

OFFICE OF ZONING AND ADMINISTRATIVE HEARINGS
MONTGOMERY COUNTY, MARYLAND

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PETITION OF COSTCO WHOLESALE : Case No. S-2863
CORPORATION : OZAH No. 13-12
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A hearing in the above-entitled matter was held on
September 20, 2013, commencing at 9:34 a.m. in the Rita
Davidson Memorial Hearing Room, 100 Maryland Avenue,
Rockville, Maryland.

Martin L. Grossman

Hearing Examiner

A P P E A R A N C E S

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C O N T E N T S

| Witnesses: | Direct | Cross | Redirect | Recross |
|-------------------|--------|-------|----------|---------|
| David Sullivan | | | | |
| By Mr. Goecke | 8 | | | |
| By Mr. Silverman: | | 71 | | |
| By Ms. Rosenfeld: | | 116 | | |
| By Mr. Goecke | | | 202 | |
| By Mr. Silverman | | | | 204 |
| Kenneth Chase | | | | |
| By Ms. Rosenfeld | | 207 | | |

P R O C E E D I N G S

1 MR. GROSSMAN: This is the 14th day of a public
2 hearing in the matter of Costco Wholesale Corporation, Board
3 of Appeals No. S-2863, OZAH No. 13-12, petition for a
4 special exception pursuant to Zoning Ordinance 59-G-2.06 to
5 allow petitioner to construct and operate an automobile
6 filling station which would include 16 pumps. The subject
7 site is located at 11160 Veirs Mill Road, Silver Spring,
8 Maryland. That's Lot N, 631 Wheaton Plaza Parcel 10, also
9 known as Westfield Wheaton Mall in the Zone C-2, general
10 commercial.
11

12 The hearing was begun on April 26, 2013 and
13 resumed on May 1, May 6, May 23, June 4, June 17, June 19,
14 July 8, July 30, July 31, August 2, September 9 and
15 September 16. It was noticed to resume again today. The
16 next session has been noticed for Monday, this coming
17 Monday, September 23, here on the second floor, OZAH Board
18 of Appeals hearing room in this building, the Council office
19 building at 9:30 a.m.

20 My name is Martin Grossman. I'm the Hearing
21 Examiner, which means I will take evidence and write a
22 report and recommendation to the Board of Appeals which will
23 make a decision in this case. Will the parties identify
24 themselves please for the record?

25 MR. BRANN: Erich Brann for Costco.

E X H I B I T S

| Exhibit No. | | Marked/Received |
|-------------|---|-----------------|
| 285 | EPA Guideline on Air Quality Models | 10 |
| 286 | Air Quality Odor and Noise Analysis for Proposed Costco Gas Station in Wheaton, Maryland, dated 12/20/11 | 86 |
| 287 | OSHA regulations re ambient air quality for workers | 221 |
| 288 | Printout from the U.S. Department of Labor | 223 |
| 289 | Publication from the United States Department of Labor, October 15, 2010 | 240 |

1 MS. HARRIS: Good morning. Pat Harris on behalf
2 of Costco.

3 MR. GROSSMAN: Hi.

4 MR. GOECKE: Good morning. Michael Goecke for
5 Costco.

6 MR. GROSSMAN: Mr. Goecke.

7 MS. CORDRY: Good morning. Karen Cordry,
8 Kensington Heights.

9 MR. GROSSMAN: Ms. Cordry.

10 MS. ROSENFELD: Michele Rosenfeld with Kensington
11 Heights.

12 MR. GROSSMAN: Ms. Rosenfeld.

13 MR. SILVERMAN: Larry Silverman, Stop Costco Gas
14 Coalition.

15 MR. GROSSMAN: Mr. Silverman.

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

17 MR. GROSSMAN: I knew there was somebody different
18 here. You don't look like Dr. Adelman.

19 MS. ADELMAN: Somewhat familiar face.

20 MR. GROSSMAN: He isn't going to be with us today?

21 MS. ADELMAN: No, he is not.

22 MR. GROSSMAN: Oh, okay. All right. Well, we're
23 happy to have you at counsel table. All right. Let me go
24 over a few -- is there anybody in the audience I should ask
25 who is, who wishes to be heard today who is not being called

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1 as a witness by any of the parties?
2 (No audible response.)
3 MR. GROSSMAN: I see Mr. Sullivan raising your
4 hand. Did you, are you trying to indicate something?
5 MR. SULLIVAN: No, I'm happy sitting here.
6 MR. GROSSMAN: Okay. All right. Hearing no
7 affirmative responses, I'll move on to preliminary matters.
8 There were various filings and exchanges since our last
9 session. The significant filings include Exhibit 278, an
10 email and graphic attachment from Diane Cameron,
11 conservation program director of the Audubon Naturalist
12 Society; Exhibit 279, which was Kensington Heights Civic
13 Association's reply to applicant's opposition to the motion
14 in limine; and Exhibit 280, which is my order of September
15 18, 2013, denying the motion in limine. The witnesses
16 scheduled for today are Mr. David Sullivan to resume his
17 testimony and Dr. Kenneth Chase, both of whom I see are
18 here.
19 All right. Once again today we will be
20 terminating at right around 4:45. Any other preliminary
21 matters?
22 Seeing none -- by the way, I noticed just before I
23 came in here that late last night Dr. Adelman sent me an
24 email asking about when I would act on his pending motion
25 for summary disposition which he filed with the Board of

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1 Appeals. And I'm not exactly sure what generated that. I
2 really haven't had time to study it, but it's not before me
3 at least at this juncture. There was some conflict in the
4 recitation of what exactly the Board of Appeals did with the
5 two summary disposition motions. When I get something
6 official back from the Board of Appeals, then I'll review
7 that and act accordingly. So if he has a question about
8 that, would you kindly relay that to him?
9 MS. ADELMAN: I certainly will.
10 MR. GROSSMAN: Thank you. All right. All right,
11 seeing no other preliminary matters, I guess we'll move
12 directly back to Mr. Sullivan and even though I denied the
13 motion in limine, I still would like to hear both Mr.
14 Sullivan and Dr. Chase's conclusions based on both Mr.
15 Sullivan's original assumptions and on his more recent, the
16 August 16, 2013 report assumptions.
17 MR. GOECKE: Do you feel like Dr. Chase has not
18 addressed that yet?
19 MR. GROSSMAN: I'm just, I'm not going to comment
20 on that. I'm just saying that I did want to let you know
21 that I did want to hear on both of those, those counts.
22 MR. GOECKE: Okay.
23 MR. GROSSMAN: You, you know, can put on whatever
24 evidence you feel appropriate in that regard.
25 MR. GOECKE: Thank you.

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1 MR. GROSSMAN: I think that's the point I've made
2 at prior hearings. All right. You may proceed.
3 MR. GOECKE: Thank you.
4 DIRECT EXAMINATION
5 BY MR. GOECKE:
6 Q Good morning, Mr. Sullivan.
7 A Good morning.
8 Q I'd like to start today by taking a step back and
9 talking about air modeling generally. When you're retained
10 in a case like this, how do you begin?
11 A In modeling you first gather information regarding
12 the facility, what operations they have, you evaluate the
13 land around that facility and you come up with a modeling
14 approach sometimes codified in a protocol. You have that
15 protocol reviewed by the participating parties and
16 presumably accepted, and then you proceed with implementing
17 that protocol.
18 Q And the protocol, where is this drawn from? Where
19 do you get the ideas or the guidelines for what the protocol
20 is going to involve?
21 A Well, you, of course, do consider the EPA
22 guideline and air quality models which is generally
23 considered the standard of care as a starting point and then
24 look at the particulars of the project at hand. As I've
25 mentioned quite a few times, the goal, initially at least,

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1 if you can be conservative all the way through, is to do a
2 conservative analysis. It allows generally the process to
3 proceed more smoothly. It helps achieve consensus typically
4 by doing it in that fashion. Sometimes the conservative
5 approach, it passes in terms of the standard, sometimes it
6 doesn't.
7 Q Okay. And you said that the EPA guidelines
8 provide the standard of care. Can you elaborate on what you
9 mean by that?
10 A What they're trying to do is have it such that
11 there's a fairly standardized procedure so that people
12 aren't, you know, using a different model all the time and
13 they're not making widely different assumptions from project
14 to project. The approach is to try to standardize, to the
15 extent that they can, but the guideline also says the
16 ultimate objective is to achieve an accurate answer. So
17 like some cases, of course, judgment is required on a site-
18 specific basis. The guidance is intended to be regimented,
19 but it's trying to promote consistency is, I think, the best
20 way to describe it.
21 Q Okay. And how did you achieve or what is included
22 in the EPA guidelines that helps one achieve consistency?
23 A Well, for example, it specifies a model selection.
24 So for a facility such as this gas station which is not
25 usually modeled, but say a small industrial facility at the

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1 location of where the Costco site is, it would, if you
2 interpreted that guidance, it would say air model is the
3 model to use. So we're all starting from the same basic
4 starting point. They give guidance on inputs to the model
5 and various things with the goal of promoting consistency.
6 Q What's the EPA guideline upon which you're
7 relying?
8 A It's called Appendix W. It's in the Code of
9 Federal Register. It's updated periodically and it's called
10 the Guideline on Air Quality Models.
11 MR. SILVERMAN: I have one.
12 MR. GROSSMAN: Do you want to have that marked?
13 MR. SILVERMAN: Yes.
14 MR. GROSSMAN: All right. Thank you. All right.
15 (Discussion off the record.)
16 MR. GROSSMAN: We'll mark this as Exhibit 285 and
17 that is EPA Guideline on Air Quality Models.
18 (Exhibit No. 285 was marked for
19 identification.)
20 MR. GOECKE: May I give Mr. Sullivan a copy?
21 MR. GROSSMAN: Certainly. And that's 40 CFR, Part
22 51, Appendix W. All right.
23 BY MR. GOECKE:
24 Q Mr. Sullivan, Mr. Silverman has just provided
25 everyone a copy of what's been, what's identified as 40 CFR,

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1 Part 51, Appendix W. I've handed you a copy. Can you look
2 that over and tell us whether this is the document you just
3 referred to?
4 A Yes, it is.
5 Q And tell us what or, again, how this factored into
6 your -- let me try that again. Is it your testimony that
7 air modeling that you employ are typically based on these
8 guidelines?
9 A It's nearly always based on these guidelines with
10 the caveat that some judgment issued required to implement
11 this on a case-by-case basis. So if you read, fully read
12 this document, you will see the EPA does not, they want to
13 promote consistency, but not at the expense of accuracy.
14 And that's the basic philosophy of this document.
15 Q Okay. Are there any other important procedures in
16 the EPA guidelines for air modeling?
17 A EPA has miscellaneous guideline documents,
18 memorandums, this modeling clearinghouse that all try to
19 promote this concept of consistency. So this isn't the only
20 guidance document, but this is generally considered the core
21 document for guiding how modeling should be done.
22 Q Okay. And under the guidelines is the air
23 modeling a one-time event or is it a process or how does it
24 work?
25 A Well, in application, modeling, for example, for a

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1 permit is a very much an iterative procedure, unless it's a
2 very simple application and conservative modeling shows the
3 applicant passes the first time, then it's very simple. But
4 in a situation where it's complex where a chemical plant
5 wants to build a facility and for some reason they're over
6 the standard initially, well, then it's a series of steps
7 that take place involving the applicant and the regulatory
8 agencies aimed at trying to achieve the standards if
9 possible and it is an iterative process.
10 Q And what does that iterative process involve?
11 MR. GROSSMAN: Before you answer that question,
12 Mr. Sullivan, since this is a 71-page document, can you
13 point me to the particular section which you're referencing
14 that indicates that you can vary from the consistency aspect
15 of the guidelines in order to improve accuracy in a
16 particular place?
17 THE WITNESS: It comes up several places in here.
18 I'd have to, it will take me a few minutes to search for it.
19 Do you want me to do it now or after the break?
20 MR. GROSSMAN: Well, I'll leave that to Mr.
21 Goecke. Do you want him to do it now or at the break?
22 MR. GOECKE: I'm sorry, to do, to find the
23 portions in the document that talk about the --
24 MR. GROSSMAN: The -- he indicated that these
25 guidelines are intended to promote consistency, but that

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1 they do not restrict you from varying from them in order to
2 improve accuracy. And I just was curious as to what
3 particular language he was relying on.
4 MR. GOECKE: Sure. I think it might be more
5 efficient if we wait to a break to go through --
6 MR. GROSSMAN: Okay.
7 MR. GOECKE: -- the 71-page document to find --
8 MR. GROSSMAN: That's fine.
9 MR. GOECKE: -- the specific provisions.
10 MR. GROSSMAN: That's fine. All right.
11 BY MR. GOECKE:
12 Q But staying on that topic for a moment, why is it
13 important that the air modeler be allowed to vary?
14 A Well, each case is somewhat different. If they
15 had a rigid set of requirements, those applications required
16 site-specific judgments; we would be precluded from doing
17 so.
18 Q Such as what?
19 A Well, I mean the perfect example here would be
20 let's say that you're focused strictly on the impact from a
21 loading dock that's on a mall or a gas queue that's on a
22 mall property, on asphalt, that if you're looking only at
23 receptors within that source area at the mall, that's
24 defined urban by EPA. That land use is urban. If that's
25 your modeling domain for that review, you would want to have

1 the ability to say, well, we know it doesn't disperse there
2 like a rural setting even though three kilometers away it
3 may be grassy. Right there it's an asphalt surface. If
4 that's all you're dealing with, it makes perfect sense to
5 say, well, of course we're going to use urban for that
6 domain. If you're going out to three kilometers with mixed
7 use, some urban, some rural, well, then we always do follow
8 EPA's procedure as we did here. So it depends upon your
9 skill of review. I mean our skill of review so far until
10 the August submittal was not micro-scale. We were not
11 trying to model what is the impact inside a transient gas
12 queue or right at the loading dock. You don't usually model
13 that and we don't, we have never deliberately put receptors
14 in the middle of the road.

15 Q Why not?

16 A EPA has guidance that says you don't do that.
17 It's not standard procedure. We've done probably 20, 25
18 traffic studies in the Washington, D.C. district which is
19 required a lot of times with construction. We have never
20 put receptors, nor do they want us to, in a roadway. They
21 would go in the sidewalk, away from the roadway, which is
22 consistent with EPA's guidance.

23 Q Do you know why they don't want you to put the
24 receptors right on the roadway?

25 A Well, it's not; it's not a situation where

1 generally somebody is going to be parked at that spot for an
2 hour or longer. It's a transient, moving sort of situation
3 that is not generally addressed by putting models in those
4 locations.

5 MR. GROSSMAN: When you say receptor, you're not
6 talking about a physical receptor; you're talking about a
7 modeled receptor?

8 THE WITNESS: Yes, sir.

9 MR. GROSSMAN: Okay.

10 THE WITNESS: So that's the practice, you know,
11 that's how modeling is done. July 30th there obviously was
12 a change of focus saying, well, what about the impact right
13 at that loading dock in that case? Well, you know, the
14 public is not going to be standing where that truck is for
15 an hour. We did not emphasize that, but if that's the point
16 of focus, well, then the modeling has to be designed to
17 accommodate that scale of review.

18 BY MR. GOECKE:

19 Q Well, let's take a step back from that. Do your
20 assumptions change depending on the scope of the area that
21 you're modeling?

22 A Certainly.

23 Q Why?

24 A Because if you are modeling a general domain not
25 really close to the source, you do not need as much

1 specificity in the release terms and it's generally done
2 quite, you can simplify things when you have more distance.
3 In this situation here where you're going to be modeling
4 right at the loading dock and identifying the concentrations
5 there, we can't use simplified assumptions. That would be
6 perfectly acceptable for the more general, more typical
7 receptors. And that's the reason why in that August report
8 we had to refine in order to accommodate that scale of
9 review which is very atypical.

10 Q Give us examples of assumptions that you would use
11 when modeling, and I'm going to point to Exhibit 159 here,
12 the area, the larger outlined area in the pink, fuchsia
13 color, compared to assumptions that you would rely on in
14 modeling an area that was more limited, say just the special
15 exception location itself.

16 A If I can come down --

17 Q Sure.

18 A -- that might be helpful. To make it, to be
19 clear, the point of discussion with the focus on, in the
20 August 16th report was on the loading dock which is located
21 right here. I'm putting --

22 Q Other building.

23 A Sorry, thank you, right here. So --

24 Q And you're pointing to the southern portion of
25 the --

1 A Correct.

2 Q -- warehouse?

3 A And the maximum is occurring right in the middle
4 of this loading dock right here. So in an initial
5 assessment, as I've testified earlier, we use a conservative
6 treatment of the loading dock, a very conservative
7 treatment, which in terms of the fine particulate matter,
8 allowed us to compensate for differences between moves in
9 mobile six. So it was conservative for TM2.5. For NO2 and
10 CO, it's extremely conservative. You use the same safety
11 factor in there. And if we're going to focus now on that
12 scale of review, right at, where the trucks are parked,
13 we're going to have to refine that treatment which I did in
14 the August 16th report. So that's an example.

15 In terms of the focus on the queue source, for the
16 general analysis we simplified to say, well, there's going
17 to be 40 cars in queue all the time, the entire 15 hours the
18 station is operating. We know that's not the case. The
19 transactional data from Sterling, for example, shows that's
20 not the case. So if we're going to focus now on receptors
21 inside of a queue, which is not something we do, but if
22 that's the focus, we'll refine the hour-by-hour queues
23 because we have transactional data for the whole time period
24 we can average and show how it varies throughout the day.
25 That avoids positive bias in the modeling. So if you change

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1 the focus, we're going to have to change the modeling to
2 respond to that change in focus.

3 Q Where was your focus when you first began modeling
4 on this project?

5 A We were focused on typical, ambient receptors. So
6 we were modeling the entire mall contrary to what's been
7 stated. We had 400 receptors in the mall area. I don't
8 mean inside the mall, but I mean along that property.

9 Q And how many receptors did you have total?

10 A 8,100.

11 Q And where were --

12 A It's 8,116 actually.

13 Q And where were these 8,100 receptors and 16
14 receptors?

15 A It went much broader. We had, we had 91, 91
16 receptors east and west, 91 north and south, spaced out by
17 25 meters. So a couple of kilometers, domain each
18 direction.

19 Q So it went beyond the scope of what, what's in the
20 colored area here, the outlined area here, but wouldn't it
21 go beyond the scope of what's on Exhibit 159?

22 A I believe that it did approximately.

23 Q So it was a broader, a broader analysis. We were
24 not focused on receptors that we don't typically model or
25 emphasize, which would be inside of a queue, people moving

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1 through a queue, they don't stay there or park there, or in
2 the middle of a roadway or on top of the roof at some of
3 those concentrations where, at the Costco Warehouse
4 facility. We're focused on typical locations.

5 Q Okay. And I'd like to -- we'll get back to
6 talking about what you've done specifically, and I'll just
7 say it again, but going back to the general methodology and
8 procedure that's used under the EPA guidelines, this
9 iterative process, what are the changes with each step in
10 the process generally?

11 A Well, the process that I've worked through quite a
12 few times in applied modeling whether it be for a permit,
13 for a major facility or for what's called the state
14 implementation plan which is designed to bring a region into
15 compliance with the standards. This is like a five step
16 process. The first step is that you tend to model
17 conservatively. You do initial modeling and you see if
18 you're meeting the standards or not.

19 Q And what happens if you don't meet the standards?

20 A Then you'll consider making refinements to the
21 model at that step which we have done in the past. You see
22 if you pass. If you don't pass again, you see what are the
23 most, what other refinement is available to me? We'll make
24 those refinements. If you don't pass at that point, the
25 process doesn't stop, you then go into mitigation. So if

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1 you can't by refining the model, which EPA allows you to do,
2 if you can't pass, you say what are the most cost-effective
3 ways we can get this facility into compliance? And you'll
4 test with the model, you know, adding various control
5 technologies and to the point where you either pass,
6 economically viably pass or you conclude you can't build
7 this facility or continue to operate.

8 Now I've seen it go both ways, but it's a process
9 you work your way through. The intent is not to, from a
10 modeler it is to make sure that you're following the
11 guidance and you're meeting the standards. You might pass,
12 you might not pass, but it's a process.

13 Q From a policy perspective, do you know why the
14 process requires steps of refinement?

15 A Well, oftentimes, you know, the facility passes
16 with very simplistic methods. And so why spend the
17 resources by the applicant and especially the resources by
18 the EPA or state staff to review an overly complicated
19 analysis when a simpler, more conservative one shows you're
20 meeting the standards. So the process is designed to
21 efficiently use resources, frankly, and only go to a high
22 level of refinement if you have to.

23 Q Can you give us an example of where it would be a
24 conservation of resources both for an applicant and for a
25 regulatory agency to go through the process in this manner

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1 as opposed to merely starting at the most refined level of
2 modeling?

3 A Well, some steps, some steps in the modeling take
4 a fair amount of effort and a lot of times it's not
5 considered worth it. For example, we worked on a state
6 implementation plan in Iowa and the plan involved several,
7 two actually, cement plants, and they were exceeding the PM-
8 10 standards at the time. And so we did the modeling and
9 found that they were exceeding the standards.

10 So we went through the process and we then
11 determined we couldn't refine at that point any more, so we
12 went through and determined what steps we take to reduce the
13 emissions and we'd model the steps the engineers came up
14 with and they still weren't passing. So we met with the
15 regulatory staff, MYLA, and they recommended, which we
16 accepted, doing a refined treatment for background. So in
17 that case we evaluated background as a function of wind
18 direction quadrant as I recall and were able to refine the
19 background, they did pass and in that case we did the more
20 complex, more refined analysis in the beginning and then at
21 the end, but in between did an awful lot of, many steps to
22 refine the control technology so that by the time that this
23 process was done, we could demonstrate to the satisfaction
24 of the regulators that these two facilities operating side-
25 by-side would meet the standards.

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1 Q And when you say refine the process, what exactly
2 do you mean? How do you refine it?
3 A We, for example, on the background refinement we
4 did, the normal background which is typically done like we
5 did here, you're looking at, say for NO2, you're looking at
6 the 90th percentile, the worse case situation essentially
7 that happened in the region. And assuming that happens all
8 the time, any time the model value that you're adding a
9 background to, you add that number. We know that that
10 didn't happen all the time and these hits happened at these
11 monitoring sites. So it's very conservative.
12 And so by doing the refined procedure, you'd be
13 increasing the accuracy. You're not trying to have them
14 pass, you're basically increasing the accuracy to see if I
15 increase the accuracy, do they pass or don't they pass? In
16 this case they passed after that step and, you know, the
17 site was eventually approved.
18 Q And you mentioned the 98th percentile. Explain
19 for us, that's been mentioned a few times --
20 A When you're saying this case, you mean the Iowa
21 case?
22 Q Yes, sir. And then, again, the 98th percentile,
23 that's been mentioned a few times during the course of this
24 hearing. Explain exactly what that means.
25 A Well, that's the regulatory pass point that to

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1 determine what your value is, your concentration is. You
2 identify the 98th percentile, one hour of concentration at
3 each receptacle.
4 Q The 98th percentile of what?
5 A Of one hour values over the year. So it's, I
6 believe it's approximately the 175th highest value of the
7 year. And you do that at each receptor in the modeling
8 grade and then you do it for five years. So you have five
9 years of those and you then do rolling three year averages
10 of those values and that's what the defining standard is.
11 Q Is there ever a point in the modeling process
12 where you stop refining and you stop removing conservatism
13 in your modeling?
14 A Yes, yes, there is.
15 Q And when is that?
16 A Well, when you've exhausted those options
17 available to you as a modeler, then the only steps left
18 would be to either reduce the emissions or to change the
19 timing of those emissions such that when you model that new
20 set of circumstances, you pass. If you don't pass then, the
21 facilities would not get a permit.
22 MR. GROSSMAN: I don't understand something. You
23 just said that you try to use a five year average, is that
24 correct, for the background?
25 MR. GOECKE: Three years.

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1 THE WITNESS: It's actually a three year rolling
2 average. In this case we were more conservative than that.
3 We took five years, looked at the first, second and third
4 year, the second, third and fourth year, then the third,
5 fourth and fifth and picked the highest of those three
6 averages.
7 MR. GROSSMAN: Right. But if I'm correct in your
8 August 16, 2013 report, Exhibit 255(a), one of the
9 assumptions that you changed is you changed the background
10 assumption and you went to 90 micrograms per cubic meter
11 instead of 98. And if I understand correctly, based on the
12 more recent years, the more recent years of 2010 through
13 2012, rather than in 2009 through 2011, is that correct?
14 THE WITNESS: That is correct.
15 MR. GROSSMAN: And, but if I understand you
16 correctly, wouldn't you have taken all five years to get a
17 more accurate posture rather than just the last three years?
18 THE WITNESS: The last --
19 MR. GROSSMAN: Why did you relax it that much?
20 THE WITNESS: Well, three years is the basis for
21 the background.
22 MR. GROSSMAN: Right.
23 THE WITNESS: And so the issue was when we did the
24 earlier analysis in 2012, we only had available to us at
25 that time 2009, 2010 and 2011 --

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1 MR. GROSSMAN: Right.
2 THE WITNESS: -- through the duration of this
3 process. We looked at the situation in August and said,
4 well, we're going to refine this, let's look at the new data
5 and we did have data available to us to allow us to go up to
6 2010, '11 and '12. And so that background is the most
7 current background per the EPA procedure.
8 MR. GROSSMAN: I understood that. I just, when I
9 just heard you testify about you tried to take it over those
10 five years, I wondered why you took it only over the last
11 three years. But if you're telling me that the process, the
12 refinement process would be better applied by only doing the
13 last three years, that's something different. I
14 misunderstood your testimony.
15 THE WITNESS: Well, to clarify, we could have just
16 run the three years, last three years. We ran, we did the
17 three iterations of the five years which is a more
18 conservative approach. Per the standards, I don't believe
19 we had to do that. And so we could have based it just on
20 the last three years. We did it in a more conservative
21 fashion is what I'm saying.
22 MR. GROSSMAN: No, but I mean in this August 16
23 report, you just used the last three years, isn't that
24 correct --
25 THE WITNESS: We --

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1 MR. GROSSMAN: -- to get to the 90 micrograms per
2 cubic feet?
3 THE WITNESS: For the background.
4 MR. GROSSMAN: Right.
5 THE WITNESS: We use the same background features
6 in the three steps that we evaluate, which would be a pretty
7 typical procedure. We didn't have a different background
8 for each time step.
9 MR. GROSSMAN: Right. But am I correct in saying
10 that for the August 16, 2013 report you used your corrected
11 assumption or refined assumptions by which you got to a
12 background of 90 micrograms per cubic meter, you used just
13 the last three years?
14 THE WITNESS: That is correct.
15 MR. GROSSMAN: Okay. And one other confusion you
16 can clear up for me. You modified, if I understand
17 correctly from your August 16 report, four assumptions, one
18 with regard to the loading dock, two with regard to the car
19 queues and then one with regard to the background which
20 we've just discussed, is that correct?
21 THE WITNESS: That's correct.
22 MR. GROSSMAN: And when you first began to testify
23 here, I understood you to say that you've made, you changed
24 some assumptions because the focus was narrow. Now I hear
25 you to say that you changed the assumptions because you are

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1 refining the model. Am I misunderstanding what you said
2 originally?
3 THE WITNESS: I think they're consistent. If the
4 focus changes and we're dealing with a, what I'm saying is a
5 very atypical situation, we're dealing with evaluating a
6 concentration at a loading dock itself in the center of a
7 big gas queue, the assumptions that, the conservative
8 assumptions that would be reasonable for a more typical
9 analysis will not be reasonable, will not be refined enough
10 for that scale of review. And that's why I made those four
11 changes. I could have made several more refinements if we
12 needed to to further increase the accuracy at that scale of
13 review.
14 MR. GROSSMAN: All right.
15 THE WITNESS: Did that answer your questions?
16 MR. GROSSMAN: Well, I think so. I mean there's a
17 concern I have flowing in the background here is that it
18 appears that because of the mathematical error that,
19 concerning the background levels in your NO2 analysis, that
20 the amounts predicted by your earlier, more conservative
21 model would have driven the values over the National Ambient
22 Air Quality Standards, is that correct, for using a rural,
23 at least using a rural dispersion rates.
24 THE WITNESS: If you use a rural dispersion
25 coefficients and you had receptors on the roadway at the

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1 loading dock, it would be over the standard.
2 MR. GROSSMAN: All right. I think there's even
3 some, well, anyway the problem is that you come in to
4 testify now and say that corrections were a re-focus as
5 opposed to a refinement in order to meet the standards. I
6 understand your point. You're saying that this refinement
7 is necessary to make it more accurate. But there is
8 lingering in the background here concern about changing the
9 assumptions after it appears that the math drives the
10 measurements over the National Ambient Air Quality
11 Standards, at least using the rural dispersion rates.
12 THE WITNESS: I think the issue, Mr. Grossman, is
13 that if we didn't refine, knowing, let me explain the
14 context. The assumptions, for example, for the warehouse
15 are extremely conservative for NO2 for a couple reasons.
16 One I mentioned before that for PM2.5, you know, moves, has
17 quite a bit higher emission rates than mobile six did for
18 idling emissions, you know, tenfold, as Dr. Cole has stated,
19 I agree with that. It's in there.
20 And so the approach we took for PM2.5 was, fine,
21 we addressed that conservative. But that same scaling was
22 in there for NO2 and CO, and for NO2 it's nowhere near,
23 they're not, they're much more similar. Perhaps it moves as
24 a factor or two higher, but it's not 10 times higher.
25 So if you take twofold higher, what that means is

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1 the building assumption we had before which were fine for
2 the broader scale and, yes, with the lower background, now
3 we're making a decision based upon saying is it violating a
4 standard, but if you look at the math, that's based upon
5 having effectively 27 heavy-duty trucks at that loading
6 dock, at 10 minutes every hour for 18 hours a day. And we
7 know that's not true.
8 And so if we didn't refine it, a decision would
9 have been made based upon excessive conservatism for that
10 and especially for that scale of review and a decision would
11 have been made that the violation, that wasn't going to
12 happen.
13 MR. GROSSMAN: I think there's been an assertion
14 made by the opposition here that even under the urban
15 dispersion rates using your old assumptions that the NO2
16 predictions were for levels above the national air quality,
17 Ambient Air Quality Standards, at least on the mall itself,
18 do you agree with that or not?
19 THE WITNESS: I do. If you keep the 27 trucks
20 idling, there's only four bays, if you do that, you model it
21 as urban, but don't do any other steps which are clearly
22 available to refine for that fine level of detail, it will
23 show a violation, no question. It's a paper violation, but
24 it's going to be there mathematically, yes.
25 MR. GROSSMAN: All right. Okay. Thank you. Go

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1 ahead, Mr. Goecke.
2 MR. GOECKE: Thank you.
3 BY MR. GOECKE:
4 Q Following on Mr. Grossman's questions, in the, in
5 Exhibit 255(a), your August 16, 2013 report, the changes you
6 did to your modeling, would you describe them as a
7 refinement, as a refocus, both?
8 A I describe it as a refinement due to the changing
9 circumstances that occurred at the July 30th hearing.
10 MR. GROSSMAN: What changed circumstances are you
11 talking about?
12 THE WITNESS: Well, two. One was, yes, the
13 background change; number two, the focus became on what I
14 will term as atypical receptors at the loading dock,
15 especially -- I mean the high value, Mr. Grossman, you're
16 talking about is not at the queue, it's at the loading dock,
17 I mean in the loading dock is where the high value occurred.
18 We did not design the modeling to address that because
19 that's not typical of what we do. But if I did, I would
20 have done it more along the lines of what I did August 16th
21 and possibly the other refinements if we had more
22 opportunity, more time.
23 MR. GROSSMAN: All right.
24 BY MR. GOECKE:
25 Q When you did your first model for this site, where

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1 were the areas that you focused on most specifically?
2 A As I mentioned, we did model the whole mall, but
3 from meeting with the community and hearing the concerns, we
4 heavily focused on the closest homes, the Kenmont Swim and
5 Tennis Center and the Stephen Knolls School. I mean that
6 was the focus early on in the discussions and we emphasized
7 those locations throughout our process.
8 Q And how did you emphasize those locations
9 throughout the process?
10 A Well, for example, those are the locations we did
11 the urban and rural analysis to show what those very
12 sensitive, close locations, what we felt were the more
13 accurate description based upon the urban coefficients and,
14 you know, if we knew at that time the focus would be that
15 loading dock and a tangent gas queue, I clearly would have
16 had different assumptions.
17 Q You testified that it was your understanding that
18 the community's concerns were the school, the pool and some
19 of the nearest residences. How did you come to that
20 conclusion?
21 A I went to a number of community meetings. I've
22 read the documents that have been posted online. It's been
23 a long process and, you know, until recently those were the
24 issues that were the highest concern. And particularly the
25 focus was on the fine particulate matter at those locations,

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1 especially the school, because when we were within where
2 the, the most heavy interest has been.
3 Q Did you ever talk with members of the community?
4 A Yes.
5 Q Who did you speak with?
6 A Well, at one point or another I have spoken to all
7 the individuals from the community here today, plus at
8 community meetings I spoke to quite a few people that
9 stopped by our booth to talk about their concerns and their
10 issues.
11 Q Do you remember when this process began for you?
12 A It began just about three years ago, 2010,
13 September, I think --
14 Q Okay.
15 A -- 2010.
16 Q Did you ever meet with Dr. Cole to discuss your
17 modeling methodology in this case?
18 A Yes, actually a year ago today.
19 Q Tell us about that.
20 A We had wanted to have a better procedure than we
21 had for the zoning text amendment where, you know,
22 unfortunately Dr. Cole and I went to those proceedings with
23 grossly different opinions about things and especially the
24 modeling. And my goal was to see if we could reach
25 consensus on at least how the modeling should be done,

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1 retain enough flexibility to interpret it, you know, as each
2 soft hit and my goal was to see if we could have a meeting
3 of the minds and reach consensus at least on how to model
4 the gas station sources. As I've done in every other
5 project I've done like this, there's always been a meeting
6 like that and we have reached consensus and we develop a
7 procedure and we review the procedure and then we implement
8 it. And it's worked out very well.
9 And so that was the goal of that meeting and to
10 some extent we had some success I'd say at that meeting. We
11 did make progress. In my view we came to an agreement on
12 many things about how to model the gas station. We didn't
13 agree on how many sources, should we model around the gas
14 station. We could have then agreed on factors about terrain
15 and other ancillary issues, but on the core things we
16 certainly try to put it in, the issues that Dr. Cole asked
17 about, we incorporated all those we felt we could and I
18 think both sides tried at that meeting to reach consensus.
19 Ultimately, obviously, it didn't fully work out the way we
20 had hoped.
21 Q Did Dr. Cole or anyone from the community express
22 concerns about the emission levels in the loading dock area
23 at that time?
24 A They had mentioned concerns about odors and the
25 loading dock had come up, but relative to the community I

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1 don't recall at any time people asking me about what about
2 at the loading dock itself.
3 Q Okay.
4 A You know, I don't recall that coming up. It may
5 have. I don't remember.
6 Q So what was the result of your meetings with Dr.
7 Cole in terms of discussing the air modeling protocol?
8 A Well, we went back and forth in writing after that
9 meeting and we listed the areas of agreement and the areas
10 of disagreement and ultimately we completed the protocol,
11 provided both sides with a copy of the protocol and then we
12 implemented it.
13 Q Did you modify your original protocol based on Dr.
14 Cole's comments?
15 A We did.
16 Q In what way?
17 A Dr. Cole asked us to use a feature of air modeling
18 called air minute, which we did. He asked us to evaluate
19 major spills and we incorporated that term. It wasn't a
20 large component, but we did put that term in. He asked us
21 to further evaluate gravity flow situations and we did cal
22 puff modeling based upon our discussions at that particular
23 meeting. There may be more, but that's the examples of
24 things that we certainly try to accommodate his issues in
25 order to try to achieve consensus.

