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ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:) AS 02-5
) (NPDES Adjusted Standard)
PETITION OF NOVEON, INC.,) (Not Consolidated)
FOR AN ADJUSTED STANDARD FROM)
35 ILL. ADM. CODE 304.122) Volume

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STATE OF ILLINOIS
Pollution Control Board

The following is the transcript of a hearing held in the above-entitled matter, taken stenographically by Gale G. Everhart, CSR-RPR, and Jennifer E. Johnson, CSR, RMR, CRR, notary publics within and for the Counties of Peoria and Tazewell and State of Illinois, before Bradley P. Halloran, Hearing Officer, at 122 North Prairie Street, Lacon, Illinois, on the 18th day of February, A.D. 2004, commencing at 9:05 a.m.

1 PRESENT:

2 HEARING TAKEN BEFORE:
3 ILLINOIS POLLUTION CONTROL BOARD
4 100 West Randolph Street
5 James R. Thompson Center, Suite 11-500
6 Chicago, Illinois 60601
(312) 814-8917
7 BY: MR. BRADLEY P. HALLORAN, ESQUIRE

8 APPEARANCES:

9 GARDNER, CARTON & DOUGLAS
10 BY: RICHARD J. KISSEL, ESQUIRE
11 MARK LATHAM, ESQUIRE
12 SHEILA H. DEELY, ESQUIRE
13 Attorneys at Law
14 191 North Wacker Drive, Suite 3700
15 Chicago, Illinois 60606-1698
16 (312) 569-1442
17 On Behalf of the Petitioner.

18 ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
19 BY: DEBORAH J. WILLIAMS, ESQUIRE
20 Attorney at Law
21 1021 North Grand Avenue East,
22 Springfield, Illinois 62794
23 (217) 782-5544
24 On Behalf of the Respondent.

ALSO PRESENT:

Richard Pinneo
Lorraine Robinson
David Giffin
Michael R. Corn
Anand Rao
Nicholas J. Melas
Alisa Liu
Chen H. Lin
William L. Goodfellow, Jr.
Linda M. Shaw
Kenneth J. Willings
Members of the public and press

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1 HEARING OFFICER HALLORAN: Thank you. Good
2 morning. My name is Bradley Halloran. I am a hearing
3 officer with the Illinois Pollution Control Board. I'm
4 also assigned to this matter entitled Adjusted Standard
5 02-5. It's entitled In The Matter of Petitioner Noveon,
6 Inc., for an Adjusted Standard From 35 Illinois
7 Administrative Code 304.122. This hearing is continued
8 from yesterday.

9 The petitioner was putting on his case in
10 chief. I believed we finished with one witness at that
11 time, Mr. Giffin. And I do want to note that it's my
12 pleasure to announce that we have member Nick Melas
13 here, and we have technical advisors Anand Rao and Alisa
14 Liu. All three may or may not be asking questions
15 during the hearing itself.

16 Again, we are going to run this hearing
17 pursuant to section 104.400 to 104.428 under the Board's
18 rules.

19 With that said, any preliminary motions,
20 Mr. Kissel?

21 MR. KISSEL: No. We still have the issue of the
22 transcript and the testimony from the permit appeal, but
23 why don't we wait on that until we begin the testimony.
24 We can always deal with that at some time. If that's

1 okay with Debbie?

2 MS. WILLIAMS: I did my homework. So I'm ready to
3 talk about it any time.

4 HEARING OFFICER HALLORAN: Thank you very much,
5 Ms. Williams.

6 MR. KISSEL: Why don't we go forward with the
7 testimony so we can get that out of the way.

8 HEARING OFFICER HALLORAN: I guess, for the record,
9 do you want to introduce yourselves again?

10 MR. KISSEL: My name is Richard Kissel of the law
11 firm Gardner, Carton & Douglas. To my right is Mark
12 Latham, also of that firm, and to my left is Sheila
13 Deely, also of that firm. We represent Noveon, Inc.

14 HEARING OFFICER HALLORAN: Thank you.

15 MS. WILLIAMS: Good morning. I am Deborah
16 Williams. I'm assistant counsel with the Illinois EPA.
17 And I have with me again today Lorraine Robinson, my
18 legal investigator, and Rick Pinneo, to my left,
19 Environmental Protection engineer and serving as my
20 technical advisor in this matter.

21 HEARING OFFICER HALLORAN: Thank you. And it looks
22 like there might be one or two members of the public.
23 Again, as I stated yesterday, the Board welcomes and, in
24 fact, encourages public comment, anything that's

1 relevant to the matter at hand. So raise your hand or
2 during a short break come up and talk to me and we can
3 get you up in the chair and you can state your piece.

4 With that said, Mr. Kissel, you may proceed.

5 (Witness sworn.)

6 MR. KISSEL: Before beginning this testimony,
7 Mr. Hearing Officer, he has pre-prepared testimony which
8 we filed with the Board. And the question was raised
9 yesterday as to whether we want him to read that
10 testimony or put it in the record as though read and
11 then, again, whatever additional questions we have and
12 then cross-examination. I have no particular
13 preference.

14 Obviously, not having him read the testimony
15 saves the Board and the rest of the people time. We do
16 have copies of his testimony available for review for
17 those members of the public. My suggestion -- I'll just
18 leave that as it is. I don't know how the IEPA feels
19 about it or whatever.

20 HEARING OFFICER HALLORAN: Ms. Williams?

21 MS. WILLIAMS: I think primarily, like Mr. Kissel
22 said, it's whatever is easier for the Board to process
23 and what works for the members of the public present. I
24 guess I think maybe it would be best to ask them whether

1 they prefer to be able to read the stuff when they go
2 home or whether they want to hear it here today to help
3 them provide their comments.

