILVERMAN: Department of --
MR. GROSSMAN: Who's had it in front of them, other than technical staff and the Planning Board and myself thus far, as a reviewing agency?
BY MR. SILVERMAN:
Q Is it not true that the Department of Health and Department of Environmental Protection were asked to, were asked to give an opinion to the County Council on this issue? Were you there when they were asked that?
A Well, I know the Department of Health was asked to make a decision, and we met with them and they, they indicated they weren't qualified to review the work --
Q Right.
A -- but when you said that everybody took a pass, that is not true, because the agency that has primary authority in Maryland regulating gasolines is the Maryland Department of the Environment and they have very specific regulations in place, and a permit is applied for for a gas station based upon engineering controls. And the reason no agency reviewed this work is because he really, honestly, shouldn't have even done modeling, because as has been

shown, the results are so low that we're --
Q Wait a minute. Wait. Excuse me.
A -- we're talking about numbers that are way below the standards.
Q Excuse me. The reason they didn't do it is because, the reason they didn't do it is because they have no authority to do it, isn't that correct?
A The Maryland Department of the Environment has authority to regulate gasolines and they do.
Q By various technology controls?
A They do not require air quality modeling-related permit work to get a gas station permit to operate.
Q Well, that's right, and they don't require finding that the gas station will or will not conform to the National Air Quality, Ambient Air Quality Standards either, do they?
A Well, as I mentioned, if you look at the results for this large gas --
Q Well, wait. I just asked you a question.
A I'm answering your question.
MR. GROSSMAN: Well, he can answer it.
MR. SILVERMAN: Okay.
THE WITNESS: If you look at the results from this application here, a 12-million-gallon-a-year gas station, an objective look at the concentrations we have modeled

relative to the standards, it's way below the standards and there'd be no objective reason that MDE would have to make every applicant for a gas station do an extensive dispersion modeling analysis if a large one like this has such low numbers.
BY MR. SILVERMAN:
Q Well, according to you, they have such low numbers, but they never even reviewed your work in detail, did they?
MR. GROSSMAN: I don't understand. Why would they at this juncture? Isn't the process for this county that this is the process you go through for a special exception? I mean, if there are permits required later, if a special exception were granted here and permits were required later, I guess whoever is the permitting authority would then look at whatever they have to review, but why --
MR. SILVERMAN: Well --
MR. GROSSMAN: -- I don't understand where that gets us. What are you suggesting --
MR. SILVERMAN: If I --
MR. GROSSMAN: -- that somebody else should have reviewed this but didn't?
MR. SILVERMAN: No. I'm just suggesting that the only, the only person in government, other than the Planning staff, who can make a finding, make the ultimate finding

about health and safety is you, sir; that you have no, you have no support from other government agencies who do this all the time.
MR. GROSSMAN: No. I'm going to base it on the evidence that is presented to me.
MR. SILVERMAN: Okay. Just letting us know. Now, I did find the --
MR. GROSSMAN: I do have support from other agencies. I have support from the technical staff --
MR. SILVERMAN: Exactly.
MR. GROSSMAN: -- and the Planning Board --
MR. SILVERMAN: Yes.
MR. GROSSMAN: -- and all the evidence that both sides, who are extremely well-informed in this case and well-prepared, will present to me. So --
MR. SILVERMAN: Well, I admire you. I did find the document that, that I was searching for. It's Exhibit 90(b).
MR. GROSSMAN: Okay. Let's --
MS. ROSENFELD: And, Mr. Grossman, I think it's part of 90(b). You're going to need to look -- I think there's actually several documents that are in 90(b).
MR. GROSSMAN: I see.
MR. SILVERMAN: This one has the Maryland Department of Environment letterhead on it.

MR. GROSSMAN: Okay. Hold on a second. I found 90. So 90(b) -- ah, 90(b). Okay. That's Exhibit W from Mr. Silverman. How far down into 90(b) should I go, Mr. Silverman, to find this document?
MS. ROSENFELD: I actually think it was just about at the very end.
MR. GROSSMAN: At the very end? Okay, let's see. I got EPA letter, Item 6. Is that what you're talking about?
MR. SILVERMAN: Yes. No, it's Department, Maryland Department of Environment.
MR. GROSSMAN: Oh, okay. Let me see.
THE WITNESS: Lisa Nissley, who is the author, I believe.
MR. GROSSMAN: What item was it in your --
MS. ROSENFELD: 90(b) is called Analysis of the Clean Air Act on your exhibit list.
MR. GROSSMAN: Yes, but I'm just trying to find the specific letter that he's referencing. Mr. Silverman, do you want to come up --
MR. SILVERMAN: I have it here.
MR. GROSSMAN: Okay.
MR. ADELMAN: Page 12.
MR. SILVERMAN: Page 12, I understand.
MR. GROSSMAN: Page 12.

MR. SILVERMAN: Yes. You got that list?
MR. GOECKE: Yes.
MR. SILVERMAN: Okay.
MR. GROSSMAN: I don't think it's fair that all of you found it and I can't. I'll tell you what. I'm going to take this out of here. All right. Okay, Maryland Department of the Environment.
MR. SILVERMAN: There we go, good. Can I show this to the witness?
MR. GROSSMAN: Yes.
MR. SILVERMAN: Thank you.
MR. GROSSMAN: July 10, 2012 --
MR. SILVERMAN: Yes.
MR. GROSSMAN: -- it's a letter to you.
MR. SILVERMAN: Yes.
MR. GOECKE: Well, I would object to this line of questioning, Mr. Grossman, because this letter is a hearsay document, as Mr. Silverman has been objecting to for the last few days now.
MR. GROSSMAN: All right. Well, hold on one second. I started looking for a page. I see page, one page of this, but there ought to be -- is there a second page to this letter?
MR. SILVERMAN: It's three pages.
MR. GROSSMAN: I'm not seeing that. Hold on.

MR. GOECKE: I mean, obviously we haven't heard the question yet, but I just --
MR. GROSSMAN: Right. It's not there. See, my copy doesn't have three pages, I don't believe. Oh, maybe it goes this way. Hold on a second. I may have misspoken. Okay. And that's from Angelo Bianca --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- deputy director, Air and Radiation Management Administration?
MR. SILVERMAN: Yes.
MR. GROSSMAN: Okay. And --
MR. SILVERMAN: And this was the very same letter that was referenced by the County Council.
MR. GROSSMAN: Okay. And how do we know that?
MR. GOECKE: Yes, how do we know that?
MR. SILVERMAN: Because they say they reference it.
MS. ROSENFELD: This is the letter that you were referencing in paragraph 5: As indicated --
MR. GROSSMAN: And --
MS. ROSENFELD: -- by the comments of the Maryland Air and Radiation Management Administration.
MR. GROSSMAN: Right, but how do I know that those are the comments they're referencing?
MR. SILVERMAN: Well, that's a good question. I,

I know they were, they are, and I -- do you know otherwise? You were present at the, at the hearing for the ZTA. I think Ms. Harris will recall that this letter was before --
MS. HARRIS: Oh, me?
MR. SILVERMAN: Yes.
MS. HARRIS: Oh, I'm sorry. I thought you were asking Ms. Cordry.
MS. CORDRY: No. I can't help.
MS. HARRIS: The question, can you repeat the question?
MR. SILVERMAN: Yes. The question is whether or not you recall the letter from the Maryland Department of the Environment being before the County Council and being discussed by the County Council and referenced in their report.
MR. GROSSMAN: That is a July 10, 2012, letter to Larry Silverman from Angelo Bianca, deputy director of Air and Radiation Management Administration. Is that the letter that the Council --
MS. HARRIS: I really don't know, and in fact --
MR. GROSSMAN: Okay.
MS. HARRIS: -- when Mr. Grossman first noted this paragraph 5, I was assuming that he was going to say an MDE letter because that's how we've always referred to it. I'd also note that this says by the comments. It doesn't

necessarily indicate that they were written comments. So I really can't connect that paragraph 5 to this letter.

MR. GROSSMAN: Okay. Do you have any information as to the, challenging the authenticity of this letter? That is, it has a heading from the Maryland Department of the Environment on their stationary and --

MS. HARRIS: No, I'm --

MR. GROSSMAN: -- the apparent original signature. It's been in the file for some time now. Do you challenge the authenticity --

MS. HARRIS: No, I --

MR. GROSSMAN: -- of this letter?

MS. HARRIS: No, I don't.

MR. GROSSMAN: Okay. Then I'm going to let him ask his question, and let's see if there's something objectionable in the question.

BY MR. SILVERMAN:

Q Okay. I would like you to read --

MR. SILVERMAN: If I may approach?

MR. GROSSMAN: Yes.

BY MR. SILVERMAN:

Q This is the second paragraph, talking about: There are a number of.

MR. GROSSMAN: Do you want him to read it out loud?

MR. SILVERMAN: Yes.

BY MR. SILVERMAN:

Q If you would.

MR. GROSSMAN: Okay.

MR. GOECKE: I'm sorry. On which page?

MR. SILVERMAN: First page, second paragraph, the end, last half of the paragraph.

MR. GROSSMAN: First page, second paragraph, right in the middle of the paragraph: There are a number of.

THE WITNESS: There are a number of petroleum-based toxic air pollutants that are emitted from gasoline stations that pose some level of risk to public health from the delivery and dispensing of fuel and the idling of vehicles. The difficulties are quantifying that risk, especially the incremental risk beyond existing levels, and determining what risk level is acceptable. A further complication is that available tools do not capture very well the cumulative effects of multiple toxic air pollutants or the incremental effect a single pollutant from multiple sources may have on public health. Given these issues and those mentioned later, the more distance that can be placed between a source and residence and at community gathering places is certainly beneficial to minimizing risk.

MR. GROSSMAN: Okay.

BY MR. SILVERMAN:

Q Thank you. Were you familiar with this letter, sir?

A Yes.

MR. GROSSMAN: Do you have any argument with that sentiment that was expressed in that piece that you just read?

THE WITNESS: I have perspective on it. I mean, I've spoken to Mr. Bianca as well as his supervisor, Tad Aburn, who's the director, and you know, I know that in terms of -- they've seen the modeling that we've done, and they had no concerns about the modeling, and I know that they shared it with --

MR. SILVERMAN: Objection.

THE WITNESS: -- they or you shared it with the EPA, but the issue is anyone would agree that the more distance between a ground-level source like this and the point of receptor will decrease concentration. That's a fundamental fact, but the critical question is, are the levels safe with the site-specific conditions we have here, and if they are safe at those conditions, what benefit is there from the additional distance? You can apply that to any gasoline facility, and it'll all be offshore.

So my point is, yes, I'm aware of the letter, MDE; in fact, I asked if we could meet with them, the modeling staff, with Dr. Cole and myself, to try to, to achieve

consensus on the overall approach, and they frankly didn't want to get involved with that level of detail. But the fact is that that letter simply states a fundamental truth: the more distance, the lower concentration.

MR. GROSSMAN: So to boil down what your answer is to my question is you don't disagree with the sentiment expressed in that passage?

THE WITNESS: I don't.

MR. GROSSMAN: Okay.

MR. SILVERMAN: I didn't hear you, sir. I'm sorry.