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1 Q Okay. In addition to the changes you made based
2 on Dr. Cole's comments, were there any other modifications
3 to your original modeling process?
4 A Yes.
5 Q Can you tell us what those are?
6 A After we completed the process, I added several
7 steps that I felt should be incorporated, all of which acted
8 to increase model concentrations beyond what we agreed to
9 with the goal of making sure we're as consistent as possible
10 with the guidelines and to ensure that in the future there
11 wouldn't be questions of us understating anything. And
12 examples would be the initial modeling was based upon
13 meteorological files we had used previously for this area,
14 for the Marant Power Plant, the way the service reference
15 was characterized was my view fine for the Marant facility
16 and the conservatism there. But it was resulting, I felt,
17 an understatement of the results here and we had tested it
18 and found out, yes, if we modify that procedure, make the
19 surface smoother, more consistent with the airport with the
20 source of the data that we would double the modeling values.
21 I --
22 Q Wait. We're coming back to this case. So the
23 changes you made from your report, well, did they increase
24 the conservatism?
25 A Well, that was for this case. It doubled the

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1 model concentrations on average. The other step we did
2 which also increased concentrations, initially we had one
3 size for the queue lane to accommodate a 40-car queue. We
4 use that for everything. I had my staff shorten it for the
5 one hour and eight hour and 20 so that we would have a more
6 concentrated source which would tend to give higher
7 concentrations, again, with the goal of trying to make sure
8 we would minimize potential questions.
9 Q Okay.
10 A So I didn't just say, well, what concessions can
11 we get with Dr. Cole. My objective, and I'm speaking under
12 oath, my objective was to be conservative and to avoid any
13 future questions to the extent that I could.
14 Q Okay. Thank you. Let's jump ahead now to the
15 July 30th hearing. At that hearing you testified that there
16 was a mathematical error in your November 2012 report. Can
17 you just refresh our memory about what that error was?
18 A Well, for the, for two of the pollutants, I
19 believe it was CO, NO2, the measured data is presented in
20 parts per billion. In the mall we have done it in
21 micrograms per cubic meter. PM2.5, for example, is
22 presented as micrograms per cubic meter. And when that
23 conversion was done from TBD to micrograms per cubic meter,
24 it was done incorrectly and I fully apologize and take
25 responsibility for that particular error. Unfortunately,

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1 when we did our quality control, when we quality controlled
2 the emissions, which is half of this, they quality
3 controlled the modeling and this fell in between and it was
4 missed and shouldn't have been.
5 Q Okay. Do you know how it was missed or how the
6 error --
7 A Instead the conversion factor is 1.88. It was,
8 the value was divided by 1.88 instead of multiplied --
9 Q Okay.
10 A -- times that value.
11 MR. GROSSMAN: Did that affect other -- was that
12 error only with regard to the nitrogen dioxide background
13 calculations or was it for other substances as well?
14 THE WITNESS: My review showed just for NO2.
15 MR. GROSSMAN: Okay.
16 BY MR. GOECKE:
17 Q If you had found that error in November of 2012,
18 or as you were preparing the report, what, how would you
19 have responded to it at that point in time?
20 A Well, I certainly would have fixed it if I found
21 it. I would have evaluated the modeling results to
22 determine, you know, if I, for example, the loading dock.
23 If I found that that value, frankly, was creating a problem,
24 I would have taken a closer look at the sources and the
25 assumptions to ensure that I didn't have excessive

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1 conservatism that would bias results towards making an
2 improper judgment. I would have done that at that time.
3 Q And what did you do when you found the error or
4 when you realized the error after July 30th?
5 A Well, I did the same thing I said I would have
6 done if I found it earlier. I looked at the degree of
7 conservatism we had in several points, not all, and I
8 refined those which is fully consistent with sound
9 methodology. It still has a lot of conservatism in it
10 still. And when you make those changes, you find that even
11 at the loading dock and the gas queue there are no
12 exceedances, no exceedances occur at those locations in
13 reality.
14 Q And let's talk specifically about what refinements
15 you made or what changes you made. What did you do
16 differently in your August 2013 report when you were done
17 with your November 2012 report?
18 A Well, I've described the loading dock which is the
19 primary issue is that for NO2 we've refined the loading dock
20 so it became much more realistic, still conservative, but
21 much more realistic for NO2. And basically we had four
22 cars, I'm sorry, four heavy-duty diesel trucks at each of
23 the four bays idling 10 minutes every hour for 18 hours a
24 day. We made that change rather than the very conservative
25 safety factors in there before.

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1 Mathematically, you could not have enough trucks
2 idling at that location to exceed the standard. There's
3 just not enough bays. There's not 28 bays, there's only
4 four. So mathematically you can't show an exceedance if you
5 do it realistically in that fashion. We still have 18 hours
6 a day with four trucks there. I mean that's a lot of
7 trucks. They only have 10 heavy-duty trucks a day. And our
8 assumptions are based upon there's always four heavy-duty
9 trucks. We even took the light-duty trucks out of the
10 equation completely. We filled the docks only with heavy-
11 duty diesel trucks. And by making what are still
12 conservative assumptions, we showed that that issue that
13 came up before was on paper an artificial violation that in
14 reality you cannot model that warehouse in a way that would
15 stand up to scrutiny. It will violate the standard. That
16 was the bottom line.
17 Almost all of it was associated with that, but for
18 the queue, yes, you made some modifications there to make it
19 more realistic. There aren't 40 cars in queue all the time
20 at a gas station. We refined that. And, frankly, this
21 transient receptor issue is unusual and not something we
22 routinely model. But based upon hard data from Sterling
23 using a 40-car queue, the max time in the queue is 16
24 minutes during weekdays and 20 minutes weekends and
25 holidays. And so we used 20 minutes and took the

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1 conservative approach that, well, for 20 minutes of that
2 hour there will be that concentration and the other 40
3 minutes they're not in the queue, they'll be at the
4 background, which is also conservative, and do a weighted
5 average. So we made that occupancy refinement, much like
6 for the cancer risk assessment, how many hours people are at
7 school, how many hours they're at the pool, we did the same
8 thing for that.
9 I mean our goal is to make this realistic and we
10 made those steps, refined the background. So these are the
11 kind of things we did to try and make it more realistic.
12 But as I said, there's a lot of steps I don't feel we have
13 to take, but if we did, those numbers would go down a lot
14 more.
15 Q Okay. So is it your testimony that this is a
16 realistic number or that, or are you testifying that there's
17 still more conservatism in your modeling that could be
18 further refined?
19 A It's not realistic, it's high. Those numbers are
20 high, in the August 16th report are still highly
21 conservative.
22 Q Based on the reasons you just testified or for any
23 other reasons?
24 A Other reasons.
25 Q Such as?

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1 A Well, one reason, the point of discussion we had
2 at the protocol meeting a year ago today is we talked about
3 NO2/NOX ratios. And I recall Dr. Cole appropriately asked,
4 you know, he said what are you going to use for your ratio?
5 We said we're going to use one, modeling a domain. We know
6 the conversion. What happens when a car or a truck releases
7 NOX? They're mostly releasing NO, nitric oxide. And, you
8 know, some, mostly nitric oxide and some NO2. And if you're
9 modeling a large domain, EPA's tier one approach is just use
10 one. We did. But --
11 Q Just use one?
12 MR. GROSSMAN: One?
13 THE WITNESS: One, meaning it's all NO2. The
14 ratio of NO2 to NOX is one. We did. But if you want to
15 focus on the gas queue or the loading dock, there is no time
16 for conversion. I mean basically the conversion; the
17 atmosphere of NO to NO2 according to the EPA is two hours.
18 That's the half life. In going across the queue, our
19 calculation, we're losing about .5 percent. What that means
20 is what people are breathing at the queue and at the loading
21 dock is what's coming out of the tailpipe, that mixture of
22 NO2 is NOX.
23 And if you look at the literature, the range in
24 that ratio directly from a diesel truck or a gasoline truck
25 is somewhere between 5 percent and 25 percent.

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1 MR. GROSSMAN: Range of what?
2 THE WITNESS: NO2 to NOX.
3 MR. GROSSMAN: All right. So you're saying that
4 the actual tailpipe emission of NOX is composed of NO and
5 NO2 and that the percentage of NO2 is somewhere between five
6 and 25 percent at the tailpipe, is that what you're saying?
7 THE WITNESS: Correct.
8 MR. GROSSMAN: All right. And that, nevertheless,
9 when you gave your NO2 figures, you assumed that NOX and NO2
10 were, in effect, the same?
11 THE WITNESS: We did simplify the analysis and at
12 that point we didn't need to refine it. There are ways to
13 refine it for the broader scale modeling. There are methods
14 the EPA has to do that. And if we needed do, we would have
15 done that and we have done that before. But here the
16 results didn't show it justified at the larger scale of
17 review. At the micro scale of review, if we needed to do
18 more analysis that clearly is an option available to Costco
19 and the max is 25 percent. So that would reduce the impact
20 by a factor of four at the loading dock and at the queue.
21 MR. GROSSMAN: But reduce the NO2 impact you're
22 saying?
23 THE WITNESS: Correct.
24 MR. GROSSMAN: And do I understand the implication
25 of what you're saying, if I understand correctly, is that

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1 NO2 is a serious pollutant, but NO is not?
2 THE WITNESS: Put it this way, I'm not a health
3 expert, but EPA, their standard is not for NO. Their
4 standard is for NO2.
5 MR. GROSSMAN: Okay.
6 THE WITNESS: There is not an ambient standard for
7 NO.
8 MR. GROSSMAN: All right. Okay.
9 MR. SILVERMAN: Just so, I didn't understand --
10 MR. GROSSMAN: Well, you -- then take it up in
11 cross-examination.
12 MR. SILVERMAN: Okay. I'm sorry.
13 THE WITNESS: That was one issue. A second issue
14 would have been we could refine the background term. We
15 used the most conservative option available to us because we
16 could. There are methods available, for example, as
17 documented by Capco (phonetic sp.) in California where you
18 can identify the eighth percentile highest value for each
19 hour. You can have hour by hour background value. If we
20 did that, it would further reduce the impacts probably by
21 about seven, well, seven to 10 micrograms per cubic meter.
22 The other steps we could have done is the fact
23 that for the ring road and all the parking lots worse, some
24 of the worse hour of the day traffic happens all the time.
25 We could develop scalers to fix that, make it more refined.

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1 We also could refine the treatment we use in August 16th for
2 the loading dock. There aren't 18; there aren't trucks
3 there, park trucks 18 hours a day there. So you could
4 gather data and refine that too. The question is where do
5 you stop? We could do all those things, but the issue is
6 from the steps we took in the week we had up to August 16th
7 when we worked on that part, we showed that you're well
8 under the standards. So going to the levels really
9 shouldn't be necessary, but there are options, they're out
10 there on the table that could be done.
11 BY MR. GOECKE:
12 Q Okay. Let's say hypothetically you conducted the
13 most realistic modeling you could come up with and it showed
14 that there were exceedances of the EPA one hour NOT
15 standard, for example. Then what? What would happen next?
16 A I would tell my client, in this case Costco, that
17 they would have to look into mitigation options and we would
18 work with the engineering staff and the gas station staff to
19 see what combination of further controls, if there are any
20 in this case, and changes in hours of operation that would
21 get them where they need to be. We would then evaluate
22 those options in the model to see what would pass. That's
23 the standard procedure.
24 MR. GROSSMAN: Excuse me. Please don't stand in
25 the middle of the audience taking pictures.

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1 THE VIDEOGRAPHER: I'm sorry. There is --
2 MR. GROSSMAN: That is --
3 THE VIDEOGRAPHER: -- no one behind me.
4 MR. GROSSMAN: I understand, but that's
5 distracting. Do whatever recording you want --
6 THE VIDEOGRAPHER: Sorry.
7 MR. GROSSMAN: -- from the side. Thank you.
8 BY MR. GOECKE:
9 Q Is it your testimony that mitigation is necessary
10 in this situation?
11 A No, it's not necessary. We've already taken
12 mitigation steps in terms of the arid permeator, which is
13 state-of-the-art. They have an attendant that's there in
14 cases any spills have occurred, I mean if they need to take
15 any appropriate steps they could take in terms of mitigation
16 strategies.
17 Q But under the EPA guidelines, mitigation is
18 something that's allowed?
19 A Well, it's what happens. That's how permits are
20 granted.
21 Q Let's put the emissions we're talking about from
22 the potential Costco gas station in context, NO2, for
23 example. What portion of NO2 in the ambient air in your
24 calculations would come from the Costco gas station?
25 A Well, to give you an example of the, taking the

1 concentration that Dr. Cole estimated, which was basically
2 right at the loading dock, that showed the value of 277 that
3 he showed. Actually the value is different. It's higher
4 than that. But the issue is at that particular location --
5 can you repeat that question, I'm sorry, I lost my train of
6 thought.

7 Q Sure. Sure. Sure. What I'm trying to get at is
8 in terms of NO2 and the ambient air around the mall site
9 based on your modeling, what portion of the NO2 would come
10 from the proposed Costco gas station as opposed to what's
11 coming from other sources?

12 A Thank you. I'm sorry. It's actually, we did
13 assess that. It's actually .024 micrograms of that 277 or
14 whatever you want to have is from the gas station, including
15 the gas queue, the exits and entrances.

16 Q And that's .024 micrograms per cubic meter?

17 A Right, which works out to be .008 percent. I mean
18 it's a warehouse issue, not a gas station issue. That
19 particular bull's eye that we're talking about there
20 essentially has nothing to do with the gas station.

21 Q What do you mean by that, it's a warehouse issue
22 not a gas station issue?

23 A Well, that, as I mentioned, that's an artificial,
24 that number cannot be supported mathematically to get
25 refined about it. That has nothing to do with the gas

1 station. The gas station is .024 in the round-off. It's
2 nearly all coming from the loading dock itself and due to
3 the conservative assumptions for NO2 that are in there and
4 it's right at the, it's where the trucks park in the middle
5 of the loading dock right where the source is. So it's not
6 the gas station, it's the loading dock and that point has
7 not come across to me as clearly as it should have. That is
8 the situation.

9 Q You're talking about the contributions from the
10 emissions from activities at the loading dock?

11 A That's not, that, again, when Dr. Cole did his
12 analysis, that was of the loading dock. That impact was not
13 affected in any meaningful way at all by the gas station.

14 Q Okay.

15 MR. GROSSMAN: Let me -- well, that raises a
16 question I've raised before and that is the parties, and
17 asked them ultimately to brief it legally and that is the
18 question of let's assume for a second that measurements here
19 are a very small increment from the proposed gas station,
20 would it drive the overall values above the National Ambient
21 Air Quality Standards? How is that to be evaluated? Is
22 that -- when the EPA assesses a project of some sort and
23 sees that it is a very small increment, but that adding that
24 very small increment will drive the total values over their
25 standards, what is the EPA action at that point that you

1 know?

2 THE WITNESS: The procedure they have for that is
3 for larger sources called prevention of significant
4 deterioration, but it provides some guidance. And this has
5 been discussed earlier by Mr. Silverman and myself. EPA has
6 defined levels they consider insignificant. And if you're
7 insignificant, they will not stop that source from being
8 built, they'll deal with the reason that it occurred. And
9 in this example I gave the .024 micrograms. Well, that's
10 relative to an SIL, significant impact level, of 7.5 for one
11 hour NO2. So it's hundreds of times below what EPA says is
12 insignificant. It's effectively nothing.

13 So if it a decision is made, well, you shouldn't
14 build the gas station because there's a model artifact due
15 to the warehouse, 100 percent, that would be, if that came
16 out in the record, that would be a poor result. My goal
17 here is not, and this might, just to make sure that I do my
18 best, that what you get in front of you, Mr. Grossman, is as
19 accurate as it can be or conservative. But in this case
20 with the NO2 bull's eye at the loading dock, it would have
21 been misleading in my judgment.

22 MR. GROSSMAN: All right.

23 BY MR. GOECKE:

24 Q How would EPA treat a facility that had a
25 contribution of .008 percent of NO2?

1 A They wouldn't inquire anything about that. That
2 would be a non-issue.

3 Q And that's true even if the 0.008 percent bumped
4 emissions over the EPA National Ambient Air Quality
5 Standards?

6 A Well, yes, well, they have to. I mean to put it
7 in context, let's say that they said you can't have any, you
8 have a non-attainment, you can't make it worse. We do have
9 non-attainment here for ozone. If you get to that approach,
10 you really wouldn't build anything, you wouldn't build any
11 new roads and you wouldn't build any facilities that emitted
12 precursors of ozone. It would make the problem worse. So
13 they have to have a logical way of dealing with and
14 balancing these issues. And they do have significant impact
15 levels for a reason.

16 Now EPA did do it and then the court mandated
17 changes. And Mr. Silverman has pointed out where the states
18 are allowed the discretion to override those SIL's if they
19 feel appropriate. But no state is going to override, even
20 as I say .024 micrograms is a problem or NO2. Not going to
21 happen.

22 Q Let's go back to your August 16, 2013 report.
23 Tell us what the conclusions were in that report.

24 A Our conclusions were that the, once these -- these
25 four steps were taken to refine the analysis for the micro-

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1 scale effects we're looking at, that there were no
2 violations and that there wasn't even close to being a
3 violation of any standard.
4 Q The opposition is alleging that you've reversed,
5 engineered the results, that you changed the methodology to
6 get the result that you wanted. How do you respond to that
7 criticism?
8 A Well, frankly, I can't, I can't, I can't do biased
9 analysis and I'll tell you why. I, half my practice, a lot
10 of my practice is for industry. A lot of my practice is for
11 groups like Kensington Heights and states in the EPA. I
12 have a track record. I've been doing this for 38 years. So
13 my goal, whether it be litigation or permits, is to be
14 consistent, as consistent as I can be and to not try to --
15 I'm not trying to have Costco pass contrary to what people
16 may think. My goal is to make sure we conservatively
17 represent the concentrations that are necessary to mitigate
18 them and make sure the exceedances do not happen to the
19 standards. And that's the process that I follow for any
20 client. And so I do take exception to the inference that
21 I'm saying, look, Costco, I may help you pass, I'll run the
22 mall in a way that gives you the lowest numbers.
23 If I was doing that, I wouldn't have taken the
24 steps after the protocol to double the numbers by changing
25 the surface roughness and that wasn't even discussed at the

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1 protocol meetings. That's not how my practice operates.
2 And if I operated it, if I only worked for one side or the
3 other, maybe companies can do that, but I don't. So, no, no
4 one, I've worked for environmental groups. They're not
5 going to hire me if they know I'm biased towards industry.
6 When I work for environmental groups, I tell them that if
7 I'm working for you, I'm going to, I'm going to be
8 objective. I'm not going to just try to pull off a negative
9 side to the other side you're trying to fight. So that's
10 how we try to balance our practice. It's balanced. It's
11 not like we work for one side or the other.
12 Q And putting aside your professional credibility,
13 is it your testimony that your methodology complies with EPA
14 guidelines?
15 A It does.
16 MR. GROSSMAN: May we return for a second to the
17 statement about what happens when you're in non-attainment
18 as we are for ozone as you indicated? So when you, when an
19 area is in non-attainment, the EPA, what is the EPA action
20 with regard to any proposed facilities during that period of
21 time that might further raise that level?
22 THE WITNESS: Well, I could show you what's called
23 the PSD, prevention of significant deterioration, could be
24 triggered and I don't do a lot of permit work, but I don't
25 want to say anything wrong in the record. But basically the

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1 process is solved by the statement implementation plan,
2 called the SIP. And the SIP looks broadly at the
3 metropolitan area in the case of ozone, not just traffic-
4 related, and they determine what do we have to do to get in
5 compliance and they'll focus on major facilities and they'll
6 also focus on roadways as source categories and, you know,
7 possibly gasoline marketing as a category. And they will
8 run, they'll run photo-chemical models to see, well, what
9 combination of changes do we have to make in order to
10 achieve the standard?
11 And it's more of a, more of a metropolitan-wide
12 effort in each state and the Washington, D.C. area, because
13 we have three jurisdictions that come together right here.
14 So that's -- it's the SIP process really for those kind of
15 things.
16 MR. GROSSMAN: Well, is there ever an order issued
17 of some sort from the EPA that stops any further projects in
18 an area that's non-attainment that might further exacerbate
19 the problem?
20 THE WITNESS: I've never heard of that. They do
21 have lowest achievable technology requirements. If you have
22 non-attainment, they'll be more strict than if you weren't.
23 But I've never, I don't recall, and it may have happened,
24 maybe Dr. Cole when he testifies can get into this, but I
25 don't recall any situation where EPA would have dictated no

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1 further growth in any particular area.
2 MR. GROSSMAN: All right. Okay. Go ahead, Mr.
3 Goecke.
4 BY MR. GOECKE:
5 Q And how does the significant impact level affect
6 whether a project is allowed to go forward or not when an
7 area is in non-attainment?
8 A Well, there eventually is significant
9 deterioration. I talk about design to avoid having creep
10 upwards in the air quality levels. And if you are higher
11 than the SIL, you're going to have to give more detail
12 analysis and get a permit. In this case, in this, of
13 course, PSD is not required for Costco. I was just using
14 the SIL as a benchmark, as a point of comparison.
15 Q And what is the significant impact level for one
16 hour NO2 exposures?
17 A It's 7.5 micrograms per cubic meter.
18 Q And the contribution from the Costco site was what
19 again?
20 A 0.024.
21 MS. ROSENFELD: I'm sorry, could you repeat that
22 number please?
23 THE WITNESS: 7.5 micrograms per cubic meter for
24 the one hour NO2 SIL.
25 MS. ROSENFELD: Thank you.

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1 MS. CORDRY: And, again, what was .24 number you
2 said?
3 THE WITNESS: 0.24 was the contribution from the
4 Costco gas station to the receptor that created the highest
5 value at the loading dock.
6 MR. GROSSMAN: You just, right now you said 0.24.
7 Before I think you said 0.024.
8 THE WITNESS: It's 0.024.
9 MR. GROSSMAN: Okay. Thank you.
10 MS. CORDRY: Okay. Because you've gone back and
11 forth now twice. You have another zero in there between the
12 period and the --
13 THE WITNESS: It's 0.024 per my recollection.
14 MS. CORDRY: And that's out of the 277 you're
15 saying, .02 out of 277 from the gas?
16 THE WITNESS: From the gas station.
17 MS. CORDRY: Okay.
18 THE WITNESS: That's right. The wind wasn't
19 blowing in that direction in the gas station when that
20 occurred.
21 MS. CORDRY: I'm sorry --
22 MR. GOECKE: I think she's getting into cross-
23 examination.
24 MS. CORDRY: Well, no, I'm just trying to
25 understand this because the number has gone back and forth

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1 now twice in his testimony.
2 MR. GROSSMAN: Yes, I would like to be clear on
3 this myself, what this numbers means, so let's see if we can
4 pin this down.
5 THE WITNESS: We showed the example that you use,
6 taking the example from Dr. Cole in our report were the
7 maximum occurred, 98th percentile controlling value, like
8 the 277. We looked at that condition and what happened at
9 that hour and looked at what the gas station contributed and
10 it contributed 0.024 micrograms per cubic meter.
11 MS. CORDRY: And that's, you're saying, because
12 the wind was going the opposite direction that particular
13 hour or something or --
14 THE WITNESS: What I'm saying is when the maximum
15 occurred from the loading dock -- there's two reasons. One
16 is the wind was not blowing from the gas station and, number
17 two, the loading dock had much higher emissions and it was
18 right next to the receptor being modeled.
19 MR. GROSSMAN: All right. And what does the 7.5
20 figure relate to?
21 THE WITNESS: 7.5 would be the significant impact
22 level that should be compared in this case to the 0.024.
23 MR. GROSSMAN: Okay.
24 THE WITNESS: I'm using that as an example. You
25 know, we could do others.

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1 MR. GROSSMAN: All right. That's the one hour NO2
2 significant impact level?
3 THE WITNESS: Correct.
4 MR. GROSSMAN: Okay. And in micrograms per cubic
5 meter?
6 THE WITNESS: Yes.
7 BY MR. GOECKE:
8 Q Okay. And since you last testified here, Mr.
9 Sullivan, you also submitted another report; a revised noise
10 study which I believe is Exhibit 249(e). Why did you
11 perform that study?
12 A We had discussion at one of the earlier hearings
13 and there was a lot of discussion about and statements made
14 that the noise standards would be violated. And discussion
15 also came up that the period of our monitoring was shortened
16 because of rain issues on that day --
17 Q Okay.
18 A -- and so my objective was to get additional
19 information by going out to the mall area on a heavy day for
20 mall usage and a day, a Saturday when the nighttime
21 restriction for noise extended to 9 o'clock. I was looking
22 for kind of a worse case situation. So I went out there at
23 6:00 in the morning and I gathered samples, noise, noise at
24 two different locations from approximately 6:40 a.m. until
25 about 2:00 p.m. to evaluate nighttime, which would be until

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1 9 o'clock, quote, unquote, nighttime, and then daytime noise
2 levels.
3 Q And what did you find?
4 A I found that the noise levels, when you look at it
5 specifically with data for the daytime and nighttime
6 allocated and identified, that in both cases the noise
7 levels were far below the standards.
8 Q Do you have those numbers in front of you? Do you
9 know how far from --
10 A I don't have them in front of me, but more than,
11 by more than five to seven decibels as I recall.
12 Q And these are, I guess, what we consider
13 background noise levels?
14 A Correct. And some of the highest noise levels
15 that contributed what I did have was from cicada activity
16 which gave some interesting peaks and a barking dog, which I
17 described in my report.
18 Q In --
19 MR. GROSSMAN: Well, what, if any, addition would
20 the gas station make to those noise levels?
21 THE WITNESS: That was modeled in our report
22 earlier. If you add those levels to what we measured,
23 that's how we assessed, you know, how would it work out and
24 it was quite a ways below the noise levels. There will not
25 be noise violations when the gas station is built. That

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1 data made clear that's the case.
2 MR. GROSSMAN: All right.
3 BY MR. GOECKE:
4 Q And that's in your professional opinion?
5 A Yes.
6 Q I'd like to turn now to monitoring the air at
7 facilities. Have you ever worked on projects where a site
8 or a facility was required to monitor the air after it
9 opened?
10 A Yes.
11 Q And when is, generally when is that required?
12 A Well, it can be required for major permits. EPA
13 has the authority to require, you know, monitoring before
14 and after a facility is built. The examples that I've
15 worked with would situations for let's say lead smelters.
16 Well, lead smelters control their emissions by housekeeping
17 measures. If they don't keep the housekeeping measures in
18 good shape, they'll have high levels of pollutants. So to
19 make sure they're towing the mark, a lot of, most, all times
20 I've seen they're required to have monitors at all four
21 major compass points and they'll measure routinely the dust
22 loadings and the lead concentrations to make sure that
23 they're meeting the standards. So I've seen it for that
24 kind of a circumstance.
25 Q And what is it that triggers the allegations

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1 monitor in the first place?
2 A Well, it's a concern that there may be a violation
3 of the standard.
4 Q Whose concern?
5 A Regulatory agency's concern, EPA or the state's.
6 Q Are those situations like you talked about before
7 where mitigation efforts have been employed to try to make
8 sure a facility peaks emissions lower?
9 A Well, you definitely -- I mean, for example, as an
10 example, a case you worked on in South Carolina the last
11 three or four years is lead smelter, the first lead smelter
12 built in the United States actually in a long time, that we
13 went through a very convoluted process to get them, their
14 emissions down to meet the standards. But I was involved in
15 working for three environmental groups on that project and
16 we insisted that they put monitors, which the state would
17 have done anyway, but put monitors at different locations
18 that we specified to make sure they wouldn't violate the
19 standards because they would violate the standards if they
20 didn't do all the things they said they were going to do
21 which involved a lot of housekeeping measures, keeping these
22 clean. So it's done in a circumstance we are concerned that
23 there could be a violation and you want to have a watchdog
24 that monitors the watchdog. If your situation was not even
25 close, they're not going to require monitoring.

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1 Q Have you ever worked on a project comparable to
2 the proposed Costco gas station where air monitoring was
3 required?
4 A No. No.
5 Q Have you ever worked on a project comparable to
6 the Costco gas station at all?
7 A I worked on similar projects like this, yes.
8 Q Such as?
9 A We've done modeling for certain solvent use at
10 auto body shop, paint shops, auto body shops, things like
11 that, similar commercial operations, but monitoring of the
12 air is not required for them either.
13 Q Okay. Do you think it would be appropriate in
14 this situation to require Costco to conduct air monitoring
15 after the gas station were to open?
16 A No, it's really, it's unnecessary.
17 Q And why do you say that?
18 A Well, because if you do look at the composite set
19 of work that were done so far, including the earlier reports
20 and the refinement for NO2, one hour, Costco, first of all,
21 is creating relatively small impacts. Costco gas station is
22 creating quite small impacts. Furthermore, if you look at
23 the concentrations, they're all below the standard. So put
24 those two facts together, what would be gained by having
25 them put a monitor in? It's going to show -- it's going to

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1 show attainment. I have no doubt about that. So it would
2 be in my view a waste of resources.
3 MR. GROSSMAN: How costly is a monitor?
4 THE WITNESS: It's expensive and it basically, it
5 depends how many monitors you have and what you're
6 monitoring for, of course, but you need the right protocols,
7 you have to have periodic maintenance and calibration. To
8 do it correctly, which is how you do it, it's very costly.
9 I mean it's -- it depends how many years you do and so
10 forth, but we costed out monitoring that works for a project
11 not long ago and if you did a lot of pollutants, it could be
12 well over \$100,000 just for equipment. If you're doing one
13 pollutant, it's going to be a lot less than that, but the
14 overall maintenance and operation, there's a lot of steps
15 you have to take in terms of quality control and quality
16 assurance that do add up and it's a costly undertaking.
17 MR. GROSSMAN: Well, for a -- let's take this
18 situation, Costco gas station. Let's say the Board of
19 Appeals were to decide to grant the special exception, but
20 to order air monitoring of the substances that are
21 considered potentially health hazard, health hazards by the
22 EPA. What would that cost in your estimation for a year of
23 monitoring?
24 THE WITNESS: What pollutants should be assumed?
25 MR. GROSSMAN: Talking about volatile organic

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1 compounds; particulate matter, 2.5 and lower; and the other
2 substances, carbon monoxide, NO2 and so on that we've
3 discussed here.

4 THE WITNESS: In the end, it would depend, of
5 course, on how many sites are being monitored, but ballpark
6 number, it would be at least in the order of 50 to \$100,000
7 a year, 50,000 to \$100,000, possibly more.

8 MR. GROSSMAN: And if the sites that were
9 monitored were restricted to residences within let's say 200
10 feet of the gas station, the swimming pool nearby and the
11 Stephen Knolls School, what would be your estimation of the
12 costs of that kind of monitoring, and I guess right on the
13 site near the gas station?

14 THE WITNESS: Such as in the Westfield -- I want
15 to get the context -- Westfield buffer and those areas near
16 the school?

17 MR. GROSSMAN: Right.

18 THE WITNESS: If you did that whole set of
19 chemicals, plus you did volatile organic compounds for a
20 suite of chemicals like benzene and toluene and so forth,
21 that would be over \$100,000 a year. I can't tell you
22 exactly, 100 to \$150,000 a year.

23 MR. GROSSMAN: Okay.

24 THE WITNESS: At least that. To purchase the
25 equipment, install the equipment, have power installed,

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1 calibrate, develop a quality assurance plan, implement the
2 plan, do it right. It's an expensive procedure.

3 MR. GROSSMAN: Okay. All right.

4 BY MR. GOECKE:

5 Q Is there any significance to a year's worth of air
6 modeling in terms of data, sampling size or --

7 A Well, it certainly isn't enough in terms of
8 background, so if it was pre-construction, which isn't being
9 talked about here, but that would not be enough to give you
10 a stable data set. In some cases when EPA does require a
11 post-construction monitoring, they do in some cases ask for
12 a year of data for confirmatory purposes. So that has
13 happened. It's not against EPA's policy in that. But for
14 background you need three years, otherwise you have an
15 unstable basis. You know, things do bounce around somewhat.

16 It's not enough really to give you a definitive answer.

17 Q So in order to know the specific background at the
18 mall site, for example, you would need three years of data?

19 A Yes, you would.

20 Q Taken how frequently, daily, weekly, monthly?

21 A Well, the things like NO2 and CO would be taken
22 hour by hour. Particulate matter, PM2.5, there's two ways
23 you can go. You can do it with the reference method which
24 would be every three days, every six days --

25 Q Okay.

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1 A -- getting a sample for 24 hours. Or you can use
2 a toluene which gives you hour by hour coverage. In terms
3 of the volatile organic compounds, you would most likely do
4 that every six days, you would take canister samples and
5 send those to the laboratory for analysis on a 24-hour
6 integrated time basis sample. Those are not done
7 continuously.

8 MR. GOECKE: Mr. Grossman, I think now might be a
9 good time to take a break and we can take a look at that
10 document and maybe just have a few more follow-up questions.

11 MR. GROSSMAN: All right. Let's do that and we'll
12 come back at around five until 11:00. Do you want to come
13 back at five after 11:00? We're in recess.

14 (Whereupon, at 10:55 a.m., a brief recess was
15 taken.)