4 HEARING OFFICER HALLORAN: I think -- and, again,
5 we want to accommodate the members of the public, but I
6 have full confidence that they can read the written
7 testimony. And unless I'm mistaken -- I guess I will
8 ask the public. Anybody in the public have any thought
9 one way or another if, in fact, Mr. Flippin and a few of
10 the other witnesses sit up here and read verbatim what
11 will be available to you shortly or just leaving the
12 written testimony on a table you can pick it up and read
13 it yourself? Would that be fine? Do I see any hands?
14 Yes, sir?

15 AUDIENCE MEMBER: I would like to have a written
16 copy.

17 HEARING OFFICER HALLORAN: Yes, sir?

18 AUDIENCE MEMBER: I would as well.

19 HEARING OFFICER HALLORAN: We have three written
20 copies. So I guess, Mr. Kissel, we will just go ahead
21 and leave copies of the prefiled written testimony. And
22 then we will leave it at that and you can do your
23 summary questioning of Mr. Flippin.

24 Yes, sir?

1 AUDIENCE MEMBER: Could we have the copies
2 available now as the cross-examination takes place?

3 HEARING OFFICER HALLORAN: Sure.

4 MS. WILLIAMS: What about exhibits? Are exhibits
5 included?

6 MS. DEELY: We don't have copies of all the
7 exhibits, but we do have the testimony.

8 HEARING OFFICER HALLORAN: The exhibits will be at
9 the Board office in Chicago. In fact, quite a few of
10 them might be able to get online. It's just a page. I
11 think they scan them.

12 T. HOUSTON FLIPPIN, P.E., DEE,
13 called as a witness, after being first duly sworn, was
14 examined and testified upon his oath as follows:

15 DIRECT EXAMINATION

16 BY MR. KISSEL:

17 Q Would you identify yourself for the record,
18 please?

19 A Yes. I'm Thomas Houston Flippin.

20 Q Mr. Flippin, I show you what has been marked
21 as Petitioner's Exhibit -- what number are we on?

22 HEARING OFFICER HALLORAN: Number 7.

23 Q For Adjusted Standard 02-5, and ask you to
24 tell me what that is.

1 A This is the written testimony which I have
2 prepared.

3 Q Did you prepare that yourself?

4 A I did.

5 Q And is that a true and correct copy of the
6 document you prepared?

7 A It is.

8 Q Can you verify that what is in there is true
9 and correct?

10 A Yes, I can.

11 MR. KISSEL: I move the admission of the testimony,
12 and I would like it included as though read.

13 HEARING OFFICER HALLORAN: Ms. Williams?

14 MS. WILLIAMS: I have no objection.

15 HEARING OFFICER HALLORAN: That is admitted and the
16 record will so reflect that it is admitted into evidence
17 as if so read.

18 Q Mr. Flippin, I ask you to identify this
19 document which has been marked as Petitioner's Exhibit 8
20 in the Adjusted Standard 02-5.

21 A This is a copy of my resume which I have
22 prepared.

23 Q Is that a true and correct copy?

24 A It is.

1 Q And is the information contained therein
2 accurate, true and correct?

3 A It is.

4 MR. KISSEL: I move the admission of Exhibit 8.

5 HEARING OFFICER HALLORAN: Ms. Williams?

6 MS. WILLIAMS: We have no objection to that.

7 HEARING OFFICER HALLORAN: Exhibit Number 8 is
8 admitted.

9 Q Mr. Flippin, I show you what has been marked
10 as Petitioner's Exhibit 9 for the Adjusted Standard
11 hearing 02-5. Would you please give a brief description
12 of what that is?

13 A Be glad to. This is a collection of articles
14 that came from a literature search dealing with the
15 topic of mercaptobenziothiazole, also referred to in my
16 testimony as MBT. And in this collection of articles
17 what you will find is an article by Grady, Les Grady and
18 Mel Hockenbury that references previous work by
19 Tomlinson and others that describe MBT as being an
20 inhibitor to biological nitrification.

21 Q And where did you get those articles, that
22 series of articles?

23 A These articles came from a literature search.
24 One being from the Journal of the Water Pollution

1 Control Federation, that being the Hockenbury and Grady
2 article. Another article came -- I apologize for not
3 mentioning this in my initial statement -- another
4 article describing MBT as a nitrification inhibitor came
5 from the National Corn Handbook. And the last article
6 is one that Grady built his work on, Grady and
7 Hockenbury, and it came from the Journal -- this article
8 came from the Journal of Applied Bacteriology.

9 Q And are those articles published in
10 recognized journals in your profession?

11 A Yes, sir, they are.

12 Q Did you rely on those articles in preparing
13 your testimony?

14 A I did.

15 MR. KISSEL: I move the admission of Petitioner's
16 Exhibit Number 9.

17 MS. WILLIAMS: No objection.

18 HEARING OFFICER HALLORAN: Petitioner's Exhibit
19 Number 9 is admitted into evidence.

20 Q I show what has been marked as Petitioner's
21 Exhibit Number 10 in the Adjusted Standard 02-5 and ask
22 you to briefly describe what that is, please.

23 A This exhibit actually is contained in the one
24 we just processed. And, again, it's an article written

1 in the National Corn Handbook describing how MBT can be
2 used as a biological nitrification inhibitor in
3 fertilizers.

4 Q Is that the National Corn -- what is it, the
5 National --

6 A The National Corn Handbook.

7 Q Is that a journal that is relied upon in your
8 business and trade?

9 A It is.

10 Q And did you rely upon that article in
11 preparing your testimony today?

12 A I did.

13 MR. KISSEL: I move the admission of Petitioner's
14 Exhibit Number 10.

15 MS. WILLIAMS: We don't have a copy of it.

16 MR. KISSEL: Do you want to take a look at it? We
17 will wait until she looks at it. I will go on if that's
18 okay.

19 Q The next three exhibits, Mr. Flippin, I will
20 ask you as I would have if you had testified with your
21 written statement to explain a little more. But in any
22 case, first let's identify them. And I show you what
23 has been marked as Petitioner's Exhibit 11 and ask you
24 to tell me what that is, please.