MR. GROSSMAN: I said, to boil down --

MR. SILVERMAN: Yes.

MR. GROSSMAN: -- his answer to my question is that he does not disagree with the sentiment expressed in the passage of that letter that he read --

MR. SILVERMAN: Right.

MR. GROSSMAN: -- that the greater the distance, essentially, from the pollutants, the more diminished the impact, I suppose you could say.

THE WITNESS: Yeah. The only clarification was that I don't think it should be interpreted to say that, that there's insufficient distance for the Costco gas station, and it doesn't say that at all.

MR. GROSSMAN: Okay.

BY MR. SILVERMAN:
Q No, it doesn't really speak to the Costco gas station. It just says, as a matter of prudence, it's good to keep your distance. And you agree with that?
MR. GROSSMAN: But I mean, does that really help us? So the question here is, keep what distance? I mean --
MR. SILVERMAN: Well, that's --
MR. GROSSMAN: -- obviously, if it were a thousand miles away, it would have less impact --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- and if it was right next door to you, 10 feet away, it would have more impact. This is common sense.
MR. SILVERMAN: Right.
BY MR. SILVERMAN:
Q And tell me, now, are all, do all the impacts of all pollution sources vary with distance, or are some of them less, less sensitive to distance calculations?
A Well, depending upon the height of the source and the physical characteristics of the buildings it's next to and other features, some sources actually have zero impact until a certain distance is reached, and their maximum -- the maximum effect there, it may be some distance downwind. A smokestack from a power plant would be an example of that.
Q Now, in the school-siting guidelines, isn't it a

fact that the EPA suggested distance is the best protector for schools?
A I don't recall that specific language.
Q Don't they set some criteria for a setting, that a school should be 300 feet away from certain uses and a half a mile away from other uses and so forth?
A They don't say that.
Q They don't?
A No.
Q They raise a caution flag that if the school is within certain distances, there may be a problem, would you agree with that?
A Well, they, they have a screening procedure that allows a jurisdiction to make a determination if a more site-specific analysis is needed or they should go to a different site, but nowhere does EPA say you shouldn't build a gas station within 300 feet of a school.
Q And what is their advice to agencies that don't have the resources to do a site-specific study?
A I believe they're silent on that. I don't recall them giving advice. They indicate that if you're going -- my recollection, I'm going to paragraph, that if you're going to build a school that's a closer distance than their screening nomograms say it should be, you should do a site-specific analysis or build somewhere else.

Q Who should do the site-specific analysis?
A They don't -- I don't recall them saying who should do it. They --
Q Well, I thought that --
A -- leave that as an option.
Q I thought they just said the LEA should do it, the government agency should do it. I thought that's what we just read from your slide. Is that, am I getting that wrong?
A Well, we can bring the slide up.
MR. GROSSMAN: What difference does that make whether they said LEA or not? I don't understand where we're getting at.
MR. SILVERMAN: Well, this is a -- let me develop that if I may because I think --
MR. GROSSMAN: All right.
MR. SILVERMAN: -- I'd like to answer your question.
MR. GROSSMAN: Okay.
MR. SILVERMAN: And I think this is a relevant question.
BY MR. SILVERMAN:
Q Mr. Sullivan, how much has it cost Costco to do your site-specific analysis so far?
A $370,000 --

Q Okay. So --
A -- up through the end of -- where are we at? End of May.
Q Well, not all school boards and communities, community groups have that kind of resources. You agree with that, don't you?
A I have no comment on that.
Q What's that?
A I don't know.
Q You don't know. If all it says is anyone can be hired by anyone to do a site-specific analysis and it's okay, we have to approve it or we have to do our own site-specific analysis, it sort of puts a, it sort of puts the wealthier applicant in a better position vis-à-vis local government and community groups, doesn't it?
MR. GOECKE: Objection.
MR. GROSSMAN: Yes, sustained.
MR. SILVERMAN: Okay.
MR. GROSSMAN: Where is this going? I'm perfectly willing to hear any --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- cross-examination question that pertains to the issues that are before me but that does not. The value of the evidence that he presented should be evaluated based on its value, not on any of these extrinsic

things you seem to be pointing to. So if they spent more money doing it, maybe it's more thorough. I don't know.
MR. SILVERMAN: Right.
MR. GROSSMAN: I just --
MR. SILVERMAN: Let me -- actually, could we take a break? I would appreciate that.
MR. GROSSMAN: Sure.
MR. SILVERMAN: Thank you.
MR. GROSSMAN: All right. It's 3:30. We'll come back at about 3:35.
(Whereupon, a brief recess was taken.)
MR. GROSSMAN: All right. Are we all ready to resume? Mr. Silverman --
MR. SILVERMAN: Yes, thank you.
MR. GROSSMAN: -- the ball is in your court.
MR. SILVERMAN: Yes.
BY MR. SILVERMAN:
Q Mr. Sullivan, are you familiar with the acronym PSD?
A Yes, I am.
Q What is that? Could you tell us what that is?
A Prevention of significant deterioration.
Q And how about SIL?
A SIL, significance level. I'm not sure of the exact acronym.

Q And do you know what the concept is?
A Are you referring to significance impact levels?
Q Yes.
A Correct.
MR. GROSSMAN: I don't. Do you want to fill me in?
MR. SILVERMAN: Yes. All right.
BY MR. SILVERMAN:
Q When you talked about sort of de minimis changes, you were, you were referencing the significant impact levels that EPA has designated in determining whether a particular facility will cause a degradation of the environment, even if it doesn't violate standards, is that right?
A That's what I was referring to, yes.
Q So EPA has certain rules, even when you don't violate standards, where they're concerned that a particular source will use up too much of what's left. Would that be fair?
MR. GROSSMAN: Too much of what's left? I don't --
MR. SILVERMAN: Too much of the -- will bring the air pollution levels higher and use up that margin between the current conditions and a violation of standards.
MR. GROSSMAN: I see.
THE WITNESS: That wasn't fully accurate what you

just said.
BY MR. SILVERMAN:
Q Okay. You tell me.
A That -- EPA has that program. It only applies to what they define a major source. So this particular facility is not a major source.
Q As a matter of law, it doesn't apply here, but the, when you used, I think it was .3 micrograms per meter as being, as being the level of significance for a change --
A I used it as an example of how EPA has defined Level 2 PSD, which this region would be, what they've defined as being a significance level for PM 2.5 annual concentrations.
Q I'm sorry for the acronym. I don't -- SIL, that's significant increment, you used that, you're using that to say that this particular change is not significant, is that not correct?
A I simply was trying to -- in response to Parks and Planning staff, they suggested why don't you, in presenting information, make it clear what -- what does EPA consider to be a significant versus insignificant level of a pollutant such as PM 2.5. And so in that context, we used that particular example as here's an example of how EPA has defined what's significant and what's not. We're not saying that PSD applies, because it doesn't. We're just using it

as a reference point.
Q A reference point. And the significant increment is the reference point you use?
A That's correct.
Q Are you aware of the case of Sierra Club versus EPA, decided by the United States Court of Appeals for the District of Columbia on January 23rd, 2013?
A What does this pertain to?
Q It's about PSD and SIL, prevention of significant deterioration and significant incremental levels.
A I haven't seen that document.
Q Do you know or have you read in the trade papers that, that EPA has withdrawn its numbers for significant incremental levels?
A I, I haven't seen these documents. I don't know.
Q Okay.
MR. SILVERMAN: Now, Mr. Grossman, do cases like that have to be put in the record, or is the citation sufficient?
MR. GROSSMAN: Well, it is sufficient to have the citation if you're citing it for a legal conclusion. If you're citing it for some factual material in some way, I guess you'd want to have the copy in the record, but --
MR. SILVERMAN: Well, I will, I will make that available to all parties by e-mail, and I'll bring it in the

next time.
MR. GROSSMAN: And what is the citation?
MR. SILVERMAN: I don't have the F.3d, but it's Sierra Club versus the EPA, and it was handed down January 23rd, 2013.
MR. GROSSMAN: And do you have the F cite?
MR. SILVERMAN: I do not. I --
MR. GROSSMAN: Okay. Or U.S. App. D.C.?
MR. SILVERMAN: I think --
MS. CORDRY: I should be able to get it in a moment.
MR. SILVERMAN: Yes, my abled colleague here will --
MR. GROSSMAN: You're saying it's the U.S. Court of Appeals for the D.C. Circuit?
MR. SILVERMAN: U.S. Court of Appeals for the D.C. Circuit, yes, sir.
MR. GROSSMAN: Okay. And what's the proposition for which you're citing it?
MR. SILVERMAN: The proposition is that the number of what's significant or what's de minimis in terms of an increase in increment does not violate the air quality standards but that that -- that number that Mr. Sullivan referenced is no longer operative, and what the new numbers will be we don't know, but that was withdrawn by EPA.

MS. CORDRY: I can tell you this much, and I'll see if I can find a better cite. It's No. 10-1430 -- 10-1413, decided January 22nd. I'm still not finding it.
MR. GROSSMAN: January 22nd or 23rd?
MS. CORDRY: 22nd.
MR. SILVERMAN: Oh.
MS. CORDRY: 1/13, it looks like. Let me try it on Lexis.
MR. GROSSMAN: Okay. But it should be --
MR. SILVERMAN: It should be. It should be, yes.
MR. GROSSMAN: -- since it's a January case, you should have --
MS. CORDRY: I'm -- yes.
MR. GROSSMAN: -- the cites should be available, the full cite should be available.
MS. CORDRY: Yes. Let me look.
MR. SILVERMAN: My LexisNexis last night kind of blinked out. So --
MR. GROSSMAN: All right.
MR. SILVERMAN: -- but I'll, I'll have it.
BY MR. SILVERMAN:
Q So you say the prevention of significant deterioration is not an applicable rule of law, but you do rely, would it be correct to say, on the significant incremental levels in saying that this is not significant

but this is de minimis? Would that be right?
A I think rely is too strong a word. What I said was, I used that .3 value as an example of what EPA has used to define significance. And in terms of did that affect my modeling that I've done, no, it did not. It was simply a point of reference to compare the .01 to some defined significance level. That's all it was.
Q Now, the doctrine prevention of --
MR. GROSSMAN: Do you challenge that --
MR. SILVERMAN: What's that?
MR. GROSSMAN: -- that proposition, by the way? The witness says he wasn't citing it as something that has to be relied on here per se, that has now been overturned as an EPA standard, but just for a basis for comparison; it's a value that EPA did use, and his is so far under that as to be a diminishing number.
MR. SILVERMAN: Well, if there is --
MR. GROSSMAN: I mean, do you --
MS. CORDRY: I would say, one, let me give you the cite, which is 705 --
MR. GROSSMAN: Hold on one second. 705?
MS. CORDRY: Yes. F.3d 458.
MR. GROSSMAN: 458?
MS. CORDRY: Correct.
MR. GROSSMAN: Okay.