16 MR. GROSSMAN: Mr. Sullivan, have you had an
17 opportunity to look through the EPA Exhibit No. 285, the
18 guidelines? Tell me about what particular pages refer to
19 the refinement process you're talking about?

20 THE WITNESS: I have and this, for the record,
21 this document is not complete. It only contains starting at
22 Section 8, but I have --

23 MR. GROSSMAN: Well, which document are you
24 looking at?

25 THE WITNESS: I'm looking at Exhibit --

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1 MR. GROSSMAN: 285? The one I have has 71 pages.
2 You're saying that's not complete?

3 THE WITNESS: It's not complete. It's missing
4 sections 1 through 7. And it's also missing Sections 831,
5 832 and, well, then it starts with 833. No, it doesn't.

6 Let me see here. I'm sorry, maybe, maybe -- I think I mis-
7 spoke. It may be in here.

8 MR. GROSSMAN: Yes, Section 1, I see a Section 1.
9 Maybe it's not, it's not reflected in the table of contents
10 perhaps.

11 THE WITNESS: Strange. I'll -- I can see that it
12 is here. I did find the section, though, I was looking for.

13 MR. GROSSMAN: All right.

14 MR. SILVERMAN: Just to clarify, this is an
15 appendix to a very long document and, but I just ran out of
16 nickels, so I'm just giving you this stuff.

17 MR. GROSSMAN: All right.

18 THE WITNESS: It's complete enough.

19 MR. SILVERMAN: Thank you.

20 THE WITNESS: In Section --

21 MR. SILVERMAN: I think it's W, too, which means
22 there is an A, B, C, D.

23 THE WITNESS: Section 1. Section 1(d).

24 MR. GROSSMAN: All right. Which is, Section --

25 THE WITNESS: I'll read.

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1 MR. GROSSMAN: -- 1(d), which would be page --
2 THE WITNESS: Page 5?
3 MR. GROSSMAN: -- 5 of 71, yes.
4 THE WITNESS: Should I read that into the record
5 or is that sufficient just to reference it?
6 MR. GROSSMAN: Well, let me take a look at it a
7 second. Essentially it says that the model that most
8 accurately estimates concentrations in the area of interest
9 is always sought, however, it also expresses a need for
10 consistency. All right.
11 THE WITNESS: I'm just trying to, trying to strike
12 a balance as I read it between those two things.
13 MR. GROSSMAN: All right. Is there any other
14 section or is that the specific one you --
15 THE WITNESS: That's the one I was thinking about.
16 MR. GROSSMAN: Okay.
17 THE WITNESS: Section 2.3 also basically makes the
18 same point as well.
19 MR. GROSSMAN: All right. 2.3 -- 2.2 or 2.3?
20 THE WITNESS: 2.3 has some statements in it as
21 well.
22 MR. GROSSMAN: All right. That's availability of
23 models, begins the very end of page 6 and goes on to page 7.
24 THE WITNESS: And 2.3, Section V.
25 MR. GROSSMAN: 2.3, Section D? I don't appear to

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1 have --
2 MR. GOECKE: I don't see that either.
3 MR. GROSSMAN: -- 2.3, Section D. I see a 3.0,
4 Section D.
5 THE WITNESS: I'm looking at an electronic file.
6 I don't have the whole page. Let me find it.
7 MR. GROSSMAN: Why don't you look at the paper
8 copy because that's what we have in front of us.
9 THE WITNESS: Yes, Section 3.
10 MR. GROSSMAN: Okay. Section 3, beginning on page
11 7?
12 THE WITNESS: Let's see. That is correct. And
13 I'm looking at Section D.
14 MR. GROSSMAN: All right. So Section 3(d), it
15 says it should be,
16 "It should not be construed that the
17 preferred models identified here are to be
18 permanently used to the exclusion of all
19 others or that they are the only models
20 available for relating emissions to air
21 quality. They're modeled at most accurately
22 estimates concentrations in the area of
23 interest is always sought, however,
24 designation of specific models as needed to
25 promote consistency in model selection and

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1 application."
2 Okay.
3 THE WITNESS: Those are two examples. There may
4 be others, but that's the point I was making.
5 MR. GROSSMAN: Okay.
6 BY MR. GOECKE:
7 Q Again, I'm sorry, Mr. Sullivan, did you say
8 Section 2.2, level of sophistication levels?
9 MR. GROSSMAN: I think he was referring to 3 --
10 MR. GOECKE: Okay.
11 THE WITNESS: Section 3 --
12 MR. GROSSMAN: 3(d).
13 THE WITNESS: 3(d).
14 BY MR. GOECKE:
15 Q Would you mind taking a look at 2.2, okay, to see
16 if that might be one of the provisions as well?
17 A Which paragraph, Mr. Goecke, were you referring
18 to?
19 Q A and B, and C for that matter.
20 A Yes. This section of this is describing the
21 tearing philosophy --
22 Q Okay.
23 A -- that EPA has. I'm talking about to eliminate
24 the need from a detailed modeling. This can apply to
25 selection of model. It also applies to how you run the

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1 model. It states that if a screening technique or a more
2 simplified assumption is in my view, indicates that the
3 concentration contributed by the source exceeds the PS2
4 increments or the other meaning to just meet the NAQS and a
5 cycle level or more sophisticated models should be applied.
6 We're using the same models, but using the different, the
7 different degrees of refinement in the treatments within the
8 model.
9 Q Okay. Thank you. And then going back to our
10 discussion about air modeling, hypothetically speaking,
11 could it be possible that someone could do something to
12 affect the results of the air modeling?
13 A In what way?
14 Q To, you know, for example, hypothetically
15 speaking, if someone wanted there to be exceedances shown by
16 the air monitoring, could anyone do anything to affect the
17 results to try to elevate the level of contaminants that
18 have been tested?
19 A Theoretically they could. I have never seen that
20 in my monitoring experience. But there has been a concern
21 from time to time that, for example, the work I've done on
22 pesticides, some of the pesticides that I've worked with in
23 terms of monitoring, there is some organizations that are
24 not fond of those pesticides. And the concern would be that
25 they would release some of that pesticide near a monitor

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1 that would bias the results. I haven't seen it happen. It
2 could happen, but it's not typically an issue.
3 MR. GROSSMAN: What -- if you would adjust model
4 NO2, what would be the costs?
5 THE WITNESS: Just a monitor?
6 MR. GROSSMAN: Yeah, monitor, not modeling.
7 Monitor NO2 for a year let's say?
8 THE WITNESS: For the same three locations you
9 said before?
10 MR. GROSSMAN: Right.
11 THE WITNESS: I think just real, don't, please
12 don't hold me to this. It would be more on the lower end of
13 the range I gave earlier. I say 50 to \$100,000 or more.
14 MR. GROSSMAN: Okay.
15 THE WITNESS: The instruments themselves, I hate
16 to guess, I've costed it out before, but I don't remember
17 the exact amount. They should be paying 30 or \$40,000 just
18 for the monitors. So 50 is probably a low end because you
19 have to then run the program, quality control it and so
20 forth.
21 MR. GROSSMAN: Okay.
22 THE WITNESS: Certain expenses are inherent
23 whether you do one pollutant or three or four, like the
24 quality assurance plan, the protocol and the oversight
25 procedures are very similar. So there is -- it's not

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1 scalable to be a fourth if you did one instead of four.
2 MR. GROSSMAN: Okay.
3 BY MR. GOECKE:
4 Q And I can't remember how much you testified about
5 this before, but are there any trends in terms of NO2 in the
6 atmosphere, in the ambient air?
7 A It's trending downward in the D.C. area and
8 nationally, I believe, it's trending downward.
9 Q Is that why the background levels have gone down?
10 A Yes. The controls in the automobiles and trucks
11 are reducing NO2 emissions and as the fleet turns over from
12 year to year, you get more newer vehicles and older vehicles
13 off the road, the trend is downward and should be expected
14 to be downward.
15 Q Thank you.
16 MR. GOECKE: I have no further questions.
17 MR. GROSSMAN: All right. Who from the opposition
18 wishes to cross-examine? Mr. Silverman?
19 MR. SILVERMAN: We'll try. Let me apologize in
20 advance for what is, I expect, will be a halting
21 performance, but there's a lot of new information, there's a
22 lot of complicated information.
23 CROSS-EXAMINATION
24 BY MR. SILVERMAN:
25 Q Just a clarification. The conversion of NOX to

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1 NO2, you said that the NO2 fraction of NOX is .25 percent?
2 A I'm referring to out of the tailpipe.
3 Q Oh, the tailpipe?
4 MR. GROSSMAN: Well, you're saying .25 or .25
5 percent?
6 MR. SILVERMAN: I'm sorry, 2.5, yes, 25 percent.
7 THE WITNESS: 25 percent upper-bound out of the
8 tailpipe of either automobiles, gasoline automobiles or
9 diesel vehicles.
10 BY MR. SILVERMAN:
11 Q Okay. Could I take a look at Exhibit 285? Can I
12 draw your attention to page 15, the bottom of the page?
13 The heading is multi-tiered screening approach for
14 estimating annual NO2 concentrations from point sources.
15 MR. GROSSMAN: Page 15?
16 MR. SILVERMAN: Yes. And there's an image, but I
17 couldn't get it. So --
18 BY MR. SILVERMAN:
19 Q But I want to read B and C here, and I'll read
20 them and tell me if this agrees with what you just said.
21 "Tier 1, the initial screen, use an
22 appropriate model to estimate the maximum
23 annual average concentration and assume a
24 total conversion of NO to NO2."
25 That's the conservative approach, I think you took

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1 initially?
2 A That's correct.
3 Q "If the concentration exceeds the max and/or
4 PSD increments for NO2 precedes the second-
5 level screening, for Tier 2(c), for Tier 2
6 second-level screening analysis, multiply the
7 Tier 1 estimates by empirically derived NO2
8 to NOX value of .75."
9 That's 75 percent. So is that -- so is it 75
10 percent or is it 25 percent?
11 A Well, you're referring to Tier 2 and actually
12 these days EPA is more saying 80 percent. This is a
13 national number. In other words, 80 percent, rather than 75
14 percent, is the current, accepted value and that's for any
15 source. It could be a power plant. It could be whatever.
16 Q But this is talking about how to go from a
17 screening process to this more detailed or refined process,
18 to use your words, and they say the rule is use 75 percent.
19 You're saying 80 percent. And it does indicate, the next
20 sentence indicates the reviewing agency may establish an
21 alternative default ratio, but we don't care.
22 A Well, that's correct. You didn't go to the next
23 tier. Tier 3 is detail where we could use the ozone
24 limiting method or in this case, or if we're talking about
25 the gas queue and the loading dock, source-specific ratios

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1 can be used. And as I mentioned, the source specific ratio
2 maxes out at 25 percent NO2.
3 Q Yes, but this is, this is -- that Tier 3, that's a
4 decision to be made by regulatory bodies, isn't it?
5 A No, not necessarily. I mean if we're following
6 EPA's guidance and the objective is to achieve the most
7 accurate modeling, which is the goal here, I hope, well,
8 then the most -- if you're dealing with what are the
9 concentrations in a loading dock right as it's being
10 released effectively from the exhaust of a truck and we know
11 that the ratio is only 25 percent NO2, why would we be
12 forced to use 100 percent or 80 percent or 75 percent? I
13 mean it's -- what I'm stating we could have done, we haven't
14 done it and as I recall we could have, is that you can
15 justify very clearly per the guidance using site specific
16 ratios for that scale of analysis. I mean we could do,
17 frankly, we could have used the old modeling domain, the
18 ozone limiting method which would have further reduced it
19 throughout the --
20 Q Yes.
21 A -- entire modeling grid.
22 Q You know, I'm sure there's logic to everything you
23 say, I'm just, I'm just trying to follow the rules.
24 MR. GROSSMAN: Well, that's not a question.
25 MR. SILVERMAN: Well, excuse me. I'm sorry. I

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1 apologize.
2 MR. GROSSMAN: The witness has answered the
3 question.
4 MR. SILVERMAN: Yes. But you said if you go to
5 Tier 3, you can then look at a source-specific or site-
6 specific ratio. But if you look at D on page 16, the last
7 sentence there, site specific ratio derived from maximum
8 impact data can only be used to estimate NO2 impacts that
9 receptors located within the same distance of the source as
10 the source to monitor distance in the monitor. So, first of
11 all, I'd suggest you do some monitoring in addition to
12 modeling, but also the monitors in this case were regional
13 monitors, isn't that correct?
14 THE WITNESS: Well, this, but in this case here
15 we're talking about estimating concentrations within the
16 source itself, almost right exactly next to where the
17 tailpipe is releasing the NO2. If you look at how much
18 conversion could take place in 10, 20 meters, you find it's
19 essentially zero. So logic says site-specific in this case
20 has to be the ratio coming out of the trucks.
21 BY MR. SILVERMAN:
22 Q So isn't it a fact that when there's a high ozone
23 level, non-attainment for ozone which is, which you
24 testified is a condition here, that the conversion could be
25 100 percent?

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1 A I'm saying -- no, I'm not saying it's 100 percent.
2 MR. GROSSMAN: You have me confused by that
3 question.
4 MR. SILVERMAN: Let me ask it again.
5 MR. GROSSMAN: Because we were talking about
6 NO2 --
7 MR. SILVERMAN: Right.
8 MR. GROSSMAN: -- and then you slipped over to
9 zone.
10 BY MR. SILVERMAN:
11 Q We're talking -- well, NO2 and ozone are, have
12 some relationship, isn't that true?
13 A They're interrelated certainly for the chemical
14 process.
15 Q So is it not the fact, tell me if I'm wrong, is it
16 not a fact that when you have high ozone levels, the
17 conversion rate from NOX to NO2 can be much higher than
18 normal?
19 A I don't know if that's true or not, but when you
20 have high ozone levels, you will have lower NO2 levels
21 generally. That part is true.
22 Q Well, yes, but I just want to get what is the 25
23 percent conversion rate or 75 percent or one to one?
24 A Well, with a travel time distance of 10 meters,
25 that doesn't matter. I mean basically what you get out of

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1 the tailpipe is what you're going to breathe. There's no
2 time for any conversion, photo-chemical or otherwise. It's
3 a matter of 10 seconds if we're talking about one meter per
4 second flow.
5 Q So you're saying that the presence of ozone does
6 not affect the conversion of -- let me start again if I may?
7 You're saying the presence of the high levels of ozone does
8 not affect the conversion ratio of NOX to NO2, is that your
9 testimony?
10 A I said I didn't know the answer to that question.
11 Q Thank you. All right. Thank you. All right.
12 Mr. Grossman asked a question about what does EPA do when an
13 area is a non-attainment and a new source causes worse non-
14 attainment, which happens a lot, and you, I think, correctly
15 said they resort to the SIL's, the significant impact
16 levels. But do you know of any cases where an area is in
17 attainment and a new source, no matter how small, creates
18 non-attainment where they resort to the SIL's, do you know
19 of any case like that or any rule or regulation to that
20 effect?
21 A Well, certainly if it's -- I don't claim to be a
22 permit expert, Mr. Silverman, but if you're in an attainment
23 area, then it presents no significant deterioration applies
24 and those SIL's do apply. So that if you did your initial
25 assessment and you found you're over the SIL's and you

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1 qualified as a PSD source, then you'd have to do a detailed
2 review. And --
3 Q Isn't that --
4 A That isn't the case here because this facility
5 doesn't qualify.
6 Q Isn't it, let's just --
7 MR. GROSSMAN: This facility doesn't qualify as a
8 PSD source?
9 THE WITNESS: That's correct.
10 MR. GROSSMAN: And, for the record, define a PSD
11 source.
12 THE WITNESS: They define how many tons a year you
13 have to emit by different source category sizes. And I
14 think the lowest threshold is 100 tons per year. But for
15 the, but there's no category for gasoline station in that
16 list. So it would take a higher level for them to qualify
17 and they don't even come close to meeting the standard.
18 MR. GROSSMAN: What do the letters PSD stand for?
19 THE WITNESS: Prevention of significant
20 deterioration.
21 MR. GROSSMAN: All right.
22 BY MR. SILVERMAN:
23 Q All right. Well, I want to -- it's true that the
24 PSD rules don't apply, I agree with that, I'm sorry, but let
25 me just get a little clarification here. If you are well-

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1 below non-attainment, you're in attainment and you have a
2 lot of room to spare, the question comes in how much more
3 should you be able to add and they establish the SIL's to
4 help new sources in attainment areas comply with the
5 prevention of significant deterioration standards, is that
6 correct?
7 A Well, the SIL's, of course, in the context of PSD
8 apply to major facilities as defined by EPA, not to any
9 facility. I use SIL as a point of reference.
10 Q Right. Well, we want to understand this point of
11 reference because there's a legal implication here perhaps.
12 So the SIL's help in determining whether a major new source
13 is creating a significant deterioration? Essentially, they
14 define significance in that case. But is it not also true
15 that even, that any increment below the SIL's that causes an
16 area to go from non-attainment to attainment is forbidden,
17 is that not true?
18 A Well, the first premise, you said, you said a
19 statement that wasn't correct in my view. If a facility is
20 exceeding the SIL initial modeling, does that mean they
21 create a significant impact? Well, it depends. They give
22 an initial assessment and they do refine modeling and so
23 forth. What will be the final conclusion? We don't know.
24 It could go either way.
25 Q Well, I didn't mean to suggest, if I did, I

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1 apologize. We were just talking about initial impact. I'm
2 talking about the final number, the final impact that's
3 calculated. And if it's below the SIL, normally the source
4 can go ahead and locate and construct, but if it is below
5 the SIL, but it exceeds, it causes a new non-attainment that
6 did not exist before, then that source may not proceed,
7 isn't that correct?
8 A That's not correct. The SIL is a threshold issue.
9 The real issue is there's -- a PSD has increments and they
10 have different classes, Class 1, Class 2, Class 3. So it
11 depends if they're exceeding the increment or not and it
12 gets into -- it's a lot more to it than what you just said.
13 Q So, well, just -- the PSD concerns, these are
14 permitting concerns, isn't that right?
15 A Yes, these are permitting.
16 Q Yes. And you had, you testified you don't do a
17 lot of permits, is that right?
18 A We have done modeling for permits. We certainly
19 have done PSD-related permits. We don't do it routinely.
20 Q All right. And so it's your understanding of the
21 law of permitting that even, that a source, a major, new
22 source that will cause a new non-attainment would be
23 permitted even, so long as it stayed within the significant
24 increment levels?
25 A No, I'm not saying that. I mean I'm saying if a

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1 new source is going to violate the standards after all is
2 said and done, they won't get a permit to construct.
3 Q Even if the violation is small?
4 A The regulatory agency will make that call, but
5 from my experience working with a number of permitting where
6 I'm not writing the permit, but I'm doing the modeling for
7 the permit, they have to be under the standard and, you
8 know, we've gone through multiple iterations. If the PM10
9 standard is 150 and you're at 151, you've got to come up
10 with something else to get below 150. So that's how the
11 process works. I haven't seen states give discretion saying
12 you can be a little bit over.
13 Q So it's generally the rule you're not supposed to
14 violate national air quality standards, right?
15 A Well, certainly that's the rule.
16 Q Okay. And I think in a memo I submitted to Mr.
17 Grossman, there are, chapter and verse, for what to do in
18 cases of attainment is cited there and I haven't heard
19 anything to refute it. Perhaps there is something.
20 MR. GOECKE: Is he testifying or asking a
21 question?
22 MR. SILVERMAN: No, I'm just clarifying because
23 it's a confusing area and I apologize. The --
24 THE WITNESS: In answer to your question, a
25 combination.

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1 MR. SILVERMAN: Right. Right. All right.
2 BY MR. SILVERMAN:
3 Q You testified that you develop a protocol before
4 you do any of your modeling and measuring and so forth and
5 it's reviewed by participating parties. Who are those
6 participating parties?
7 A Well, I'll give you an example. The work that we
8 did for the Sierra Club --
9 Q Okay.
10 A -- the Coastal Conservation League and League of
11 Women Voters in South Carolina, they paid us to ensure that
12 this lead smelter would not be creating adverse health
13 effects in their community. We sat down with the, with
14 state, first of all, to get the ground rules established.
15 Then we sat down with Johnson's Controls, which was the one
16 building the plant, and their consultants and we negotiated
17 a modeling protocol that all sides agreed to.
18 Q So the state was involved with the modeling
19 protocol?
20 A They were involved and were involved in the review
21 because this is a lead smelter.
22 Q Yes.
23 A We then, they, both sides, side by side,
24 implemented the protocol. We modeled it, they modeled it to
25 keep everybody honest. And when all was said and done, they

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1 wouldn't pass it and they came up with a series of enhanced
2 control measures to get below the standard which is very
3 small, .15 micrograms. And we both confirmed it and the
4 matter was closed.
5 Q So in these cases where we're talking about
6 particular facilities, isn't it true there's always a state
7 or Federal participant in the process?
8 A Well, if a model, if a permit is required that
9 requires air quality and modeling, yes, but in this case
10 there's no such requirement.
11 Q Right. But --
12 A So you don't have a state involved or EPA
13 involved.
14 Q But in terms, that's true, that is the sad truth.
15 But in terms of, in terms of the process, aren't the
16 guidelines really clear that whenever, that the state or
17 usually the regional administrator has got to approve the
18 model protocol, isn't that not the case?
19 A Well, certainly if it's a major source or a permit
20 to construct or a PSD permit, EPA has review authority. The
21 decision is made by the state regulatory agency that has
22 delegated that responsibility. But that, again, does not
23 apply to the construction of a gas station. That's handled
24 as a more, as a general source category by EPA.
25 Q Well, I understand. We're talking -- the, I --

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1 I'm not going to testify here. I just -- let me check out
2 page 7, recommended air quality models.
3 MR. GROSSMAN: This is page 7 of Exhibit 285?
4 MR. SILVERMAN: Yes, sir.
5 BY MR. SILVERMAN:
6 Q And look at 3.0(b).
7 A You said E, sir?
8 Q 3.0(b) as in boy.
9 A B? Thank you.
10 Q In this guidance,
11 "When approval is required for a particular
12 modeling technique or analytical procedure,
13 we often refer to the appropriate reviewing
14 authority. In sum, EPA region's authority
15 for NSR and PSD permitting and related
16 activities has been delegated to the states
17 and even local agencies. In these cases,
18 such agencies are representatives of the
19 respective regions. Even in these
20 circumstances, the regional office retains
21 the ultimate authority in decisions and
22 approvals."
23 And that's, and is that not -- and isn't the same
24 idea expressed in other parts of the guidance, the
25 guidelines, particularly with regard to urban and rural

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1 decisions, is that not the case?
2 A Well, the controlling words here was when approval
3 is required, which is not the case here. So you don't have
4 EPA and the states, they're not involved in the review of
5 the modeling because it's not required.
6 Q Do you do a lot of modeling where the EPA and the
7 states are not involved?
8 A Yes.
9 MR. SILVERMAN: He -- you reference several times
10 your investigation of the Sterling site. And do you recall
11 that, I think I asked you once before, do you recall a
12 November or December 20, 2011, study you did and you didn't
13 recall it. But I think I presented it to you and I would
14 like to put that study into evidence if I may?
15 MR. GROSSMAN: You said November or December?
16 MR. SILVERMAN: It's December 20, 2011.
17 MR. GROSSMAN: All right.
18 MR. SILVERMAN: It's called Air Quality Odor and
19 Noise Analysis for Proposed Costco Gas Station in Wheaton,
20 Maryland. Let me see if I have another copy.
21 THE WITNESS: Thank you.
22 BY MR. SILVERMAN:
23 Q Do you recognize that document?
24 MR. GROSSMAN: All right. So let's mark it as an
25 exhibit here. Exhibit 286 and this is Air Quality Odor and

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1 Noise Analysis for Proposed Costco Gas Station in Wheaton,
2 Maryland, dated 12/20/11. I presume this was for the
3 earlier location of the station, not the current location?
4 (Exhibit No. 286 was marked for
5 identification.)
6 MR. SILVERMAN: Not the current location.
7 MR. GROSSMAN: Okay. You get the credit for the
8 fattest documents admitted.
9 MR. SILVERMAN: Well, there you go. I've got to
10 succeed somewhere.
11 BY MR. SILVERMAN:
12 Q The, for that, do you recollect this document?
13 A I do.
14 Q And, in fact, the full document is much longer, is
15 it not?
16 A There's appendices, if I remember correctly, to
17 this that had some raw data in it and so forth.
18 Q Right. Close to a thousand pages all together, is
19 that, does that sound right?
20 A Well, if you included all of the wind data and all
21 of the --
22 Q Yes.
23 A -- output from the monitors, it could. I don't
24 remember it being that long, but it was long.
25 Q I just want to get some credit for not submitting

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1 everything. Let's see. So did you have a traffic estimate
2 in that document?
3 A We had, we did not. We had sales records
4 available to us.
5 Q Did you have estimates of queuing?
6 A We did not. We relied upon sales data. We did
7 not have a queuing study done at the same time.
8 Q You didn't say anything about queuing in that
9 document?
10 A Our analysis was not a queuing, no.
11 Q And you didn't make --
12 MR. GOECKE: Can I object to the relevance of
13 these questions, Mr. Grossman?
14 MR. GROSSMAN: What is the relevance?
15 MR. SILVERMAN: Well, my understanding is he had
16 queuing numbers which were different from the subsequent
17 one, which are different from his final queuing numbers. So
18 I just want to establish there are three sets of queuing
19 estimates.
20 THE WITNESS: So this report --
21 MR. GROSSMAN: All right. Well, I'm -- hold on
22 one second now. I'm going to overrule the objection. It's
23 a legitimate cross-examination question, his present
24 testimony as compared to previous testimony to the extent
25 that they are comparable. So I'll overrule the objection.

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1 BY MR. SILVERMAN:
2 Q Did you make any assumptions about queuing?
3 A No, this was a monitoring study, if I may, if I
4 may recall. In the correct report we measured the carbon
5 monoxide and we took some, a few, some readings with, of
6 VOC's and, you know, we were reporting what we measured. It
7 wasn't, and dependent about their documenting queuing.
8 Q Didn't you do some modeling?
9 A We did some normalized modeling to get an idea of
10 dilution ratios we showed in here, but that's not based
11 upon, as I recall, and I could look at the report again.
12 This has been two years ago.
13 Q Well, take your time. Take a look at page 34,
14 modeling and air quality assessment.
15 A Well, that's referring to Wheaton, the Sullivan
16 Environmental has conducted a detailed dispersion modeling
17 evaluation. That would be the 2011 report. What I recall
18 doing for this monitoring study was doing some normalized
19 modeling to show dilution ratios with respective, but this
20 is fundamentally a monitoring program, a short-term
21 monitoring program to collect some data.
22 MR. GROSSMAN: Well, I think he's asking about the
23 second paragraph on the page that says, on page 34 of
24 Exhibit 286, it says worse case assumptions for the one hour
25 and eight hour carbon monoxide scenarios were based on

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1 assuming 24 cars idling at the gas station, which is a,
2 which is reasonably conservative, especially for more
3 critical, eight hour scenario. So I think that's what he's
4 referring to.
5 THE WITNESS: Right. That's referring to the 2011
6 modeling report, that we didn't make any assumptions in
7 terms of collecting measured data regarding queues. This is
8 just reporting what we had from before.
9 BY MR. SILVERMAN:
10 Q Is it not correct that this report in its
11 entirety, part of it is a monitoring report from what you
12 found two days in Sterling and part of it is a modeling
13 report applying that information to the Wheaton situation?
14 A Well, really what it is, it collected a
15 snapshot -- I'm not trying to overstate this -- a snapshot
16 of measured data for CO and also for VOC's and some odor,
17 and we made some general comparisons of what we measured
18 then to what we modeled and made some general comparisons.
19 Q Well --
20 A But this does not involve any new modeling beyond
21 doing some normalized modeling for the odor analysis.
22 You've got to get dilution ratios. We're just trying to put
23 in context these results relative to the other earlier
24 report.
25 Q So the third paragraph of page 34 you say results

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1 show that modeling the combined impacts from the gas station
2 operations of nearby roadways are well below the standards
3 as established by the U.S. EPA?
4 A Right.
5 Q So you, so you didn't, when you did those models,
6 you didn't take account of traffic?
7 A We certainly did.
8 Q And did you make some assumptions about queuing
9 and traffic?
10 A Well, certainly, they are documented in the 2011
11 modeling report.
12 Q And were those assumptions the same as the
13 assumptions you're making today?
14 A No, it is updated data collected in January of
15 2013 that refined them.
16 Q And are those, are those -- but I take it your,
17 your traffic and queuing numbers of your August report are
18 different from your traffic and queuing numbers of reports
19 you did earlier in this case, is that correct?
20 A That's correct.
21 Q And those, too, are also different from your
22 original report that you did in 2011, is that correct?
23 A That's correct. I based the --
24 Q So we've got three, three, three sets of
25 assumptions?

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1 MR. GROSSMAN: Let him finish answering.
2 MR. SILVERMAN: I'm sorry.
3 THE WITNESS: I based the queuing information with
4 the best information available at the time of each report.
5 BY MR. SILVERMAN:
6 Q I'm not finding fault, I'm just saying there are
7 differences.
8 A That's correct.
9 Q Substantial. The, when you do your -- the Costco
10 gas station, am I correct, it's not open all the time?
11 A No.
12 Q So when you do your averages and calculate your
13 numbers, do you only look at the times that are open or do
14 you look at the 24-hour period?
15 A We approximate the time they're open, not the
16 24 -- where the vent, of course, can release it all the
17 time, but the gas filling, the spillage and so forth during
18 hours of operation.
19 Q So you don't average the non-operation hours?
20 A Well, we don't allocate emissions for the non-
21 operational hours. The actual model will, of course, put a
22 zero in there for those times and it will put the zero in at
23 3 o'clock in the morning for spills and for fueling. When
24 the station opens up again, it will be putting in numbers
25 once again.

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1 Q So do you, so when you talk about a particular
2 concentration that one could expect, let's say an average
3 concentration, a 24-hour or an annual -- do you look at, is,
4 are the zeros counted in that calculation?
5 A Yes.
6 Q Well, would you take a look at our, our earlier
7 exhibit list, 285.
8 MR. SILVERMAN: Mr. Grossman, I'm sorry, did we
9 get an exhibit number for the 2011 study?
10 MR. GROSSMAN: Yes, 286.
11 MR. SILVERMAN: Thank you. I'm sorry. Let's see.
12 MR. GROSSMAN: But while he's looking at that, I
13 take it the sense of his question is if you're averaging the
14 levels to include the times of non-operation, are there
15 times of actual Costco gas station projected operation that
16 would result in levels that exceed the air quality, the
17 National Ambient Air Quality Standards? Is that a sense of
18 where you're going with this, Mr. Silverman?
19 MR. SILVERMAN: Well, sort of.
20 THE WITNESS: I didn't fully grasp the question.
21 MR. GROSSMAN: Well, I guess he asked you a
22 question about whether or not your modeling averages
23 together the fact that there are times when the station is
24 not operational with times the station is operational. You
25 answered yes as far as things like spillage, no as far as

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1 the underground tank emissions that might occur. But I
2 guess the sense of that that I, that, I guess, where that
3 question goes in my mind is, well, are there times when the
4 gas station is operational that would exceed the National
5 Air Quality Standards?
6 THE WITNESS: If it operated for 24 hours a day at
7 those levels would it exceed it?
8 MR. GROSSMAN: No, no. If it's, I guess the point
9 is since it's not operating 24 hours a day and you've
10 averaged the time it's not operating into the time it is,
11 are your levels that you predict lower than those which
12 might actually be experienced for the times when it is
13 operating?
14 THE WITNESS: I would say, no, I can't foresee
15 that happening. I'm still not sure I fully get it. The
16 goal of the modeling is to, in this case, make sure that we
17 have emissions when the station is operating and we turn it
18 off when they should be turned off. The model keeps track
19 of the averages. I realizes that people aren't pumping gas
20 at midnight and so forth. There will be no emissions then.
21 When the station is open, there are emissions once again and
22 it keeps track of that and the wind data and so forth and it
23 comes up with the hourly calculations and the daily and the
24 annual calculations on that basis. So as long as, you know,
25 that this process is done, I don't see a procedure where

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1 that would miscalculate or would understate any particular
2 concentration relative to the standards.
3 BY MR. SILVERMAN:
4 Q Could I -- could you turn to page 28 of the EPA
5 guidelines?
6 MR. GROSSMAN: Exhibit 285.
7 MR. SILVERMAN: Exhibit 285. Thank you.
8 BY MR. SILVERMAN:
9 Q And we're getting deep in the weeds here, Mr.
10 Grossman. In Footnote 2, if operation does not occur at all
11 hours of the time period of consideration, three or 24
12 hours, and the source, the sources of operation is
13 constrained by a federally enforceable permit condition, an
14 appropriate adjustment to the modeled emission rate may be
15 made, i.e., if operations are only 8:00 a.m. to 4:00 p.m.
16 each day, only those hours would be modeled with emissions
17 from the source. Modeled emissions should not be averaged
18 across non-operating time periods. And my question is do
19 you, have you followed that instruction?
20 A Well, we have. We're -- in this example here,
21 this 8:00 a.m. to 4:00 p.m., we shouldn't be modeling
22 emissions beyond, you know, the time that it's operating.
23 So we have clearly, you know, we've clearly done what would
24 be done. We would match the modeling to the operational
25 scheduled. That's standard procedure.

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1 Q And -- thank you. And with regard to urban and
2 rural, would you look at page 10 on the bottom of document
3 285, Exhibit 285, 4.2.1.1(b)?
4 A Okay.
5 Q All screening procedures should be adjustments to
6 the site and problem at hand. Close attention should be
7 paid to whether the area should be classified urban or rural
8 in accordance with Section 7.2.3. The climatology of the
9 area should be studied to help define worse case
10 meteorological conditions. Agreement should be reached
11 between the model user and the appropriate reviewing
12 authority on the choice of the screened amount for each
13 analysis and on the input data, as well as the ultimate use
14 of the results. Do you agree with that?
15 A I don't disagree with that.
16 Q Okay. So in this case we have no appropriate
17 reviewing authority except for the Planning Commission and
18 the Hearing Examiner and the Board, is that correct?
19 A Well, they are the reviewing authority.
20 Q They are the reviewing authority? And why doesn't
21 EPA just accept, why don't they just accept your expertise,
22 the expertise of a good modeler like yourself and just
23 accept the decisions that you made? Why do they insist on
24 reviewing it?
25 A To verify.