1 A This is a summary report that I prepared on
2 May 17th, 2002. And what this report did is it
3 summarized our findings about alternative treatment
4 technologies that would be applicable for reducing
5 effluent ammonia-nitrogen from the Noveon-Henry plant.
6 In this exhibit you will find not only the
7 description --

8 Q Before going into that, just describe it so
9 we can get it into evidence.

10 A Right. It's basically a summary of
11 alternative technologies, their operating costs, their
12 capital costs and their present worth costs for reducing
13 effluent ammonia-nitrogen.

14 Q Did you prepare that document?

15 A I did.

16 Q What did you rely on to prepare that?

17 A I relied on waste load information entering
18 the primary treatment system at the Noveon-Henry plant.
19 I relied on final effluent quality being discharged from
20 the Noveon-Henry plant. I relied upon my own process
21 design development capabilities. And I relied upon the
22 assistance of other engineers as well as construction
23 costs estimators within our company and knowledge of
24 the -- my working knowledge of the site, the

1 Noveon-Henry plant.

2 Q Did you -- does that document contain true
3 and correct information?

4 A It does.

5 MR. KISSEL: I move the admission of Exhibit Number
6 11.

7 MS. WILLIAMS: Can I ask a couple questions? First
8 of all, do you want to clarify for the Board that this
9 is the same exhibit that's number 7 for the Petitioner,
10 is that correct, Exhibit 7 to the Petition for Adjusted
11 Standard; is that correct?

12 MS. DEELY: Yes. That's what it is.

13 MS. WILLIAMS: Would it be possible for the witness
14 to clarify what data he meant that he used as a basis
15 for these numbers as far as where we could find that
16 information elsewhere in the record?

17 THE WITNESS: The data that I used in developing
18 this waste load and used in developing the designs and
19 the cost estimates within this document, let's take,
20 first of all, the waste load being discharged to the
21 primary treatment system. That data stated in the
22 exhibit was individual waste stream data gathered in
23 1995 which, in discussing this data with the
24 Noveon-Henry plant staff, is not significantly different

1 from what would be present today.

2 The effluent data that I used and have
3 summarized is data that was gathered during 1999 through
4 2000. And, again, it would not be anticipated after
5 talking with the plant staff, particularly Guy Davids
6 and Dave Giffin, it would not be expected to be
7 appreciably different today.

8 MS. WILLIAMS: I have no objection to this exhibit
9 with those clarifications.

10 HEARING OFFICER HALLORAN: So what about the
11 Petitioner's Exhibit Number 10?

12 MS. WILLIAMS: That's fine, too.

13 HEARING OFFICER HALLORAN: Okay. Petitioner's
14 Exhibit Numbers 10 and 11 are admitted into evidence.

15 Q Mr. Flippin, please look at Petitioner's
16 Exhibit 11 which is in evidence. And would you briefly
17 describe what is contained therein and some of the
18 conclusions you came to?

19 A Yes. Be glad to. First of all, let me say
20 that what you are seeing if you had this document in
21 front of you is a listing of what I'll call all proven
22 technologies for effluent ammonia reduction. And in
23 this list you will see alkaline air stripping. You will
24 see that applied to the PC tank, the PVC tank and the

1 secondary clarifier effluent. In alkaline air stripping
2 you basically convert the ammonia in the wastewater to a
3 gas, and then you strip it off. Next you will see a
4 technology known as struvite precipitation; ammonia can
5 be precipitated. It can be precipitated as struvite
6 which is essentially ammonium magnesium phosphate. Next
7 you will see breakpoint chlorination of a secondary
8 clarifier effluent. In that process ammonia is oxidized
9 to nitrogen gas. Next you will see nitrification of the
10 nonNoveon wastewaters also called the PVC tank
11 wastewaters. You will see biological nitrification or
12 combined nitrification in a single stage of both the
13 Noveon wastewaters and the nonNoveon wastewaters called
14 the PVC tank wastewaters. When I speak of nonNoveon
15 wastewaters, please let me remind you that at the site
16 there are two companies that share a wastewater
17 treatment facility. One being the Noveon plant, the
18 other one being the PolyOne plant formerly known as
19 Geon, formerly known as BF Goodrich.

20 Then you will see a treatment called ion
21 exchange treatment which basically is a resins columns
22 system where either sodium or hydrogen, and in our case
23 we picked a hydrogen resin, where the resin releases
24 hydrogen in order to, if you will, take hold of the

1 ammonia ion in solution.

2 Lastly, you will see ozonation of the final
3 effluent. And in a similar way as chlorine, ozone has
4 the opportunity to oxidize ammonia to nitrogen gas which
5 then leaves as a gas. In nitrification a second -- the
6 last option listed, which is number 10, is nitrification
7 of secondary clarifier effluent, also called tertiary
8 nitrification. We considered that. We believe these
9 are the proven technologies for effluent ammonia
10 reduction.

11 Q At the Henry facility?

12 A At the Noveon-Henry facility.

13 Q These are on page 2 of Petitioner's Exhibit
14 11, you list the technologies and they are listed under
15 bullet points; is that correct?

16 A That is true.

17 Q To the right of each technology is a number?

18 A Yes, sir.

19 Q To what does that number correspond in the
20 later document?

21 A In the later document what those numbers
22 correspond to are headings of tables where we present
23 what we believe to be the capital cost required to
24 install those technologies at the Noveon-Henry plant,

1 and those numbers also are presented in tables where we
2 present what we believe to be the annual operating and
3 maintenance costs that would be incurred if those
4 technologies were installed at the Noveon-Henry plant.