MS. CORDRY: And I think if you read the case, you know, it deals with the question of is it truly de minimis, has it been revoked, why does EPA not use that number anymore. So I think it is a meaningful --
MR. GROSSMAN: Well, he was using it as .3 versus -- what's the --
THE WITNESS: 0.01.
MR. GROSSMAN: Versus 0.01.
MS. CORDRY: I understand, but --
MR. GROSSMAN: That's such a massive distinction that -- that's not a valid point, you don't think?
MS. CORDRY: Perhaps not. Perhaps not after reading the opinion.
MR. GROSSMAN: Okay.
MR. SILVERMAN: Yes. I mean, really --
BY MR. SILVERMAN:
Q You indicated that for some of the pollutants, that the gas station would result in using up maybe 25, bringing us closer to violations by 25 percent or 32 percent. You used some -- is that correct?
A I showed an example of changing what the -- changing the queue would take us from 28 to 32 percent based upon modeling only, without background. That's what I said.
Q Right. And isn't the idea of prevention of significant determination to leave some room between the

current conditions and violations so that the economy can develop properly?
A As I mentioned, prevention of significant deterioration has nothing to do with small sources of this nature. It's just apples and oranges.
Q Well, you were the one who brought in, you -- I think you had PSD on one of your slides, and you brought in the SIL, and so I, that's why I -- you used it sometimes, but obviously it doesn't, I agree with you, it doesn't apply as a matter of law. It's just whether the principle can be used and whether it's a good principle to follow. And so --
A What principle?
Q The principle that you should be chary of using up such the distance between your current conditions and violation, that you should be very careful about doing that, particularly when you're, when you're jumping it by 25 or 30 percent. That's the principle. Do you think that's correct?
A Is that a question? I'm sorry.
MR. GROSSMAN: Well, I think that --
BY MR. SILVERMAN:
Q No. I answered your question.
A Oh, okay.
MR. GROSSMAN: Yes. But are you suggesting that, that the proposed gas station would jump the distance by 25

or 30 percent?
BY MR. SILVERMAN:
Q Well, didn't you testify to that?
MS. CORDRY: It clearly does.
THE WITNESS: No. I mean, I testified to the fact that the eight-hour CO was at 28 percent, based upon modeling, of a standard and it would go up to 32 percent of the standard.
MR. GROSSMAN: But what portion of this is the gas station, is related to the gas station's predicted operations?
THE WITNESS: It's a small percentage, and it varies by pollutant and averaging time, but I had slides earlier that showed --
MR. GROSSMAN: Right.
THE WITNESS: -- those bar charts that showed the background and the increment. It's quite small, the increment from Costco.
MR. GROSSMAN: Yes. That's why -- I just want to make sure we don't have a disconnect on what the evidence is here. As a proposition, okay, we can agree, you have to be chary about, about using up any space you have between existence and a violation, but his, his evidence, as I understood it, is that the proposed gasoline station is a very, very small sliver of that distance. That's his --

MS. CORDRY: I think that was with --
MR. GROSSMAN: -- I think, his evidence. Am I wrong, Ms. Cordry?
MS. CORDRY: His evidence is with respect to PM 2.5, Your Honor.
MR. GROSSMAN: Pardon me?
MS. CORDRY: That was his evidence with respect to particulate matters 2.5. There are --
MR. GROSSMAN: Right.
MS. CORDRY: -- several other pollutants, and if you look at those, I think you will see -- and we can deal with this more through our own evidence -- that it uses up a great deal of the distance between the background and the standard.
MR. GROSSMAN: Are you talking about with the CO and the nitrous dioxide?
MS. CORDRY: For instance, the -- yes. For instance, the CO -- let's see, this would be like on his Slide 36 -- the CO standard for eight hours is 10,000, for instance, and the background is 1145, so about 10 percent. The amount that's added at the pool and the school is three times the background and brings you up to 45 or 47 percent. So that is a large -- that is not an insignificant change. That is tripling the background level, 300 percent of the background level, and brings you to 50 percent of the total

maximum before you're in violation of the standard. So, yes, I think our position would be --
MR. GROSSMAN: Okay. That's --
MS. CORDRY: -- that that is not an insignificant number.
MR. GROSSMAN: That would be a more significant move for sure. I understand your position about that. Is that an accurate summary of your testimony as far as CO is concerned?
THE WITNESS: You're referring to the eight-hour CO value?
MS. CORDRY: Right --
THE WITNESS: Okay.
MS. CORDRY: -- I'm showing that chart right there.
THE WITNESS: Well, what this is showing here is the background is 1145 --
MS. CORDRY: Yes.
THE WITNESS: -- and that at the school, the pool, and the home it's going to within what, 33 to 47 percent of the standard. So yes, it clearly went up, but the protective standard is 10,000.
MS. CORDRY: I understand, but the question was, is it an insignificant increase, and our point was --
MR. GROSSMAN: Right. I mean, I --

MS. CORDRY: -- that that is not the same kind of insignificant increase.
MR. GROSSMAN: That's fair. It's not as insignificant as the particulate matter --
MS. CORDRY: It's not at all insignificant.
MR. GROSSMAN: -- it's, if I understand correctly, but it's still well below the, it's well below --
MS. CORDRY: Well --
MR. GROSSMAN: -- the standard, but it is not insignificant. I --
MS. CORDRY: But that gets --
MR. GROSSMAN: -- think that's a fair point.
MS. CORDRY: Right, which gets back to the PSD concept.
MR. GROSSMAN: Okay. All right, fair enough. All right, thank you.
MR. SILVERMAN: Yes.
BY MR. SILVERMAN:
Q Let me go back to the relationship between distance and levels of risk to receptors. If, for PM 2.5 or for CO, if you have a major source and it's 400 feet away from a receptor and then you move it 200 feet closer, does the receptor experience twice as much pollution or more?
A It depends.
Q On what?

A Depends on the nature of the source, how it's released, what the height of the release is, what buildings are around it, dispersion conditions. It depends.
Q Could you postulate the simplest case so that we just get, develop the principle? You don't agree to the principle that for certain pollutants the closer you are, the worse the impact. Do you agree with that, or you don't agree with that?
A For certain sources --
Q Yes.
A -- the closer you are, the greater the impact?
Q Yes.
A I do agree with that.
Q Okay.
MR. GROSSMAN: I think the distinction he made is if it's, for example, a smokestack --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- it may be at a much higher level instead of the --
MR. SILVERMAN: Much, yes, much --
MR. GROSSMAN: So that's a little different.
BY MR. SILVERMAN:
Q Let's talk about ground-level pollution because that's what we're talking about. By ground level, I mean, you know, one to 10 feet --

MR. GROSSMAN: Okay.
BY MR. SILVERMAN:
Q -- or zero to 10 feet. And does, does the impact vary -- what's the right word? I forgot my math -- vary proportionally, or does it vary logarithmically or something between?
A Well, that depends too. I mean, how -- I mean, how it drops off with distance?
Q Yes.
A It depends on the meteorological conditions at the time.
Q Right. Well, as a general rule, do you -- well given, given the same meteorological conditions, let's say they're fairly calm, given the same conditions, if you move 50 percent closer, does the dose, your word, does the dose increase by 50 percent or does it increase by more?
A Again, it depends. I mean, if it's stable conditions without much mixing in the atmosphere, as you change there's less of a change in distance. If it's unstable conditions, like will happen a lot at the mall during daytime sunny conditions, with light winds, it'll change very rapidly. So it really, it really depends upon the conditions you're talking about.
Q It's not necessarily just proportional; it could be, it could be logarithmic?

A It won't be necessarily linear, correct.
Q It will not be linear. That's the word I'm looking for. Thank you. Thank you. It's been a while since I've done math. Yes, it's not, it's not necessarily linear; it could be more severe as you get closer?
A Or it could be less.
Q Or it -- right. Okay. So distance counts?
A Well, certainly, concentration for any source is a function of distance from the source and height above the ground, exactly.
Q Is there any distance from this station that you think would cause a problem for people, the receptors?
MR. GROSSMAN: I'm not sure what you mean by cause a problem. Can you hone that question a little bit?
MR. SILVERMAN: Yes.
BY MR. SILVERMAN:
Q Would the risks -- well, let's see.
MR. SILVERMAN: Give me a second.
MR. GROSSMAN: Sure.
BY MR. SILVERMAN:
Q Well, I'll just say simply, is there any distance from this gas station that you would consider unsafe? If a person were two feet away for eight hours a day, would that be unsafe?
A Assume they lived next to the --

Q Right next to it.
A -- island at the gas station?
Q Yes.
A Well, we didn't have receptors, you know, quite like, quite like that, but if you look at the plots that we did show -- and those plots are based upon rural conditions which really wouldn't apply within the gas station complex -- I don't recall seeing any concentrations that were above the standards at any location.
Q That were above the standard? Oh, okay. So that when Costco had put in some testimony, which -- the relevance of which was a question, if they have large gas stations like this 50 feet from people, you wouldn't, you wouldn't consider them unsafe?
A Well, is your -- to clarify your question, if you're asking me would I, do I believe that if, if a residence was 50 feet from the Costco gas station, would it meet the National Ambient Air Quality Standards and would be less than 10 in a million, then my answer would be it would meet those, those criteria.
Q Okay. All right. Getting back to MOVES and MOBILE6, you threw in some factors for the, to account for the potential differences, a 2.5. You divided things by 2.5. Is that, did I get that right?
A We increased the emission rates by 2.5 --

Q Right. Okay.
A -- for idling sources.
Q Right. Did you use that 2.5 factor all along? Suppose, for example, there was significant idling by trucks on the ring road trying to get into the loading docks. Did you use that 2.5 for the ring road?
A We didn't explicitly put it in there, but as I mentioned, the gasoline delivery trucks, we used a higher emission rate. We used the 2013 fleet rather than the clean diesel. So in that context, we do have a factor in there, which could be on the order of 2.5.
Q You didn't explicitly use that 2.5 for problems along the ring road -- stalling, not stalling, idling along the ring road?
A We didn't model idling on the ring road.
Q You don't anticipate any idling on the ring road?
A We modeled the free flow, 15 miles an hour on the ring road.
Q Okay. And if evidence should be brought forth that that's not the case, that there is significant idling and congestion on the ring road at certain times of day, that would, that would have, that would suggest your model doesn't quite capture the real situation?
A Well, if that information became available, I'd consider it.

Q Okay. Let's see.
MR. GROSSMAN: Do you have an expert who's going to testify to that, Mr. Silverman?
MR. SILVERMAN: We have eyewitnesses. I --
MS. CORDRY: I think that would be a fact witness, not an expert witness.
MR. SILVERMAN: Yes.
MR. GROSSMAN: Pardon me?
MS. CORDRY: I think that would be a fact witness, not an expert witness.
MR. GROSSMAN: Right, I understand.
MR. SILVERMAN: I liked Mr. Gang's expression, they never invited him to go up there. I'm sure if he had, he would -- well, I'm not sure and he might have testified differently. So we'll have people who have been invited. Excuse me while I fumble with papers.
MR. GROSSMAN: Certainly. That's a requirement in this case.
MR. SILVERMAN: Is it?
MR. ADELMAN: I think so.
BY MR. SILVERMAN:
Q Oh, yes. You are showing decreases in most air pollutants over the years, is that correct?
A I had a slide on that, yes.
Q Yes. And yes, I -- you probably take some pride

that you had something to do with making that happen.
A Well, I guess that didn't cross my mind when I brought it up. I mean --
Q Yes.
A -- I have helped some on air toxics. I don't take much credit for the reduction in air pollutants.
Q All right. But did you know that, that asthma rates among children are going up? Did you know that?
A I don't know that.
Q Okay. Well, we'll have some evidence on that. There's one part of yours which --
MR. GROSSMAN: Will the evidence include a source of that if that's in fact the case?
MR. SILVERMAN: Yes. Yes, we will have a source, and we'll try to circulate that source beforehand. And an expert, we'll have a couple of experts on that.
MR. GOECKE: And I'm sorry. Did he, I was just going to ask, are they going to provide new documents to support this?
MR. GROSSMAN: Yes, that's my question.
MR. SILVERMAN: Yes, we will, we will provide, we'll provide, we'll provide a reference and the document, sure.
MR. GROSSMAN: No, but the point is that it's supposed to be provided in advance.