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1 Q And do you think as a matter of policy, do you
2 think that's a good and important step?
3 A I don't have an opinion. I don't have an opinion
4 on any policy for EPA.
5 Q Okay.
6 A In this context here we have reviewing authority
7 in this case instead of the Planning Board and they are
8 reviewing what we have done.
9 Q And did they review whether you should use the
10 urban or the rural dispersion coefficients?
11 A I don't know.
12 Q Let's talk about uncertainty if I can find the
13 chapter and verse. Give me a moment. It is Section 9.1,
14 page 34. Would you agree with the statement that the types
15 of models you're using are, work better over long terms and
16 larger areas than over short terms and smaller areas?
17 A Can you give me one question at a time please?
18 That was like three questions.
19 Q Were those three questions?
20 A It was more than one. I lost it.
21 Q All right. I'll try again. Would you agree that
22 the models you're using are most accurate over long periods
23 of time?
24 A Well, accuracy as travel distance exceeds is
25 generally considered to be more accurate. I would say

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1 that's true.
2 Q And would you say they're less accurate over
3 shorter periods of time?
4 A We were talking about distance before. I thought
5 that I answered your question correctly.
6 Q No, I'm talking about periods of time. We'll talk
7 about distance too.
8 A Well, models, I need to give you a full answer.
9 Models are generally considered to be more accurate in space
10 and time, at a particular location, a particular time on a
11 long-term basis. So if a seasonal --
12 Q Okay.
13 A -- annual average is, they're more accurate. In
14 terms of short-term, one hour, eight hour and so forth,
15 they're less accurate matched in space and time. The
16 distributions in that context are considered more accurate
17 than the -- in other words, if you say the second high eight
18 hour concentration is CO is 85, you may have hit the wrong
19 day. In other words, it may not be 85 on June 6th, but look
20 at all the days and do a percentage of distribution, that's
21 going to be much more accurate than looking at it day-by-day
22 and hour-by-hour. So it's a little bit of a complex answer,
23 but it depends upon what level of review you're talking
24 about.
25 Q All right. Would you take a look at page 35

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1 please, the first paragraph? It's sort of towards the, a
2 little bit below the middle. Even with a perfect model
3 that --
4 MR. GROSSMAN: What --
5 MR. SILVERMAN: I'm sorry.
6 MR. GROSSMAN: -- section are you on?
7 MR. SILVERMAN: This is Section 9.1.1 entitled,
8 Overview of Model Uncertainty.
9 MR. GROSSMAN: And --
10 MR. SILVERMAN: And it's A, paragraph A, which is
11 the first paragraph on page 35.
12 MR. GROSSMAN: All right.
13 MR. SILVERMAN: Okay. And I'm looking at the last
14 three sentences starting with even with a perfect model. Do
15 you see that, Mr. --
16 MR. GROSSMAN: I haven't found the, oh, I see it.
17 Yes. Okay.
18 BY MR. SILVERMAN:
19 Q Do you have that, Mr. Sullivan?
20 A I see it.
21 Q Okay. Even with a perfect model that predicts the
22 correct ensemble average, there are likely to be deviations
23 from the observed concentrations of individual repetitions
24 of the event due to various variations of the unknown
25 conditions. The statistics of these concentration residuals

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1 are termed inherent uncertainty. Available evidence
2 suggests that this source of uncertainty alone may be
3 responsible for a typical range of variation of
4 concentrations by as much as plus or minus 50 percent.
5 Would you agree with that?
6 A I do and I have seen that in testing I've done of
7 models, one site might be low, a site might be high. That's
8 certainly not out of the range of what's generally accepted.
9 Q All right. And take a look at 9.1.3, use of
10 uncertainty of decision-making. This is where we're about
11 here. I'm reading A. The accuracy of model estimates
12 varies with the model use, the type of applications, site-
13 specific characteristics, thus, is desirable to quantify the
14 accuracy or uncertainty associated with concentration
15 estimates used in decision-making. Communications between
16 modelers and decision makers must be fostered and further
17 developed. Have you been, have you made an effort to
18 communicate the uncertainties involved in the modeling
19 process in your reports?
20 A We have not done an uncertainty analysis, nor is
21 that standard procedure for permitting work.
22 Q So what I just read is not standard procedure?
23 A No. I mean standard procedure is you run air mod,
24 for example, with proper inputs and you compare it to the
25 standards. I've never seen EPA say, well, no, let's apply a

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1 plus or minus 50 percent curb error to those numbers.
2 That's not how it's done.
3 Q Well, I think that what is suggested is that there
4 should be a lot of communication about uncertainty, you
5 don't agree with that?
6 A Well, I don't disagree with that, but you've
7 already read out the portion that's plus or minus 50 percent
8 is a typical variation. There is an expression of the
9 uncertainty point-by-point. Again, some will be
10 understated, some will be overstated.
11 Q And with regard to an earlier question as just to
12 get, just to nail it down, look on page 35, 9.1.2, studies
13 of model accuracy. And if we look at the, starting with the
14 second sentence, the results of these studies are not
15 surprising. Basically, they confirm what expert atmospheric
16 scientists have said for some time. One, models are more
17 reliable for estimating longer time average concentrations
18 than for estimating short-term concentrations at specific
19 locations. And, two, models are reasonably reliable to
20 estimate the magnitude of highest concentrations occurring
21 sometime, somewhere within an area. So the fact that,
22 wouldn't that -- you, that's guidance you, you subscribe to
23 that guidance? You think that's a correct statement?
24 A I agree with that.
25 Q And doesn't that suggest that if you find a, in a

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1 small area over a short time if you find a high
2 concentration, it would be unwise to kind of, to tie that
3 particular concentration to a particular spot, but just to
4 see it as a problem in the general area, is that a correct
5 paraphrase?
6 A Well, the way I'd word it is that you want to look
7 at the overall receptors, the overall concentrations for
8 that area and the model is going to do a better job of
9 characterizing the highs and second highs in the eighth
10 percentile and so forth, the 90th percentiles, and they will
11 point-by-point. So you're looking at, in a comprehensive
12 fashion, you look at the results and look at the high if you
13 want to do that, realizing that high you showed at the
14 south, maybe it actually occurred to the south, southwest or
15 south, southeast. It's more accurate in that context than
16 point-by-point, especially on a short-term basis.
17 Q So if your isoplasts show a higher concentration
18 at the loading docks or at the gas station, that's
19 suggestive that -- that doesn't prove that that's where the
20 high concentration is, it just suggests it's somewhere in
21 the vicinity there's that high concentration, is that
22 correct?
23 A Well, first of all, I've already stated that the
24 loading dock, once refined to math that will match how many
25 trucks can actually be there, there isn't a high at the

1 loading dock. But if you go back to the original scenario,
 2 what it's saying is if there's three or four or five
 3 receptors there, the high may have occurred at a different
 4 receptor than the model said. But generally the models in
 5 my experience do a pretty good job of identifying the
 6 distribution. You're going to find the high values, a much
 7 better job with that than saying that they can model
 8 accurately in space and time. You know, they hit the
 9 receptor right there at that location at 2 o'clock in the
 10 afternoon. They don't do well with that. But if you want
 11 to get a distribution with high to low concentrations for
 12 that area, for example, they'll do a pretty good job.
 13 That's what EPA is basically saying in this document.
 14 Q Let me go back to Exhibit 286, the December 2011,
 15 your report. Did you measure at Sterling VOC's?
 16 A We measured a small subset of VOC's, benzene,
 17 ethyl benzene, xylene and isomers of xylene.
 18 Q And did you find spikes in your measurements at
 19 times during the day when the numbers were much higher than
 20 what you were measuring the rest of the day?
 21 A We've, you know, we correctly described this study
 22 as, you know, as a snapshot in time. The instrument being
 23 used there, the, was not, you know, extremely sensitive and
 24 so a number of, I mean most of the time it was below the
 25 detection limit, below those three parts per billion.

1 Whatever the value was, it was lower than that. And
 2 occasionally we'd get a value above that. For example, when
 3 a truck, when a fill was going on from a truck, I would
 4 occasionally get a hit, but most of the time it was lower
 5 than the detectable level of that particular --
 6 Q So you got hits, as you put it, when there was,
 7 the fuel was being loaded from the truck to the underground
 8 tanks?
 9 A Well, if we go close to the truck, then we might
 10 go 10 or 15 feet downwind of the truck, take a measurement,
 11 we'd get a hit.
 12 Q But you got hits in your measurements --
 13 A Yes, we did.
 14 Q -- that were, that were much higher than your non-
 15 detect measurements the rest of the day, is that correct?
 16 A Well, we have a few values that are detectable,
 17 you know, it's below three parts per billion as a detection.
 18 Q And, right, and like so, for example, on page 45,
 19 we have line, it's a, well, it's a table, Table 2-4, BTEX
 20 VOC sample reading. The line 7, it says truck filling,
 21 9:04. I guess that's the time of day. And you write n/a.
 22 What does n/a mean?
 23 A No samples available.
 24 Q Okay. Then on the next page, page 46 --
 25 MR. GROSSMAN: Mr. Silverman --

1 MR. SILVERMAN: Yes?
 2 MR. GROSSMAN: -- before we go on with this, since
 3 we're using --
 4 MR. SILVERMAN: Well, I --
 5 MR. GROSSMAN: -- a study of a different --
 6 MR. SILVERMAN: Well, no, well, excuse me. I, the
 7 statistics, the monitoring, not the modeling, the monitoring
 8 information he got at Sterling was the basis for all further
 9 models you've done, is that not true?
 10 THE WITNESS: That's not true.
 11 BY MR. SILVERMAN:
 12 Q So did you take other measurements?
 13 A We took other measurements.
 14 Q At Wheaton?
 15 A We took, we took measurements of Wheaton of noise
 16 and odor. We took measurements at Sterling for CO and some
 17 organic chemicals, some odor. We did -- and noise at
 18 Sterling. That was just data to, you know, partially
 19 confirm modeling. That didn't drive the modeling in any
 20 way.
 21 Q So you did not plug the measured quantities of
 22 VOC's or carbon monoxide or other things you measured at
 23 Sterling into your model?
 24 A No.
 25 Q So your model contains no measurements at all?

1 A Our model is based upon EPA emission factors, not
 2 anecdotal measurements from Sterling.
 3 Q So in terms of VOC's, the number of actual
 4 measurements you took to arrive at your conclusion is zero,
 5 is that correct?
 6 A No, I have measurements, we just went over them on
 7 pages 45 and 46. These measurements were taken just as a
 8 point of reference. This was not, had no effect in any way
 9 on how we ran the model.
 10 Q And you didn't use these measurements anywhere in
 11 the models?
 12 A No.
 13 Q Well, just one other question I wanted to ask
 14 because you caught me by surprise, Mr. Sullivan, on page 46,
 15 lines 22 and 23 when there's loading going on, there seems
 16 to be a spike in emissions and the question I had is whether
 17 the trucks that seemed to have caused that spike, whether
 18 they were clean diesel or not?
 19 A Well, I'd have to ask -- I don't know the answer.
 20 I assume they were based upon Costco's policy. I don't know
 21 as I sit here if that's 100 percent true, that's correct.
 22 Q So would you say that people could expect higher
 23 levels of VOC's when the fuel tanks are being loaded by
 24 trucks? Would you conclude that?
 25 A The trucks are turned off, so whatever fuel

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1 they're running, it doesn't affect these readings. They
2 arrive, they turn off their motor and then they pump the
3 gasoline. We were standing 10 feet downwind of where the
4 opening was for the gasoline to get these readings.
5 Q So the, just answer the question, though, did the,
6 did you expect higher levels of VOC's during refueling
7 operations than not?
8 A Higher during fueling than when they're not
9 fueling?
10 Q Yes.
11 A Yes.
12 MR. SILVERMAN: If I can have just a moment?
13 MR. GROSSMAN: Sure.
14 BY MR. SILVERMAN:
15 Q Let me go back to a section that Mr. Goecke
16 referenced, I think. On looking at the EPA guideline on air
17 quality models, Exhibit 285, if we look at Section 2.2,
18 levels of sophistication in models, this is on page 6 on the
19 bottom, and looking at Sections A and B, is it, am I giving
20 a -- and read them aloud -- am I giving a correct loss if I
21 say that Section A is talking about your initial screening
22 model that you used very conservative assumptions in the
23 initial screening model?
24 A Well, terminology, we're not using a screening
25 dispersion model. Air model is not an extreme model.

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1 Q Okay.
2 A What we're referring to in refining the modeling
3 is that the inputs to the model are refined as necessary and
4 it's a scale of review changes more than those inputs have
5 been changed, but it's the same model. There's no -- it's
6 always an air model.
7 Q And look at Section B. It's, which I think
8 suggests if there is a violation you can, a second level
9 consists of those analytical techniques that provide more
10 detailed treatment of physical and chemical atmospheric
11 processes require more detail than precise input data and
12 provide more specialized concentration estimates. Did you
13 do any more specialized concentration estimates?
14 A We did the -- we did the more detailed and precise
15 input data for the portion of modeling we did on April 6th,
16 August 16th, refining the modeling for the queue and the
17 loading dock area based upon, you know, that particular
18 higher level tiering procedure.
19 Q And did you do more specialized concentration
20 estimates?
21 A Well, in the context that we, it's identified more
22 precise emission estimates for the loading dock, more, more
23 refined temporal scalars for the queue. We did refine the
24 estimate of concentrations on that basis.
25 Q Okay.

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1 A They use that term, as you see the last
2 sentence --
3 Q Okay.
4 A -- all these things collectively are referred to
5 as refined models, not just talking about change in a
6 dispersion model, from a simple model to air model, it's
7 talking about the modeling in general, including inputs, and
8 including potentially opposed processing if we chose to
9 refine further background treatment, for example.
10 Q On the urban and rural distinction, why does the
11 EPA tell you to do your calculations on the basis of a
12 radius of three kilometers?
13 A In most facilities that are getting a permit have,
14 a lot of them have elevated stacks and you get a stack, for
15 example, the maximum can occur well out to one, two, three
16 or four or more kilometers. And so in that context if
17 you're modeling a broad area, they want you to use whatever
18 area predominates, whether it be urban or rural, and they
19 have a procedure they've identified for that purpose.
20 Q Don't the EPA guidelines, requirements deal also
21 with sources where the receptors are at the same height as
22 the source, as well as ones with smokestacks?
23 A Well, they certainly have a general, that general
24 procedure because when you do a modeling analysis, you
25 typically will go out, quite a ways out. If it's an

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1 industrial facility, your fence line may not be the
2 controlling issue. My point is why is it three kilometers.
3 That's really because of the fact that the tallest stacks
4 push that level out.
5 Q Yes, but it's three kilometers even when you don't
6 have tall stacks, isn't it?
7 A No, because you would have to meet -- if it's an
8 area source, ground level source, you'd have to meet the
9 requirements of the fence line. The max would occur at the
10 fence line approximately and you would not need to go out
11 three kilometers to keep the maximum value.
12 Q Does EPA have a guideline that reflects your last
13 statement about, which you're talking about a small source,
14 you do it at the fence line?
15 A They don't, they do not have guideline that will
16 say that this should be one kilometer if it's a small stack
17 or a three. They use three to encompass all of that. But
18 the real controlling issue in this whole discussion goes
19 back to page 5 that we recorded earlier, is it 5(d)? The
20 most accurate estimate concentrations in the area of
21 interest are always sought. So if in this context if you
22 know that we're not going to focus on the gas queue, for
23 example, or the loading dock, those are on urban ground and
24 their receptors are inside of them. So your whole domain is
25 classified urban. It would be -- it would not make sense to

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1 say, well, I'll go three kilometers and see if there's grass
2 out there and I'll use that analysis for this. The idea is
3 if you're following the guidance, you want to get the most
4 accurate answer and it's all urban, you don't have to do the
5 analysis because you already know the answer.
6 Q Why do they talk about radius? A radius suggests
7 a circle. Do they want you to draw circles around areas?
8 Isn't that the sense of it?
9 Q Well, and we did that. I mean the standard
10 procedure that we followed in our protocol is we put our, or
11 we put our point in the middle of the facility and we do a
12 three kilometer radius circle and we showed the land use
13 analysis for that circle in our report. And for the general
14 modeling, not talking about just in the mall or right next
15 to the mall, the general modeling, we followed that guidance
16 to the letter.
17 But now we're talking about, well, what are the
18 impacts like in gas queue, 40 cars generating heat on a hot
19 asphalt surface, why would we consider that a rural
20 application? Well, we wouldn't. There's no way that can
21 happen. So in using your judgment and following the
22 guidance and getting the most accurate answer, you'd have to
23 use urban for that specialized modeling and we did.
24 Q Well, the area that where the gas station was
25 originally intended, have you visited it recently?

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1 A Well, I was there in July.
2 Q Did you notice that it's grassed over?
3 A It is at the moment, yes.
4 Q And have you noticed, have you looked at any of
5 the new landscaping plans for this project?
6 A I have not.
7 Q So you don't know that there's quite a lot of
8 greenery and landscaping right really in the station itself?
9 A I say I have not seen the plan you're referring
10 to, so I don't want to speculate.
11 Q So the -- your decision as to whether the area was
12 urban or rural was based on a, circles that you drew from
13 some point, is that right?
14 A Well, I'll clarify that I have made two judgments.
15 One is I followed EPA's guidance in terms of a broader
16 modeling. I did the three kilometer radius circle. We
17 discussed it with Dr. Cole. We did our thing. We showed
18 urban and rural and it was mostly rural and we did that.
19 But then it also stated that for the specialized modeling we
20 showed August 16th of the queue and the loading dock, these
21 are asphalt surfaces in a mall.
22 Q Well, where --
23 A Let me finish.
24 Q Yes, sir.
25 A That you know by definition, the EPA's land use

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1 definition, that's C-1 category, that's urban. I would not
2 need -- it would not make sense for me to go out three
3 kilometers and say, well, I'm going to blindly follow this
4 guidance up to three kilometers when I know that the entire
5 transport is all on urban ground.
6 Q Does it make sense for you to draw, to draw a
7 circle around anything of any length to look at whether it's
8 urban or rural?
9 A Well, we have done that. It's on a certain page
10 in my November 2012 report. We did the three kilometer
11 radius. We showed the mall area in yellow right in the
12 center. And if you look at it, you will see what's
13 delineated as urban. It totally encompasses the queue and
14 the loading dock and beyond.
15 Q Well, yes, but for your August report, your most
16 recent iteration, did you draw a circle to determine whether
17 the area was urban or rural or you just picked an area? You
18 just picked a point or you drew a circle?
19 A I can refer back to my November 2012 report that
20 that analysis has been done. These sources and receptors
21 are all inside the urban source area of the mall and so I
22 could draw that conclusion from my earlier report. It's
23 urban.
24 Q So, but just answer the question. When you say it
25 is urban or it is rural, you're talking about an area, is

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1 that right?
2 A I'm talking about the area within the mall and
3 near the mall.
4 Q Yes, but the -- in general, in looking at the area
5 that you're going to designate urban or rural, EPA says draw
6 a circle, is that not right?
7 A Well, I think I've answered that question. The
8 standard procedure is a three kilometer radius circle.
9 Q Well, even if it's not three kilometers, even if
10 we more refined the use to one kilometer, or even a lesser
11 area, the area is always a circle, is that not right?
12 A Well, if I'm going to apply judgment and use a
13 smaller area than what they say, I can say if it's all urban
14 I'm not going to draw a circle. I mean the guidance is a
15 three kilometer radius circle. That's the generic guidance.
16 We've done that. This is talking about specialized modeling
17 on August 6th for specialized sources where the source and
18 the receptors are inside the, the sources in the receptors
19 coincide.
20 Q So I --
21 A So --
22 MR. GROSSMAN: August 6th, I think he meant August
23 16th.
24 THE WITNESS: August 16th, right.
25 MR. GROSSMAN: I think we've --

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1 MR. SILVERMAN: Yes, okay.
2 MR. GROSSMAN: -- we've covered --
3 MR. SILVERMAN: We've got it.
4 MR. GROSSMAN: -- this point to a fair thee well.
5 MR. SILVERMAN: Right. Okay.
6 BY MR. SILVERMAN:
7 Q To get your background levels, which EPA monitor
8 did you use?
9 A For which -- for the, referring to the most recent
10 report?
11 Q Yes.
12 A I --
13 Q Yes.
14 A Arlington.
15 Q And is that monitor in an urban or a rural
16 setting?
17 A Or Arlington is a fairly urbanized area. In terms
18 of EPA's exact criteria, I'd have to look it up in my
19 records.
20 Q Yes. So if it were, if the background levels were
21 in an urban area, you would expect it to be lower than if
22 they were in a rural area, is that, is that right?
23 A Expect what to be more?
24 Q The, I'm sorry. Let me leave it. Not that it's
25 not a good question, I just don't understand it. Well, this

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1 mistake, mathematical calculation that was mistaken, has
2 this happened to you before?
3 A I've had, I've been a meteorologist for 38 years
4 and twice before in my career I've had embarrassments like
5 this. As I said, I apologize for the inconvenience to you
6 folks, as well as Mr. Grossman, but it definitely is not my
7 norm.
8 MR. SILVERMAN: Okay. I think I will resist the
9 temptation to go further. Thank you, sir. Thank you.
10 MR. GROSSMAN: All right. Ms. Rosenfeld.
11 MS. CORDRY: Does it make sense for the lunch
12 break?
13 MR. GROSSMAN: Well, I was going to go a little
14 bit further. I was going to go until 1 o'clock before we go
15 to lunch. Is there a particular reason?
16 MS. CORDRY: I might organize -- well, I might
17 organize the questions better.
18 MR. GROSSMAN: Are you hungry?
19 MS. CORDRY: Well, that too, yes. I might
20 organize the questions better I think.
21 MR. GROSSMAN: All the good food is going to be
22 gone at the cafeteria.
23 MR. SILVERMAN: Well, I'll get your fish, sir.
24 We'll tell your wife.
25 MR. GROSSMAN: A viable threat there. All right.

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1 Well, I, unless the witness has a reason why he does not
2 want to break now, do you -- I don't know what your schedule
3 is today. How much longer do you think your cross-
4 examination is going to go, Ms. Rosenfeld?
5 MS. ROSENFELD: I, at least several hours.
6 MR. GROSSMAN: Okay. All right.
7 THE WITNESS: I'm fine with breaking now.
8 MR. GROSSMAN: All right. So we'll break now and
9 it's 12:19. Come back at 1 o'clock? Sound good? All
10 right. Thank you.
11 (Whereupon, at 12:19 p.m., a luncheon recess was
12 taken.)
13 MR. GROSSMAN: Back on the record. Ms. Rosenfeld.
14 MS. ROSENFELD: Yes. Thank you.
15 BY MS. ROSENFELD:
16 Q Mr. Sullivan, you have put in the record two new
17 reports. One is dated August 16, 2013, and one is dated
18 August 9, 2013. How much will you be compensated for each
19 of those reports respectively?
20 A I don't know. I haven't calculated it yet.
21 Q Do you have any estimate?
22 A I, definitely how many hours were billed. I
23 don't, I really, I don't, I really don't know.
24 Q Okay. And how much do you charge per hour?
25 A Me personally or my staff?

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1 Q You personally.
2 A I charge approximately \$195 an hour.
3 Q And your staff?
4 A It varies.
5 Q And you have no sense at all for how many hours
6 you spent preparing these two reports?
7 A I could make, I could make a general guess if
8 that's what you're asking me to do.
9 Q Yes, would you please make a general guess.
10 A If you're asking me to estimate cost for the
11 preparation of the conduct of the work in the preparation of
12 the reports, August 9th and August 16th?
13 Q That's correct.
14 A I'll estimate \$15,000.
15 Q Combined?
16 A Yes.
17 Q Okay. The report that is dated August 16, 2013,
18 which I believe is -- is that Exhibit No. 253?
19 MR. GROSSMAN: 255(a).
20 MS. ROSENFELD: 255(a). Thank you.
21 BY MS. ROSENFELD:
22 Q In that report, you have an Appendix B and it says
23 there's an Excel spreadsheet, calculations of hourly
24 emissions. Would that be the one page following the
25 Appendix B cover page or is there more data contained in

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1 that Appendix B? I have a page 38, hourly emissions scalers
2 for total gasoline queue sources. Is that the only page in
3 that exhibit?
4 A The, that is the only hard copy page for Appendix
5 B. The Excel file you're referring to is available in
6 electronic format that simply mirrors the values shown for
7 each hour on page 38.
8 Q And how -- is that a one-page document as well or
9 is that --
10 A It's an Excel file.
11 Q How many pages?
12 A I believe it's one worksheet, but I'm not sure
13 without having it in front of me. I believe it's one
14 worksheet.
15 Q Do you have a copy of that with you today?
16 A I do electronically.
17 Q Would you --
18 MS. ROSENFELD: Mr. Grossman, I haven't seen that
19 Excel spreadsheet. Would it be possible to get a copy?
20 Okay. I'd just like to reserve the right to cross-examine
21 Mr. Sullivan on that once I get --
22 MR. GROSSMAN: Well, they don't, I mean --
23 MS. ROSENFELD: -- them.
24 MR. GROSSMAN: -- spreadsheets don't always fit on
25 a page, so I'm not sure exactly what -- he's testified it's

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1 reflected here.
2 MS. ROSENFELD: I understand.
3 MR. GROSSMAN: I'm not sure, because this is the
4 day he's going to appear and I don't want to have him back
5 repeatedly.
6 MS. ROSENFELD: Well, perhaps if it's possible to
7 email it to Ms. Cordry, we can, I can look at it
8 electronically during the course of the examination.
9 MR. GROSSMAN: Can you do that now? Can you --
10 MS. HARRIS: And, in fact, it was emailed to you
11 this morning.
12 MS. ROSENFELD: This morning? Well, I didn't see
13 it before I left.
14 MS. HARRIS: I can --
15 MR. GROSSMAN: Do you want to move on to something
16 else while it's checked out?
17 MS. ROSENFELD: I will. Yes, I will.
18 MR. GROSSMAN: Okay. You can come back to it.
19 BY MS. ROSENFELD:
20 Q Mr. Sullivan, you prepared a, you've been involved
21 in this case for a long time, in fact, since the first
22 application was filed at the previous location, is that
23 correct?
24 A Yes.
25 Q And you prepared a report for that special

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1 exception application as well, is that correct?
2 A That's correct.
3 Q One of the elements that the applicant needs to
4 prove is that there will be no adverse effects on workers,
5 residents and visitors to the subject area. What do you
6 understand the subject area to be in this case?
7 A The, if I understand you correctly, are you
8 referring to the boundary of the special exception?
9 Q I'm not referring to anything. I'm asking you
10 what is your understanding of the subject area in the code
11 as it relates to adverse effects on residents, neighbors and
12 workers?
13 MR. GROSSMAN: I don't know that you're not asking
14 him for a legal --
15 MR. GOECKE: Yes.
16 MR. GROSSMAN: -- conclusion there as opposed to
17 what is studied. I mean I think it's fair to ask him in
18 what geographical area he studied effects or studied the
19 level of pollutants more than effects. I don't think it's
20 fair to ask him the legal question you asked him.
21 BY MS. ROSENFELD:
22 Q What did you understand to be the boundaries of
23 your study area?
24 A Well, I think the best way to answer your question
25 is I evaluated the ambient air quality impacts associated

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1 with gas stations and contributing sources in the general
2 area. I, my domain covers much of this map that's on the
3 easel.
4 Q And that's exhibit --
5 MS. HARRIS: 159.
6 MR. GOECKE: 159.
7 MR. GROSSMAN: 159?
8 THE WITNESS: Exhibit 159. So that's the domain
9 that I evaluated for ambient exposure.
10 BY MS. ROSENFELD:
11 Q And do you understand the visitors to include
12 visitors on the entire mall parcel?
13 MR. GOECKE: Objection.
14 MR. GROSSMAN: And your objection is?
15 MR. GOECKE: Again, it's calling for a legal
16 conclusion.
17 MR. GROSSMAN: I would agree. I don't think that
18 he is, his testimony I don't think goes to visitors or
19 residents per se, it goes to the level of air pollutants.
20 MS. ROSENFELD: Okay.
21 MR. GROSSMAN: That's my understanding of it, is
22 that fair to say?
23 THE WITNESS: That's fair.
24 MR. GROSSMAN: I mean he does, I mean I guess I'd
25 have to modify that and say that he does have testimony that

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1 goes to, that talks about health risks in the community. So
2 it does go somewhat beyond that. So I guess I'd have to
3 modify that and give you some flexibility in that area.
4 MS. CORDRY: And, Your Honor, I would note one
5 other point which is this most recent report. He's gone
6 from determining simple standards for these air quality
7 pollutants, what the levels are to now he wants to say,
8 well, I'm going to have 20 minutes at this level and 40
9 minutes at this level and maybe they're going to walk
10 through here. So he's very much trying to turn a standard
11 determination into this kind of --
12 MS. ROSENFELD: He's specific --
13 MS. CORDRY: -- health assessment. So I think
14 he's --
15 MR. GROSSMAN: Well, he told us focuses.
16 MS. CORDRY: Well, I think that's something that,
17 there --
18 MR. GROSSMAN: That's the focus.
19 MS. CORDRY: -- are health assessments that are
20 done for certain pollutants and then there were standards
21 and emission levels that are done for others and I think he
22 is --
23 MS. ROSENFELD: He specifically --
24 MS. CORDRY: -- whether properly or not, I think
25 he's mixing those up because --

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1 MS. ROSENFELD: He's specifically modeling for
2 exposures and not ambient air limit.
3 MR. GOECKE: But she's still calling for a legal
4 conclusion in terms of what do these terms mean. In his
5 report he talks about who, who may be exposed to things and
6 when and what duration, but he's not interpreting the code.
7 MR. GROSSMAN: All right. I can't recall the
8 exact way you phrased the question, but let's, but I'm going
9 to give you some leeway to go into that area. Why don't you
10 try another question and see, because of the fact that he
11 has gone a little bit beyond just the pure ambient air
12 quality.
13 MS. ROSENFELD: Okay.
14 BY MS. ROSENFELD:
15 Q When you modeled for ambient air quality, did you
16 model the entirety of the mall parcel?
17 A I had receptors throughout the mall parcel. I
18 mean I had 25 meter spacing through the entire domain. So,
19 yes, we had receptors in the mall parcel. Well, about 400
20 receptors in fact.
21 Q And when you modeled for air quality, did you
22 model within the warehouse itself?
23 A Inside?
24 Q Yes.
25 A No. They're all ambient model values.

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1 Q Excuse me?
2 A They're all ambient exposures that we model.
3 Q And when you say ambient model exposures, what do
4 you mean by that?
5 A It means exposures to receptors in ambient air and
6 in the context of your question, not inside a building or
7 structure.
8 MR. GROSSMAN: Does ambient in your mind mean
9 outside?
10 THE WITNESS: By EPA, by the Code of Federal
11 Regulations it defines it as being not inside a structure.
12 MR. GROSSMAN: Okay.
13 BY MS. ROSENFELD:
14 Q Did you do any air quality modeling analysis at
15 all to determine what levels of exposure visitors inside the
16 warehouse might be exposed to?
17 A No. Again, that's not the ambient air. We did
18 not evaluate that.
19 Q So you have no basis in your report to make a
20 determination as to whether there will or will not be
21 potential adverse health effects on visitors to the
22 warehouse based on air quality?
23 MR. GOECKE: Objection.
24 MR. GROSSMAN: By visitors, you mean visitors
25 inside the warehouse?

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1 MS. ROSENFELD: Inside the warehouse.
2 MR. GROSSMAN: Inside.
3 THE WITNESS: Well, I think that mis-characterizes
4 what I said. I said that I modeled ambient exposures and
5 does that mean I have no information? I'll say I disagree
6 with that. I certainly know what the ambient air is around
7 the warehouse. And knowing that air exchanges between the
8 outside and inside air, I certainly could make some
9 judgments regarding what the likely air quality is inside
10 the warehouse, but I certainly have not attempted to make
11 indoor air quality estimates as part of this analysis.
12 BY MS. ROSENFELD:
13 Q Are you aware of the fact that on the mall parcel
14 there is an asthma and allergy center?
15 A I was aware of that.
16 Q And if you look at your receptors, would you be
17 able to tell me what the ambient air quality levels for NO2
18 at the entrance to that center?
19 A I don't remember exactly where it is on this map.
20 MS. CORDRY: A little further.
21 MS. ROSENFELD: So --
22 MS. CORDRY: Yes.
23 MR. GROSSMAN: So --
24 MS. ROSENFELD: In this area. This would be a
25 long, rectangular building on the south, the eastern side of

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1 the mall parcel.
2 MR. GROSSMAN: Okay.
3 THE WITNESS: Is there a question pending?
4 BY MS. ROSENFELD:
5 Q Yes. Can you tell me the NO2 levels in the area
6 surrounding the south office building on the mall parcel?
7 A We're referring to the ambient air --
8 Q That's correct.
9 A -- at that location. Well, in our most recent
10 modeling, the plot they have in front of you right here with
11 the refined analysis and looking at a figure on page 5 which
12 includes refinements in this case other than the timing
13 queue, I can see the values that are on that plot that are,
14 would be somewhat less than 110 micrograms per cubic meter
15 per one hour average. But I do not, I didn't extend the
16 lines that far down. But I would say in my judgment it
17 would be less than 110 micrograms and more likely lower than
18 that.
19 Q And what would they be --
20 MR. GROSSMAN: That's the one hour measurement?
21 THE WITNESS: The one hour and 98th percentile
22 defining value.
23 BY MS. ROSENFELD:
24 Q And what would they be under your original
25 measurements?

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1 MR. GROSSMAN: Original assumptions you mean?
2 MS. ROSENFELD: The original assumptions, the
3 November 2012 assumptions.
4 THE WITNESS: You're referring to the November
5 report?
6 MS. ROSENFELD: Yes.
7 MR. GROSSMAN: Corrected, for the corrected map?
8 MS. ROSENFELD: The corrected. The corrected.
9 MR. GROSSMAN: Corrected for the map.
10 MS. ROSENFELD: Corrected.
11 THE WITNESS: So you're still referring to
12 Appendix, I mean to the report on August 16th, correct?
13 MR. GROSSMAN: Well, the report on August 16, to
14 the extent you can tell from that, using the assumptions
15 that were based in the November 2012 report, but corrected
16 for the math error.
17 THE WITNESS: Correct. I'm looking at the values.
18 Here, again, Ms. Rosenfeld, are we talking about the
19 building right here?
20 MR. GROSSMAN: What page are you on?
21 THE WITNESS: On page 11, Figure 1, 98th
22 percentile, one hour NO2 concentrations.
23 MR. GROSSMAN: All right. And that's page 11 of
24 Exhibit 255(a).
25 THE WITNESS: And we're referring to the building

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1 that's, I'm pointing at an Exhibit 159. That's the building
2 right here please, is this the correct --
3 MS. ROSENFELD: That's correct.
4 MR. GROSSMAN: Well, my page 11 is blank. I don't
5 know why.
6 THE WITNESS: It's Figure 1. Well, it looks like
7 the 175 and the 160 isoline across this building in here.
8 175 comes to this end and the use of their, the impacts of
9 coming from Georgia Avenue. It's going, reducing as you go
10 away from Georgia Avenue, but at the building you pointed
11 out, it looks like 175 to 160 approximately a bracket, the
12 outdoor air quality at that structure.
13 MS. ROSENFELD: Thank you.
14 MR. GROSSMAN: We'll note that on my copy, your
15 Figure 1 is on page 12. I'm not sure why this is, but on
16 the copy that I was just handed, on page 12 you have Figure
17 2. So I'm not sure --
18 THE WITNESS: Mr. Grossman, page --
19 MS. CORDRY: It looks like a blank page, yes.
20 THE WITNESS: -- 10 only has two sentences and
21 maybe that was merged in your copy. But that's somehow
22 fitting on the page maybe.
23 MR. GROSSMAN: No, I have two sentences on page 10
24 and page 11 is blank and then --
25 THE WITNESS: Do you have Figure 1?