5 Q Let's take one of the options. Which option
6 would you prefer to discuss to give an example of what
7 this does?

8 A The easiest one -- let's just take number 1.

9 Q Okay.

10 A Using number 1, which is alkaline air
11 stripping of the PC tank contents with off-gas
12 collection and treatment. Let me first of all say that
13 when you strip ammonia or you strip volatile amines
14 which later can, in biological treatment, be converted
15 to ammonia, when you strip those, you cannot help but
16 also strip other volatiles. And the Noveon-Henry plant
17 analysis of air quality would indicate that if this
18 option were employed you would have to cover the PVC
19 tank and collect the off-gas and treat that off-gas to
20 maintain air permit compliance. So if you look in table
21 3, what you will see --

22 Q What is the title of that?

23 A The table 3 is entitled Capital Cost
24 Estimates for Treatment Alternatives. And what you will

1 see there is, we believe, that the pretreatment -- we
2 broke these costs in terms -- we split these costs out
3 in terms of pretreatment, primary treatment and
4 secondary treatment and tertiary treatment depending on
5 where the treatment option was employed. If it was
6 employed prior to primary clarification in treatment, it
7 was called pretreatment. If it was employed during the
8 primary treatment process, it was called primary
9 treatment. If it was employed as part of the activated
10 sludge treatment system that they already have in place,
11 it was termed secondary treatment. If it was employed
12 downstream of the secondary clarifier, it was called
13 tertiary treatment.

14 In this case the treatment would be employed
15 ahead of the primary treatment system; therefore, it was
16 termed pretreatment. We believe the capital costs of
17 installing that treatment system equipment-wise was
18 \$650,000 or .65 million. All of the terms in this table
19 are presented in millions of dollars. So the subtotal
20 for the equipment and materials were \$.65 million. We
21 then added to that what we believe was going to be
22 involved in site work and interface piping costs. And
23 those costs, if you will, were not rule-of-thumb
24 numbers. Those were calculated numbers based on knowing

1 the proximity of the PC tank to where you could place an
2 off-gas treatment device and the proximity of the PC
3 tank to the primary treatment system. So that was not a
4 rule-of-thumb number. It was actually a calculated
5 number for site work and interface piping of \$100,000.
6 The electrical and instrumentation costs, again, was a
7 calculated number, not a rule-of-thumb number. It was
8 based on the proximity of this treatment device to
9 available electrical power on the Noveon-Henry plant
10 site. That was an additional \$250,000 or .25 million.

11 Now you are going to see a list of terms
12 called "contractor indirects." Anytime a contractor
13 installs a piece of equipment he will have indirect
14 costs that he passes through to the purchaser or to the
15 buyer of this system. You will also see the costs for
16 engineering of this system and the construction
17 management of this system during its installation and
18 construction. And you will see a term called
19 "performance bonds." And most projects of this nature
20 require a performance bond. The percentages listed for
21 contractor indirects, engineering and construction
22 management and performance bonds are conventional
23 numbers used for projects of this type.

24 Lastly, when you sum those up, you get \$1.17

1 million. And what that represents is the constructed
2 costs if all run smoothly. And you always have a
3 contingency in an installed-cost estimate. This type of
4 project, we believe the 15 percent contingency was a
5 reasonable number. That 15 percent represents .18 or
6 \$180,000, .18 million or \$180,000. When you sum it all
7 up, including the contingency, you get what we would
8 call a total-installed cost and that is \$1.35 million
9 for what we are calling alternative number 1, which is
10 alkaline air stripping of PC tank contents with off-gas
11 collection and treatment.

12 Q Did you do the same thing for alternatives 2
13 through 10 as well?

14 A Yes, we did.

15 Q So the total-installed costs for those
16 particular alternatives are listed under their number?

17 A They are.

18 Q And done on the same basis that you talked
19 about number 1?

20 A Exactly.

21 Q Now in addition to the information on table 3
22 there, you turn a couple of pages into your exhibit,
23 there is a document entitled Figure 1 Block Flow Diagram
24 of Waste Stream Sources and WWTF. Can you tell us what

1 that is?

2 A Yes. What that is is an illustration of the
3 current wastewater treatment facility provided at the
4 Noveon-Henry plant.

5 Q Is that referred to in your testimony as
6 Figure 1?

7 A It is.

8 Q Now I'm looking at the next page. There is a
9 Figure 2. Can you tell us what that is?

10 A Yes, I can. What that is is a block flow
11 diagram of alkaline air stripping of the alkaline air
12 stripping treatment alternatives that range from
13 applying that technology to the PC tank contents as we
14 just discussed, applying that to the PVC tank contents
15 and applying that to the secondary clarifier effluent.

16 Q So am I correct in saying that if you looked
17 at Figure 2, you see the block flow diagram for the
18 various treatment alternatives numbered 1, 2 and 3; is
19 that correct?

20 A Yes, sir, that's true.

21 Q And that is, there are flow diagrams or block
22 flow diagrams in this exhibit for each of the
23 alternatives 1 through 10?

24 A There are. And one thing that should be

1 noted about these block flow diagrams, the existing
2 equipment in these block flow diagrams is listed in bold
3 and the new equipment is listed in a nonbolded line. So
4 that would help people know what would have to be
5 installed to implement the alternative.

6 Q Turn to the next page, page 3 of Petitioner's
7 Exhibit 11 and look at table 4. Will you tell the Board
8 what that is and use alternative number 1 again, please.