MR. SILVERMAN: Well --
MR. GROSSMAN: If an organization provides an expert opinion and documentation of some --
MR. SILVERMAN: Well, I --
MS. ROSENFELD: Mr. Grossman, I think the evidence has already been filed. I believe it's already in the record.
MR. SILVERMAN: Yes.
MS. ROSENFELD: And certainly our --
MR. GROSSMAN: Okay. I just want to make sure that --
MS. ROSENFELD: -- certainly our experts have been identified and their testimony has been exhaustively covered. So --
MR. GROSSMAN: Okay. I just want to make sure that we're fair to all sides here and --
MR. SILVERMAN: Right.
MR. GROSSMAN: -- and that nobody's surprised.
MR. SILVERMAN: All right.
MS. ROSENFELD: Surprise has been another frequent element in this case.
MR. GROSSMAN: I don't think so. I think -- are you referencing the fact that the plans have changed in the course of this? I don't think there's been surprise. I think that the evidence that came in led the applicant to

try to adjust the plans. Whether or not that's ultimately going to happen given staff's take on it and all that, I don't know, but I don't think there was any -- I think that, as far as I can tell thus far from the applicant, they've been pretty open about supplying copies of everything and making sure that you've had, you know, ample advance warning of what they were doing. Am I wrong about that, and do you want to point me to a --
MS. ROSENFELD: Maybe it's just a question of perception.
MR. GROSSMAN: Well, point me to a problem that you've had. I mean, I try --
MS. ROSENFELD: Well, trying --
MR. GROSSMAN: -- I mean, I think I take pains --
MS. ROSENFELD: -- trying to testify on changed plans when we don't even have a copy in front of us. Ultimately they were provided, but you know, we were --
MR. GROSSMAN: Well, they were --
MS. ROSENFELD: -- verbally advised as to what the changes would be, were going to be, and the expectation was that we would be cross-examining witnesses on those. So, with that --
MR. GROSSMAN: Well, we did make sure that you had copies of those plans and that the changes, although I don't consider them immaterial, were not the kind that would have

prevented a cross-examination. And we certainly have a hearing that's going over, on over many days; so there's ample opportunity to cross-examine any witness who testified regarding any of those plans and to call them back if need be. So I think that, that, you know, it's not fair to make the assertion that you've been surprised and, in some way, prejudiced by it. If you are, you should let me know.
MS. ROSENFELD: And I'm not suggesting that. I mean, we certainly have had a good chance to cross-examine, but it has been a moving target.
MR. GROSSMAN: That sometimes happens in hearings like this, and as I said, I think when there was a change in plans, I think that it's a tribute to the opposition that you have been able to marshal evidence or, by cross-examination, make your points that maybe there should be some changes in plans. So, you know, it's appropriate that there be changes if they would improve the situation.
In any event, getting back to -- if your documents that you're going to supply are already, have been supplied, that's great.
MR. SILVERMAN: Okay. Thank you.
MR. GROSSMAN: Okay.
BY MR. SILVERMAN:
Q Going back to, to the wall, does the wall effect the movement of pollutants?

A It could under some circumstances. I've already testified on that that in the big scheme of things, I didn't think the wall was terribly significant in terms of transport or dispersion of pollutants in this case.
Q Yes. And did you also say that the wall might deflect some of the pollution away from the homes and towards the mall? Did you say that?
A I said earlier that -- and I think you pointed it out -- if the top of the plume is higher than that small rise in the ring road, that possibly it could have some deflection characteristics during -- but that would only really, in my view, apply if the mall had what we call stable conditions, restrictive dispersion, and based on the analysis I've done, it really is unlikely to have that.
Q So the wall will not deflect pollution from the Kensington Heights neighborhood?
A I, I do not expect significant deflection from that wall. It could happen under certain conditions. I'm not convinced those conditions will happen.
Q What is restrictive diversion?
A Referring to the fact that when you have light, light winds at night, clear skies, the surface of the earth can cool substantially and it can create what's called an inversion, meaning that it's very cold at the bottom and warmer as you go up. Under those conditions, a plume of

pollution will not mix very much; it'll stay pretty concentrated. And that condition happens in natural surfaces. It's very unlikely to occur in a warm surface with a tremendous amount of concrete and cement such as the mall. And, you know, we, although I acknowledge it's a limited study, we did evaluate those conditions and, as expected, confirmed that the mall was much warmer than the surrounding conditions and would be very unlikely to produce that type of condition.

Q And did you do any modeling for, for inside the mall, not inside the building, but inside the parking lots?

A We did.

Q You did?

A We did.

Q Could you reference that for me?

A What do you mean by reference that?

Q Where can I -- yes. Could you point to me where, for example, you modeled PM 2.5 for the inside of the mall, the area next to the gas station, not the building, but the, but the, let's say --

A Right.

Q -- the tire facility or parking areas right adjacent to the proposed gas station?

A I'm going to read from page 28 in the November 2012 report, and it's -- the titling of that section is

Receptor Grid, and what it says here is: For the 24-hour and annual risk assessments, only the residential areas outside of the Westfield Mall buffer zone are applicable. The modeling results, however, show all receptors for all averaging times to further support review.

So we had 8100, 8100 grid receptors and 16 discrete receptors. We didn't remove any receptors where the mall was. This statement simply said that we do not, in our judgment, feel that those averages apply on a 24- or annual basis because nobody spends all year or all day on that property, but we showed the results. It's shown in all the figures. It's shown in our -- if you don't agree, you can look at our receptor files, the root files for AERMOD. It shows, it shows 90-by-90 grid; every 25 meters we have a receptor. There's no subtraction for the mall.

Q I want to ask you about grilling hamburgers. I had a cheeseburger for lunch. So I feel guilty.

A Shouldn't have done that. There may be a lot of pollution.

MR. GROSSMAN: I feel jealous.

MR. SILVERMAN: Right.

BY MR. SILVERMAN:

Q So you were very careful to say you're not accusing McDonald's of anything, but do you regard those levels produced by, by these fast-food places as a matter of

concern? Do you regard them as concerning?

A You mean -- well, assuming all else is equal --

Q Yes.

A -- and we discussed earlier, as Mr. -- Mr. Grossman did point out that they have vents, and we discussed that, but the dilution, there's probably more dilution from those, but if you had a concentration 60 times higher than .01, would that be a cause for concern? Well, if it's, if background is 10.8 and you added a .6, you'd be at 11.4. It's under the standard. So in that context, you wouldn't expect to have an issue. As I pointed out very carefully, I'm not saying that these fast-food restaurants are causing a health risk.

MR. GOECKE: Based on their emissions.

THE WITNESS: Based on their emissions. The food may be a different matter.

BY MR. SILVERMAN:

Q Probably a good point. Did you include those fast-food restaurants in the background concentrations, or how do you account for them in your, in your earlier calculations as to what the background is?

A Well, as I mentioned, we accounted for background based upon the EPA standard methodology of adding any conservative regional monitoring. So, clearly, we did not model each of those 56 fast-food restaurants in the area.

Q Do you know what a child at the Stephen Knolls School is breathing, in terms of the pollutants we're talking about, every day?

A Well, I mean, we have made estimates based upon, as I mentioned, standard practice and have modeled operations and modeled the Georgia Avenue, which significantly affects the school, and the ring road as much as we could, and that certainly gives an indication of what their exposures are.

Q You took no measurements at the steps of the school or --

A I'm not aware of measurements that were taken at the school.

Q Has Costco invested any money in sort of trying to get a sense of what a person in the neighborhood, at the school, at the pool, what they're actually breathing on a day-to-day basis as they go in and out the McDonald's and fill up their car and walk past the gas station and so forth? Did you do any monitoring of individuals to see what their, the actual dose was, not projected or modeled, but actual? Have you done any of that?

MR. GOECKE: I'm going to object. I think there's a few questions in there. He's already testified that Costco spent significant amounts of money modeling this situation and that they have not taken any personal air

monitoring samples.
MR. GROSSMAN: Well, it's a bit repetitive, but he can answer the question. So I'll overrule.
THE WITNESS: You know, Costco has not done any personal -- you're referring to personal monitoring? It has not --
BY MR. SILVERMAN:
Q Or any other actual measurements.
A Well, certainly we have taken noise measurements, odor measurements in the neighborhood, and conducted an exploratory meteorological assessment of the Wheaton Mall area. So in that context, yes, some measurements have been taken.
Q But not of air quality parameters?
A No.
MR. GROSSMAN: Mr. Silverman, has the opposition taken any measurements --
MR. SILVERMAN: No, we have not.
MR. GROSSMAN: -- physical measurements?
MR. SILVERMAN: No, we have not, but we're -- we have neither the burden nor the cash, but we're considering it because I think somebody should have. I mean, that's what I think, and I think it should have been, if you ask me.
MR. GROSSMAN: Well, I just wanted to know, get an

idea of what the evidence --
MR. SILVERMAN: Yes. Yes. Right, yes.
MR. GROSSMAN: -- is, and I have to go by what the evidence is.
MR. SILVERMAN: Right.
MR. GROSSMAN: Okay.
MR. SILVERMAN: Well --
MS. CORDRY: Well, if he spent $370,000, I can guarantee you, as the treasurer of Kensington Heights Civic Association, we do not have $370,000.
MR. GROSSMAN: Yes, but the question I have to deal with is what the evidence is that's presented to me. So --
MS. CORDRY: I understand, and we're just clarifying at this point what has and hasn't been done.
MS. ROSENFELD: And we don't have the burden of proof.
MR. GROSSMAN: I understand, but I still have to look at the evidence.
MS. ROSENFELD: I understand.
MS. CORDRY: I understand.
MR. SILVERMAN: Well, I appreciate the fact that you're looking at the evidence. You're probably the first person we've dealt with in the last three years who is. So --

MR. GROSSMAN: I don't know that that's fair, but it'll be my job to do it.
MR. SILVERMAN: Okay. All right.
BY MR. SILVERMAN:
Q If you go through the screening and you find there's risk factors, the fact that -- and the risk factor is just proximity; you know, in the, in the guidelines they talk about 1,000 feet for schools, and then CARB talks about 300 feet and so forth -- is it an aggravating factor or mitigating factor that there are 57, whatever it is, fast-food restaurants in the same vicinity? Does that suggest the conditions are worse or better?
A Does it suggest if the fast-food restaurants were not there, would the air pollution be better?
Q Yes.
A I would, I can say that's a fair assessment.
Q And the fact that we're in, we're close, we're either in violation or close to violation on Georgia Avenue and Veirs Mill Road, would that be an aggravating factor or a mitigating factor?
A You're asking me does Georgia Avenue produce a fair amount of air pollution?
Q Yes.
A The answer is yes, it does.
Q And, you know, in your discussion of air pollution

in the home and in the fast-food restaurants, there's a, there's a suggestion -- maybe I misunderstood you -- that it's already polluted, so we're just adding a little bit. Is that your view?
A I didn't say that.
Q Okay, good. I've been at this even longer than you have, in a different way, but have you ever been to a pollution hearing where a source didn't say we're just a small part of the problem?
A No, I've worked for clients that acknowledged they had caused a major problem --
Q Okay.
A -- and were trying to, obviously, make sure they got a fair settlement in terms of legal matters, but yeah, I worked for a client two years ago, and they acknowledged they made, they had a problem, and they ended up paying a lot of money for it. So the answer is yes, I've seen clients that acknowledge their mistakes.
Q That's very heartening. That's very -- I haven't quite had that experience, but I'm glad you have.
MR. SILVERMAN: All right. I think I'm going to stop and leave it to Ms. Rosenfeld.
MR. GROSSMAN: All right. Ms. Rosenthal, are you next up?
MS. ROSENFELD: It would seem as if I am.