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1 MR. GROSSMAN: I do have Figure 1, but it's on
2 page 12 of mine, whereas what Mr. Brann had was on page 11.
3 Let me see what the last page is on his. He's got 37 for
4 Appendix B. The page numbering is very different. I seem
5 to have the same things at different page numbers. So that
6 may create some reference issues, at least on the copy that
7 I've been using for myself. I'd have to look back in the
8 record itself to see, but to the extent we have page
9 reference issues, let's make sure we refer to things by the
10 figures, et cetera, so that we at least have clarity in the
11 record.
12 THE WITNESS: I was referring to Figure 1.
13 MR. GROSSMAN: I understand. So now I've lost
14 your testimony in my mind based on this, so what was your
15 testimony about that projection?
16 THE WITNESS: My testimony was that we're
17 referring to this building located on Exhibit 159.
18 MR. GROSSMAN: That southeast corner, right.
19 THE WITNESS: Correct. And I testified that the
20 isolines where 175 crosses at the eastern boundary at that
21 building --
22 MR. GROSSMAN: Okay.
23 THE WITNESS: -- and 160 pretty much goes through
24 the building right here.
25 MR. GROSSMAN: That's kind of, is that --

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1 THE WITNESS: And they go toward to the center
2 more to the western portion of that building.
3 MR. GROSSMAN: All right.
4 THE WITNESS: And I do note that this figure is
5 based upon a 98 microgram background, which is the older
6 background. We have updated that to 90.
7 MR. GROSSMAN: All right.
8 THE WITNESS: So with that, with that, we made
9 that adjustment, it would be approximately eight micrograms
10 less than what I just stated.
11 MR. GROSSMAN: Okay.
12 MS. ROSENFELD: Mr. Grossman, I have a handout.
13 This actually is excerpted from the August 16th report.
14 MR. GROSSMAN: Okay.
15 MS. ROSENFELD: And I'm simply handing these out
16 for convenience.
17 MR. GROSSMAN: Okay. Thank you.
18 MS. ROSENFELD: Actually let me be more precise.
19 They're not printed from that report, they are the same EPA
20 charts that are contained in the report.
21 MR. GROSSMAN: Okay.
22 BY MS. ROSENFELD:
23 Q Mr. Sullivan, in December of 2011, you prepared a
24 report for the prior special exception. I'm handing out an
25 excerpt.

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1 MS. ROSENFELD: Mr. Grossman, actually I think Mr.
2 Sullivan introduced this earlier today in its entirety.
3 MS. CORDRY: Mr. Silverman. Mr. Silverman
4 introduced it.
5 MS. ROSENFELD: Mr. Silverman introduced this.
6 MR. GROSSMAN: Thank you.
7 BY MS. ROSENFELD:
8 Q Mr. Sullivan, on the second page of this handout
9 is page 30 from your December 20, 2011 analysis. And if I
10 can draw your attention to the NO2 one hour maximum --
11 A Okay.
12 Q -- average background, you have a number of 66.
13 Can you please identify where you got that number 66?
14 A Well, you know, the Footnote 4 says the average
15 background concentrations are calculated in the raw measure
16 concentration data with the U.S. EPA, their data website for
17 2010, Washington, D.C. monitoring stations.
18 Q The blue sheet that I just handed out has, I
19 believe, the reports that you reference, the EPA air data
20 website information and the third page of that is near 2010.
21 Would you please take a look at the third page and tell me
22 if that refreshes your memory on where you might have drawn
23 that number from?
24 A I really don't recall the basis for that number as
25 I sit here right now. I mean off the top of my head I don't

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1 really know. I can say that could have contained the same,
2 you know, error that I mentioned before. The background
3 conversion certainly could have, appears to have been in
4 that value. I would just say that that's, we have refined
5 that since we've put out another report that clarifies the
6 background for 2009 through 2011 and updated 2010 to 2012.
7 So I would say that would supersede this earlier analysis.
8 Q And I appreciate that clarification. I actually
9 have a different question, though, related to this. When I
10 look at this 2010 chart, I see 66 at only one location and
11 that is associated with the Takoma SC 7010 Piney Branch
12 Road, N.W., Washington, D.C. monitoring site. Do you recall
13 if that's the monitoring site that you used?
14 A My recollection was that we used Arlington South,
15 18th and Hayes Street. That's my recollection.
16 MR. GROSSMAN: Ms. Rosenfeld, do we know if these
17 are in parts per billion or micrograms per --
18 MS. ROSENFELD: They are in parts per billion.
19 MR. GROSSMAN: Okay.
20 BY MS. ROSENFELD:
21 Q Do you have a copy of your November 2010 report
22 with you?
23 A I do.
24 Q If you look at that, could it refresh your memory
25 perhaps as to which of these monitoring sites you had

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1 chosen?
2 A I'm sorry, you're referring to November 2010 or
3 December 20, 2011?
4 Q December 20, 2011 report, page 30 references an
5 average background of NO2, one hour per 60, of 66 parts per
6 billion and I'm trying to understand where that number came
7 from.
8 A Well, I know from my recollection that we used
9 three stations, Arlington was one of them, which would have
10 been 18th and Hayes. We used Beltsville as a second and
11 then Rockville. So I do not recall ever using other
12 stations for this particular project.
13 Q And do you have in that December 20, 2011 report
14 how you divided that number 66?
15 A I don't recall how I derived that number, Ms.
16 Rosenfeld. I've updated it since then. I'll stand by the
17 most recent data, 2010 to 2012, for Arlington as being the
18 most representative document and data available at this
19 time.
20 (Discussion off the record.)
21 BY MS. ROSENFELD:
22 Q And is Arlington the highest background value of
23 the monitoring sites in the D.C. area?
24 A Well, our objection is not identify the highest,
25 but the most representative.

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1 MR. GOECKE: Mr. Grossman, I'd just like to note
2 that the EPA except that has been printed is for the year
3 2012 and she's asking him to compare them to data that was
4 produced at some point in 2011.
5 MR. GROSSMAN: Well, actually three of them.
6 There are three of them.
7 MS. CORDRY: There's three pages.
8 MS. ROSENFELD: There's three pages.
9 MR. GROSSMAN: There's a 2012, there's a 2010 as
10 well, so I think she's referring to at this point the 2010
11 one.
12 MR. GOECKE: My mistake. Thank you.
13 BY MS. ROSENFELD:
14 Q And you indicated that you had used Arlington. Is
15 Arlington considered an urban or a rural monitoring site?
16 A It's considered a neighborhood scale site, my
17 definition.
18 Q If you were to use the EPA three kilometer rule
19 and determine whether that area is urban or rural, what
20 would the result be?
21 A I haven't done it. I'm not going to speculate.
22 Q In your November 19, 2012 report at the bottom of
23 page 4, you have a paragraph, it's the third bulleted
24 paragraph that the last sentence on the page starts with,
25 "Per EPA guidance documents, it is necessary

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1 to use surface roughness values with a
2 meteorological station being used in the
3 model and not the site location roughness
4 value."
5 We cite U.S. EPA 2003. Does that mean that if you
6 are modeling an urban site, that you should be drawing your
7 background data from an urban monitor?
8 THE WITNESS: It doesn't refer to that at all.
9 BY MS. ROSENFELD:
10 Q What does that sentence mean?
11 A What this is talking about is when you run air
12 met, the pre-processor for air modeling, it prepares the
13 meteorological data that runs air met that you need to put
14 in a surface roughness value for the, for the location of
15 the met data and if it's referring to how it processes
16 meteorological data and is not related in any way to the
17 treatment of background concentrations.
18 Q And have you changed where you drew your
19 meteorological data from?
20 A No.
21 Q From 2012 to 2013?
22 A We've used DCA Regan National Airport all the way
23 through this project. We haven't changed any meteorological
24 site. What I changed was the surface roughness
25 consideration which resulted in less dispersion and higher

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1 concentrations. That's the change I made.
2 Q And is that because EPA said you had to do it that
3 way, is that what --
4 A EPA didn't say I had to do it that way. I made
5 the change to more closely follow guidance and to clarify
6 the sentence that you read. Where it says 85 centimeters,
7 that's 85 meters. And earlier in that bullet it says .021
8 centimeters. That should be meters. It's a typographical
9 error.
10 Q So earlier when you say you've taken the
11 introductory paragraph to those three bullets, Costco
12 representatives have taken further steps beyond Dr. Cole's
13 suggested changes to ensure that the modeling conservatively
14 overstates expected concentrations. This change was really
15 dictated by EPA protocols, correct?
16 A Well, we, my point I made there was we made these
17 changes voluntarily after meeting with Dr. Cole because I
18 felt it was the right thing to do. It is consistent, more
19 consistent with EPA guidance to use in this case the lower
20 roughness length, so I did.
21 Q Per EPA guidance documents it is necessary to move
22 surface roughness values with meteorological station being
23 used in the model and not the site location roughness value.
24 A Well, that probably is the guidance, however, as I
25 indicated before, we used a higher roughness length from a

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1 ramp and we did it because collectively we felt for those
2 circumstances it was a more accurate assessment. So the
3 guidance is guidance but, again, the objective is to have
4 accuracy. I mean you bring up this point, the issue with
5 these roughness lengths. When you go to a very low
6 roughness like we have per guidance that it makes the
7 modeling around Georgia Avenue and in Veirs Mill, there
8 really would be more dispersion than we're showing. I mean
9 this is not a grass field somewhere. There's buildings,
10 there's cars, there's obstructions to flow that will create
11 significantly more dispersion than mere modeling. So in
12 that context, by making this change for this setting, this
13 suburban setting, we're going to tend to overstate
14 concentrations as you see near Georgia Avenue, for example.
15 If you put a monitor there at Georgia Avenue, you would not
16 see numbers as high as what's showing in my judgment. It's
17 a limitation of air modeling. It can only handle, you know,
18 one roughness length to do the meteorological processing and
19 it does have a substantial effect on the overall modeling
20 results.
21 (Discussion off the record.)
22 BY MS. ROSENFELD:
23 Q My point is your characterization. You did it
24 because it was the way EPA guidelines required that it be
25 done.

1 A Guidelines don't require anything. Guidelines are
2 guidelines. We follow the guidelines in accordance to the
3 full set of guidelines and, again, the sentence that is
4 dictated, the model that most accurately estimates
5 concentrations in the area of interest is always sod.
6 That's what we did.

7 So in terms of land use, in terms of municipal
8 selection, we did follow the guidance and properties where
9 we think it's appropriate to deviate such as Marant, we did.
10 And that was concurred by the other consultants and by the
11 city of Alexandria and accepted by the state of Virginia.

12 Q I'm handing out, oh, your rural and urban
13 calculations for CO in your November 2012 report, those have
14 not been superseded, have they? Those are --

15 A The carbon monoxide values, you're asking did we
16 change those in any way?

17 Q Right.

18 A I don't recall any changes to those.

19 Q Okay.

20 A The only change was in the figures in the report
21 of August 16th. I believe we identified the maximum values
22 in the modeling domain.

23 Q This is an excerpt again, just for convenience,
24 from the November 2012 report. Table 1-12 predicted rural
25 and urban concentrations for CO. Under the CO one hour for

1 home, you have a series of numbers associated with the gas
2 queue, the roadways, ring road exits, entrance parking,
3 warehouse. Would you please total those numbers for me?
4 Would you please add them up and tell me what number we
5 reach?

6 A Which -- you're referring to one hour CO. You
7 want me to add up the home, the school and the pool?

8 Q No, I want you to go down the column that says
9 home and add those numbers and tell me what number you
10 achieve --

11 A They, they would not --

12 Q -- before you get to the yellow.

13 A They will not add up. In other words, when you
14 try, when you break it -- we're showing component parts here
15 as approximations. The one hour values, the one hour value
16 at the gas queue occurred at a different time than the ring
17 road and so forth. They will not add up to the number
18 below. It's clearly -- it has to be an approximation for
19 short-term averaging times. For annual they'll add up more
20 closely, but they will not add up for short-term.

21 Q Would you please explain that to me again? I
22 don't understand what you're trying to tell me.

23 A Well, in other words, the total model, they're
24 showing a total model, the model maximum based upon
25 considering each hour one by one. We're showing the maximum

1 for gas queue in roadways and so forth. Those maximums in
2 our values will occur at different times. Maybe the gas
3 queue occurred on August 8th at, you know, noontime. Maybe
4 the exit from the gas station occurred on June 5th at 10
5 o'clock in the morning. We're showing the maxes for each of
6 those sub-runs, but they will not add up to the total down
7 below. The total is based upon the actual, exact
8 calculations hour by hour, but the subtotals are by a sub-
9 group and they will not add up.

10 Q Okay. And how would I know that reading your
11 report?

12 A I don't think we describe that level of detail in
13 the report, but we're trying to give a sense in these tables
14 of what source categories are more important than others and
15 that's why I put this table together. But there's really no
16 way that we could show that culpability by source category
17 for a short amount of time except by doing this procedure.

18 Q And if I were to hand out page 69 of your November
19 19, 2012 report, I think you, for example, predicted rural
20 concentrations for PM2.5. If I were to total the numbers
21 under the column that says home, p.m., 24-hour, when I
22 calculated these numbers again, they did not total the
23 number that you had for total modeled.

24 A And which column again, I'm sorry, are you looking
25 at?

1 Q P.M., 24-hour under home. Rural. Rural at the
2 top left.

3 A Well, it's exactly the same answer as I just gave.
4 The gas queue sub run could have had a 24-hour maximum on a
5 different day than the roadways did, other ring road. So
6 it's showing the maximum for that particular subgroup. The
7 total is showing across all sources, each hour, each day,
8 you know, appropriately. But this is an approximation to
9 give you an idea of which sources are more important than
10 others.

11 Q So if I were to look at the numbers under p.m.,
12 24-hour home, are you averaging those numbers or is there a
13 formula? I still don't understand how you extrapolate your,
14 the total model from the numbers that you have in this
15 column.

16 A The total model is based upon the direct
17 processing of all these sources one day at a time in this
18 case. That gives you the total. The total model value is
19 accurate. We're showing the source culpability for anything
20 less than an annual. We're showing you -- we did sub-runs,
21 so when the gas queue run, the ring road run and so forth.
22 We're showing the maximum, the proper percentile value from
23 that run. But they will be on different days. So, again,
24 this breakdown is just presented to make it clear which
25 sources I'm intending more important than others, but they

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1 will not, you can't add these columns up and expect to match
2 the bottom, the total model of value. They will not add up
3 to the same number.
4 MR. GROSSMAN: Also, on your scientific notation
5 there --
6 THE WITNESS: Yes.
7 MR. GROSSMAN: -- are those minuses before? It's
8 hard to read.
9 THE WITNESS: That's scientific notation, so 2.31
10 minus O2 would be 2.31, then it's 10 minus two or .0231.
11 MR. GROSSMAN: Right. So to add these and when
12 you have a minus O3 there, you would have to, that would be
13 nine thousandths rather than the other columns where it says
14 to the O2 --
15 THE WITNESS: Right.
16 MR. GROSSMAN: -- that's, the tenth to the O2
17 would be two hundredths?
18 THE WITNESS: Right. Correct.
19 MR. GROSSMAN: So you would have to make that
20 translation in adding them up anyway.
21 THE WITNESS: Yes, you would.
22 (Discussion off the record.)
23 BY MS. ROSENFELD:
24 Q And, Mr. Sullivan, the NO2 results in your August
25 16, 2013 report on page 8, again, when I calculate these

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1 numbers they do not add up. The total modeled does not
2 reflect the actual addition that you would --
3 MR. GROSSMAN: I'm sorry, what page are you on on
4 that?
5 MS. ROSENFELD: Page 8.
6 MR. GROSSMAN: Page 8? Hold on. Let's see if my
7 page 8 is the same as your page 8. All right. That's a
8 table --
9 MS. ROSENFELD: That's a table.
10 MR. GROSSMAN: -- on page 8? All right.
11 MS. ROSENFELD: Table 2.
12 MR. GROSSMAN: Yes. Okay. So --
13 BY MS. ROSENFELD:
14 Q And, again, when you add up the numbers for the
15 individual sources, gas, queue, roadways, et cetera, they do
16 not total 43, they're above the number 43.
17 A Correct. You would expect that.
18 Q And it's the same explanation --
19 A Yes.
20 Q -- for this chart?
21 A Yes, yes, it is.
22 Q And did you note that anyplace in your August 16,
23 2013 report?
24 A We did not specifically point out the fact that
25 the individual values for each were run and they were not

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1 totaled the same exact number as the whole model, no.
2 Q And are there other places in your report, your
3 August 16, 2013 report or the August 9th report where there
4 would be this deviation?
5 A As I mentioned, for anything less than annual, you
6 will see the same factor. They will not add to the same
7 value.
8 Q Okay. Thank you.
9 (Discussion off the record.)
10 MR. GROSSMAN: I'm glad you brought this all up,
11 Ms. Rosenfeld, because I could see myself adding these up at
12 some later time and saying, wait a minute, these don't add
13 up. So I'm glad that that's been clarified so I don't have
14 a little conniption later on.
15 MS. CORDRY: Well, that's -- we always have to
16 clarify Mr. Sullivan's reports for him.
17 MR. GROSSMAN: I don't think that's fair.
18 MS. CORDRY: Well --
19 MR. GROSSMAN: Okay? He is assuming a certain
20 level of knowledge as an expert that we may not share as
21 laymen, or at least I don't.
22 (Discussion off the record.)
23 BY MS. ROSENFELD:
24 Q And in your -- going back just for a minute to the
25 NO2 in your August 16, 2013 report on Table 2, where in

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1 these numbers did you correct the moves?
2 A Correct for moves?
3 Q Yes.
4 A We did not.
5 MR. GROSSMAN: I'm sorry, correct for what?
6 MS. CORDRY: Moves.
7 MR. GROSSMAN: Oh, moves -- M-O-V -- okay. I
8 thought you said moose and I just, I was --
9 (Discussion off the record.)
10 BY MS. ROSENFELD:
11 Q Did you make that correction for any of the
12 others, for example, from your November 19, 2012 report, the
13 p.m. 2.5, did you make a correction in Table 114?
14 A No, we have explained, I've explained in previous
15 testimony on the PM 10, the PM2.5 side that I agree with Dr.
16 Cole about the 10X factor that moves his higher for idling
17 sources. 3NO2 is a much smaller issue. As I mentioned
18 before, it could be a factor of two. We could put the
19 factor of two in here and it would make a very small
20 difference. The contribution from these sources relative to
21 background is small.
22 And we haven't, we haven't run it and the, we
23 checked again with D.C. regulatory authorities and they're
24 still working on the guidance. Until they have developed
25 site-specific inputs for moves, we don't know exactly what

1 the number is going to be for this area for NO2 and for
2 PM2.5 for that matter. We're waiting on the guidance. For
3 these analyses, it was not available and we chose not to use
4 defaults, but to use Mobile 6 at the actual approved
5 numbers.

6 Q And when is the last time that you checked with
7 them for that data?

8 A Last week.

9 Q And looking at Table 2, the urban, could you tell
10 me which of these should be corrected for moves?

11 A We're not talking about correcting right now for
12 moves. We're, as I mentioned, this, for the D.C. area, the
13 model that's set up right now to go is Mobile 6. What I
14 said was, for example, if you were to assume that D.C. would
15 have a similar relationship between moves as generic
16 information, you could assume up to a factor of two
17 perhaps --

18 Q Okay.

19 A -- increase, but if you made that increase, which
20 could be done frankly as could the other refinements either
21 way, that would not make a big difference in these results
22 simply because the contribution from, look at the
23 contribution of this gas station. It's very small. For
24 example, NOX, one hour; gas queue, it's five.

25 Q Well, right. So if you were to make that, if,

1 account for that factor of two, the gas queue would become
2 10, is that correct?

3 A That's if you made that one change, that's
4 correct. We can refine this a lot of different ways. And
5 now clearly that's one that could be done.

6 Q And the roadways?

7 A You could do it to the roadways and exits and
8 entrances, as well as the parking.

9 Q And the ring road?

10 A You could do it to any location that's involving
11 motor vehicles. I can't say as I sit here that it's as high
12 to diesels the same as it would for gas stations. But my
13 point is you certainly could make a guess of what it's going
14 to be in the future. We don't know what the exact number is
15 right now. But we also could make changes, refine other
16 things I mentioned earlier in my testimony today. So it
17 could go either way.

18 Q So if you were to do this in the most conservative
19 way, though, you would correct for the fact that you didn't
20 use the moves modeling?

21 A Well, yes, but if I made that change, well, then I
22 might as well use for these sources very close to the
23 location, I might as well adjust the NO2, NOX ratio too
24 which would cut things back by a factor of four. I mean if
25 you're going to do a change in one direction, you might as

1 well do it both. Why would we just make the change one way?

2 Q I thought you had already made that change with
3 respect to the NO2, am I --

4 A I did not.

5 Q Okay. But you did make quite a few other changes,
6 right?

7 A I made the four changes I described earlier.

8 Q And those all resulted in less conservative
9 modeling results, is that correct?

10 A My testimony was it made the modeling more
11 accurate and less conservative, but it's still conservative.
12 That's what I said.

13 Q In your January 16, 2012 report on page 16, oh,
14 yes, actually it's the January 16, 2013 report which at the
15 top of the page says 2012, but page 16 of that report. You
16 say Costco used a conservative approach, asked to overstate
17 to estimate the general background concentration, i.e., the
18 contribution from sources other than those specifically
19 modeled for each criteria pollutant, PM2.5, CO and O2, and
20 averaging time. Background concentrations in the Costco
21 analysis were based on the highest measured concentration
22 measured in Montgomery County and surrounding areas as
23 necessary for the most recent available three years. At
24 that time we were looking at 2009 through 2011, which I
25 believe you've since updated to 2010 through 2012, correct?

1 A I only made that change in the August 16th report
2 for one hour NO2.

3 Q Okay. Were, so, and you carried that modeling, is
4 it your testimony that you carried that modeling through to
5 the January, to the August 16th report of 2013 that you used
6 the highest measured concentration measured in Montgomery
7 County and surrounding areas as necessary?

8 A No, what I, we were, when I -- I was referring to
9 three stations, 18th and Hayes in Arlington, Beltsville and,
10 of course, Rockville. That was, actually in the August 16th
11 we followed EPA guidance. We didn't do it -- we over, we
12 conservatively did it before. We used the three year
13 running average, 98th percentile, rather than trying to do
14 it more conservatively.

15 Q If we go back to the three years, 2010, 2011,
16 2012, the monitor values report --

17 A Right.

18 Q -- you said you used 18th and Hayes Street in
19 Arlington. And in 2012, that 98th percentile was a number
20 of 44. There are other monitors that are higher, 34th
21 Street, N.E., in Washington; 2500 First Street in
22 Washington, for example. You did not use those even though
23 they were the higher values, is that correct?

24 A I wasn't trying to pick the highest value. I was
25 trying to pick the most representative site and in this case

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1 for August 16th we followed EPA guidance in how we computed
2 that background value.
3 Q And how did you pick those as your most
4 representative sites?
5 A They are the most, they're the -- that's, those
6 three sites triangulate around the facility.
7 (Discussion off the record.)
8 BY MS. ROSENFELD:
9 Q Is it true, isn't it true that 420 34th Street is
10 actually closer to the site?
11 A I don't have a map and our judgment at the time
12 was that these were the most representative sites. We
13 weren't trying to pick the lowest or the highest, but those
14 that would best represent this location.
15 Q But your report says the background concentrations
16 in the Costco analysis were based on the highest measured
17 concentration measured in Montgomery County and surrounding
18 areas as necessary. So you didn't pick the highest measured
19 concentrations?
20 A Well, as my reports have shown, and I've
21 testified, we selected three locations as representative and
22 in the earlier work I picked the highest of those three.
23 That is consistent with EPA policy and what we did. We did
24 not look at all the monitors in the area, including those
25 in downtown Washington, D.C., and let's pick the highest one

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1 we can find, we didn't do that.
2 Q Okay. But can --
3 A That's not what I intended to do.
4 Q Can you show me where in your report that you
5 explain that you were picking the representative monitoring
6 sites and not the highest measured concentration sites?
7 A I don't know if it's mentioned in my report, but
8 that is what we did. We picked the most representative
9 sites we could find.
10 Q So your report is incorrect in that respect, isn't
11 that true?
12 A Well, I can search in my report and see what it
13 says if you like. I don't recall the exact wording, but all
14 the way through this process we used the same three sites.
15 Nothing has changed.
16 Q Yes, I would like you to find that please because
17 when I read Section 4.0, it says something very different to
18 me from what you just testified to.
19 A Well, that really wasn't my intention to suggest
20 that we take the highest site in the D.C. area as the basis
21 for background. That would not be consistent with --
22 MR. GROSSMAN: Right now you're looking at the
23 January 2013 language, is that what you are looking at?
24 MS. ROSENFELD: That's correct, on page 16,
25 Section 4.0.

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1 THE WITNESS: So I should look at the January --
2 you said look at the November report or the January report?
3 MS. ROSENFELD: Wherever you --
4 MR. GROSSMAN: She's read to you, I think, from
5 the January 2013 report.
6 MS. ROSENFELD: That's correct.
7 MR. GROSSMAN: But the page, at the top of the
8 page it said 2012.
9 THE WITNESS: Okay. Let me take a few minutes to
10 look through my report.
11 MR. GROSSMAN: Sure.
12 (Discussion off the record.)
13 THE WITNESS: While he's looking, did we resolve
14 the spreadsheet issue? Ms. Rosenfeld, did we get the
15 spreadsheet?
16 MS. ROSENFELD: I'm not sure.
17 (Discussion off the record.)
18 MS. CORDRY: It looks like it was sent over. I'm
19 trying to see if I can open it.
20 MR. GROSSMAN: Thank you.
21 THE WITNESS: Well, going through this, the
22 November, I don't see it. It specifically explained that we
23 picked the three most representative locations, but I'll
24 testify that we did. That's what we did.
25 BY MS. ROSENFELD:

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1 Q And how did you determine that they were the most
2 representative?
3 MR. GROSSMAN: He's already testified he
4 triangulated, well --
5 MS. CORDRY: That doesn't make it representative.
6 MS. ROSENFELD: Well, you could triangulate --
7 MR. GROSSMAN: Well, he can, you can, you can
8 testify to that when you testify, ma'am.
9 MS. CORDRY: Okay. I just, I guess --
10 MR. GROSSMAN: You don't --
11 MS. CORDRY: -- we're asking was there anything
12 else besides the fact that it was --
13 MR. GROSSMAN: Well, wait a minute. Wait a
14 minute. We have one person to question.
15 MS. CORDRY: I'm sorry.
16 MR. GROSSMAN: So --
17 BY MS. ROSENFELD:
18 Q How did you pick which three to triangulate?
19 A We looked at those that were close proximity and
20 consideration of all the alternatives, in our judgment those
21 three were the most appropriate for this modeling.
22 Q And other than proximity, what other factors did
23 you consider?
24 A You know, at this point in time all I can say is,
25 this was three years, that we used our best judgment, looked

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1 at the alternatives, and concluded that those three were the
2 most representative for that location.
3 Q And which, what EPA guidance did you rely on in
4 picking those three?
5 A I don't know there's EPA guidance that makes
6 recommendations how to select representative air quality
7 sites. We use best judgment. Those are also included in
8 our protocol, those three locations. We followed the
9 protocol.
10 Q Do you recall if you picked it in part because it
11 was a mixed site, not purely urban?
12 A I don't, as I mentioned, it was three years ago.
13 I don't remember the exact specifics. I described the
14 reason I did it. I can show you I didn't pick it because I
15 thought those three would give low numbers. Our objective
16 was to find representative locations in the area to
17 represent background.
18 Q You testified earlier that you would be focused on
19 the loading docks because there had been a change in the
20 focus. Where did that change in focus come from?
21 A July 30th during cross-examination there was
22 exhibits put in front of me showing maximum concentrations
23 at the loading dock in the November report and it was clear
24 that that was the area of interest as was going to be
25 discussed further. And on that basis we conducted the

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1 refined modeling to be able to appropriately handle that
2 level of review. The previously modeling was not designed
3 for micro scale assessment inside the loading dock or within
4 the gas queue.
5 Q As I recall, the question was to have you provide
6 a report that showed the corrected numbers and not to create
7 an entirely new report. Was there some other reason why you
8 did that?
9 A Yes.
10 Q And what was that reason?
11 A The reason was it was clear that the focus was
12 going to be on the concentrations right at the loading dock.
13 My concern was that the record would be misleading and
14 unclear if we did not conduct an analysis suitable for that
15 level of detail that you would look at that isoline and say,
16 well, this is a huge, this is a huge problem when it wasn't.
17 So in order to clarify the record, I concluded that the
18 only, it would be necessary to refine the modeling for that,
19 those areas so that it would be clear and there wouldn't be
20 a false impression that the loading dock is creating an
21 exceedance of the one hour NO2 standard which it clearly
22 would not. There's no math that would support that
23 conclusion that I can see.
24 Q Well, the math in your November 2012 report would
25 support that conclusion, isn't that correct?

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1 A It certainly does.
2 Q Under both urban and rural?
3 A Well, we're modeling an urban, we're showing urban
4 because I've made the statement that that is the only
5 applicable modeling approach. When everything is urban,
6 you're modeling the source and the receptors are urban,
7 we're going to use urban. So I'm not talking about doing it
8 both ways if the focus is on the loading dock.
9 Q And what was the highest urban emission level on
10 the mall parcel under your November 2012 report?
11 A What do you mean by emission level?
12 Q What was the highest NO2 level, one hour
13 concentration?
14 MR. GROSSMAN: You mean using his November 12
15 report or using the November 12 report with the corrected
16 math?
17 MS. ROSENFELD: November 12 with the corrected
18 math.
19 MR. GROSSMAN: Okay.
20 THE WITNESS: The rural values in the August 16th
21 report.
22 MR. GROSSMAN: Which figure are you looking at?
23 THE WITNESS: I'm looking at Figure 1 --
24 MR. GROSSMAN: Figure 1?
25 THE WITNESS: -- on page 11 in mine. It's page 12

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1 in yours.
2 MR. GROSSMAN: All right.
3 THE WITNESS: The highest value based upon rural
4 dispersion coefficients is 388.
5 MS. ROSENFELD: And --
6 THE WITNESS: The loading dock.
7 BY MS. ROSENFELD:
8 Q And that would be at the loading dock?
9 A Yes.
10 Q And what would the number be in the center of the
11 queuing area for the special exception?
12 A It looks like approximately 200 in the center.
13 Q And under the rural dispersion with the corrected
14 numbers, what would be the highest number, the highest --
15 MR. GROSSMAN: That was the rural.
16 THE WITNESS: That is the rural.
17 BY MS. ROSENFELD:
18 Q I apologize. Under urban, what would be the
19 highest concentration --
20 A Where?
21 Q -- within the mall parcel?
22 A Well, the highest concentration at the mall parcel
23 would be at the loading dock, right at the loading dock.
24 Again, it would be approximately 414 micrograms. It would
25 be higher.