9 A Be glad to. That is the annual operating and
10 maintenance cost estimates for the treatment
11 alternatives listed 1 through 10. And under number 1,
12 if you will, what you will see is the annual O and M
13 costs listed in terms of thousand dollar increments.
14 So, for example, the labor cost associated with
15 operating alternative number 1 we estimated to be
16 \$32,000 a year. That was based on a labor cost of \$40
17 an hour which includes benefits. We estimated it would
18 cost \$64,000 a year using an electrical cost of 6 cents
19 per kilowatt hours.

20 HEARING OFFICER HALLORAN: You may continue,
21 Mr. Flippin.

22 A We estimated natural gas cost of this
23 alternative to be \$18,000 a year, and that is based on 6
24 cents per therm. Then we estimated a maintenance

1 materials cost --

2 Q Before -- there are other costs that are
3 listed that are not applicable to alternative 1. Just
4 describe those briefly.

5 A Exactly. Thanks. The chemical costs that we
6 use here is actually the chemical costs -- we calculated
7 quantity of chemicals that would be needed and then used
8 actual costs that Noveon pays for those chemicals at the
9 time this document was written. Then there is a resin
10 replacement cost, and at the time this document was
11 written, the resin replacement cost if ion exchange had
12 been chosen would have been \$35 per cubic foot.

13 On off-site disposal costs, that value used
14 there again referred to the ion exchange process
15 primarily. And that was based on a conventional value
16 and a typical and common value of 10 cents per gallon
17 for off-site disposal. For maintenance materials cost,
18 which was part of alternative number 1, we used a
19 conventional value of 5 percent of the equipment costs
20 to calculate the annual O and M maintenance cost. And
21 for alternative 1 that would have been \$17,000 a year.
22 The next is the subtotal of what I will call the cost we
23 are able to define at this point. And that subtotal
24 cost was \$130,000 a year. And what you know when you do

1 these annual O and M cost estimates is you are bound to
2 have missed something. And so we added a contingency
3 here of 10 percent which is quite reasonable. And 10
4 percent, needless to say, on \$130,000 a year is \$13,000
5 a year contingency.

6 When you sum all that up, you get a total
7 annual operating cost of \$143,000 a year. And we
8 made -- we calculated that same total annual cost for
9 all 10 alternatives.

10 Q So, for example, if for alternative number 8,
11 which is ion exchange treatment of effluent -- of final
12 effluent, the annual operating cost is \$576,000?

13 A Yes, sir.

14 Q Now can you describe table 5 for us and why
15 you have that table in there.

16 A I can. If you want to know what anything
17 costs you, it's not just what you pay to have it
18 installed, it's also what you pay to keep it going. And
19 so you have got to know when you build something how
20 much money do you need in the bank today, to not only
21 build it, but to keep it running. And that is called
22 present worth cost. And so anytime you make a
23 comparison of any treatment process and, candidly,
24 anything that has an installed cost and continuing

1 operating cost, it must be done on a present-worth-cost
2 basis, that comparison, so you genuinely will know how
3 they compare. That comparison, again, defines what you
4 must have in your pocket today to fund that process.
5 And in this table -- and it's called comparison of
6 present worth cost and ammonia removal for treatment
7 alternatives. And those costs were calculated for 1
8 through 10. The first column, a row in this table, is
9 the pounds per day of ammonia reduced through the use of
10 this process. The next column --

11 Q Would you describe that for alternative
12 number 1, please, what we have been following through
13 this?

14 A Be glad to. For alternative number 1 we
15 calculated an estimated 247 pounds per day of effluent
16 ammonia reduction if this process were installed and
17 operating. The next row is the ammonia removal
18 expressed in a percentage. If this process were
19 installed while removing 247 pounds per day on average,
20 it would reduce the average effluent ammonia discharge
21 by 27 percent. The present worth cost of installing
22 this alternative is expressed in term of capital costs
23 which, if you remember earlier, we said would cost \$1.35
24 million to install, and it's present-worth-operating and

1 maintenance cost based on a 10-year project life, based
2 on an annual interest rate of 8 percent, and based that
3 at the conclusion of that 10 years of having no salvage
4 value, it's operating and maintenance cost would require
5 \$960,000 in the bank today to fund it over the next 10
6 years.

7 Q Mr. Flippin, there is no present worth cost
8 assigned to the capital cost because it is assumed that
9 it is paid on construction; is that correct?

10 A That is true.

11 Q If it was financed there would be an
12 additional cost as a result of that for the financing?

13 A That is true.

14 Q Or the lack of use of that capital for other
15 things, correct?

16 A Yes, sir.

17 Q And you use a 10-year period. Is that
18 customary?

19 A The reason the 10-year period was used, if
20 you look at the life of concrete tanks and other things
21 like that, most would use a longer period of time.
22 However, if you look at the cost of equipment like air
23 strippers or pots of, if you will, that type of
24 equipment, a 10-year life is not an unusual life. And

1 so a 10-year life, if you will, was considered to be a
2 minimum term in project life. Candidly, had we used a
3 longer life, it would have made our present worth costs
4 for operation and maintenance higher. So when I present
5 the total present worth cost for these alternatives,
6 please understand that these are minimum total present
7 worth costs because of the life that I chose of 10
8 years.

9 Q Have others used longer lives in assessing
10 present worth costs for waste treatment facilities?

11 A Yes, sir, they have.

12 Q How high or low have they gone?

13 A The highest that I have seen, most -- let me
14 say the conventional practice is to use a life no longer
15 than 30 years, some use 20.

16 Q And, generally speaking, what happens when
17 you use a longer life?

18 A It makes the present worth cost of the annual
19 O and M, operation and maintenance cost, much higher.

20 Q That was not -- you used 10 years which makes
21 it lower than 30 years, is what I'm saying?

22 A And makes it lower than 20 years as well.

23 Q I show you what has been marked as
24 Petitioner's Exhibit 12. Would you tell us what that

1 is, please?