BY MS. ROSENFELD:
Q Earlier in, actually in the very beginning -- I just want to make sure I understand the status of the reports. Your November 2012 report, does that contain all of your base data, all of, all of your basic modeling assumptions and your original findings for purposes of this case?
A It contains the full scope of our analysis, but the supplemental report that was submitted January 16th does augment that report, clarifies a few tables, and provides some additional information that's relevant to the case.
Q Okay. And then the intervening December 2012 report -- you had said that there were two reports that were identical -- is that, December 2012, the one that duplicates one of these other two?
A The December 2012 was, was replaced by the January 16th, 2013, report.
Q Okay.
A It's the same basic scope. We, we added a few more things and refined it, but we're trying to limit how many reports there were. There's already, obviously, quite a few and we tried to combine them into one report.
MR. GROSSMAN: Let's attach exhibit numbers to these, if we haven't already, just so we know --
MS. ROSENFELD: I believe --

MR. GROSSMAN: -- which exhibit numbers we're talking about.
MS. ROSENFELD: Sure.
MR. GROSSMAN: So the November one would have been, the November 2012 would have been 15(a), is that correct? Yes. So 15(a) --
MS. ROSENFELD: Correct.
MR. GROSSMAN: -- November 2012. And what was the exhibit number for the one in December?
MR. GOECKE: I think that's 54(b).
MR. GROSSMAN: Okay. Supplemental Report on Air Quality, that's 54(b), was December 2012, and then what was the January one? What's that?
MR. GOECKE: 56(a).
MR. GROSSMAN: 56(a) is a supplemental report of January 2013, and then it does say it supersedes supplemental report of December 18, 2012. Okay. You may proceed.
BY MS. ROSENFELD:
Q And so just in reviewing these, we still look to 17(a), we completely disregard 54 --
MR. GROSSMAN: 15(a).
BY MS. ROSENFELD:
Q I'm sorry, 15(a). Is, basically, 54(a) out of the record? I mean, it's --

MR. GROSSMAN: 54(b).
MS. ROSENFELD: 54(b). It's getting late in the day.
MR. GROSSMAN: Yes, it is.
BY MS. ROSENFELD:
Q 54(b)?
A Is that the December 2012 --
Q That's the December of 2012.
A Right. That could be disregarded.
Q That's just been completely superseded?
A Correct, yes.
Q Okay. And then 56(a) has supplemental information to the original November --
A That's the January 2013?
Q The January 2013.
A Correct, yes, it does.
Q Okay. All right, thank you. That's very helpful. There's been a fair amount of discussion about the terrain of the ring road and the adjoining slope to the properties next door, the residential community. If you could take a look in your, this would be Exhibit 15(a), your environmental report, and in there you have a Figure 1-36 called Terrain Contours.
A Which page would that be?
Q Page 103. And if you could take a look at that,

it would be helpful if you could show me on that exhibit where, where you consider the upslope on the ring road to be located.
A Well, if you see the portion that says Wall, where that wall is located, if one were to stand along that --
Q Hang on.
MS. ROSENFELD: Mr. Grossman, do you have the exhibit?
MR. GROSSMAN: I'm looking through the file as we speak.
MS. ROSENFELD: Okay.
MR. GROSSMAN: I think it might be in the box, but -- at least to (c), 15(c). It must be in the box.
MS. ROSENFELD: A part of 15(a). There was the report and then there were appendices to it.
MS. CORDRY: This is the original report, though?
MR. GROSSMAN: Not there.
MS. CORDRY: See it?
MS. HARRIS: I'm sorry. What? No, we have it here. Thank you.
MS. CORDRY: You got it? Okay.
MS. HARRIS: At least I think we do.
MR. GROSSMAN: I haven't located it yet. We'll have to conduct a search downstairs.
THE WITNESS: It's a large report.

MR. GROSSMAN: Pardon me?
THE WITNESS: It's a very large report. It's a hundred and, hundred and -- couple hundred pages.
MR. GROSSMAN: It's book-size. Maybe for some reason it didn't quite make it up to here from downstairs because I don't see it.
THE WITNESS: It's available on the computer. I can show it with the screen if that would be helpful.
MR. GROSSMAN: Well, I do not see it here. Do you need to look at the copy now? Is that what you're --
MS. ROSENFELD: Well, I can actually save this. I, for the record, I will not be done in 10 minutes. We can save this line of questioning for the next hearing.
MR. GROSSMAN: Well, do you need to look at it in order to conduct this questioning?
MS. ROSENFELD: Well, I don't, but I'd like for you to be able to look at it.
MR. GROSSMAN: Oh, okay.
MS. ROSENFELD: And at the same time, there also, along with your November, along with Exhibit 15(a), I think there was a very long appendix.
MR. GOECKE: We have a copy of that report that we could project.
MR. GROSSMAN: You have an extra copy? All right. So --

MS. ROSENFELD: Oh, terrific.
MR. GOECKE: It's not a hard copy. It's electronic, but we can project it if you want.
MS. ROSENFELD: Oh, that's fine.
MR. GROSSMAN: Okay, then project it. That would be fine.
MS. ROSENFELD: Okay, great. Great.
MR. GROSSMAN: I have 15(b) and (c), but I don't seem to have 15(a).
MS. ROSENFELD: Oh, you do have 15(b), terrific. Before we start these questions, there also was a very large appendix that went with the environmental report, some 404 pages, I believe. Do you know if that's in your record?
MR. GROSSMAN: I have -- well, that must be also downstairs because I have -- no. That's the vehicle queuing.
MS. ROSENFELD: All right. I'll check with your staff because I'll be asking questions --
MR. GROSSMAN: Okay.
MS. ROSENFELD: -- about that one as well.
BY MS. ROSENFELD:
Q Is it possible to make that just a little bit larger --
A Yes.
Q -- on the screen?

MR. COLE: Maybe we can turn down the lights.
BY MS. ROSENFELD:
Q Okay. And looking at this, which is page -- it's Figure 1-36 of your, of Exhibit 15(a). There are contours shown on this particular exhibit. Would you please show me where and to what extent you see an uprise in the ring road?
A It's very difficult to see on a -- there was question how the dip was built over this particular property. To tell from this that slope, in order to really see how the road is actually sloped, you have to be at the facility. I mean, I've been there, I've taken pictures of it and I've observed it, that the road at this location, it has a small dip up towards where the wall will go, and as the -- and if the flow were to go down, down the ring road from that point, the slope, as it approached the school, slopes towards, towards the mall itself and that can be seen by visual observation.
Q And so what you're telling me is that the contours are more refined than would be reflected on this topo?
A What I'm saying is that to see how a road is sloping, it's very difficult to see the slope of a road through a topographic map of this nature; you really have to see the road slope itself.
Q Okay. And then in terms of, do you know if this wall accurately reflects the proposed amendment, or does

this show where the wall would end given the 40-foot, 46-foot extension, or do you know?
A This was accurate as of November 2012 --
Q Okay.
A -- but this then changes. We -- it starts by the, approximately the tennis court area up here, which I believe is the starting point that was discussed yesterday or two days ago, and it's ending near the, just past the loading dock right here. So that was, that was accurate during that time of this report.
Q Are you saying then that if the road ordinarily would be flat, that it slopes up this way --
A Yeah. I'm saying that my, my review --
Q -- from north to south?
A -- if, if this is, if this is the ring road right here and I'm standing at this point or this location right here and Kensington Heights is that direction, I'm pointing to my right, that the road slopes up slightly in this direction. I'm not saying it's a huge hill or anything. I'm saying there's a slight -- roads usually do slope to avoid puddling -- it slopes, by my review, up a little bit. And so my point was that if there were, if there were cooling at this surface, that, with the exception of if the plume was high enough to go over, my expectation was that it would tend to travel down the ring road with or without the

wall. With the wall in place, certainly you'd expect at least the bottom of the plume and maybe, maybe most of the plume to be deflected during --

Q And --

A -- if you had stable conditions at night, which I'm saying I don't believe are a common phenomenon at this mall.

Q And looking at the southwestern corner of the mall, of the ring road --

A Uh-huh.

Q -- and heading east --

A Right.

Q -- just as a general principle, does the topography slope down from there?

A This is downhill. It's downhill from this direction towards the east, that's correct.

Q Okay. Okay. And --

A My testimony was it's downhill and the slope goes, that I reviewed, goes towards the mall itself, rather than towards the school area.

Q Can you show me the topo lines that would reflect that?

A Well, I'm saying I -- same answer as before. If you're looking at the slope of a road, it's very difficult to see the slope of a road on a topographic map. My

statement is based upon my visual observation of the roadway itself and going out there.

Q But if you look up -- take the topo line that's closest to the end of the wall, the purple line.

A Okay.

Q All right. We'll start there. What topo is that at? What's that topo line?

A This is 133 right here.

Q Okay. And if you go to the next one on the right?

A This one I can't read really. It's 132.

Q And the next one?

A One thirty-one.

Q And the next one?

A One thirty, and then it goes down to 127 at this point here.

Q Okay. So, generally, that geography there slopes downhill, is that correct?

A That's correct. My statement was for the road itself.

Q Okay. And when you're talking about the road, are you talking about a matter of inches?

A I wasn't able to measure it, and as I said, it wasn't a very large amount, but I -- my observation was that that road sloped in that direction, towards the mall rather than towards the school.

Q And in your view, that slope is sufficient to affect an inversion one way or the other? Is that your testimony?

A My testimony, I don't expect to see inversion conditions on this mall.

Q I think you said that it could be as much as at least four percent at the time. Am I correct?

A You're asking about inversion conditions.

Q Right.

A My testimony is, based upon my, albeit limited, monitoring measurements taken at this mall property, I do not expect that inversion conditions are a common phenomenon at that mall because it's too high. The retained heat by the concrete is creating temperatures that are warm relative to the surroundings, and the potential of having substantial inversion, infrequent inversions in that condition is very unlikely.