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1 MR. GROSSMAN: Is that using --
2 MS. ROSENFELD: And --
3 MR. GROSSMAN: -- dispersion? What figure are you
4 looking at?
5 MS. ROSENFELD: You said 440?
6 THE WITNESS: I'm not.
7 MR. GROSSMAN: Oh.
8 THE WITNESS: We have, that's, the calculation,
9 that's a run we have done to prepare, but that has not been,
10 that was done recently and couldn't be provided 10 days in
11 advance. We did it to evaluate Dr. Cole's affidavit.
12 BY MS. ROSENFELD:
13 Q Can I go back to that number one more time? Was
14 it 414?
15 A 414.
16 Q Okay. And that was at what location?
17 A Right at the loading dock.
18 Q And that was with urban?
19 A That's correct.
20 (Discussion off the record.)
21 MR. GROSSMAN: And those are NO2 one hour rates?
22 THE WITNESS: Yes.
23 (Discussion off the record.)
24 MR. GROSSMAN: Just to make sure we're clear,
25 that's before you did the refinement or change in the

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1 assumptions?
2 THE WITNESS: That's --
3 MR. GROSSMAN: That's using the corrected math,
4 but the old assumptions?
5 THE WITNESS: That's correct. That is correct.
6 BY MS. ROSENFELD:
7 Q Regardless of the 10-day rule, we would like a
8 copy of that introduced into the record please.
9 A Well, it's not complete. I mean I'm saying I
10 reviewed Dr. Cole's affidavit, we've done the mall and it's
11 not ready for sharing. When it's ready for sharing, I'll be
12 happy to provide it to the attorneys.
13 Q I don't know what to say to that. You just
14 testified as to a specific number.
15 A You asked me what the number was and I answered
16 your question --
17 Q That's correct.
18 A -- because I knew.
19 Q Right.
20 A That is a tentative number until it gets quality
21 and finalized.
22 MS. CORDRY: Could I clarify one thing, Your
23 Honor, also that -- when we asked back on July 30th for
24 urban run data under -- the testimony back then was the
25 urban run data had been done in the same way that the rural

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1 run datas had been done using the November inputs. We asked
2 for that. It took a month and repeated incorrect data being
3 given to us before we got something that supposedly was that
4 which consisted of figures for 16 specific receptors. That
5 was what we asked for in the beginning, that's what we've
6 still been asking for and now it appears that maybe he's
7 doing that kind of a run. It has still not been provided to
8 us. We are sitting here getting numbers that, again, are
9 changing that the reasonable comparisons between, before and
10 after to find what's going on because we're getting very
11 incomplete things.
12 We have never gotten an urban run data for
13 November that bears any relationship to this Figure 1, that
14 bears any resemblance to the new data he's doing. I don't
15 know how we can evaluate this, Your Honor, when we get these
16 fragmentary bits and pieces of data, then he does new runs,
17 then he puts them in the record. We don't have them. What
18 are we supposed to do with this?
19 MR. GROSSMAN: Well, first of all, you can present
20 your, you can cross-examine and present your own evidence.
21 He's required to turn over those things that we've required
22 him to turn over. When he is responding to a question and
23 he's giving you his best answer as to the question based on
24 his evaluating an affidavit from, that was recently
25 submitted by Dr. Cole, there's no requirement that he have a

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1 piece of paper that has that run on it.
2 MS. CORDRY: I understand, but what --
3 MR. GROSSMAN: But he's just answering as best he
4 can from his own analysis of what Dr. Cole said in his
5 affidavit attached to the, your motion.
6 MS. CORDRY: Which was a guesstimation because we
7 didn't have the numbers then --
8 MR. GROSSMAN: All right.
9 MS. CORDRY: -- and he's also testified at great
10 lengths that he's doing things based on what he thinks we
11 changed our mind, what we're focusing on, what we're doing
12 and what we're saying, number one here, is that what he is
13 testifying about now. There is no resemblance to what was
14 asked for in July, what he testified he had in July, what
15 has not been presented since then.
16 MR. GROSSMAN: Hold on one second, ma'am. This is
17 not an opportunity for you to critique his testimony.
18 MS. CORDRY: I understand.
19 MR. GROSSMAN: You can ask him questions and get
20 answers and that's what Ms. Rosenfeld has done, she's asking
21 questions, she got an answer. Now he arrived apparently at
22 that figure by looking at, analyzing the database done, Dr.
23 Cole's analysis.
24 MS. ROSENFELD: He didn't, he didn't say that.
25 MR. GROSSMAN: Well, Dr. Cole apparently in the

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1 affidavit gave a figure.
2 MS. CORDRY: No, he didn't.
3 MS. ROSENFELD: Yes, but --
4 MS. CORDRY: The new -- I'm sorry, Your Honor. I
5 apologize.
6 MR. GROSSMAN: So I don't understand, I understand
7 that you want more and more pieces of paper, but he's not
8 required to generate a piece of paper for every answer that
9 he arrives at.
10 MS. ROSENFELD: I understood Mr. Sullivan to say
11 that he had this document, they didn't turn it over because
12 it was less than the 10 days required to hand it over.
13 BY MS. ROSENFELD:
14 Q I -- am I correct?
15 A Well, I also testified it wasn't through quality
16 control or finalized. It's recent data in preparation for
17 my testimony and it's based upon my review of the affidavit
18 of Dr. Cole. It's preliminary work. You asked the question
19 and I answered the question.
20 MR. GROSSMAN: I think there's been plenty of
21 sharing of data in this case, so I don't think this is a
22 well-founded objection. You can certainly answer and I
23 think he is attempting to answer your question that you
24 posed as to what his estimate was using the urban values --
25 MS. ROSENFELD: Okay.

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1 MR. GROSSMAN: -- or the urban dispersion rates,
2 but applying the old assumptions with the corrected math.
3 So he's tried to do that as far as I can tell. So the fact
4 that he doesn't have a piece of paper in front of him to me
5 is not dispositive of anything, nor are you entitled to get
6 a piece of paper every time he gives a number and responds
7 to your question.
8 MR. SILVERMAN: Just to clarify, I'm not arguing
9 with what you just said, but just to clarify, his answer is
10 based in part on an investigation that has not been quality
11 controlled or his study has not been quality controlled.
12 That's what we have here.
13 MR. GROSSMAN: Well, he's answering based on the
14 information, his best analysis of it at this point. And
15 he's entitled to do that. I think that's what he's
16 obligated to do in answering your question.
17 MS. ROSENFELD: And --
18 MR. GROSSMAN: And not every answer has to have a
19 piece of paper attached to it.
20 MS. ROSENFELD: And if I could resume with
21 questioning --
22 MR. GROSSMAN: Yes.
23 MS. ROSENFELD: -- I'd like to. Thank you. And
24 that was directed at my co-counsel, not at the Hearing
25 Examiner.

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1 MR. GROSSMAN: That's quite all right. You can
2 address it to me too.
3 BY MS. ROSENFELD:
4 Q Okay. Mr. Sullivan, the 414 microgram, that was
5 the one hour NO2, correct, urban with the corrected math?
6 MR. GROSSMAN: Corrected math based on the
7 previous assumptions, as I understood.
8 THE WITNESS: Corrected background.
9 MS. ROSENFELD: Right.
10 THE WITNESS: Corrected background, not the
11 refined analysis.
12 BY MS. ROSENFELD:
13 Q Okay. Now you -- am I correct in understanding
14 that you did this based on Dr. Cole's affidavit?
15 A Well, we did the analysis to identify the results
16 and compared it to Dr. Cole's affidavit. His value, of
17 course, was less than that. And we wanted to, I evaluated
18 his primary preparation for this testimony. That's why we
19 ran it.
20 Q And did you have any of your own independent data
21 that you worked with? Did you have any data in your
22 November 2012 files that you relied on?
23 A Well, certainly we had all the data from our
24 November 2012 files.
25 Q And that would be the data --

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1 A As has been, to the best of my knowledge, that's
2 been shared.
3 Q That would be the data that we got in August, I
4 believe, is that correct?
5 A I don't know when it was, but you have those
6 files, the modeling files from the November 2012 report to
7 the best of my knowledge.
8 Q Did you have more than 16 receptors for the urban
9 runs in your November 2012 data?
10 A We never did an urban plot. Are you referring to
11 the urban plot? We never did an urban plot in 2012. We ran
12 urban and rural, and as I've testified a number of times,
13 the urban was run in that report, the 16 discreet receptors.
14 That encompassed the homes, the school and the pool. We ran
15 that for comparative purposes, urban, rural. The plots
16 which were the largest scale, those were just done rural
17 back then. So you have what we did.
18 Q Okay.
19 A When you asked me at the July 30th to the urban
20 runs with the corrected background, we did, and we did it
21 for also as you requested, the CO and PM2.5.
22 Q Okay. And I'm somewhat intrigued by the fact that
23 your urban number at 414 is higher than your rural number
24 which maxes 388. Can you explain that?
25 A Yes, because we're referring to a loading dock.

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1 And as described in our report, we have conservatively
2 centralized the stack, more or less, from the exhaust from
3 the trucks, to be one point source, one -- imagine a smoke
4 stack right in the loading dock. It's 10-foot high. So
5 when you have urban dispersion for a location right next to
6 a stack, it brings the pollutants down very quickly to that
7 location at a highly concentrated rate more so than the
8 rural would. That's why for that road, there are receptors
9 probably within 20 feet or less of the stack, they get
10 higher numbers than you got from the rural. And that was
11 the reason why Dr. Cole's extrapolation didn't work, because
12 urban and rural don't scale the same. For an elevated
13 source in particular, they scale different.

14 Q And was that the only location on the mall parcel
15 that you calculated urban NO2 with the corrected background?

16 A No, we did it within a plot similar to the plots
17 shown in Exhibit -- is this 16? I'm not sure -- August
18 16th --

19 MR. GROSSMAN: What's Exhibit 255(a).
20 MS. ROSENFELD: Figure 1?
21 THE WITNESS: Exhibit 255(a).
22 BY MS. ROSENFELD:

23 Q Similar to what you show on Figure 1 for the
24 rural?

25 A Same receptor grid.

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1 Q And what was the VIN number, what was the highest
2 urban one hour NO2 within the special exception boundaries?

3 A Well, it would have been 414. Was that one done
4 in the boundary? I guess I don't know. Is that inside the
5 boundary?

6 Q Within, for example, where the queuing would
7 occur, the pumps and the kiosk and the vehicular queues
8 going into the gas station.

9 A I don't recall off the top of my head. It was
10 much lower than that number.

11 Q When those numbers are finalized, could we have a
12 copy of them?

13 A That's fine by me.

14 MR. GROSSMAN: Mr. Sullivan, just so I understand,
15 those numbers, do they represent your conclusion as to an
16 accurate projection for -- what is your conclusion as to an
17 accurate projection of what the NO2 one hour level should
18 be?

19 THE WITNESS: The August 16th, Exhibit 255(a)
20 report, I show in plots Figure (i) and (ii) on pages 5 and 6
21 what is the more refined estimate of NO2. You see the peak
22 near the loading dock is, it's totally not there because
23 it's not a real peak. The more, the real, the most
24 realistic assessment would have included also adjustment for
25 NO2 ratio and an adjusted background by hour of day.

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1 MR. GROSSMAN: Okay.
2 THE WITNESS: These numbers are still inflated to
3 some extent conservative.
4 MR. GROSSMAN: Okay.
5 BY MS. ROSENFELD:
6 Q Did the numbers -- what page are Figures 1(i) and
7 (ii)?
8 A Five and six. Five and six in my version.
9 MR. GROSSMAN: Yes, even on my version.
10 BY MS. ROSENFELD:
11 Q And in these concentrations on Figures (i) and
12 (ii), did you make any adjustments for not having used
13 moves?
14 A I did not, no.
15 Q And did you make any assumptions with respect to
16 what traffic levels would be during the holiday season?
17 A This, these numbers are based upon a five year
18 analysis and the you move the traffic at the, we're using
19 within the mall is the highest one hour value in the traffic
20 study. We're using it all the time the mall is operating.
21 So in that context this modeling is extremely conservative
22 and is another area if we needed to refine we could. It's
23 not the highest level of all time. So I would represent
24 that that overstates to some extent any issue regarding
25 holiday versus weekends or weekdays. We're using the

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1 maximum values --
2 Q So --
3 A -- all the time.
4 Q -- when you say the highest from the traffic
5 study, you would be talking about the traffic analysis that
6 Mr. Guckert prepared?
7 A We're specifically referring to, if you look at
8 the peak morning and peak afternoon, took the highest of the
9 two our defining number within the mall. That would be for
10 the ring road, the parking lot assessment and so forth.
11 Q Okay. And do you recall what month of the year
12 that report was conducted?
13 A I don't recall.
14 Q If those numbers increased during the course of
15 the holiday season, would your projections for NO2 increase
16 as well?
17 A I don't see how they would. If we were modeling
18 the peak hour, 18 hours a day, seven days a week, that's
19 going to tend to overstate relative, any small differences
20 between the peak on a holiday versus the peak in Mr.
21 Guckert's analysis. I'll conclude that our analysis in that
22 regard is extremely conservative.
23 THE WITNESS: Mr. Grossman, at some point could I
24 have a break in the process?
25 MR. GROSSMAN: Certainly.

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1 THE WITNESS: It doesn't have to be right now, but
2 sometime soon just to get a little --
3 MR. GROSSMAN: How much longer do you think your
4 cross-examination is going to be?
5 MS. ROSENFELD: Oh, probably a couple hours.
6 MR. GROSSMAN: All right. Why don't we take your
7 break now?
8 THE WITNESS: Definitely.
9 MR. GROSSMAN: So we'll come back at about, at
10 about 25 until 3:00.
11 (Whereupon, at 2:28 p.m., a brief recess was
12 taken.)
13 MR. GROSSMAN: On the record. Ms. Rosenfeld.
14 MS. ROSENFELD: Thank you.
15 BY MS. ROSENFELD:
16 Q Mr. Sullivan, you had said that part of the
17 conservatism that you factored into your assumptions were
18 based on this idea that you would take the peak hour in
19 terms of traffic and you assume that that extended out over
20 a period of 18 hours, is that correct?
21 A That's referring to the ring road and inside the
22 ring road, yes.
23 Q And with respect to NOX, we're talking about a one
24 hour standard, correct?
25 A Well, you know --

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1 Q There is a one hour. There is also an annual.
2 A Yes, there's two standards.
3 Q But there is a one hour standard, correct?
4 A There is a one hour annual standard.
5 MR. GOECKE: For NOX and NO2?
6 MS. ROSENFELD: NOX.
7 THE WITNESS: NO2.
8 MR. GROSSMAN: NO2.
9 MS. ROSENFELD: NO2. I thought we were treating
10 them as the same thing.
11 MR. GROSSMAN: Yes, it's listed in various places,
12 but some places it's listed as NOX and some places it's NO2
13 and I understand the distinctions that you made before, so
14 you don't have to go over that again.
15 BY MS. ROSENFELD:
16 Q So for the purposes of the one hour standard,
17 let's say hypothetically we had 300 vehicles on the ring
18 road for each of those 18 hours. It really doesn't build in
19 any conservatism to assume that you have 300 for 18
20 consecutive hours because each of those hours are identical,
21 isn't that correct?
22 A That's incorrect.
23 Q Okay. Can you explain to me how that works?
24 A Referring to 98, 98th percentile distribution,
25 which is the 175th highest hourly value, if you rank ordered

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1 all the -- pick a receptor, in a year you have 8,760 hours.
2 If you rank them from highest to lowest and go down to
3 175th, that's your defining number. So if every day and
4 every hour of the day we have a maximum number of cars, the
5 distribution would be substantially affected by that because
6 a lot of those numbers will be, it will be inflated because
7 of the distribution. The distribution will be skewed. You
8 have many more hours of peak than you actually have. So
9 it's conservative for the one hour, as well as the annual,
10 or any other averaging time in between.
11 Q Okay. And in terms of the effect on the ground,
12 however, if for example during the holiday season in a given
13 hour you had 600 cars and not 300 cars, you would for that
14 holiday season have a higher 75th percentile number,
15 wouldn't you?
16 A You would not.
17 Q You would not?
18 A You would not.
19 Q And how would you not?
20 A Think of how many holidays you have per year.
21 Let's say there's 10 holidays per year. Then think about
22 the fact that 365 days per year and 365 days for 18 hours we
23 have the maximum number of cars in those roadways. That has
24 to be more conservative when you're talking about 10 days,
25 which is, frankly, a very small percentage, three percent.

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1 So it would be dominated by the day-by-day. You may have
2 some really high numbers in the very top. Maybe you have 25
3 percent higher traffic during the holiday. That will be way
4 at the top of your distribution maybe. If you're going down
5 to the 175th value, that will be dominated by the fact that
6 we conservatively assumed roadway and parking lots and the
7 rest that we'll use the peak values for Mr. Guckert's
8 report. That's an extremely conservative approach that
9 could be refined. We don't need to in my judgment. If we
10 did, the numbers would go down substantially.
11 Q And I understand that you used the peak numbers
12 from Mr. Guckert's report, but there was testimony that the
13 holiday season extends for a number of weeks, in fact, at
14 the mall and the number of vehicles on the mall parcel
15 easily doubles. So we are not talking about 10 days out of
16 the year.
17 A I don't, I can't speak to Mr. Guckert's report in
18 that detail about how many extra days the holiday has. What
19 I'm saying is the math, if you think about it in the bigger
20 picture, you're talking about something that happens every
21 single day with high numbers every hour of the day. That's
22 going to much more than compensate for any holidays because
23 even the holidays don't have that many cars every hour of
24 the holiday. I'm talking about the entire time the mall is
25 open that we have those numbers going on. If that was

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1 refined, I can guarantee you that the distributions would be
2 reduced and the 175th would be substantially lower than
3 we're showing now, at least in terms of the contribution
4 from the roadways.
5 Q Okay. And are you aware that during certain
6 periods of the holiday season the mall, in fact, is open 24
7 hours a day?
8 A I don't know that, but I'm certain that that
9 would -- I'm certain that would not more than compensate for
10 the conservatism I've just described.
11 Q Mr. Sullivan, going to your August 16th report,
12 you have an executive summary that begins on page 3. And
13 the first bullet you say the loading dock is now being
14 modeled based on assuming four heavy-duty diesel trucks are
15 idling for 10 minutes. And you say the actual idling time
16 is expected to be even less than that. If, in fact, the
17 trucks were idling for more time than you've assume here,
18 would the NO2, one hour NO2 numbers increase?
19 A Well, certainly if they're idling for more than 10
20 minutes, you have more idling, you have more emissions.
21 Q And which numbers would be affected by that?
22 A The loading dock emissions.
23 Q And when -- assuming that those emissions
24 disperse, would you expect higher numbers in surrounding
25 areas on the mall parcel or even beyond?

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1 A You're referring to a hypothetical that if they
2 did not follow the law and they idled for more than the 10
3 minutes they're allowed their policy calls for and more than
4 the five minutes allowed by Montgomery County, would that
5 hypothetically increase concentrations in the loading dock,
6 yes, it would.
7 Q And beyond?
8 A As we showed in the modeling, it's quite localized
9 to the loading dock, but certainly beyond the loading dock
10 would be some effect.
11 Q You had updated your formula and I can't locate it
12 in your report right now. Did you provide a copy of that?
13 MR. GROSSMAN: What do you mean by your formula?
14 MS. ROSENFELD: The flip chart formula that we
15 spent so much time on has now been modified. And I'd like
16 Mr. Sullivan to explain how it's been modified.
17 MR. GROSSMAN: I'm still not sure what you're
18 referring to when you say the flipchart formula.
19 MS. CORDRY: We'll find it for you. It's here.
20 MR. GROSSMAN: Okay.
21 MS. CORDRY: It's on page --
22 MS. ROSENFELD: Oh, thank you.
23 MS. CORDRY: -- maybe 18, maybe 19.
24 MR. GROSSMAN: Okay.
25 THE WITNESS: I more explicitly, it's shown how

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1 that formula worked basically.
2 MR. GROSSMAN: Hold on one second just to make
3 sure I'm looking at the right page here. What's the title?
4 MS. ROSENFELD: I believe it's Section 4.1.1.
5 MS. ADELMAN: 4.1.1.
6 MR. GROSSMAN: Okay, 4.1? Okay, 4.1.1. That's on
7 page 20 for me.
8 MS. CORDRY: You're expanding.
9 MR. GROSSMAN: Okay.
10 THE WITNESS: So I'm showing the fact that there
11 are, where this equation is based upon doing a daily value.
12 So we have 10 heavy-duty trucks, for example, shown in this
13 analysis. So you see at the very end of the top line, you
14 see the 10 heavy-duty trucks. I'm clarifying that if each
15 truck we have, they operate, they're the equivalent of four
16 miles worth of travel and we apply a 2.5 fold scale up
17 factor per Mobil 6. Then we're still left over with a 10-
18 fold safety factor in that equation.
19 The extra 10 in the very front I was required to
20 avoid being, underestimating PM2.5. In terms of NO2, that
21 factor substantially overstates. So I've just rearranged
22 the terms and clarified it, and then below I show a more
23 realistic assessment, but still very conservative, where
24 it's very similar to that, but each truck is there for 10
25 minutes, .42 miles. We still apply the 2.5 safety factor

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1 that for Mobile 6, the building compensates for the 2X issue
2 with NOX. We have four trucks there. They can only have
3 four trucks. There's only four bays. And we do that on an
4 hourly basis to see if the emission rates are the more
5 accurate, but still a conservative estimate of .007, you
6 know, is roughly, what, 15 times lower than the very
7 conservative rate used earlier.
8 BY MS. ROSENFELD:
9 Q The 10 times safety factor at the start of the
10 calculation, can you show me where in your November 2012
11 report that's identified?
12 A I didn't, I didn't pull it out that way. That's
13 in our spreadsheets. We simplified that to a term of 100
14 and we have a 10. I split it off to show more explicitly
15 how that could be interpreted. But it's not, it's not
16 described in our November report.
17 Q So where would that 100 be shown in your November
18 report?
19 A As I mentioned, that the 100 is described in our
20 emission spreadsheet that supports that emission factor.
21 Q And where is that emission spreadsheet?
22 A The emissions start at XOS. It's in that
23 emissions, in that XOS spreadsheet that's in the package
24 that --
25 Q Oh, the one that just got emailed?

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1 A No. It's from the November 2012 data disk that we
2 prepared that includes all the emissions and modeling,
3 input/output files.

4 Q And so if there were more than four heavy-duty
5 trucks in an hour, this number, you would simply plug in --
6 let's say, for example, there were five. You would simply
7 put a five where there's a four right now and run the
8 formula that way?

9 A Well, that's a hypothetical. These are, there's
10 only four bays, so you're making the assumption that within
11 an hour they could, the truck could be dropped, unloaded and
12 another truck loaded in. I don't know for a fact that could
13 be done, but let's assume that it could be done. Then this
14 would go up five, you know, five divided by four, scale up.
15 But keep in mind that we're assuming there's four trucks at
16 the loading dock every hour for 18 hours. They don't have
17 that many trucks. They only have 10 heavy-duty trucks per
18 day. So this equation still has a substantial amount of
19 conservatism still embedded into it. That would be the
20 total of 18 times -- 72 trucks. They have 10 trucks. And
21 we're only modeling -- and this, we're assuming the bays
22 only have heavy-duty trucks. They're the ones that have the
23 most emissions. Remember, half the time they have light-
24 duty trucks.

25 Q And so if, for example, there were four trucks in

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1 the bays and two trucks waiting to approach the bays and
2 idling during that period of time, would you then make this
3 six and --

4 A No, well, in your hypothetical where are these
5 trucks idling?

6 Q Well, there's a huge parking lot right next to the
7 warehouse.

8 A Well, so somewhere in the parking lot they're
9 idling. What is your question?

10 Q Would you take this formula and increase the four
11 heavy-duty vehicles to six?

12 A No, I would not.

13 Q And you would not why?

14 A Because they're not at the same location. And
15 they're still, the idling policy as far as I know still
16 applies. This is not my area of expertise, but there's an
17 idling policy for the County of five minutes and Costco's
18 policy is 10, which may have to get reconciled, but the
19 issue is they just can't. They shouldn't be letting their
20 trucks idle for a long period of time.

21 Q For the other, there are other loading docks,
22 there are certainly other heavy-duty trucks on the mall
23 parcel, do you include them in your background elsewhere?

24 A We have assessed, we've assessed that at one point
25 in time, I think I've testified to that fact, that if we

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1 assume the same extremely conservative emission rates for
2 the Costco loading dock applies to the Target loading dock,
3 the one that's in the center of the mall to the north of the
4 gas queue, that it made a very small difference at the
5 locations of primary concern which, of course, we're really
6 focusing on the school, the homes or the pool. I would be
7 surprised if Target or the central loading dock has as much
8 traffic as Costco does, but I don't know that for a fact.

9 (Discussion off the record.)

10 BY MS. ROSENFELD:

11 Q And those very conservative emission rates as they
12 apply to the home, the school and the pool, with respect to
13 within the mall parcel itself, you have higher
14 concentrations, isn't that correct?

15 A Well --

16 Q That's what your isoplats show?

17 A Well, we did, are you referring to the other
18 loading docks or referring to Costco's loading dock?

19 Q I am referring to the mall parcel --

20 A What source?

21 MR. GROSSMAN: Well, hold on.

22 MS. ROSENFELD: -- which is within the defined
23 neighborhood.

24 MR. GROSSMAN: Let's keep in mind here, I mean my,
25 I'm only evaluating the potential impacts of the Costco gas

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1 station.

2 MS. ROSENFELD: Okay.

3 MR. GROSSMAN: So I think it appears, unless you
4 have some startling revelation in your evidence, it appears
5 that what you're getting at is testimony regarding things
6 beyond the Costco gas station, well beyond and having
7 nothing to do with what I'm supposed to evaluate. Now to
8 the extent you're arguing that it's part of the overall
9 figures and he's given his testimony about background, I'm
10 not sure where you're going with all this. This seems to me
11 to be --

12 MS. ROSENFELD: It --

13 MR. GROSSMAN: -- a minimal contribution to what I
14 have to look at.

15 MS. ROSENFELD: In order for Mr. Sullivan to
16 accurately model the ambient air quality within the
17 neighborhood, and it's undisputed in the record that the
18 neighborhood includes at a minimum the mall parcel --

19 MR. GROSSMAN: Right.

20 MS. ROSENFELD: -- he needs to accurately model
21 emissions. And it certainly is our position that those
22 emissions are not just from the gas station itself, but EPA
23 requires that you also factor in background. And the
24 question is whether or not the background has been
25 accurately computed. And some of the contributing sources

1 are not just the loading dock and not just the gas station,
2 but the other uses in the mall and, candidly, a whole bunch
3 of other stuff as Mr. Sullivan has testified.

4 MR. GROSSMAN: And I think we've had a whole lot
5 of cross-examination about background here. I just -- I'm
6 not cutting you off now, I'm just saying that I think you're
7 in an area that is really beyond what is going to have a
8 significant impact on what I have to evaluate. And so I am
9 suggesting that you take that into account in terms of the
10 amount of time that's spent on cross-examination on this
11 area.

12 MS. ROSENFELD: Well, the core question with
13 respect to Mr. Sullivan's expertise is whether or not the
14 EPA ambient air standards have been met or not. And Mr.
15 Sullivan has testified that he has changed part of his
16 formula in calculating what the background levels are. And
17 so my --

18 MR. GROSSMAN: For NO2?

19 MS. ROSENFELD: For NO2 and PM2 and all of them
20 relate to this formula of these emissions. So I'm simply
21 trying to get clarification of what those changes are and
22 what impact it would have and he said his underlying
23 assumptions are four vehicles, four heavy-duty trucks for a
24 certain period of time and I'm trying to understand --

25 MR. GROSSMAN: That's for the -- he's changed the

1 Costco loading dock estimate. I don't think he's testified
2 that he changed his estimate of loading elsewhere in the
3 mall, did he? Did you --

4 THE WITNESS: I did not.

5 MR. GROSSMAN: So I don't think that's a change.

6 MS. ROSENFELD: I understand that, but I'm trying
7 to understand if the basic assumptions change whether or not
8 he would consider that to have an impact on the emissions
9 levels at the loading dock --

10 MR. GROSSMAN: All right. As I say, I'm not
11 stopping you.

12 MS. ROSENFELD: -- and beyond.

13 MR. GROSSMAN: I'm just saying bear in mind here
14 that the further you stray away from what is likely to be
15 produced by the Costco gas station, the less impact it can
16 possibly have on what I have to analyze, okay? That's -- to
17 me that's a fundamental factor here. I understand your
18 point. I understand the idea of background as part of this
19 analysis. But the central issue I have to look at is what
20 the projection is as to what the Costco gas station is going
21 to do. That's my job. Once again, I didn't mean to cut you
22 off. I just want you to bear that in mind before we take
23 too much time on cross-examination on issues that will not
24 really bear heavily on what I have to consider.

25 BY MS. ROSENFELD:

1 Q Mr. Sullivan, going to the second bullet in your
2 executive summary on page 3, you said cars in the queue at
3 the gas station were previously modeled for a one hour NO2
4 and other pollutants for 40 cars for all 15 hours of gas
5 station operation every day of the week. I thought your
6 testimony was that you had originally started with 20 cars
7 and then increased it to 32?

8 A I, for the one hour we've, the November 2012
9 report and onward we have used 40 car queues.

10 Q And can you show me where in your report that's
11 listed?

12 A I don't know if it's listed in the report or not,
13 but that's what we did. We got a 40-car queue for one hour,
14 we had a 10-car queue for the annual and different ones in
15 between. What I'm saying in the second bullet point is that
16 we used that for all operational hours, the one hour
17 analysis for NO2 and for CO. The point, there is, it's a
18 very, that worked in the past, it was an extremely
19 conservative approach. They don't have 40 cars in queue all
20 the time.

21 (Discussion off the record.)

22 BY MS. ROSENFELD:

23 Q So how many cars are you now assuming in the queue
24 and for what duration?

25 A As is shown on page 38, based upon transactional

1 data, transaction, transactional data from, which I believe
2 was Sterling --

3 MR. GROSSMAN: Which figure are you looking at
4 now?

5 THE WITNESS: Yes, would be in Appendix B.

6 MR. GROSSMAN: Okay.

7 THE WITNESS: The spreadsheet discussed earlier.

8 MR. GROSSMAN: Right. Yes, that begins on page 42
9 for me. I think --

10 THE WITNESS: You were just grounded. It goes on.

11 MR. GROSSMAN: I think so. I think that the,
12 probably your margins were beyond my printer's --

13 THE WITNESS: I think so.

14 MR. GROSSMAN: -- capabilities and so it just --

15 THE WITNESS: Right.

16 MR. GROSSMAN: -- in any event, all right. So --

17 THE WITNESS: So we had transaction history of --
18 there is a function of time of day how many transactions
19 occurred at the gas stations which would be likely, directly
20 related to queue length. We used that data to normalized
21 that such that the period that had the highest transactional
22 history would be one, one within the scalars used and the
23 other thing, it would be relative to that one which you will
24 see in the spreadsheet you received this morning. This type
25 of hourly scalars is something that air mod was designed to

1 do. It's routinely done in refined modeling. If the source
2 has hourly variability, that's certainly within the
3 modeler's flexibility to incorporate that into the modeling
4 to improve the accuracy and to accommodate other factors
5 such as you can see here.

6 BY MS. ROSENFELD:

7 Q I'm not -- if that answered my question, I didn't
8 understand it. How many vehicles are you now assuming in
9 the queue?

10 A Well, at noontime it would be 40 and everything is
11 relative to that. Noontime on weekdays would be 40 and, you
12 know, approximately, unless when and some other times, it's
13 40 at 10 o'clock in the morning on Saturday and Sunday. And
14 so it's all relative to 40. So if it was 7 o'clock on a
15 weekday, it's at the .57 scaler, then it would be 40 times
16 .57. It's all scaled by those values.

17 Q And where would I find that .57?

18 THE WITNESS: It's on it on that chart, just below
19 there's, you'll see the chart on page, Appendix B, which
20 has --

21 MS. ROSENFELD: Right.

22 MR. GROSSMAN: -- a graph on it. And you can see
23 it.

24 MS. ROSENFELD: Right.

25 MR. GROSSMAN: The hour, the seventh hour there's

1 a .57 which is the scaler. So you multiply the .57 times
2 the 40 cars and that would result in the number of cars he's
3 including in his estimate for 7:00 a.m., is that fair?

4 THE WITNESS: Yes, that's correct. As a
5 refinement of the queues, getting away from the ultra-
6 conservative assumption that there's always 40 cars all the
7 time.

8 (Discussion off the record.)

9 BY MS. ROSENFELD:

10 Q So with respect to the queue, you have done an
11 hour by hour, more refined analysis of the number of
12 vehicles. Now I asked you earlier about holiday traffic and
13 I think what you're doing here with the queues reflects
14 conceptually what I was asking you with respect to an annual
15 because there are times during the year, prolonged periods
16 of time during the year when you have significantly more
17 traffic than you would have at other times of the year.

18 A Correct.

19 Q So in this case you did that precise refinement to
20 decrease the amount of emissions, or at least that's the
21 effect of this, is that correct?

22 A Well, we did, we did this to refine and more
23 accurately describe queues. That's why we did it.

24 Q And the --

25 A The result of that is it does lower concentration.

1 Q Okay. And so at least theoretically it's possible
2 that if you did a more precise calculation with respect to
3 vehicular traffic over the course of a year, that you might
4 have different numbers, different emission from what you
5 have now, is that correct?

6 A Well, you can always refine the model more and
7 more and more. My point is this change and, yes, it's
8 different than the old assumption. We don't have 40 cars
9 all the time and this, in this scenario we have reasonably,
10 we have an accurate representation of how the queues vary
11 the function of weekdays, Saturday and Sunday. You could
12 argue that what if some holiday during some hours had higher
13 queues than this. That certainly is possible. We're
14 looking at 175th high value over the course of a year. In
15 my judgment, this analysis is substantially more accurate
16 and more appropriate if we're going to refine things into
17 queues and into loading docks than we had before.

18 Q Going to your third bullet on page 4 of your
19 August 2012 report that we have assumed conservatively that
20 individuals were in the queue for an hour, even though the
21 transactional queue data shows the maximum time is 16
22 minutes on weekdays and 20 minutes on weekends based on
23 passage through a 40-car queue, based on the observed four
24 minute fueling time per vehicle throughout for passage
25 through the queue. In the refined modeling we assume 20

1 minutes in queue and 40 minutes of the background
2 concentration for the one hour NO2 concentrations. I don't
3 understand how it is that you base your modeling on the time
4 the individuals are exposed. My understanding of the EPA
5 requirements are that you establish levels of emissions or
6 levels of concentrations in ambient air, is that correct?

7 A Well, not -- well, it's correct in an ambient
8 receptor, but the question is does EPA modeling guidance
9 suggest they should put a receptor, you know, a receptor in
10 the middle of a transient queue and the answer is I have
11 never seen any guidance document where EPA suggests you put
12 receptors in a road, for example, and an analogy to a queue.
13 So what I'm doing here is analogous exactly to what we did
14 to the occupancy factors for the school and the pool for the
15 VOC risk assessment. We're more accurately describing the
16 time period that they could be exposed. And you can't park
17 your car in a queue. You can't go and stand in a queue for
18 now. You move through. And based upon the transactional
19 history, and input from Mr. Guckert, it's clear the maximum
20 timing queue is typically 16 minutes with the 40 cars. It's
21 almost always less than that.

22 Q And didn't EPA just change it's protocols to
23 require monitors roadside because they are looking precisely
24 for more accurate pollutant concentration.

25 A Roadside is the key term, not in the middle of the

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1 road.

2 Q And this, of course, is not a road, this is a

3 special exception use, is that correct?

4 A But now it's very analogous, the roadway, people

5 move through a roadway.

6 Q And --

7 A In fact, even a roadway, if I could finish, even a

8 roadway, you could on the Beltway get stuck for an hour, but

9 in this case we're talking about a queue. You can't park

10 your car and stop. When you're in a queue, you've got to

11 move on through. You enter the queue, you wait and get gas,

12 you exit the queue. So there is no feasible scenario which

13 a person would hang out at that one spot for an hour.

14 Therefore, we refined it to consider occupancy.

15 Q Well, but your modeling is to determine what those

16 pollutant concentrations are at this location, correct?

17 A Well, I, yes, I certainly, yes, I did that. I

18 showed those values, but in the modeling files. But the

19 issue is that if I assume that a person will be there for an

20 hour, I'm going to overstate without question what their

21 exposures are. So I'm refining that exposure to still very

22 conservatively say that for the 20 minutes they'll be

23 exposed and what the receptor says right there in the queue.

24 And for the next, on the 40 minutes, they'll be at the 175th

25 highest concentration at the monitor during the course of a

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1 year. So they're going to be conservative with the

2 background, they're not going to zero, they're going to in

3 this case 90 micrograms, which is a higher number when

4 they're in the queue, whatever the queue receptor says.