2 A Yes, I will. This exhibit is our attempt to
3 quantify what the present worth cost would be if we were
4 to provide incremental reduction of effluent
5 ammonia-nitrogen.

6 Q Did you prepare this exhibit?

7 A I did.

8 Q Are the data expressed therein true and
9 correct to the best of your knowledge?

10 A They are.

11 MR. KISSEL: I move the admission of Petitioner's
12 Exhibit 12.

13 MS. WILLIAMS: Is this attached to this testimony?

14 MR. KISSEL: Yeah. Yes, it is. It should be.

15 MS. WILLIAMS: What exhibit was it to the
16 testimony?

17 MS. DEELY: It was Exhibit D.

18 MS. WILLIAMS: I don't see anything to object to.

19 HEARING OFFICER HALLORAN: Petitioner's Exhibit
20 Number 12 is admitted. And, also, while we are on that
21 subject of exhibits, I'm missing Petitioner's Exhibit
22 Number 10. I think Ms. Williams was taking a look at
23 that.

24 MR. KISSEL: I think you admitted that into

1 evidence.

2 MS. WILLIAMS: I gave that back.

3 HEARING OFFICER HALLORAN: I don't have it
4 physically.

5 MS. WILLIAMS: You gave it to me to look at, and
6 then I gave it back.

7 (Brief pause in proceedings.)

8 HEARING OFFICER HALLORAN: Thank you.

9 MR. KISSEL: Are 11 and 12 in evidence?

10 HEARING OFFICER HALLORAN: 11 and 12 are in
11 evidence, correct.

12 MR. KISSEL: Okay. Thank you.

13 Q How many pages does Exhibit 12 consist of,
14 Mr. Flippin?

15 A Two pages.

16 Q Would you take a representative technology
17 and run through the particular table?

18 A I will be glad to. Let's talk about one that
19 has where we looked at incremental removal to make
20 matters easier. Is that reasonable?

21 Q Yes.

22 A Effluent stripping, this is basically taking
23 the secondary clarifier effluent, elevating the pH to
24 approximately 10-1/2 or up to 11, and placement through

1 the air strippers. The intent of that is to strip the
2 effluent ammonia from the liquid phase into the air.
3 And if you will notice in this option we are not
4 providing off-gas treatment. So in this table it's
5 called effluent stripping with no off-gas treatment.

6 Q Looking at the first page of Petitioner's
7 Exhibit 12, with the line that starts "WWTF component,"
8 it starts with the third line, "effluent stripping"?

9 A It starts with the --

10 Q The fourth line.

11 A Right. The third line, we did also look at
12 what the cost would be if we were to provide off-gas
13 treatment. But you are right, it starts with a fourth
14 line which is "effluent stripping without off-gas
15 treatment."

16 Q Will you describe that line?

17 A Be glad to. That line, if you will, assumes
18 that we can strip 98 percent of the effluent ammonia
19 being discharged into the air. The next column is based
20 on the cost of stripping 75 percent of the ammonia into
21 the air. The next column is based on stripping 50
22 percent of the effluent ammonia into the air, and the
23 next column is based on stripping 25 percent of the
24 effluent ammonia into the air.

1 Q Would you take -- let's take the 75 percent
2 removal, for example. Would you just go down briefly
3 through the line below that to explain how you came to
4 the various numbers therein?

5 A Glad to. The labor hours we believe to
6 operate this system would be 1,300 labor hours a year.
7 At the \$40 per hour labor costs that are previously
8 explained, that would be \$52,000 a year in labor. The
9 power requirement for this alternative is 450
10 horsepower. The kilowatt hours, just basically
11 converting the 450 horsepower are 2,940,732 kilowatt
12 hours for an annual electrical cost at 6 cents per
13 kilowatt hour of \$176,444. The maintenance materials
14 costs, again, based on 5 percent of the
15 equipment -- capital equipment costs, is 101,000 --
16 sorry, \$1,013,600 and expressed as an annual cost, that
17 would be \$50,680 per year over the 10-year project life.

18 For chemical costs, let me say that these
19 chemical costs on the front end, Noveon has done an
20 excellent job in negotiating good chemical costs. These
21 chemical costs would be higher for many people. For
22 caustic condition Noveon would be at \$240 per ton for 50
23 percent caustic. In this alternative Noveon would be
24 spending \$434,000 a year in caustic. And when you raise

1 the pH up to approximately 11 to strip the ammonia, you
2 have to lower the pH to at least 8-1/2 before you
3 discharge it to maintain effluent permit compliance. So
4 we also have acid condition here to lower the pH, and
5 Noveon's cost at this time was \$46 per ton for 98
6 percent sulphuric acid. We believe the annual cost
7 incurred for the acid addition is \$119,850.

8 When you sum -- and we also -- in some of
9 these alternatives we needed to add phosphorus. In some
10 of these alternatives we use, we looked at adding
11 magnesium hydroxide. In some of these alternatives we
12 looked at adding hydrochloric acid. In some of these
13 alternatives we looked at adding chlorine gas. And I
14 have listed the chemical cost that we assume for each of
15 those. And I say "assume," those are what we believe
16 the Henry plant would need to pay for each of those.