Q Okay. Then perhaps I misunderstood your testimony. You seem to think that the fact that the road sloped up some slight amount had an impact on some of your air modeling analysis. Can you explain to me what that was?

A Well, the CALPUFF modeling, okay -- and this is probably too small for it to detect -- CALPUFF is not the model we routinely use. You would use it for a few runs, as Dr. Cole knows about. That was run to try to simulate the

terrain. It's such a small father, it can't do a great job and it can't really account for this wall, and the meteorological processor in, which is CALMET, can't really account for the heat effects of this particular mall. CALPUFF can account for the heating from a source itself, but in terms of defining this, it's not really capable of fully addressing the fact that this surface is much warmer than the ground around it. It's what's referred to as an urban -- it's similar to an urban heat island.

MR. GROSSMAN: When you say this surface, you're talking about the mall parking lot?

THE WITNESS: The mall itself --

MR. GROSSMAN: Right.

THE WITNESS: -- is a, is a small heat island surrounded by cooler, like at nighttime, cooler natural surfaces. So it's a very, very different microenvironment than natural surface is.

BY MS. ROSENFELD:

Q I'm still confused.

MR. GROSSMAN: I think what he testified to before was the slight difference -- the slight increase in elevation on the roadway would tend to decrease the flow of, of air over that area and so, I think, decrease the amount of pollutants in that direction. Is that correct?

THE WITNESS: That's close. I was saying if, if

inversion conditions did occur --
MR. GROSSMAN: Right.
THE WITNESS: -- that that slope of the road would tend to deflect it away from the community, at least along that roadway. That's what I stated, but I then stated that the potential for that inversion condition to occur on a mall surface like this is small --
BY MS. ROSENFELD:
Q Right. I got that part. I was --
A -- therefore, I don't think it's going to cause much effect at all.
Q You spent a lot of time talking about the slope of the road; so I was trying to understand the significance. And did you account for a wall of any kind in your modeling?
A We attempted to, but the CALPUFF model really doesn't see the wall. I mean, it's too small of a physical effect. Really, I don't think it really had any significant effect on it, nor do I, again, do I think it's going to have a huge effect on the results in the end. I mean, if anything, if the -- under inversion conditions, which I don't think happen, if that did happen, it would tend to have a deflecting effect going down this direction.
MR. GROSSMAN: This direction being --
THE WITNESS: Being, I'm sorry, to the east.
MR. GROSSMAN: Okay.

BY MS. ROSENFELD:
Q Okay. So your conclusion that the wall will have little effect just is based on your opinion, not on any modeling?
A Well, the fact that the wall will have little effect is based upon my review of the evidence of the case, the fact that I have conducted some limited meteorological monitoring under, under, what should be inversion conditions, and observed conditions very different than what you'd expect to see during inversion.
Q I understand you have analyzed, in your view, the potential for an inversion. My question is, have you analyzed the effect of the wall, not specific to inversion, but just generally?
A And as I mentioned, of course, we've used AERMOD as our permit model. AERMOD does not consider the wall --
Q Okay.
A -- and in terms of, we ran CALPUFF, we attempted to simulate the wall, but my judgment is the model probably, because of the scales it operates on, it probably didn't have much of a deflecting effect. It probably didn't have much effect at all, and my testimony is that in the big scheme of things, I don't think this wall is that significant a factor in terms of transport and dispersion of pollutants from the gas station towards the community.

Q Did you do any CALPUFF?
A We did run CALPUFF, yes.
Q You did run CALPUFF. And where are those results shown in your report?
A We, we provided the results by disk, as I recall. The input/output files should be available by disk only.
Q And are those results contained in the appendix to Exhibit 15(a), the environmental report?
A Well, the modeling results were included in the report. In our November 2012 report, we showed, we took an example month, ran CALPUFF for a month and compared CALPUFF and AERMOD side by side.
Q And was the wall included or not included in the CALPUFF modeling?
A Well, as I stated, we attempted to put the wall in, but my opinion is the model probably didn't see it because it's too small of a scale effect. It probably didn't have much influence.
Q You put it in and it wasn't registered, or you didn't put it in?
A We, we did attempt to put it in. We put it in, but I don't think it really made much of a difference in the modeling.
Q And where are those results shown?
A The results of that modeling showed that AERMOD

and CALPUFF looked very, very similar.
Q Yes. Did you have the results run with the wall and without the wall?
A The wall is, the wall is in the results. It's in the model files, but it does not have a significant effect, in our judgment, on the results.
MR. GROSSMAN: How do you --
BY MS. ROSENFELD:
Q Okay. And can you tell me exactly where in your report those results are contained?
A Yeah. Yes.
MR. GROSSMAN: How do you, and while you're looking for that, how do you enter the wall into the CALPUFF? How do you take that into account?
THE WITNESS: You have to make it into a terrain effect, and because it's only eight feet high, which is like two-and-a-half meters, it really is too small a scale to, to seem to have much influence.
MR. GROSSMAN: Well, yes, but influence is talking about the results. How do you enter, what data do you enter in that model in order to account for the wall?
THE WITNESS: All we, all we can do is increase the terrain heights along that particular segment to simulate the wall. That's the only way to really address that. The model really is not designed to give a small wall

effect. It's more designed for more substantial terrain effects and land/water effects, more larger scale things.
MR. GROSSMAN: So you increased the terrain height in the model to eight feet to simulate the wall, or what did you do?
THE WITNESS: That's my recollection. I mean, I'd have to really look --
MR. GROSSMAN: Okay.
THE WITNESS: -- at the files again, but that's my recollection of what we did. Let me see if I can find those results.
MR. GROSSMAN: And even that didn't have much of an effect?
THE WITNESS: No, it -- we didn't see it but that could be a model, limitation of the model. I'm not trying to suggest that it really saw that to have much influence at all because --
MR. GROSSMAN: I guess my question would be what would make you think that a much smaller rise in the road would have that effect?
THE WITNESS: Well, it's a situation of, a model is -- what the model can see versus what really happens in the atmosphere.
MR. GROSSMAN: I see.
THE WITNESS: And so the model, you know -- I'm

saying that if you had an inversion condition happen on the mall, which I don't think will happen, and we have low-lying pollutants from a ground-level source, that the, the road slope would tend to, it would tend to follow the path of least resistance, and I believe that is true --
MR. GROSSMAN: Okay.
THE WITNESS: -- but whether or not a model can simulate that is another matter.
MR. GROSSMAN: All right.
BY MS. ROSENFELD:
Q And are those results shown on, starting on page 377 of the appendix to your November --
A My recollection was they were in the -- that we had text in here, showing the side-by-side figures as well, but --
Q All right. If you could tell me where that is, I'd appreciate it.
A I'm looking for it. Well, I guess I don't. I maybe had it on a slide that I was thinking of, but it's, no, it's not in the text of the report that I can see. We did provide, at one point, I'd have to search for it, a side-by-side figure showing an example month, AERMOD concentrations for that month versus CALPUFF for that month.
Q All right. If you locate that, could you let me know where that is?

A I'll make a note. You're asking if I can locate it to --
Q Yes.
A -- provide it to you?
Q Yes.
A Yes. And I'll clarify, when we do that, I'll confirm the treatment of the, how the wall was simulated so that'll be clear for the record.
Q Great, thank you. At one point, the wall was shown terminating on the --
MR. GROSSMAN: I'm sorry. Go ahead.
MS. ROSENFELD: No, you're writing. I'll wait until you're done making your notes.
MR. GROSSMAN: Right.
THE WITNESS: I'm done.
BY MS. ROSENFELD:
Q At one point, the wall was shown as terminating at the, basically where the eastern wall of the Costco warehouse ends.
A Uh-huh.
Q Were you familiar with that design?
A I just don't recall. I mean, I recall this is what was our understanding of where the wall would be placed in November when this report was, was produced. If there's been changes to that, I don't recall those at this point.

Q So you wouldn't know why, why it was shortened?
A I don't know.
Q And do you know why it's subsequently been extended?
A I just don't recall the --
Q Let me ask you this question: Are you aware of the fact that there's a proposed amendment that would extend the wall an additional 46 feet to the east?
A I've heard there's a consideration. I didn't think that was, had been decided yet, but I've heard, I've heard that discussed, yes.
Q The amended plans have been submitted --
A Okay.
Q -- so it's a possibility. In your opinion, would that extended wall affect your modeling results in any way?
A No, they will not -- that would not have any effect on our modeling results. We have done the comparison of CALPUFF/AERMOD, which confirmed that AERMOD was the suitable model of choice, and AERMOD doesn't see the wall. So I'd say it would have no effect on the modeling.
Q After the January 16th report that you filed, Exhibit 56(a) in the record, you had filed some supplemental correspondence with the Planning Board and your PowerPoint that you've reviewed over the last couple of days. Did any of those include new modeled information, anything, any

modifications to the modeling that you did in your January 16th report?
A You're asking me did I change the modeling between January 16th of 2013 --
Q Right. Have you done --
A -- I see the date is listed as '12, but it's '13 --
Q Have you done any --
A -- to the present time?
Q Have you done any supplemental modeling since January 16th?
A I can't recall any, no.
Q Was the addition of the parking lots in your January 16th report?
A Oh, we -- no. We did do a, I'm sorry, we did do a, various, you know, brief assessment of the other public parking lots and the two loading docks. We did that special case run, that is correct. That was done after this report, but these, these numbers and the conclusions and the figures in this, in this report have not been modified by any subsequent modeling.
Q Where is that special case run contained?
A The special -- the results of the special run are shown in the PowerPoint presentation we've been going through the last few days of the hearing.

Q And where would I find the data in support of that special case run?
A We, we can -- we have the data in our files that certainly can be made available.
Q If you would please make that available. You did provide your backup data for the other studies. And aside from the report that was submitted after this hearing started, the terrain flow report and then there was additional the, the hamburger report --
A We like to call it the fast-food report.
Q The fast-food report. The fast-food report, were there any other additional modeling or revisions to, to your November 19 and January 16 -- November 19, 2012, and January 16, 2013, reports?
A With the exception of the parking lot analysis, which you did bring up, I can't recall any other work that's been done in terms of modeling. As you're aware, the terrain analysis, we did the study, the brief study we did of the meteorological conditions. We did that and that report was submitted, which, I think, maybe you mentioned. That's all I can recall that's been done.
Q The modeling that you used for the fast-food report, was it, did it use the same modeling protocols that you used for your, for the two prior reports, the, I'll call -- can I just call them the November and January reports?

MR. GROSSMAN: Yes.
THE WITNESS: Well, yes. I mean, we showed emissions, we showed emission rates. And so we showed emission rates from the fast-food based upon the assumptions of how many hamburgers they were making, like McDonald's does, the average McDonald restaurant, and we then showed comparative emission rates from our files that are applicable to the November 2012 report. There were no modifications made to the Costco emission factor rates.
BY MS. ROSENFELD:
Q And would you also provide the backup data for that report as well, your --
A The backup data of the -- are you referring to the actual fast-food report that --
Q Right.
A -- I mean, the report that was done by UC-Riverside?
Q No. No, in support of your, your supplemental report on that point. Did you do any modeling or were you just extrapolating from that --
A No. We're using emissions data. All there is, is an Excel spreadsheet that supports the table that we've shown. There's no additional modeling.
Q Could we have a copy of that spreadsheet as well, please?