5 So it's still conservative, but it's more

6 reasonable. In my judgment it's not reasonable to model in

7 a queue. We don't, we haven't done that or a roadway before

8 or a loading dock. But to show the data based upon the

9 comments being made about these values, we've refined the

10 analysis to be able to do that, but it's atypical. I've

11 been modeling for, you know, 38 years in the business. I

12 haven't modeled inside a roadway by putting a receptor to

13 get the concentration or in this, by analogy, at a queue

14 people are moving through as a function of time.

15 Q Do you need special exception approval to build

16 most roads or any other roads that you worked on?

17 A I don't, I don't know if they needed a special

18 exception.

19 Q Is it your understanding that the attendants who

20 work at the gas station will be there for an hour or less

21 during the day?

22 A My assessment was not occupational. My assessment

23 was ambient accessible.

24 Q Well, this doesn't give me an ambient assessment

25 in your bullet number three. What this does is quantify how

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1 much time you estimate a receptor, an individual will be

2 located within the confines of the special exception

3 boundaries.

4 A This is an ambient study. We're comparing things

5 to EPA standards. The EPA standards do not apply to the

6 attendant.

7 Q Well, that's a legal question and one that I

8 submit to you has yet been to be addressed in this case. Is

9 it your understanding that the attendants will be there for

10 an hour or less at a time?

11 A No, the attendants will be there for more than an

12 hour.

13 Q And this is a one hour standard, is that correct,

14 NOT has --

15 A Just to --

16 Q -- a one hour standard?

17 A To clarify, EPA has a one hour standard. OSHA has

18 an eight hour standard. They're different.

19 Q EPA has a one hour standard, correct?

20 A Correct.

21 Q And it is a health-based standard, is that

22 correct?

23 A It's, it is a health-based standard designed for

24 the general public.

25 Q And do you have any understanding about -- what is

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1 your understanding as to how much time it can take for

2 somebody to feel the effects of, any adverse health effects

3 if exposed at the EPA levels?

4 MR. GOECKE: Objection. He's not a health expert.

5 MS. ROSENFELD: He's telling me that --

6 MR. GROSSMAN: I'm going to let him answer that if

7 he, I think it's, it probably is beyond his expertise, but

8 I'll let him answer if he can.

9 MS. ROSENFELD: He's telling --

10 THE WITNESS: Well, I limit my area of expertise

11 in medical issues to the standards. EPA has a one hour

12 standard and annual standard for NO2. Those standards are

13 what they are and those standards are designed for the

14 ambient air and that's to protect the general public,

15 including sensitive people. The attendant, there's an

16 occupational exposure which is controlled by OSHA. That's

17 my understanding.

18 MR. SILVERMAN: Mr. Grossman --

19 MR. GROSSMAN: Mr. Silverman.

20 MR. SILVERMAN: Are you interested in whether that

21 statement is legally correct or would you like to hear about

22 that please?

23 MR. GROSSMAN: Well, I did ask you all about that,

24 but not at this moment. I think --

25 MR. SILVERMAN: No, I know.

1 MR. GROSSMAN: -- at the appropriate time you can
2 tell me what, well, both sides can tell me whether they
3 think the OSHA standards should be looked at here as well.
4 I did ask that.

5 BY MS. ROSENFELD:

6 Q Once EPA implements the near road monitors and
7 it's, I believe it's a minimum three years data, would you
8 expect that the background levels for certain pollutions
9 would be higher than they are now based on better
10 monitoring?

11 A Well, background for what? I mean that would be
12 background for near major roadways and major highways,
13 things like that. That wouldn't be better background for
14 this location. It wouldn't be representative of exposures
15 here. It's a different scale of analysis.

16 Q Your background, though, which comes from EPA
17 monitors, this site is ringed by major roadways, is that not
18 correct?

19 A Well, yes, it's quite a distance from Georgia
20 Avenue. If your point is if they were to put a monitor
21 right next to Georgia Avenue, would that represent
22 background at this gas station, clearly it would not. EPA
23 likely will put the monitors at even more heavily traveled
24 spots than that. So my point is is what EPA is doing is,
25 definitely sounds good to me, but it's not relevant to this

1 matter at hand. This is not near a major highway or roadway
2 where this gas station is.

3 (Discussion off the record.)

4 MS. ROSENFELD: Mr. Grossman, one moment please.

5 (Discussion off the record.)

6 BY MS. ROSENFELD:

7 Q Mr. Sullivan, you testified earlier about SIL
8 limits and what is that number again?

9 A You asked me for the one hour NO2 SIL?

10 Q Yes.

11 A 7.5 micrograms per cubic meter.

12 Q Okay. If you could go back to page 8, which is
13 Table 2 of your August 16, 2013 report? In looking at the
14 sources, I believe you had testified that your results, you
15 had come out with .024 for the impact of the gas station, am
16 I correct?

17 A I gave a very specific example of the, the
18 affidavit that Dr. Cole did and he had identified a certain,
19 277, which we feel is 414. I said for that particularly
20 controlling concentration, if you look at that as an
21 example, that .024 micrograms per cubic meter was the
22 contribution from the gas station sources, the queue, the
23 entrance and the two exits.

24 Q And if you look at Table 2, is that the number you
25 come up with on this table if you add the gas to the exits

1 and the entrance?

2 A Well, no, I was referring to a particular one hour
3 period that was that, that was the, well, actually it's
4 three, it's three hours, a running average. But the hours
5 that comprise that data point, I gave that as an example
6 saying we're going to talk about that maximum as an example,
7 let's put it in context. And in doing so, you find that the
8 gas station, there's a very tiny contribution towards that
9 value.

10 Q Well, when I look at the Table 2, it seems to me
11 it's a much more significant contributing factor.

12 A Well, this is a general analysis, not for one
13 hour, and these tables are the ones that did not have the
14 refinement for the in queue and next to the loading dock
15 calculations, so it's really apples and oranges.

16 Q But it does say NOX one hour?

17 A Well, it is one hour NOX, but it's based upon the
18 assumption we're not doing micro scale modeling. This is
19 for the general model we did in the November report. You're
20 comparing that to define modeling for micro-scale in the
21 August 16th report for one particular three hours actually
22 of information and it's an apples and oranges comparison.

23 MS. CORDRY: Well, maybe I'm confused, but I
24 thought you testified that the 414 number was taken from the
25 same urban assumptions in November 2012 from which these

1 numbers were calculated, were they not?

2 THE WITNESS: It was based upon the, taking the
3 November 2012 data disk --

4 MS. CORDRY: Yes.

5 THE WITNESS: -- files that you folks have and
6 it's running that as urban and correcting for the
7 background.

8 MS. CORDRY: Okay.

9 THE WITNESS: That's the number we're referring
10 to.

11 MS. CORDRY: Right.

12 THE WITNESS: I'm referring to three particular
13 hours over the course of that five year period as the
14 example.

15 MS. CORDRY: Right. And we are saying, I think
16 the question was simply is this not another example from the
17 same set of data runs with the same sort of assumptions and
18 it's not an apples and oranges here, there's not another
19 set, a different apple in the same bushel of apples?

20 MR. GOECKE: Just a point of procedure, Mr.
21 Grossman. I thought only one attorney was going to be
22 asking questions?

23 MS. CORDRY: Well, I'm --

24 MR. GROSSMAN: That's true, but she's just trying
25 to clarify something.

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1 MS. CORDRY: I'm trying to understand this.
2 MR. GROSSMAN: So I think it's fair. I don't --
3 MS. CORDRY: His apples and oranges idea. To me
4 this is just another apple.
5 MR. GROSSMAN: All right. Well, let him answer.
6 THE WITNESS: Well, basically these tables, Table
7 2 is showing urban and rural, and it's showing the
8 controlling concentrations of the model on the bottom in
9 yellow and it's giving an indication of contributions each
10 over the time. I've already testified they don't add up.
11 They will not add up. But the issue is this is not the same
12 thing. This is looking at all hours, looking at the whole
13 data set and taking the 175th value and doing a rolling
14 average. The other analysis with the 277 or 414 was for
15 just three hours for the whole data set, which happened to
16 be the ones that were the controlling ones for that run.
17 MS. CORDRY: And we understand that, but I think,
18 isn't though this still just another set of contributions
19 from the gas station in the same sort of urban runs? In
20 other words, .024 is not the only number that's out there
21 that is a reasonable number to look at. You have a five
22 year for just the gas queue in urban, you have a 14 in the
23 rural, so I mean that's the question. Aren't these all in
24 the same set of modeling runs?
25 THE WITNESS: No, well, sure, they're in the same

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1 modeling runs. The point here is looking at the typical
2 ambient sensitive receptors, the home, the school and the
3 pool, I'm showing the contribution from the gas station
4 which is, yes, it's going to be a lot more than at that
5 loading dock. My point was the loading dock, net 414, is a
6 loading dock issue and has nothing to do with the gas
7 station. If you want to talk about the gas station, look at
8 numbers like Table 2. The peak you're talking about is from
9 the loading dock, it's not from the gas station.
10 MS. CORDRY: I understand. I understand. But I
11 guess I --
12 MR. GROSSMAN: He's -- I think, I think, I
13 understand your question and I think I understand his
14 answer.
15 MS. CORDRY: Right.
16 MR. GROSSMAN: I think what he's saying is, yes,
17 it is apples and oranges. You think it's just a different
18 apple. But he's saying, no, the numbers reflected in Table
19 2 are not just a different apple out of the same bunch,
20 they're actually a different concept.
21 MS. CORDRY: Okay.
22 MR. GROSSMAN: They're not looking at, as the
23 other number he was talking about, was looking at the
24 contribution of the gasoline, proposed gasoline station over
25 a three hour period at the loading dock, whereas, this,

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1 these one hour NOX figures are looking at a one hour
2 average, contribution of the gas station or other specifics
3 throughout the area and so it's going to have a different
4 impact because the gas station would have had a lesser
5 contribution at that -- I assume that's correct.
6 THE WITNESS: That is correct.
7 MS. CORDRY: We understand that.
8 MR. GROSSMAN: All right.
9 MS. CORDRY: It's just there is a gradient there,
10 there's a whole set of areas and I guess the point was
11 simply I'm not quite sure how we're looking at exactly one
12 receptor and that somehow is becoming the entire discussion
13 point here as opposed to all of the other points that are
14 available to look at.
15 MR. GROSSMAN: Well, I don't think he, I don't
16 think he was intending to make that as the discussion, the
17 whole discussion point. That's not my sense of what he was
18 saying. He had an understanding from his July 30 session
19 that there was, that there was an attempt to address what
20 was happening at the loading dock, so he attempted to
21 respond to that among other things. That's what he's
22 testifying to. You can accept that, not accept that,
23 whatever you want. I think that's the sense of his
24 testimony. And he felt that the assumptions he previously
25 made according to his testimony were not as accurately

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1 reflected the likely truth of the matter as his present
2 assumptions do. That's his testimony. Like it or not,
3 that's his testimony.
4 MS. CORDRY: Okay.
5 MR. GROSSMAN: All right. Ms. Rosenfeld, anything
6 else?
7 (Discussion off the record.)
8 MS. CORDRY: Can we take five minutes and just
9 determine if we're done?
10 MR. GROSSMAN: I think that's fair. All right.
11 Come back at 3:30.
12 (Whereupon, at 3:25 p.m., a brief recess was
13 taken.)
14 MR. GROSSMAN: So what's the good word he said
15 with hope in his heart?
16 MS. ROSENFELD: We have no further questions for
17 this witness.
18 MR. GROSSMAN: Any -- well, I should say I don't
19 see anybody here from Kensington View?
20 MS. ADELMAN: No.
21 MS. ROSENFELD: Yes, well, Ms. --
22 MS. ADELMAN: They were here this morning, but not
23 for the afternoon.
24 MR. GROSSMAN: I guess there's no further cross.
25 Any redirect?

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1 MR. GOECKE: Just briefly, please.
2 REDIRECT EXAMINATION
3 BY MR. GOECKE:
4 Q Mr. Sullivan, if you were to conduct an indoor air
5 modeling analysis of the mall, or the warehouse, would you
6 expect the levels that you would find or the toxins you've
7 identified to be higher or lower than the outdoor ambient
8 air?
9 A Well, it depends on how you monitor. If you
10 did -- there's two ways. You have fixed sites --
11 Q Okay.
12 A -- where a personal monitor, a person wears a pump
13 and it has a tube going up their lapel. If they're doing
14 like particulate monitoring with the personal monitoring,
15 you could get, you could get higher values possibly because
16 when they move around, they generate a cloud of dust to some
17 extent.
18 MR. GROSSMAN: People say that about me all the
19 time.
20 THE WITNESS: But in terms of like say
21 particulates, usually indoor levels with that exception with
22 fixed monitors I expect would be less. For the gases such
23 as NO2 or CO, depending upon the air exchange, I would think
24 it would be sort of comparable to the outdoor air.
25 BY MR. GOECKE:

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1 Q And what would be the indoor air levels that
2 apply? Would it be the same EPA max or would it be a
3 different standard?
4 A The EPA max don't apply indoors at all. It would
5 be -- I don't know the standard that would apply inside the
6 mall per se.
7 Q And then turning quickly to the modeling you did
8 for the activities related to the mall itself, the ring
9 road, for example, the loading dock, would those figures
10 also be included in the background levels that you used?
11 A Well, I think the issue is to some extent yes
12 because our modeling, if you follow, strictly follow EPA
13 guidance, you model your source, in this case the gas
14 station, and the entrance and exits to the gas station
15 delivery trucks and then you would model other sources that
16 would create significant gradients at your source area. You
17 might argue the ring road may create a significant gradient.
18 EPA defines what significance is. But, clearly, I wouldn't
19 expect that Georgia Avenue, Veirs Mill and the others would
20 create it. The parking lots definitely would not create
21 significant gradients based upon our analysis, so I would
22 say we're double-counting because we're including all those
23 things I mentioned, the parking garage, the west parking
24 lot, Georgia Avenue, Veirs Mill and so forth, University,
25 even though they are not required. So when you add that to

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1 a generic background value as we've done, then you would
2 tend to overstate to some extent. How much, I'm not sure,
3 but there would be some double-counting in there.
4 Q Thank you.
5 MR. GOECKE: I have no further questions.
6 MR. GROSSMAN: Any recross?
7 MS. ROSENFELD: No.
8 MR. GROSSMAN: Mr. Silverman?
9 MR. SILVERMAN: Just one.
10 RECROSS EXAMINATION
11 BY MR. SILVERMAN:
12 Q Did you calculate your background values for EPA
13 monitors?
14 A The EPA -- I don't know that EPA does maintain any
15 monitors. Their monitors are maintained by the states.
16 Q I'm sorry, yes. Did you, in calculating your
17 background, you relied on the state monitors in Beltsville
18 and Rockville and so forth, is that right?
19 A That is right.
20 Q So you didn't make any separate count for, well,
21 the burger stands at the malls or for the loading docks or
22 anything else, you just relied on the state-maintained
23 monitored stations to get background levels?
24 MR. GOECKE: Objection. This is beyond the scope
25 of the redirect.

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1 MR. GROSSMAN: It is, but I'm going to leave a
2 little bit of leeway with this.
3 MR. GOECKE: Sure.
4 THE WITNESS: Well, I testified at an earlier time
5 that even though we did not model the entire mall, that I
6 did a special assessment and we modeled all the parking lots
7 the same rate as Costco's and the two loading docks, the
8 same, the same activity level as Costco and we showed a tiny
9 impact down at the clinical receptors of concern. And I
10 also showed that we overstated, in our regular modeling that
11 we overstated the parking lots because we had increased the
12 conservatism on the parking lot calculations and I already
13 described the conservatism on the loading dock at Costco.
14 So my argument was made on the record before that those
15 things clearly more than compensated for any effects at
16 further away locations in the mall.
17 Q I only asked you about the background, the
18 background levels are based on the state monitors, that's
19 correct?
20 A That is correct.
21 Q Okay. You didn't modify them, you didn't change
22 them, you just accepted them?
23 A I didn't change them, no.
24 Q Thank you.
25 MR. GROSSMAN: Okay. Thank you, Mr. Sullivan. I

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1 think you are done.
2 THE WITNESS: Good.
3 MR. GROSSMAN: All right. Shall we have Dr. Chase
4 take the stand?
5 (Discussion off the record.)
6 MR. GROSSMAN: And I think I forgot to say to you
7 when you began, but you were still under oath here when you
8 testified.
9 THE WITNESS: I understood that.
10 MR. GROSSMAN: You understood that? And so all of
11 your testimony offered today was under oath, sir?
12 THE WITNESS: Yes, it was.
13 MR. GROSSMAN: Okay.
14 MR. GOECKE: I believe he even pointed that out at
15 one time.
16 MR. GROSSMAN: Yes, he did say he was under oath.
17 (Discussion off the record.)
18 MR. GROSSMAN: Would you identify yourself for the
19 record, Dr. Chase, please?
20 THE WITNESS: Kenneth H. Chase, M.D.
21 MR. GROSSMAN: All right. And, Dr. Chase, you
22 recall that you are still under oath?
23 THE WITNESS: I understand.
24 MR. GROSSMAN: All right. Where did you leave off
25 with Dr. Chase?

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1 MR. GOECKE: Cross-examination.
2 MR. GROSSMAN: Yes, but where -- who is going
3 cross-examination?
4 MS. ROSENFELD: Oh, I was, under the impression
5 that there would be new direct testimony based on the past
6 testimony.
7 MR. GROSSMAN: Well, there doesn't have to be.
8 There is a question. Did you have any additional direct?
9 MR. GOECKE: No.
10 MR. GROSSMAN: Okay. All right.
11 MS. ROSENFELD: Mr. Grossman, one moment please.
12 MR. GROSSMAN: Sure.
13 (Discussion off the record.)
14 CROSS-EXAMINATION
15 BY MS. ROSENFELD:
16 Q Dr. Chase, what is your understanding of what OSHA
17 levels, what OSHA considers to be appropriate standards for
18 air emissions for workers?
19 A Would you mind speaking a little louder because
20 I'm hard of hearing --
21 Q Well, certainly.
22 A -- and that fan is creating white noise.
23 Q Would you please identify the OSHA levels, the,
24 for standards for air emissions that govern workers?
25 MR. GOECKE: For which contaminant?

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1 MS. ROSENFELD: All of the governed contaminants
2 that would apply here, the NO2, the --
3 THE WITNESS: Did you say for government workers?
4 MR. GROSSMAN: No, for --
5 BY MS. ROSENFELD:
6 Q For workers generally, employees.
7 MR. GROSSMAN: The OSHA standards for the
8 contaminants mentioned here for workers.
9 THE WITNESS: Well, all six of the EPA criteria
10 pollutants, including carbon monoxide, lead, nitrogen
11 dioxide, ozone, particulate matter, and sulfur oxides would
12 be included, but there's certainly others, asbestos, silica,
13 although silica hasn't been updated since 1971, but it's
14 about to be and others.
15 MS. CORDRY: Mr. --
16 MR. GOECKE: I don't think he heard the question.
17 MR. GROSSMAN: I think the question is what levels
18 are permitted under OSHA, is that --
19 MS. ROSENFELD: Yes.
20 MR. GROSSMAN: Do you know what levels are
21 permitted under OSHA for these contaminants?
22 THE WITNESS: I don't have them all memorized, but
23 I have them right in front of me.
24 MR. GROSSMAN: All right. So what are you reading
25 from that's in front of you?

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1 THE WITNESS: I'm reading, these are pages copied
2 from the American Council of Governmental and Industrial
3 Hygienists Handbook.
4 MR. GROSSMAN: Okay.
5 THE WITNESS: And the supplemental, smaller
6 handbook known as the TLVBEI handbook, which respectfully
7 stand for Threshold Limit Values and Biological Exposure
8 Indices.
9 MR. GROSSMAN: All right. Do you have an extra
10 copy of that by any chance?
11 THE WITNESS: I don't know. We didn't bring it,
12 but --
13 MR. GROSSMAN: All right.
14 THE WITNESS: -- it's only six or seven pages.
15 MR. GROSSMAN: All right. Well, first of all,
16 let's -- would you tell us what the standards are for carbon
17 monoxide?
18 THE WITNESS: Carbon monoxide is 50 parts per
19 million.
20 MR. GROSSMAN: Per million or per billion?
21 THE WITNESS: Per million.
22 MR. GROSSMAN: Okay.
23 THE WITNESS: It's a lot higher than EPA, but
24 that's no surprise.
25 MR. GROSSMAN: All right.

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1 THE WITNESS: But it's true for virtually
2 everything. There's no agreement between EPA and OSHA and
3 ACGIH and other recognized or influential organizations.
4 MR. GROSSMAN: And when you say it's a lot higher,
5 you mean it's that a --
6 THE WITNESS: They allow more, much more exposure.
7 MR. GROSSMAN: They allow more exposure under
8 OSHA?
9 THE WITNESS: Under OSHA.
10 MR. GROSSMAN: Than they do under EPA?
11 THE WITNESS: Than they do under the ambient air
12 quality standards?
13 MR. GROSSMAN: Okay. What about for lead?
14 THE WITNESS: For lead, it is .05 milligrams per
15 meter cube.
16 MR. GROSSMAN: Okay. And --
17 THE WITNESS: And these are, these are eight hour
18 time weighted averages unless I tell you otherwise.
19 MR. GROSSMAN: All right. Did you say micrograms
20 or milligrams, Dr. Chase?
21 THE WITNESS: I said milligrams, but let me repeat
22 it. It's .05 milligrams per meter cube.
23 MR. GROSSMAN: All right.
24 THE WITNESS: Which is the same as 50 micrograms
25 per meter cube.

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1 MR. GROSSMAN: All right. How about NO2?
2 THE WITNESS: OSHA does not have an eight hour
3 standard for NO2, but it instead has a, what's called a
4 STEL, short-term exposure limit, of 50 per, 5 ppm or 5,000
5 parts per billion.
6 MR. GROSSMAN: Okay. How about ozone?
7 THE WITNESS: Ozone is more complicated because it
8 depends on the level of work, how arduous the work is. So
9 for heavy work, the limit is .05 parts per million. For
10 moderate work, it's .08 parts per million. For light work,
11 it's .1 parts per million. And for light, moderate or heavy
12 workload, they have a two hour standard, the first three
13 numbers I gave you were eight hour standards. They have a
14 two hour standard of .2 parts per million. I can give you
15 these in milligrams or micrograms too if you want, but I
16 think we all know how to convert now.
17 MR. GROSSMAN: I'm not too good at that process
18 but in any event, the PM2.5?
19 THE WITNESS: PM2.5, OSHA does not have a
20 standard, but AC, excuse me a second. Where did that page
21 go? But ACGIH has a recommended standard which is, and this
22 is where we had to cover the other booklet, three milligrams
23 per cubic meter for respirable particles and 10 milligrams
24 per cubic meter for inhalable particles. The difference
25 between respirable and inhalable is a lot of large

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1 particles, airborne particles that you can breathe in that
2 get packed in your nose or your pharynx, but never make it
3 down to your lungs, down to the alveoli level or tiny,
4 microscopic air sacs. And inhalable and permeate respirable
5 refers to the ones that they're, can get all the way down to
6 the, into the lungs.
7 MR. GROSSMAN: Okay. How about sulfur oxides,
8 what's the standard for that?
9 THE WITNESS: Five parts per million, from an
10 eight hour standard again.
11 MR. GROSSMAN: Okay. Is there anything else on
12 the list that's comparable, you know, in terms of a
13 pollutant that OSHA controls?
14 THE WITNESS: Well, there's, the booklet that I
15 got this out of is pretty thick, so there's, there are other
16 things in there.
17 MR. GROSSMAN: But I guess we're talking about
18 things that would be --
19 THE WITNESS: I've got --
20 MR. GROSSMAN: -- ambient air, yes, for, that
21 might be emitted from --
22 THE WITNESS: That correlate to the --
23 MR. GROSSMAN: -- a gasoline station.
24 THE WITNESS: -- ambient air standard or NAAQS?
25 MR. GROSSMAN: Right.

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1 THE WITNESS: Those are the six. We've identified
2 six substances and chemicals that, and gases that EPA
3 regulates under NAAQS --
4 MR. GROSSMAN: Okay.
5 THE WITNESS: -- with the help of a CASAC
6 committee that I described last time.
7 MR. GROSSMAN: Okay. Ms. Rosenfeld.
8 MS. ROSENFELD: Yes.
9 BY MS. ROSENFELD:
10 Q Is the publication that you're referencing, what
11 is the name of that organization that you --
12 A ACGIH stands for American Council of Governmental
13 Industrial Hygienists.
14 Q And what role do they play in, with respect to
15 OSHA regulations?
16 A I don't think they have the force of law, so they
17 don't do enforcement like OSHA can and does, but they've
18 been around for many, many decades and they're well-
19 respected by OSHA and EPA, even if they don't publicly admit
20 it.
21 Q And do they give recommended guidelines
22 themselves?
23 A Yes.
24 Q And are you familiar with an organization called
25 the American Conference of Governmental Industrial

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1 Hygienists, that's the one you were just referencing, is
2 that correct?
3 A I didn't hear you.
4 Q You said the American Conference of Governmental
5 Industrial Hygienists, correct?
6 A No, Council of Governmental Industrial Hygienists.
7 Q Okay. Are you, do you know if Costco has ever
8 done a health study of gas station workers?
9 A No.
10 Q You don't know or they never have done one?
11 A I don't know.
12 Q Okay.
13 A It's not that I didn't pose the question, however.
14 Q Did you pose the question?
15 A I did recently, but I haven't gotten a response
16 yet.
17 Q Do you know if anybody else has done a study of
18 gas station workers?
19 A No, except what I ran across in the medical and
20 scientific literature, but those studies have been sporadic,
21 diverse, meaning all over the world, and not well-
22 coordinated. I don't think the American Petroleum Institute
23 has ever conducted such a study.
24 Q Do you remember the names of any of those medical
25 or scientific articles that --

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1 A No, not precisely, but I have a list of about 45
2 with me. You've seen the rest of reference attached to my
3 report. There was only 15 there. I've got a longer list of
4 45 with me.
5 Q And would that list contain any articles that talk
6 about the impact of gasoline stations on the health of
7 workers?
8 A Or, that or living in proximity to a gas station.
9 Q Could you --
10 A They're almost all foreign. I can, I remember the
11 names of where some of them were performed. I only, I have
12 never heard of this, but I've been in Greece before, but
13 I've never heard of Ionia, Greece. I've never been to
14 Mercia, Spain. I've been to Rio. Brazil is another country
15 where the study was done. Windsor, Ontario, to name four.
16 Q If you have that list with you, could you just
17 give me the name and author of the articles that have that
18 analysis?
19 A Yes. I may have it here or Jim may.
20 (Discussion off the record.)
21 MR. GROSSMAN: While he's looking, so I think
22 I'll -- who do you anticipate as your first witness on
23 Monday? I know you have Ms. Cordry listed for the need
24 issue, but I didn't know whether you were actually, since
25 she's not going to be out of order any more, whether you're

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1 going to lead off with her or not.
2 MS. ROSENFELD: We will. She's prepared.
3 MS. CORDRY: And is it okay if Mr. Flynn still
4 wants to get on his --
5 MR. GROSSMAN: Okay.
6 MS. CORDRY: -- motorcycles journeys, we would,
7 so --
8 MS. HARRIS: Well, actually Mr. Flynn isn't on his
9 motorcycle, but we have a, somebody else to sit in for Mr.
10 Flynn.
11 MR. GROSSMAN: Okay.
12 MS. HARRIS: Can I follow-up on that question?
13 MR. GROSSMAN: In like Flynn is that --
14 MS. HARRIS: Do they expect, how long, do they
15 expect to cover anyone else on Monday? That would be
16 helpful to know.
17 MR. GROSSMAN: All right. Mr. Sheveiko is listed
18 as No. 2. Is he, assuming that you finish?
19 MS. ROSENFELD: He's not, he's not going to be
20 available on Monday.
21 MS. CORDRY: I expect it to be a long day. I
22 don't know if I would be all day, but we will --
23 MR. GROSSMAN: You've only allocated five minutes
24 for your testimony.
25 MS. CORDRY: I think it will take a little longer

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1 than that, though.
2 MR. GROSSMAN: Are you going to testify both as to
3 need in your other --
4 MS. CORDRY: No.
5 MR. GROSSMAN: So you're solely addressing need?
6 Okay. And so who do you, Mr. Sheveiko is not going to be --
7 Mr. Silverman is listed No. 3.
8 MS. ROSENFELD: Yes, generally, we're, the Stop
9 Costco Gas Coalition is going to present its witnesses
10 followed by Kensington Heights.
11 MS. ADELMAN: I don't have the list in front of
12 me.
13 MS. HARRIS: The list indicates Karen and, Dan,
14 and Larry Silverman and Diane Cameron.
15 MR. GROSSMAN: Yes, I think that Ms. Cameron from
16 her email expects to be testifying on Monday. So I think we
17 should let her do that if she's coming in.
18 THE WITNESS: Michele, I don't know your last
19 name, I'm sorry.
20 MS. ROSENFELD: Rosenfeld.
21 THE WITNESS: What?
22 MS. ROSENFELD: Rosenfeld.
23 THE WITNESS: Rosenfeld. Ms. Rosenfeld, I'm not
24 immediately finding it, but I know that I have it. I've got
25 six Panofex folders to go through and I can produce it and

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1 will be happy to.
2 MR. GROSSMAN: Okay. Will you send a copy, email
3 a copy to counsel?
4 THE WITNESS: To my counsel and they will get it
5 to everybody else?
6 MR. GROSSMAN: Right. Thank you. All right.
7 BY MS. ROSENFELD:
8 Q Dr. Chase, would you agree that generally this is
9 an area that is not very well studied?
10 A Do I agree with what?
11 MR. GROSSMAN: That this is an area that's not
12 very well studied?
13 THE WITNESS: Yes, I agree with that and I noticed
14 several of the authors that have, some of whom have already
15 been mentioned, have made the same observation, that it's
16 not well understood, it's not been well-studied. There's
17 contradictory findings. There's a lack of consensus, but
18 they did the studies anyway. But they pointed out -- the
19 office typically are pretty candid about omitting the
20 limitations to the study design and came out --
21 MS. ROSENFELD: Okay.
22 THE WITNESS: -- in that spirit.
23 MS. ROSENFELD: Thank you.
24 MR. GROSSMAN: Dr. Chase, may I have the list of
25 the OSHA figures that you just gave? I think you put it

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1 over here and I can put it in the record as an exhibit.
2 Thank you, sir.
3 THE WITNESS: That should be six or seven pages.
4 (Discussion off the record.)
5 THE WITNESS: And they should match this master
6 list from the EPA.
7 MR. GROSSMAN: Yes, seven pages. All right.
8 THE WITNESS: That's the totality. They
9 correspond to the NAAQS are summarized on this one page and
10 so we were able to find what other regulatory --
11 MR. GROSSMAN: Yes.
12 THE WITNESS: -- agencies.
13 MR. GROSSMAN: I think this is a copy of what we
14 already have --
15 THE WITNESS: I think it is.
16 MR. GROSSMAN: -- in the record. Let me just take
17 a quick look.
18 THE WITNESS: In fact, I think you have my
19 original.
20 MR. GROSSMAN: Probably.
21 THE WITNESS: That's all right. We can print
22 another one out.
23 MR. GROSSMAN: Yes, there's a copy of what we do
24 have. So I'll give that back to you. Okay. So this will
25 be Exhibit 287 and are these, by the way, are these figures

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1 actually OSHA regulations or are they just suggested figures
2 from ACGIH?
3 THE WITNESS: Well, the column, sir, you'll see
4 that the second column in is labeled OSHA.
5 MR. GROSSMAN: Right.
6 THE WITNESS: The other columns are not labeled
7 OSHA. Those are, in fact, one of the columns is from
8 Germany, but it's often, the German standards are often
9 cited.
10 MR. GROSSMAN: All right. But when you labeled
11 it, when the column was labeled OSHA, does that mean that's
12 an OSHA regulation, an enforceable regulation?
13 THE WITNESS: And that's currently in effect.
14 MR. GROSSMAN: Okay.
15 THE WITNESS: It's from the 2013 version of the
16 manual I described.
17 MR. GROSSMAN: Okay. So we'll call this OSHA
18 regulations re ambient air quality for workers.
19 THE WITNESS: Will I get a copy of that back, Mr.
20 Grossman?
21 MR. GROSSMAN: I can make a copy for you, sir.
22 THE WITNESS: Thank you.
23 MR. GROSSMAN: Would you remind me when you're
24 finished today?
25 THE WITNESS: What?

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1 MR. GROSSMAN: Would you remind me to do that?
2 THE WITNESS: Okay.
3 MR. GROSSMAN: Thank you. This will be Exhibit
4 287. Okay.
5 (Exhibit No. 287 was marked for
6 identification.)
7 BY MS. ROSENFELD:
8 Q Dr. Chase, you've testified about variety of
9 pollutants that we're all becoming very familiar with, the
10 CO, the lead, the NO2, the ozone. Do these chemicals when
11 in the air interact with each other?
12 A Interact?
13 Q Interact with each other? For example, can they
14 create other pollutants or can they combine to become
15 stronger pollutants of themselves?
16 A Some can and others can't.
17 Q So, for example --
18 A Lead can't.
19 Q Lead can't?
20 A But NO2 can give off ozone.
21 Q And does that fact potentially create more
22 hazardous air, air pollution?
23 A Not as I understand it. I believe David Sullivan
24 testified that if you look at NO2 and ozone throughout the
25 day, in the early part of the day you'll see a rise in NO2

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1 and then later in the day the NO2 comes down, but the ozone
2 goes up. He had testified to it or he mentioned it to me.
3 Q And is there a greater health effect, adverse
4 health effect if you are breathing multiple types of
5 pollutants as opposed to just a single kind of pollutant?
6 A If I understood you right, you're asking me is
7 there a greater health effect if you're breathing more of
8 these?
9 MR. GROSSMAN: Multiple.
10 MS. ROSENFELD: For, right. For example --
11 THE WITNESS: Multiple?
12 MR. GROSSMAN: Multiple.
13 MS. ROSENFELD: -- a combination of NO, the NO2
14 ozone and PM2.5?
15 THE WITNESS: Not at the levels we're talking
16 about, no.
17 BY MS. ROSENFELD:
18 Q In general?
19 A In general, it's theoretically possible, but you
20 would need much higher levels.
21 Q What kind of levels would you need?
22 A Much higher than the standards that EPA had set,
23 which are, in turn, are much lower than OSHA standards and
24 ACGIH recommended standards.
25 Q And is that --

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1 MR. GROSSMAN: I heard you say much lower than.
2 Do you mean more stringent, that the OZAH is a more
3 stringent standard than --
4 THE WITNESS: The EPA --
5 MR. GROSSMAN: Well, the EPA is a more stringent
6 standard?
7 THE WITNESS: -- is the most stringent. It's the
8 most protective and I believe that's always been true, but
9 there's a rationale for that because they have a charge of
10 protecting the most vulnerable segments of our population as
11 opposed to healthy workers. But sometimes the differences
12 are enormous, like a hundred fold or a thousand fold.
13 MS. ROSENFELD: Mr. Grossman, I would like to hand
14 out, this is a short printout from the U.S. Department of
15 Labor.
16 MR. GROSSMAN: Thank you.
17 MS. ROSENFELD: And if we could mark these as an
18 exhibit?
19 MR. GROSSMAN: Okay. This will be Exhibit 288.
20 (Exhibit No. 288 was marked for
21 identification.)
22 THE WITNESS: Mr. Grossman --
23 MR. GROSSMAN: Yes, sir?
24 THE WITNESS: -- can I borrow back that exhibit
25 for a moment?