17 The annual chemical cost was \$553,850 a year.
18 The next column that you see is Annual Resin Replacement
19 Cost, Annual Off-Site Disposal Cost, Natural Gas Cost in
20 which this stripping alternative did not have any of
21 those. We then calculated the subtotal of the annual
22 cost, and for this alternative it would be for labor,
23 electrical, maintenance materials and chemical costs.
24 The annual operating cost would be \$832,974. We added a

1 contingency, as I described earlier, on the annual O and
2 M cost of 10 percent because you almost always leave
3 something out. And that contingency was \$83,297. The
4 total annual operating and maintenance cost we estimated
5 for this alternative to be \$916,271. And when that was
6 converted to a present worth value, what you would need
7 to have in the bank today to fund that annual operating
8 and maintenance cost over the next 10 years at an 8
9 percent interest rate, you would need to have in the
10 bank today \$6,148,181. The capital cost for this
11 alternative was \$3,770,418. And so the total present
12 worth cost, that is, adding the present worth annual
13 operating and maintenance cost, plus adding the capital
14 costs, the total present worth cost was \$9,918,599. The
15 average ammonia removal that we believe this process
16 would provide was 648 pounds per day, again, resulting
17 in approximately a 75 percent removal. The present
18 worth cost expressed in dollars needed in the bank today
19 per pound of ammonia that would be removed over this
20 10-year project life is the cost we calculated which was
21 \$4.20 per pound. Let me explain one more time how
22 that's calculated. You take the total present worth
23 cost, what you must have in the bank today to install
24 this process and to operate this process over the next

1 10 years, and then you calculate, during that 10-year
2 period, how much ammonia you would remove. And that's
3 simply the pounds per day of ammonia removed, times 365
4 days per year, times 10 years. And so you have the
5 total pounds of ammonia removed, the total present worth
6 cost during that 10-year period. You divide the two and
7 you get \$4.20 present worth dollars per pound of ammonia
8 removed.

9 Q You take the annual amount of ammonia removed
10 and divide it? You didn't do it that way, did you? You
11 used the entire 10 years?

12 A I did.

13 Q How many technologies in Exhibit 12 did you
14 evaluate for this incremental approach?

15 A We evaluated a total of 10 technologies. And
16 for the incremental approach we evaluated three.

17 Q That is effluent stripping with no off-gas,
18 effluent ion exchange and tertiary nitrification?

19 A Yes, sir.

20 Q And those latter two appear on page two of
21 the exhibit?

22 A Yes, sir.

23 Q Thank you.

24 Mr. Flippin, I show you what has been marked

1 as Petitioner's Exhibit Number 13 for identification.

2 A Yes, sir. This is a document that I
3 prepared, and the title of this document is the
4 Comparison of Costs and Removal of Effluent Ammonia
5 Removal Processes for the Noveon-Henry plant, the
6 Noveon-Henry wastewater treatment facility with a
7 10-year project life. And then I also repeated the same
8 calculations with a 20-year project life.

9 HEARING OFFICER HALLORAN: Mr. Kissel, do you have
10 Exhibit 12 that's been admitted?

11 MR. KISSEL: I believe so. This is the --

12 HEARING OFFICER HALLORAN: Thank you.

13 A And then --

14 Q Let me, just so we make the record clear, the
15 10-year project life appears on the first two pages of
16 the exhibit; is that correct?

17 A That is correct.

18 Q And the 20-year project life appears on the
19 next two pages?

20 A That is correct.

21 Q And the next four pages is what?

22 A The next four pages is a comparison of
23 removals and reliability of effluent ammonia removal
24 processes for the Noveon-Henry wastewater treatment

1 facility. And in this document we list each technology,
2 what we believe to be the average effluent ammonia
3 reduction that can be achieved with that process. We
4 then give it a -- each process a reliability rating.
5 And the reliability rating, basically 10 would be the
6 highest and zero would be the lowest. And reliability
7 was based on our relative assessment of mechanical and
8 processed performance reliability to achieve the average
9 percent ammonia reduction removal stated. In essence,
10 reliability means the ability of a treatment process to
11 achieve the predicted effluent ammonia-nitrogen
12 concentrations on a routine basis. Then the next column
13 is a Comments column where we describe what each of
14 these technologies would involve and what obstacles, if
15 any, would they face.

16 Q Going back to the first four pages, and I
17 think we pretty much talked about the capital cost,
18 operating costs and present worth costs, have we not, in
19 the percent removal?

20 A Yes, sir.

21 Q There is a column for each of these which
22 says dollars per pound ammonia or NH₃-N removal. Would
23 you tell us both on the first page and on the third page
24 of the two cost comparisons what that is?

1 A Be glad to. For the first page that was
2 based on a 10-year project life at 8 percent interest.
3 And, again, we calculated over that 10-year life what
4 the present worth dollars one would need in the bank
5 today to not only build the process, but to fund the
6 process over a 10-year period. We then calculated the
7 cumulative pounds of ammonia that would be removed
8 during that 10-year project life and, basically, simply
9 divided the present worth dollars by the cumulative
10 pounds of ammonia removed during the 10-year life. And
11 that category is presented in column 4 in dollars per
12 pound of ammonia removed. And when you see NH3-N,
13 that's an acronym for ammonia expressed as nitrogen.

14 Q Did you prepare that document?

15 A I did.

16 Q And is it true and accurate to the best of
17 your knowledge?

18 A It is.

19 MR. KISSEL: I don't know if I moved the admission
20 of that.

21 MS. WILLIAMS: I would like to ask one question
22 before --

23 MR. KISSEL: I just want to move the admission of
24 Petitioner's Exhibit 13.

1 MS. WILLIAMS: Would you mind asking the witness to
2 clarify for us -- for those of us that are not
3 engineers, this gives me like major headaches -- that
4 the technologies listed in this Exhibit 13 are the same,
5 right, as what's listed in Exhibit 11?

6 MR. KISSEL: Is that correct?

7 THE WITNESS: That is correct.

8 MS. WILLIAMS: There are some slight named
9 differences that if you understand what the technology
10 is probably you could probably tell right away that PC
11 tank stripping with off-gas control is the same as
12 alkaline air stripping of the PC tank, but I just want
13 to make sure that's the case, right?