A Okay.
Q And going briefly to the Exhibit 125(b), the Exploratory Assessment of Terrain Flow --
A Okay.
Q -- report that you prepared, would you show me on the exhibit that's on the screen now, the topo map we were just looking at --
A Uh-huh.
Q -- could you show me where your temperature gauges were located?
A It's, it would be easier for me to show it in my report. I showed the precise locations.
Q Sure, that would be fine. That would be fine. What page?
A Let me bring it up.
Q Where the temperature profile was taken.
A Uh-huh. We collected measurements on two different nights, April 6th, 2013, and April 26th, and it went into the early morning of the next day in each case. The second evening was more conducive to the, to the formation of inversion conditions, and I'm going to, I would recommend we go to that analysis first.
Q Actually, my first question is not about your analysis. I'd like to know where your wind and temperature monitors were located --

A All right. Okay.
Q -- on the mall parcel. And were they only on the mall parcel?
A No. This is an example from the first, the April 9th program, and in this case here, the, the profile was established at the western edge of the paved lot. So the temperature and wind data were collected in this region right here.
MR. GOECKE: And this is Figure 7 in Exhibit 125(b).
BY MS. ROSENFELD:
Q Is that listed as No. 72? Are we looking at Figure 6 on page 11 of your report?
A I'm on Figure 7 right now.
Q Okay. Figure 7.
A And I'm showing, this is showing surface temperature at 12:30 a.m. on 4/10. I'm just giving you a general indication of where the, where the monitoring took place, but the wind data at that location was taken along this area here within the asphalt property.
We also collected surface temperature measurements at different places within the community. On this location, this is in the wooded area right here, which is just south of the ring road, the southwest corner of the mall property, and this, this example here for the south is taken in

Kensington Heights property. I don't recall what this, what this street is, but it's next to Mount McComas roadway.
MR. GROSSMAN: The yellow pushpins indicate the presence of a monitor?
MS. SHEVEIKO: Melvin Grove Court.
THE WITNESS: Melvin Grove Court, thank you. Yes. Yes. That's -- well, not a monitor, but where we took a surface measurement.
MR. GROSSMAN: Where the measurement was taken. I'm sorry.
THE WITNESS: This is the emissivity thermometer, which can measure temperature surfaces. It was used to compare the surface temperatures within the, with the grassy areas to the asphalt surfaces and how the temperatures varied. The second study also collected data more extensively along Mount McComas and in the base, which is the southern portion of Figure 7.
BY MS. ROSENFELD:
Q And where was the vertical wind profile?
A We didn't have a vertical wind profile. We had a sonic -- we had this, what I dropped. We had a two-dimensional sonic anemometer. It looked like this. We had two of them. It's correct in our profile. We had two of them at different levels for redundancy purposes, in case one of them were to malfunction. Those, in this -- this

first night it was positioned along this area in here. I forgot which one of these it was. It was on the asphalt surface. On the second study, April 26th, initially I set it up in the grassy area because, you know, during the mall hours, there's lot of vehicles in here, and then after it cleared out, I could move it onto the asphalt surface and collect data at that location. I mean, I show it in the report the next time.
So two types of measurements -- the sonic anemometer measurements, which are, they're done at very low wind speed, and then emissivity surface temperature readings at various places around the area.
Q And do you have a vertical temperature profile?
A We, we do.
Q And where would I find that?
A This is the profile for the first evening. Let see if I can make this bigger.
Q Figure 3.
A This is showing the temperature at the upper level and the temperature at the lower level on the first evening.
MR. GROSSMAN: The red being the upper and the --
THE WITNESS: Moving the lower. And this was right next to the grassy area, and if you look at the second, the second set of readings, which were, we moved, we moved it from the grassy area to the asphalt surface, you

can see the transition point. This is for April 26 to 27.
BY MS. ROSENFELD:
Q Slow down. Slow down. This is new to me. I'm not as familiar with this document as you are. If you would go back to Figure 3.
A Okay.
Q And Figure 3 was taken the first evening next to the asphalt or was it on the asphalt?
A Well, I'd have to look -- that point I'll have to discuss with the person who was there. It was right next, at the interface between the asphalt and the grassy surface. So on this particular example here, you will see it is colder at the lower level than it is at the top where the second, the second study, we had to initially set it up -- I set it up right in the middle of the grassy area, but then when the cars left, I was able to move the profile onto the, well into the pavement so I get better indication of the flow and the conditions and temperatures on the actual asphalt itself, away from the grassy area that's off to the west.
Q Which does this graph reflect?
A This is reflecting a monitor right next, at the interface between the grassy surface area and also the pavement area. It's not truly on the asphalt.
Q So it was in the grass for part of the monitoring

and on the asphalt for part of the monitoring?
A No. This, this was not -- this is the first evening. This was not moved. It was right near the interface --
Q Okay. So it was only, it was right -- it was in the grass, next to the asphalt?
A It was, I'll confirm that, but it was right at the, right at the base of the boundary where the asphalt ends and where the grassy surface begins.
Q And does that show evidence of a temperature inversion?
A That does, yes.
Q Okay. And the second evening?
A Now this first, this first evening actually had higher, higher wind speeds, less conducive, actually, to inversion, but it was -- if it were in the grassy surface area and adjacent to the asphalt, there would have been evidence that it was colder at the surface. If you go to the second evening, which had very low wind speeds, clear skies, a classic condition where you have inversion if it was going to occur, in that example this is the plot. Now, the sensors are a little bit closer together. In this case it's at 23 inches versus 60 inches at approximately -- if you see early on within the grass, you see a small inversion. It's colder in the bottom than it is in the top.

At 10:30 approximately we moved the, moved it onto the, onto the pavement surface. At that point -- you can see, well, you see it's isothermal -- there's really no difference between the levels. There's no inversion at all occurring on the pavement during a condition where the winds -- at this, at this point, I'm referring to approximately after midnight, around 12:45 a.m. The winds dropped down to very low levels, a few tenths of a meter per second, less than a half mile an hour, and there was no evidence of any inversion of any kind.
Q And what time did you stop monitoring?
A My recollection, on the April 27th it was 12:45 a.m.
MS. CORDRY: Is that showing that when you moved it onto the paved surface, the temperature dropped markedly?
THE WITNESS: It's showing -- well, let's see, when I moved it here --
MS. CORDRY: I mean, the two of them together, but I mean the whole conglomerated piece looks like --
THE WITNESS: Yeah, I don't recall this situation, what this is about. Honestly, I don't remember what happened with this. The point is that -- of course, the temperatures are dropping from what they were earlier on as you go through the evening, and this may be around the time we're moving. I don't remember the exact circumstance, but

once it was moved and left in place for approximately two hours and 15 minutes, you get a pretty clear indication that there's a very -- there's no inversion occurring.
BY MS. ROSENFELD:
Q And could we, likewise, have -- I might have asked this already -- the monitoring data for this report, the Assessment of Terrain Flow, Exhibit 125(a)?
A Well, I believe you have that. That was the -- it was made available, I believe, a few days ago. That was the appendix.
Q Oh, I apologize --
A Yeah.
Q -- you did say that. You did say that. Okay. As a layperson, my assumption would be that the pavement would be warmer than the grass. Why would the temperature drop when you moved it to the pavement?
A Well, the temperature, the temperatures, of course, are dropping during the evening. We got there at 7:00 p.m., and this is in the grass and the temperatures are dropping. You can get the best, the best sense of the surface temperatures by looking at the emissivity temperature readings that we show in the report, and you can see that typically the, the concentrations on the asphalt surface are 15 or more degrees warmer than in the grassy areas at the base and in Kensington Heights.

Q But that shows much lower, or am I misreading your graph?
A We're not, we're not, we're not comparing -- if you compare concurrent in time the temperatures, surface temperatures -- I'm referring to what is the temperature of that surface, not the temperature of the air above it, the temperature of the surface -- the temperature of the surface in the neighborhood that goes straight south into the neighborhood, which is a little bit west of Mount McComas, the temperature at those locations could be 15, 18 degrees colder at concurrent times than temperatures were in the asphalt area and perhaps seven or eight degrees colder than the wooded area that's north of that location.
Q Does that graph show temperatures in the Mount McComas neighborhood, in the Kensington Heights neighborhood?
A This graph is strictly on the pavement. We're talking about the pavement of the, of the mall.
Q And do you have any graphs that show temperatures in the, in the neighborhood?
A We do.
Q And can you just quickly point me to those?
A This is an example of the relative temperature differences. This is at approximately 9:00 p.m., April 26th, and you know, these are all relative temperatures.

They're based upon the emissivity meter. They're calibrated to be accurate to within about one to two degrees Fahrenheit. And as you can see, the pavement at 9:00 p.m. was showing on the order of 68 degrees. The wooded area -- went about 10, 12 feet into the wooded zone in here -- the temperature is 54 degrees, but if I go down to -- what's the street again? I'm sorry.

MS. SHEVEIKO: Melvin Grove Court.

THE WITNESS: Melvin Grove Court. We had a reading at 39 at that point in the grass, we had a reading over the base of Mount McComas of 46, and the top of that area, about 48.

So what we're finding is in the open area of Mount McComas we're getting the radiation of cooling that would be consistent with inversion-type expectations. We're not getting that in the wooded area or wooded buffer because it's wooded, it's vegetated, and under a vegetated canopy, especially, you do not tend to get the cooling effects that you'd get in an open area or open grass and that's what this is showing.

BY MS. ROSENFELD:

Q And do you have the weather maps for these two dates?

A We have, not the weather maps, we have the meteorological conditions at National Airport. That's

contained in the data set.

Q And did you look at the weather maps?

A Did we look at weather maps? We looked at, we looked at weather graphs in determining when we wanted to conduct a sampling, when we had conditions that were conducive to inversion conditions as part of the forecast that was done, but we did not -- I did not look at weather maps. I looked at surface observations from the DCA National Airport.

MS. ROSENFELD: Mr. Grossman, I've got a couple of questions from the audience. May I just --

MR. GROSSMAN: Certainly. Yes, the nice lady who's been filming us --

MS. ROSENFELD: I've been tapped on the --

MR. GROSSMAN: -- indicated to me that she wanted to ask a question or two.

MS. SHEVEIKO: Thank you, Mr. Grossman.

MR. GROSSMAN: Certainly. Before you ask your question, would you identify yourself for the record, please?

MS. SHEVEIKO: My name is Elena Sheveiko, and --

MR. GROSSMAN: And what's your, what's your --

MS. SHEVEIKO: -- I --

MR. GROSSMAN: -- what's your address?

MS. SHEVEIKO: -- I --

MR. GROSSMAN: Ma'am --

MS. SHEVEIKO: -- like, first, I have --

MR. GROSSMAN: Hold on a second.

MS. SHEVEIKO: Oh, excuse me?

MR. GROSSMAN: Have a seat, and you've identified your name. What's your address, please?

MS. SHEVEIKO: 10812 Melvin Grove Court.