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1 MR. GROSSMAN: Certainly.
2 (Discussion off the record.)
3 MR. GROSSMAN: Are you going to have any other
4 exhibits, by the way? I just want to know if I should stop
5 writing in the margins on the exhibit list and create a new
6 page here.
7 MS. ROSENFELD: I think a couple.
8 MR. GROSSMAN: All right.
9 THE WITNESS: You've handed me a document from
10 OSHA that talks about nitrogen dioxide.
11 MS. ROSENFELD: That's correct.
12 BY MS. ROSENFELD:
13 Q And on this sheet it says exposure limits and
14 health effects and it has the OSHA permissible exposure
15 limit. It also talks about National Institute for
16 Occupational Safety and Health, Recommended Exposure Limit.
17 Are you familiar with that organization?
18 A Yes, and that's on the exhibit 287 that I handed
19 Mr. Grossman.
20 Q And what role does, the acronym is NIOSH, what
21 role does NIOSH have with respect to these exposures?
22 A Well, what NIOSH does not have is it doesn't have
23 enforcement authority, but NIOSH does a lot of relevant
24 research in the field, the fields of occupational safety and
25 health and makes recommendations which are often more

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1 restrictive than what OSHA already has in place. In this
2 case, the differences are between five and one. OSHA has a
3 ceiling of five parts per million and NIOSH thinks the
4 short-term exposure limit should be one part per million.
5 Q And what exposure does the American Conference of
6 Governmental Industrial Hygienists recommend?
7 A .2 parts per million.
8 Q And the very bottom list, is that California's
9 OSHA?
10 A But the ACTIH is different than what you're saying
11 from OSHA and NIOSH because that .2 parts per million is an
12 eight hour time weighted average, not a ceiling or a short-
13 term exposure limit.
14 Q And do you know when that .2 parts per million
15 standard was adopted by ACGIH?
16 A Where or when?
17 Q When? When?
18 A No, I know it's in the current edition and I have
19 some older editions back in my office but, no, I do not
20 know.
21 Q Does 2012 sound right to you? Does 2012 sound
22 right to you, that it was adopted in 2012?
23 MR. GOECKE: I think he just testified he doesn't
24 know.
25 THE WITNESS: Well --

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1 MR. GROSSMAN: I think he can, she can refresh his
2 recollection if you can.
3 (Discussion off the record.)
4 THE WITNESS: That wouldn't surprise me. That's
5 very recent, obviously. It wouldn't surprise me in part
6 because I know that EPA never had a one hour exposure limit
7 until 2010, I think April 2010, which was also pretty
8 recent. And my understanding is that the potential hazards
9 with nitrogen dioxide were not well-recognized until recent
10 years and that's why we're seeing activity now.
11 BY MS. ROSENFELD:
12 Q And do you know when OSHA last updated its NO2
13 standard?
14 A I did, but I don't know if I remember offhand.
15 Q Would it be fair to say that they've never updated
16 it?
17 A It's conceivable. I don't know.
18 (Discussion off the record.)
19 THE WITNESS: Like I said before, OSHA still
20 doesn't have an eight hour standard for NO2.
21 BY MS. ROSENFELD:
22 Q Does the 1970's sound right for the last time OSHA
23 updated or implemented an NO2 standard?
24 A I don't know.
25 MR. GROSSMAN: You mentioned that the NO2 standard

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1 for OSHA is called short-term, five parts per million.
2 What's considered short-term?
3 THE WITNESS: I believe it's 15 minutes, either 15
4 or 30, not more than 30.
5 MR. GROSSMAN: I was just trying to get some sense
6 of comparison with the EPA one hour standard of 100 parts
7 per billion, which I guess compares to the OSHA standard of
8 5,000 parts per billion. Am I --
9 THE WITNESS: The EPA says 100 parts per billion,
10 not --
11 MR. GROSSMAN: Yes.
12 THE WITNESS: -- not one.
13 MR. GROSSMAN: Yes, I, yes, 100 parts per billion
14 on the one hour standard, right?
15 THE WITNESS: Correct.
16 MR. GROSSMAN: And that compares to, if I'm
17 reading it correctly, the OSHA standard of five parts per
18 million, which would, I guess, translate to 5,000 parts per
19 billion, is that correct?
20 THE WITNESS: Exactly. In other words, it's a 50-
21 fold difference.
22 MR. GROSSMAN: Right.
23 THE WITNESS: But the time frames are --
24 MR. GROSSMAN: That's what I was trying to get, an
25 idea of the time frame, not --

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1 THE WITNESS: -- are not identical and --
2 MR. GROSSMAN: -- identical.
3 THE WITNESS: -- I was, I was trying to figure out
4 how do I normalize for that?
5 MR. GROSSMAN: Right. How do you normalize for
6 that?
7 THE WITNESS: I don't know.
8 MR. GROSSMAN: Okay. All right.
9 BY MS. ROSENFELD:
10 Q So under OSHA where it says permissible exposure
11 limit, what time frame is that?
12 A For OSHA? For the STEL, which is short-term
13 exposure limit, that's either 15 or 30 minutes. I think
14 it's 15. But I didn't, I didn't tell you yet, I'll tell
15 you now, that in addition to that STEL limit, OSHA also has
16 a, it's called a ceiling limit of nine parts per million and
17 ceiling means not to exceed period.
18 Q On this Exhibit 288 that I handed out to you, this
19 is a publication, as I understand it, United States
20 Department of Labor, OSHA. Do they look to NIOSH and the
21 American Conference of Governmental Industrial Hygienists
22 for guidance? Is that why this information would be
23 contained on their publication?
24 A I've read it and it doesn't disagree with what I
25 handed, the exhibit I handed Dr. Grossman. It's consistent

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1 with it, but I'm not sure I understood your question. OSHA,
2 this is an OSHA publication and they're acknowledging that
3 NIOSH and ACGIH have different limits than OSHA currently
4 does.
5 Q Does OSHA have certain posting requirements? Does
6 it require that certain pollution levels be posted in work
7 places?
8 A I don't know the details, but I believe they do.
9 Q And do you know if they require any of these non-
10 OSHA standards to be listed on those publications?
11 A If OSHA requires non-OSHA standards to be
12 published? No.
13 Q You don't know or they don't?
14 A I don't know.
15 Q Okay.
16 A I would guess that carbon monoxide would be a good
17 example of something that it would post.
18 Q I'm sorry, I --
19 A I'm guessing that, I guess I shouldn't be
20 guessing, but I'm guessing carbon monoxide would be a good
21 example of something that should be posted.
22 Q Okay.
23 (Discussion off the record.)
24 BY MS. ROSENFELD:
25 Q If they did require it, do you know why they would

1 require it?
 2 A Posting?
 3 Q Yes.
 4 A Well, for the example that I gave, carbon monoxide
 5 can kill you. It's potentially lethal at a high enough
 6 level in a relatively short period of time. My
 7 understanding is you can survive exposure to excessive
 8 levels of carbon monoxide for a few hours, but not much
 9 longer than that. And then if you're lucky, you lose
 10 consciousness, you're taken to the emergency room, the
 11 diagnosis is made, it's pretty easy to make, and you're
 12 treated appropriately and you can resume a normal life --
 13 Q And so --
 14 A -- if you're lucky.
 15 Q So there would be a benefit to posting the lower
 16 levels, is that correct?
 17 A It might be, maybe, yes.
 18 MS. CORDRY: I'm sorry, were you talking about
 19 lower level or higher level because I thought you were
 20 talking about high levels of carbon monoxide?
 21 THE WITNESS: I don't think I said either.
 22 MS. CORDRY: Okay.
 23 THE WITNESS: But I can rephrase.
 24 MR. GOECKE: That's okay.
 25 MR. GROSSMAN: Where is this getting us, posting

1 and not posting and --
 2 MS. ROSENFELD: The question is whether or not
 3 OSHA recognizes these other guidelines. Even though OSHA has
 4 not yet adopted them, does OSHA recognize them as legitimate
 5 indicators of unhealthy pollution levels?
 6 MR. GROSSMAN: And when you say these other
 7 guidelines, which are you referring to?
 8 MS. ROSENFELD: I would be referring, for example,
 9 to the NIOSH limits and the American Conference of
 10 Governmental Industrial Hygienist levels.
 11 MR. GROSSMAN: All right.
 12 (Discussion off the record.)
 13 THE WITNESS: Ms., can I respond to you, Ms.
 14 Rosenfeld?
 15 MS. ROSENFELD: Yes.
 16 MR. GROSSMAN: Yes.
 17 THE WITNESS: I would be happy to do so. Some of
 18 these are standards and some of these are guidelines. The
 19 OSHA numbers that you see on here are standard. NIOSH is
 20 not a standard. It's a recommendation. ACGIH is not a
 21 standard. And the status of CAL OSHA, which is also on this
 22 table, I think, is a standard. States are permitted to
 23 adopt stricter exposure limits than OSHA. The same is true
 24 with respect, with regard to EPA.
 25 BY MS. ROSENFELD:

1 Q Notwithstanding the OSHA levels for the one hour
 2 NO2, workers who are the station attendants at the gas
 3 station itself, if they are exposed to NO2 at or above the
 4 EPA levels, would they suffer potentially adverse health
 5 effects?
 6 A Well, I don't know what the basis for that
 7 hypothetical is. My understanding is that the vapor
 8 recovery systems intended to be used in this Costco gas
 9 station, as well as modern technology in automobiles, have
 10 reduced NO2 levels drastically and it's extremely unlikely
 11 that a gas station attendant would be, overcome, pardon me,
 12 affected by NO2. And I've never heard of a case and I've
 13 never seen a case, and I've done a lot of work with the
 14 American Petroleum Institute in years past and I would have
 15 expected to have seen it in medical journals.
 16 Q Well, Mr. Sullivan's November 2012 report, his
 17 updated numbers reflect a potentially as high as 388 one
 18 hour NO2 levels under one analysis and his high is 414.
 19 Hypothetically speaking is someone were exposed to those
 20 levels --
 21 A 388 didn't come from Sullivan.
 22 Q I proffer to you that it did and we've discussed
 23 it extensively. In his most recent report when he corrected
 24 his numbers from his November 2012 report, those were the
 25 numbers that he provided.

1 A 388 up to what?
 2 MR. GROSSMAN: Yes. Well, to be entirely fair to
 3 the witness, what Mr. Sullivan testified to was that if you
 4 didn't use the, his current assumptions, which he used his
 5 old assumptions which he said were very conservative and not
 6 as realistic, but you corrected for the math error that he
 7 had made, then you could get the kinds of figures you are
 8 talking about.
 9 MS. ROSENFELD: That's right.
 10 MR. GROSSMAN: Right. So --
 11 MS. ROSENFELD: And --
 12 MR. GROSSMAN: -- I just wanted to make sure the
 13 witness understands that.
 14 THE WITNESS: Well, that number, I believe, came
 15 from Dr. Cole, but I don't think I'll find it in Dr.
 16 Sullivan's, David Sullivan's latest report dated August 16,
 17 2013.
 18 MR. GROSSMAN: No. What he's saying in his latest
 19 report is that he has changed some assumptions that he
 20 originally made which, but what Ms. Rosenfeld was asking
 21 you, if you were to apply the original assumptions that Mr.
 22 Sullivan made and you would see those levels, maybe a
 23 clearer way to ask it is just ask about the levels.
 24 MS. ROSENFELD: It's just a hypothetical.
 25 MR. GROSSMAN: Just ask, he's the health witness.

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1 Forget about Mr. Sullivan.
2 MS. ROSENFELD: Sure.
3 MR. GROSSMAN: Just ask him if hypothetically
4 there were levels of and --
5 BY MS. ROSENFELD:
6 Q If hypothetically there were levels of 388 NO2
7 under EPA's one hour standard, what health effects would you
8 expect a person to feel?
9 A Oh, I could provide a caveat to my answer, I'm
10 going to say none, but I've been practicing occupational
11 medicine for 35 years both in a full-time academic setting
12 and in an active private practice and I've never seen a
13 single patient with such an exposure scenario who was
14 symptomatic.
15 Q And when EPA imposed the one hour standard, was
16 that based on scientific analysis or scientific study that
17 you know of?
18 A My understanding was that it was based on
19 relatively recent recognition that asthmatic children are
20 unusually sensitive to short-term, relatively short-term
21 exposure to NO2 and prior to 2010, EPA did not have a one
22 hour standard for NO2. It had an annual standard and it
23 still does, but it didn't have a --
24 Q And was that recognized just with respect to
25 asthmatic children or would that apply as well to anybody,

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1 adult or child, with asthma?
2 A I'm assuming that could apply to adults with
3 chronic bronchitis or emphysema as it, as listed on the CAL
4 OSHA, or probably the OSHA document that you gave me.
5 Q And what about cardiac problems?
6 A I don't see any mention of cardiac here and I'm
7 not -- I have not read that elsewhere.
8 MS. CORDRY: Can he identify what he means by
9 here, what he's looking at when he's saying he doesn't see
10 that here?
11 MR. GROSSMAN: What are you reading when you say
12 you don't see it here? What are you looking at, an exhibit?
13 THE WITNESS: The document that she --
14 MS. CORDRY: Oh.
15 MR. GROSSMAN: Exhibit 288.
16 THE WITNESS: -- showed me. It shows them both
17 right here. Is it 288?
18 BY MS. ROSENFELD:
19 Q And is that your complete understanding of the
20 potential health effects of NO2 at the one hour standard?
21 A What is the question?
22 Q Is that your total understanding of the potential
23 adverse health effects of NO2 at the one hour standard?
24 A Yes, it's a respiratory irritant at relatively low
25 levels.

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1 Q Do you know if --
2 A EPA chose to use a one hour standard of 100 parts
3 per billion and they also have an annual standard of 53
4 parts per billion.
5 Q And do you know if EPA has established whether
6 there's any known, safe thresholds for NO2?
7 A Any known what?
8 Q Safe threshold.
9 A Yes, I think I'm looking at it on the document
10 that, the document that he gave me, Exhibit 288.
11 Q Okay. So it's your testimony that --
12 A I'm sorry, you said EPA, didn't you?
13 Q Yes, I did.
14 A Okay. I mis-spoke. I don't mean Exhibit 288.
15 MR. GROSSMAN: 277?
16 THE WITNESS: Is that what -- 277.
17 MS. CORDRY: 287?
18 MR. GROSSMAN: 277.
19 MS. ADELMAN: 277.
20 MR. GROSSMAN: That's the NAAQS standard.
21 THE COURT: That's the standard. Is he saying
22 that that's -- I think the question was a little different,
23 but --
24 BY MS. ROSENFELD:
25 Q Is it your testimony then that the, it's -- you

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1 understand the EPA's safe threshold is the one that is set
2 for the one hour standard?
3 A Yes, and as we discussed before, these were,
4 divide that by the 22 experts from all of the country and
5 multiple disciplines that form the CASAC Committee.
6 Q And in your opinion could an individual suffer
7 adverse health effects at something lower than the EPA one
8 hour standard?
9 A Very unlikely, but there's nothing that -- there's
10 nothing that doesn't have a threshold. I think I gave
11 sunlight as an example on Monday. I would say the same for
12 noise.
13 Q Did EPA set the one hour standard due to emergency
14 room visits in an area that met the annual standard of 53
15 parts per billion?
16 A In part. I say only in part because I think some
17 of the literature that I've looked at, and I'm sure CASAC
18 looked at it far more than I did, mentioned increased
19 emergency room visits and hospital admissions for those who
20 were exposed at higher levels.
21 MR. GROSSMAN: Ms. Rosenfeld, I --
22 MS. ROSENFELD: Higher --
23 MR. GROSSMAN: -- we are approaching the time at
24 which we have to --
25 MS. ROSENFELD: Yes, what time --

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1 MR. GROSSMAN: -- quit.
2 MS. ROSENFELD: -- is it?
3 MR. GROSSMAN: It's now 22 and --
4 MS. ROSENFELD: Okay.
5 MR. GROSSMAN: -- so what -- how much more do you
6 think you have?
7 (Discussion off the record.)
8 THE WITNESS: Mr. Grossman --
9 MR. GROSSMAN: Yes, sir? Thank you.
10 (Discussion off the record.)
11 BY MS. ROSENFELD:
12 Q So is it your view that OSHA considers its current
13 pollution levels to be safe?
14 MR. GROSSMAN: I just want to, I want to get some
15 idea of how much more you have.
16 MS. ROSENFELD: Oh, I'm sorry. I'm sorry. This
17 question, one exhibit and a couple of follow-up questions.
18 MR. GROSSMAN: Three more questions? All right.
19 Well, I'll -- if we can finish this witness, I'll --
20 MS. ROSENFELD: Yes. That's the whole --
21 MR. GROSSMAN: -- be a little late if necessary.
22 So come on, let's --
23 THE WITNESS: My answer is not across the board.
24 A good example would be silica, silica exposure causes death
25 and disease in thousands of people.

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1 BY MS. ROSENFELD:
2 Q I'm really, my question really goes to the
3 pollutants that are at issue in this case, the NO2, the
4 ozone, the PM2.5.
5 MR. GROSSMAN: So what's your question, that's
6 your question, ma'am?
7 BY MS. ROSENFELD:
8 Q Is it your opinion that OSHA considers its
9 exposure limits to be safe limits?
10 A I think the answer to that is complex because it
11 would vary substance by substance, including the ones that
12 are part of the NAAQS. I wanted to bring up silica because
13 they overlooked updating the silica standards since 1971,
14 but they're finally getting around to doing it.
15 Q And but for the NAAQS, the National Ambient Air
16 Quality -- the pollutants that are regulated by the National
17 Ambient Air Quality Standards, the ozone, the NO2, the CO,
18 ozone?
19 A Yes, but there's some big differences between the
20 allowable exposure levels set by NAAQS and those set by
21 OSHA.
22 MR. GROSSMAN: But I think she's asking you to
23 assume --
24 MS. ROSENFELD: I'm asking you --
25 MR. GROSSMAN: -- do you think that OSHA's levels,

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1 the levels that OSHA set are levels at which OSHA thinks are
2 safe, is that --
3 MS. ROSENFELD: That's right. Protecting the
4 health.
5 THE WITNESS: Not across the board.
6 (Discussion off the record.)
7 MS. ROSENFELD: Okay. This would be the last
8 exhibit for the day.
9 MR. GROSSMAN: All right. That's 289.
10 (Exhibit No. 289 was marked for
11 identification.)
12 MS. ROSENFELD: And this is a publication from the
13 United States Department of Labor, October 15, 2010. These
14 are excerpts.
15 BY MS. ROSENFELD:
16 Q Under regulatory activities, it says,
17 "In addition, we are making progress on
18 finding a new way forward to address our
19 seriously outdated, permissible exposure
20 limits, PEL's. As many of you are no doubt
21 aware, many of these standard were adopted in
22 the 1970's based on science from the 1950's
23 and '60's. Science has moved on and we now
24 know that significant dangers exist at lower
25 exposure levels than was thought almost half

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1 a century ago."
2 Would you agree that the exposure limits set by
3 OSHA, in fact, are not sufficiently protective of human
4 health?
5 A Not across the board, which is what --
6 Q What about for --
7 A -- which is the same answer I gave you before.
8 Q What about for NO2?
9 A I don't, I don't know. I already testified that
10 they don't have -- they're missing an eight hour time
11 weighted average exposure limit. They do have ceiling
12 limits that are presumably based on scientific literature,
13 but probably not is my answer.
14 MS. ROSENFELD: I have no further questions.
15 MR. GROSSMAN: Is there any redirect?
16 MR. GOECKE: No redirect.
17 MR. GROSSMAN: All right. Thank you very much,
18 Dr. Chase.
19 THE WITNESS: You're welcome.
20 MR. GROSSMAN: And before you leave, we'll try to
21 get my staff to make a copy of that.
22 THE WITNESS: Thank you.
23 MR. GROSSMAN: Thank you. All right. So we are -
24 - yes?
25 MS. ROSENFELD: A quick question, not for the

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1 witness. Can you send to me the information of whoever it
2 is who is going to be following Karen's lead testimony?
3 MR. GROSSMAN: What do you mean following?
4 MS. CORDRY: No.
5 MS. HARRIS: Dr. Chase is our last witness.
6 MS. CORDRY: No, no, no.
7 MS. ROSENFELD: No, no, no, I don't mean
8 following. Who is potentially the rebuttal witness for
9 Karen's lead testimony? If you could just send me whatever
10 information?
11 MS. CORDRY: Who is critiquing or -- who is going
12 to be sitting there? Who is going to be the --
13 MS. ROSENFELD: Is it Mr. Flynn?
14 MS. CORDRY: Who is going to be Mr. Flynn?
15 MS. HARRIS: Joe Cronin will be sitting there, but
16 when it comes time to put in our rebuttal witnesses, it will
17 be Mr. Flynn if necessary.
18 MS. ROSENFELD: But he's gone for three months.
19 MS. ADELMAN: But he's gone.
20 MS. CORDRY: I wish I could be gone for three
21 months.
22 MS. HARRIS: I know. Well --
23 MR. SILVERMAN: We'll be here. We'll be here.
24 MS. HARRIS: Mr. Grossman --
25 MR. GROSSMAN: Mercy me. All right.

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1 MS. HARRIS: Mr. Grossman --
2 MR. GROSSMAN: Yes?
3 MS. HARRIS: -- we never finished the conversation
4 about the witness list order, which is at the last meeting,
5 or one of the last hearings, we were, Ms. Rosenfeld
6 indicated that this is the order and now she's somewhat
7 suggested it may not be. And so for our preparation
8 purposes, it would be helpful to know the order.
9 MR. GROSSMAN: All right. Well, we are certainly
10 going to start out with Ms. Cordry and she says that she's
11 going to take more than the five minutes I allotted her. So
12 when we finish with her, we're going to have -- Ms. Cameron,
13 in her email, indicated she expects to testify, so we know
14 that Ms. Cameron --
15 MS. ADELMAN: Excuse me, Mr. Grossman. I did
16 email her on -- where are we today?
17 MR. SILVERMAN: Friday.
18 MR. GROSSMAN: What's today? Friday.
19 MS. ADELMAN: And we're on Wednesday, could say it
20 didn't like she would be on on the third. So that's a
21 little layer of complexity which I wasn't assuming, I guess,
22 in the office at home.
23 MR. GROSSMAN: Thank you.
24 MS. ADELMAN: And I'll let you know. If Ms.
25 Cameron, as she has submitted her graphic, if she is -- I

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1 know she's prepared. The question is has she redone her
2 schedule because of what I said. If that's the case, then
3 I'm going to try for Patton Malruvey (phonetic sp.) because
4 Larry Silverman will get, he will not be present and neither
5 will Dan Sheveiko.
6 MS. HARRIS: Okay. So it will be Ms. Cordry and
7 then either Diane Cameron or Pat Malruvey?
8 MS. ADELMAN: Pat Malruvey, right.
9 MS. HARRIS: Okay. And then if by the end of --
10 that's fine. Okay.
11 MR. SILVERMAN: When is our next meeting after the
12 23rd?
13 MR. GROSSMAN: You might think of having still one
14 additional witness because it's quite possible that we'll
15 get to a third witness. We sometimes get to all the
16 witnesses in one day in some hearings.
17 MS. HARRIS: Sometimes we finish the case in one
18 day.
19 MR. GROSSMAN: So -- right. It does happen.
20 (Discussion off the record.)
21 MS. CORDRY: Well, we'll see what we can do.
22 MS. HARRIS: Well --
23 MR. GROSSMAN: Well --
24 MS. HARRIS: -- we need to know.
25 MR. GOECKE: We need to know because we have to

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1 prepare.
2 MR. GROSSMAN: Well, they need to know. It's
3 Friday and we're talking about Monday.
4 MS. CORDRY: Well, that's -- I've got a lot to
5 say.
6 MS. HARRIS: How long do you expect your direct
7 testimony to be?
8 MS. CORDRY: At least the whole morning, maybe
9 more.
10 MS. ADELMAN: So if I understand correctly, and I
11 think the maximum amount of time that would be available
12 after Ms. Cordry is finished is two hours, is that fair to
13 say?
14 MS. HARRIS: Repeat that please?
15 MR. GROSSMAN: I guess it depends on the length of
16 the cross-examination for that. You know, I'm not sure how
17 long that would be. So --
18 MS. ADELMAN: Okay.
19 MR. GROSSMAN: So I would like to have just one
20 additional witness. Well, hopefully, Ms. Cameron will be
21 first and so we'll have Cameron and Malruvey and then that
22 probably ought to do it. And I think what we would do is
23 try to adjust the testimony, the schedule around Ms. Cameron
24 if she's here. Is that agreeable to everybody?
25 MS. HARRIS: Yes.

1 MR. GROSSMAN: I don't think she should take that
 2 long.
 3 MS. HARRIS: Yes. In fact, if she's here, she
 4 could go first and the same for Ms. -- yes.
 5 MR. GROSSMAN: Is that agreeable --
 6 MS. HARRIS: And Mr. Malruvey.
 7 MR. GROSSMAN: -- Ms. Cordry?
 8 MS. CORDRY: First, you mean before?
 9 MR. GROSSMAN: It may even be before Ms. Cordry
 10 just so that -- because it's somebody who is not going to be
 11 here on a regular basis. That's all. Well, I'll let you
 12 decide that and you can have, you can do it either way, but
 13 I was just trying to be, for her convenience, okay?
 14 (Discussion off the record.)
 15 MS. CORDRY: I think we would prefer going the
 16 other way because there was sort of a flow to the way --
 17 MR. GROSSMAN: Okay.
 18 MS. CORDRY: -- we were going.
 19 MR. GROSSMAN: All right. Well, we'll let you
 20 flow then. All right then, if there's nothing else, we are
 21 adjourned. We'll see you Monday morning and start out with
 22 Ms. Cordry.
 23 MS. ROSENFELD: We did finish two witnesses today.
 24 MR. GROSSMAN: That was excellent. I want to
 25 praise everybody involved.

1 MR. SILVERMAN: Thank you.
 2 MR. GOECKE: Thank you. Have a good weekend.
 3 MS. HARRIS: Thank you.
 4 (Whereupon, at 4:52 p.m., the hearing was
 5 adjourned.)
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. Digitally signed by Tracy M. Hahn

ELECTRONIC CERTIFICATE

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 in the matter
 of:

Petition of Costco Wholesale Corporation
 Local Map Amendment No. S-2863
 Office of Zoning and Administration Hearings No. 13-12

By:

 Tracy M. Hahn, Transcriber

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|---|---|---|--|---|
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| <p style="text-align: center;">A</p> <p>Abigail (1) 5:16</p> <p>ability (1) 14:1</p> <p>able (6) 21:18;79:3;125:17; 155:1;191:10;219:10</p> <p>above (5) 29:16;47:20;103:2; 143:16;232:3</p> <p>AC (1) 211:20</p> <p>academic (1) 234:11</p> <p>accept (5) 95:21,21,23;200:22, 22</p> <p>acceptable (1) 16:6</p> <p>accepted (6) 8:16;21:16;73:14; 99:8;138:11;205:22</p> <p>accessible (1) 191:23</p> <p>accommodate (5) 15:17;16:8;34:24; 36:3;186:4</p> <p>accordance (2) 95:8;138:2</p> <p>according (2) 41:17;200:25</p> <p>accordingly (1) 7:7</p> <p>account (3) 90:6;147:1;182:9</p> <p>accuracy (13) 11:13;12:15;13:2; 22:13,14,15;27:12; 96:24;99:11,14; 100:13;137:4;186:4</p> <p>accurate (27) 9:16;24:17;28:7; 31:13;48:19;74:7; 96:22,25;97:2,9,13,15, 16,21;101:15;109:20; 110:4,22;137:2;</p> | <p>acknowledging (1) 229:2</p> <p>acronym (1) 224:20</p> <p>across (9) 41:18;47:7;94:18; 128:7;141:7;214:19; 238:23;240:5;241:5</p> <p>act (2) 6:24;7:7</p> <p>acted (1) 35:7</p> <p>ACTIH (1) 225:10</p> <p>action (2) 47:25;51:19</p> <p>active (1) 234:12</p> <p>activities (4) 47:10;84:16;203:8; 240:16</p> <p>activity (3) 57:15;205:8;226:10</p> <p>actual (8) 42:4;91:21;92:15; 105:3;140:7;143:2; 146:4;174:15</p> <p>actually (27) 18:12;21:7;24:1; 32:18;46:3,12,13; 59:12;73:11;93:12; 101:14,25;130:13,18; 131:1;132:8;134:5; 148:14;149:10;150:10; 172:8;196:3,21; 199:20;215:24;216:8; 220:1</p> <p>add (24) 22:9;57:22;61:16; 79:3;139:4,7,9,13,17, 19,20;140:6,9;142:1,2, 11;143:1,14;144:6,12; 195:25;198:10,11; 203:25</p> <p>added (1) 35:6</p> | <p>adding (5) 20:4;22:8;47:23; 142:20;144:11</p> <p>addition (6) 35:1;57:19;75:11; 143:2;228:15;240:17</p> <p>additional (4) 56:18;207:8;244:14; 245:20</p> <p>address (4) 30:18;164:2;200:19; 240:18</p> <p>addressed (4) 7:18;15:3;28:21; 192:8</p> <p>addressing (1) 217:5</p> <p>Adelman (19) 5:16,16,18,19,21; 6:23;7:9;176:5;201:20, 22;217:11;236:19; 242:19;243:15,19,24; 244:8;245:10,18</p> <p>adjourned (2) 246:21;247:5</p> <p>adjust (3) 70:3;147:23;245:23</p> <p>adjusted (1) 167:25</p> <p>adjustment (3) 94:14;130:9;167:24</p> <p>adjustments (2) 95:5;168:12</p> <p>administrator (1) 83:17</p> <p>admissions (1) 237:19</p> <p>admit (1) 213:19</p> <p>admitted (1) 86:8</p> <p>adopt (1) 231:23</p> <p>adopted (4) 225:15,22;231:4; 240:21</p> <p>adult (1) 235:1</p> <p>adults (1) 235:2</p> <p>advance (2) 71:20;158:11</p> <p>adverse (9) 82:12;120:4,11; 124:21;193:2;222:3; 232:4;235:23;237:7</p> <p>affect (7) 37:11;53:5;69:12,16; 77:6,8;106:1</p> <p>affected (4) 47:13;172:5;174:21; 232:12</p> <p>affidavit (9)</p> | <p>158:11;159:10; 160:24;161:5;162:1, 17;164:14,16;195:18</p> <p>affirmative (1) 6:7</p> <p>afternoon (3) 102:10;169:8;201:23</p> <p>again (40) 4:15;6:19;11:5,6; 19:7,22;22:22;36:7; 47:11;53:19;54:1;68:7; 76:4;77:6;83:22;88:11; 91:24,25;93:21;96:21; 100:9;121:15;124:17; 127:18;137:3;138:3, 23;139:21;140:22,24; 141:23;142:25;143:14; 145:23;157:24;160:8; 171:14;183:21;195:8; 212:10</p> <p>against (1) 63:13</p> <p>agencies (4) 12:8;84:17,18; 219:12</p> <p>agency (4) 20:25;73:20;81:4; 83:21</p> <p>agency's (1) 59:5</p> <p>ago (7) 32:12,18;41:2;61:11; 88:12;154:12;241:1</p> <p>agree (16) 28:19;29:18;33:13; 78:24;95:14;96:14,21; 99:5;100:5,24;121:17; 145:15;218:8,10,13; 241:2</p> <p>agreeable (2) 245:24;246:5</p> <p>agreed (3) 33:14;35:8;82:17</p> <p>agreement (4) 33:11;34:9;95:10; 210:2</p> <p>agrees (1) 72:20</p> <p>ahead (4) 30:1;36:14;53:2; 80:4</p> <p>aimed (1) 12:8</p> <p>air (94) 8:9,22;10:2,10,17; 11:7,16,22;13:13; 27:22;28:10;29:16,17; 34:7,17,18;45:23;46:8; 47:21;49:4;53:10;58:6, 8;60:2,12,14;61:20; 63:5;67:20;69:10,12, 16;71:6;81:14;83:9; 84:2;85:18,25;88:14;</p> | <p>92:16,17;93:5;99:23; 106:16,25;107:6; 108:6;120:25;121:19; 122:6;123:2,11,15,21; 124:5,14,17,22;125:6, 7,8,9,11,17;126:7; 128:12;131:19;135:11, 12,13;137:17;154:6; 181:16;182:14;185:25; 189:6;193:14;202:4,8, 23,24;203:1;207:18, 24;210:11;212:4,20, 24;220:18;221:11,22, 22;239:15,17</p> <p>airborne (1) 212:1</p> <p>airport (2) 35:19;135:22</p> <p>Alexandria (1) 138:11</p> <p>allegations (1) 58:25</p> <p>alleging (1) 50:4</p> <p>allergy (1) 125:14</p> <p>allocate (1) 91:20</p> <p>allocated (2) 57:6;216:23</p> <p>allotted (1) 243:11</p> <p>allow (4) 4:6;25:5;210:6,7</p> <p>allowable (1) 239:20</p> <p>allowed (7) 13:13;17:8;45:18; 49:18;53:6;175:3,4</p> <p>allows (2) 9:2;20:1</p> <p>Almost (5) 39:17;75:16;189:21; 215:10;240:25</p> <p>alone (1) 99:2</p> <p>along (2) 18:8;30:20</p> <p>aloud (1) 106:20</p> <p>alternative (1) 73:21</p> <p>alternatives (2) 153:20;154:1</p> <p>although (1) 208:13</p> <p>alveoli (1) 212:3</p> <p>always (17) 11:9;14:7;33:5;39:8; 66:9;67:23;83:6;107:6; 109:21;113:11;118:24; 138:5;144:15;187:6;</p> |

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