MR. GROSSMAN: Okay.

MS. SHEVEIKO: And it's exactly where my house supposed to be, but neither mine or my neighbor's house shown on this map. It's covered with green which doesn't exist in reality.

MR. GROSSMAN: Okay, but you can't testify now. You can only ask a question. If you want to testify, I'm going to let you --

MS. SHEVEIKO: My question is, where is my home, sir, on this map?

THE WITNESS: I don't know.

MS. SHEVEIKO: It's supposed to be next to this white house.

THE WITNESS: I don't know how to answer that.

MS. SHEVEIKO: I'm telling you that this map been photoshopped and it does not reflect reality?

THE WITNESS: Ma'am, I don't know how to photoshop out houses, and I can assure you --

MS. SHEVEIKO: Sir --

THE WITNESS: -- it was not photoshopped.

MS. SHEVEIKO: -- there are two missing houses because where our distance --

MR. GROSSMAN: Well, ma'am, ma'am --

MS. SHEVEIKO: -- to this proposed gas station which --

MR. GROSSMAN: Ma'am, stop for a second. You can't testify now. It's not permitted that you testify now, but you can --

MS. SHEVEIKO: Okay. I can ask a question.

MR. GROSSMAN: Hold on. You can ask questions, and I will -- you can testify. When it comes time for citizens to testify, I will allow you to testify. You have to be sworn in and subject to cross-examination --

MS. SHEVEIKO: Okay. I will ask a question.

MR. GROSSMAN: -- if you want to bring a copy of a map showing your house or anything like that, you can do that and introduce it --

MS. SHEVEIKO: Uh-huh, okay.

MR. GROSSMAN: -- but right now it's just to ask questions.

MS. SHEVEIKO: Okay. My question is, as I understand, like where we're very happy for our pool members and school that there's a put limit, like 1,000 feet, but my

question is, if our home's only 120 feet away from this proposed gas station, would you consider our children be safe? We have five young children --

MR. GROSSMAN: Well, you asked a question. Let, let -- hold it. Hold it.

MS. SHEVEIKO: Yeah, playing --

MR. GROSSMAN: Hold it.

MS. SHEVEIKO: -- all the time outside.

MR. GROSSMAN: Ma'am --

MS. SHEVEIKO: Would you consider them safe?

MR. GROSSMAN: Ma'am, stop. You've asked your question. Let him -- one question at a time.

MS. SHEVEIKO: It's only one question.

THE WITNESS: The answer is would I, do I consider the air pollution at your home -- we modeled your home. Frankly, it's the closest home, as you know. So when we show the home, that's your home, and would I consider it's a safe place to live for my children? Yes, I would. It's meeting the National Ambient Air Quality Standards. The risks are not high in terms of cancer risk assessment. I mean, that's, that's my honest answer.

MS. SHEVEIKO: Yes. My question, do you answer, so why the limit for school is 1,000 feet and for my children 120 is enough?

THE WITNESS: There's no limit of 1,000 --

MR. GOECKE: Mr. Grossman, I'd like to object. There's no 1,000-foot limit in the record.

MR. GROSSMAN: No. I think -- well, she's referring to, there was -- what was the --

THE WITNESS: The EPA school guidance screening methodology --

MR. SILVERMAN: School-siting guidelines.

MS. SHEVEIKO: Yeah.

THE WITNESS: -- was 1,000 feet.

MR. GROSSMAN: Right. And so that's what she's referring to. So I think that's a --

MR. GOECKE: Okay.

MR. GROSSMAN: -- that's a reference that's been in the made record. He can answer that question.

MR. GOECKE: Okay.

THE WITNESS: The EPA 1,000 feet is called a screening level, that if you're beyond 1,000 feet, you don't have to worry about it, you don't have to do any analysis, but what EPA said if you're within 1,000 feet -- they're not saying it's not safe -- they said, they suggested doing a site-specific analysis, to put in the conditions of the gas station -- where it's located, what the controls are, how many, how much gallons is it going to sell, how many cars in a queue and how are they controlled -- and to model it and to see if it is acceptable, and we've been spending three

years doing that. So the answer is we have done a refined analysis, and it shows the air quality at your home is safe. That's what it shows.

MR. GROSSMAN: Okay.

MS. SHEVEIKO: But in this case, why my house disappeared from the map?

THE WITNESS: You know, this is Google Earth. That's -- I can assure you on the record under oath that we didn't modify the map to take any homes out. We have no reason to do that. I don't know how to do that, and we clearly didn't.

MR. GROSSMAN: Okay. Where is Ms. Rosenfeld?

MS. ROSENFELD: I'm right here.

MR. GROSSMAN: Did you have additional questions of this witness?

MS. ROSENFELD: Actually, I think this is a good stopping point if that's all right with you.

MR. GROSSMAN: That's fine. I just wanted to know if you have additional questions.

MS. ROSENFELD: I will have additional questions, yes --

MR. GROSSMAN: Okay.

MS. ROSENFELD: -- but if I get started, I've got big chunks of questions; so we'll pick up.

MR. GROSSMAN: Okay. Well, we're not going to go

to 8 o'clock tonight because --

MS. ROSENFELD: No. So we --

MR. GROSSMAN: Quality of mercy.

MS. ROSENFELD: -- but I would expect, I would expect to pick up by the next hearing date.

MR. GROSSMAN: Okay. That's fine. So the next hearing is on July 8. We'll be downstairs at the -- that's a Monday, second floor OZAH hearing room in this building.

MR. GOECKE: Just one question. Could we get a sense of how long they expect to take on cross-examination so we can plan for our witnesses, just so we can have folks here?

MR. GROSSMAN: Fair enough.

MS. ROSENFELD: Easily a whole morning.

MR. GROSSMAN: A morning, okay. So we'll consider that approximately three hours. Is that a fair guess?

MS. ROSENFELD: At the moment, I think that's a good estimate.

MR. GROSSMAN: Okay. All right.

MS. CORDRY: We'll work on refining our questions and that maybe will give us a better idea.

MR. GROSSMAN: Whatever is necessary.

MS. ROSENFELD: And I think Mr. Silverman covered at least some of what I had anticipated covering.

MR. GROSSMAN: Okay, good. Ms. Sheard, I see

you're back there. Do you know if Kensington View Civic Association is going to have any questions of this witness?
MS. SHEARD: No, we will not.
MR. GROSSMAN: All right. Thank you very much. All right. So anything else? Any other procedural matters that need to be discussed?
MS. ROSENFELD: Assuming cross is finished at some point during the next hearing date, who would we expect the next witnesses to be --
MS. HARRIS: The next --
MS. ROSENFELD: -- and if you don't know now, you can --
MS. HARRIS: Well, Mr., Dr. Chase --
MR. GOECKE: Dr. Chase.
MS. HARRIS: -- would be the immediately --
MR. GROSSMAN: Okay.
MS. HARRIS: -- next witness, and then the three others, well, I can get back to you, but it will likely be Mr. Tucker, Mr. Willard, and Mr. Cronyn.
MR. GROSSMAN: Okay. Mr. --
MS. HARRIS: And -- Tucker, Willard, and Cronyn.
MR. GROSSMAN: And what about Mr. Flynn?
MS. HARRIS: I was going to just speak to that. You had requested a supplemental report. I think I indicated at the last hearing he's been out of town on

business this week. He expects that by July 5th he'll have a report to circulate --
MR. GROSSMAN: Okay.
MS. HARRIS: -- which, given the 10-day requirement, we would expect to call him on the 30th.
MR. GROSSMAN: Okay. All right. Anything else that we need to resolve before we adjourn for the day?
MS. ROSENFELD: No.
MR. GROSSMAN: All right. Then we are --
MS. ADELMAN: Mr. Grossman --
MR. GROSSMAN: -- adjourned until July 8th.
MR. GOECKE: Thank you.
MR. GROSSMAN: Oh, I'm sorry, Ms. Adelman.
MS. ADELMAN: May I be clear that the individuals who we're setting aside on the 31st are morning people --
MR. GROSSMAN: Yes.
MS. ADELMAN: -- is that correct? Yeah.
MR. GROSSMAN: That's correct, and I mean, I wouldn't necessarily restrict it to only the morning if we have, you know, enough people, but I was asked by, in an e-mail from a citizen, if we could do that, if we could set aside a morning that, that citizens can come and know at least that they would be the ones that had the priority. So I did that.
MR. GOECKE: And procedurally, what would that

look like? Are they going to testify? Are they going to be subject to cross-examination, or are they --
MR. GROSSMAN: Absolutely.
MR. GOECKE: Okay.
MR. GROSSMAN: Anybody who takes the stand is sworn in and is subject to cross-examination.
MR. GOECKE: Okay, great.
MS. ADELMAN: And any length of time that they would have?
MR. GROSSMAN: They have no, there's absolutely no --
MS. ADELMAN: No limit?
MR. GROSSMAN: -- actual limit except for relevancy, privilege, and competency of the testimony and to avoid, as much as possible, cumulative testimony. So, you know, if somebody wants to come in and say they are opposed to this because they feel it's too close to their home or whatever, for whatever reason, even though there might be many people who come in and say that, I'm not going to say you can't come in and say that, but if they want to say, go through the same thing over and over and over again, that's something else. So --
MS. ADELMAN: Thank you.
MR. GROSSMAN: All right. We are adjourned until July 8th.

MR. GOECKE: Thank you.
MS. ROSENFELD: One more second.
MR. GROSSMAN: Oh, I'm sorry. We have another question?
MS. ROSENFELD: Mr. Tucker, who --
MR. GROSSMAN: We aren't adjourned.
MS. ROSENFELD: Aren't adjourned just momentarily. Mr. Tucker, who prepared the geotechnical report --
MR. GROSSMAN: Right. You said you didn't have any questions. I'm not sure if any --
MS. ROSENFELD: That's right, and I've conferred with Kensington Heights, with Stop Costco Gas, and Kensington View as well. They're prepared to stipulate to his report. So I don't see the need to call him.
MS. HARRIS: That's fine. It was only that we had only heard from one of the three that we thought we had to bring him back.
MR. GROSSMAN: Right. Okay, good. Then --
MS. ROSENFELD: I thought that was the case. So I --
MR. GROSSMAN: -- then we can cross Mr. Tucker off the list.
MS. HARRIS: Okay, thank you.
MR. GROSSMAN: Yes, sir.
MR. SILVERMAN: Mr. Grossman, do you know which

room we'll be in on July the 8th?
MR. GROSSMAN: Yes. We'll be in the second floor hearing room downstairs, right opposite my offices.
MR. SILVERMAN: So the one we were at on Monday?
MR. GROSSMAN: Yes, that's correct.
(Whereupon, at 5:13 p.m., the hearing was adjourned.)

C E R T I F I C A T E

DEPOSITION SERVICES, INC., hereby certifies that the attached pages represent an accurate transcript of the electronic sound recording of the proceedings before the Office of Zoning and Administrative Hearings for Montgomery County in the matter of:

Petition of Costco Wholesale Corporation
Special Exception No. S-2863
OZAH No. 13-12

By:

Wendy Campos, Transcriber

B

C

G

H

I

M

N

O

Q

R

S

U

2

3

4