14 THE WITNESS: That's the case.

15 MS. WILLIAMS: Thank you. I have no objection.

16 HEARING OFFICER HALLORAN: Petitioner's Exhibit
17 Number 13 is admitted into evidence.

18 A Would you like for me to discuss -- you had
19 asked me to discuss pages 1 and 3. And I just discussed
20 the column 4 on each of those pages. Is there any
21 further explanation you would like for me to offer?

22 Q No. Not at this time. I show you what we
23 have marked as Petitioner's Exhibit 14 for
24 identification. Tell me what that is, please.

1 A I will. A discussion occurred in which the
2 question was asked, What were the population equivalents
3 for the untreated waste load at the Noveon-Henry plant
4 prior to 1990. And this written testimony prepared by
5 me addresses that question.

6 Q Can you briefly summarize -- or strike that.
7 Did you prepare this document?

8 A I did.

9 Q The information relied on in that document
10 included what?

11 A The information relied upon in that document
12 came from two sources. It came from Illinois
13 regulations, particularly section -- and I have listed
14 in this document 304.345. It needs to be corrected to
15 be 301.345. But it relies upon the regulations'
16 definition of population equivalents. It relies upon
17 memos sent within the Illinois EPA. It relies upon the
18 Illinois EPA's description of the Noveon wastewater
19 untreated waste load in 1983. It relies upon the
20 definition of the Noveon untreated waste load as defined
21 in permit applications for construction approval, dated
22 April 23, 1987 and approved on May 28th, 1987, by IEPA.
23 An application for permit construction submitted on
24 April 21st, 1988, by Noveon and approved by IEPA on

1 October 11th, 1988. Information presented of the
2 untreated waste load by Noveon and its application for
3 construction approval on April 24th, 1989, and approved
4 by IEPA on June 28th, 1989. An application for
5 construction approval submitted by Noveon on September
6 11th, 1989, where the untreated waste load was described
7 and approved by IEPA on October 20th, 1989. And I went
8 through this exercise to see if at any point in this
9 prior time previous to 1990, at any point was there any
10 information that would define the Noveon population
11 equivalents at greater than 50,000, and at no point did
12 that occur. At no point did the data suggest those
13 populations equivalents were greater than 50,000. In
14 all cases they were less.

15 MR. KISSEL: I move the admission of Petitioner's
16 Exhibit Number 14.

17 MS. WILLIAMS: At this point I have some objection,
18 I guess, that I would like to raise. This probably can
19 be cured maybe by an additional exhibit. In the
20 Agency's opinion I think it's worth stating we don't
21 really think this information is relevant or necessary
22 to the Board to make its decision in this case, but we
23 recognize that there is very broad latitude here. If
24 the hearing officer feels it's relevant, then that

1 pretty much goes. But I would like to request at this
2 point that if this exhibit is going to be entered that
3 the document referred to at the bottom of the first
4 page, August 24th, 1983, memo also be entered into the
5 record as an exhibit to support the foundation of it.

6 MR. KISSEL: I don't think it's necessary to
7 support the foundation, but I have no -- it's an Agency
8 memo so I have no problem --

9 MS. WILLIAMS: I don't have a clue in my box where
10 to find a copy of it. And I took your word for it
11 yesterday that it was somewhere as part of the permit
12 appeal record. And I would appreciate it, and I think
13 it would make it easier for the Board and us to be able
14 to refer to that document today. I don't think it's
15 unreasonable. They already have it ready. Thank you.

16 MR. KISSEL: Can we mark this exhibit as
17 Petitioner's Exhibit 15 and ask Mr. Flippin to take a
18 look at that, please?

19 HEARING OFFICER HALLORAN: I'm sorry. What is it
20 again, 15?

21 Q Would you describe what it is, please?

22 A Sure. Exhibit 15 is a memorandum prepared by
23 the Illinois EPA in which the Illinois EPA states on
24 pages 1 and 2 what they believe to be the untreated

1 waste load associated with the Noveon-Henry plant.

2 Q It is an Illinois Environmental Protection
3 Agency memo that was provided to you?

4 A Yes.

5 Q Is this the memo that is referred to in your
6 testimony, Thomas W. Meyer and Lyle A. Ray, in their
7 memo dated August 24th, 1983?

8 A It is.

9 MR. KISSEL: I move the admission of Exhibits 13
10 and 14 -- I'm sorry, 14 and 15.

11 MS. WILLIAMS: 14 and 15. I just want to point out
12 for the hearing officer that going down this road of
13 looking at actually what the PE is, we are more than
14 prepared to cross-examine Mr. Flippin, present counter
15 testimony and even, possibly, bring in further rebuttal
16 testimony tomorrow, if necessary, to fully develop that
17 issue. But we do feel it's really not relevant to what
18 we are talking about here today as to whether or not
19 relief from the standard as it exists is appropriate.

20 HEARING OFFICER HALLORAN: I'm going to split the
21 difference with you, Ms. Williams, so to speak. I'm
22 going to allow exhibit -- Petitioner's Exhibit 14 is
23 admitted over your objection. But your request for
24 Petitioner's Exhibit Number 15 is also admitted. And

1 that's the memo you have just spoken to. 14 and 15 are
2 admitted into evidence. Objection so noted.

3 MR. KISSEL: I have no further questions at this
4 time.

5 HEARING OFFICER HALLORAN: Ms. Williams?

6 MS. WILLIAMS: Do you want me to get started?

7 HEARING OFFICER HALLORAN: Sure.

8 CROSS-EXAMINATION

9 BY MS. WILLIAMS:

10 Q Good morning, Mr. Flippin. I'm going to
11 start by asking you some questions in general about the
12 prefile testimony, and then we will probably go more
13 specifically through some of your exhibits.

14 On the first couple of pages -- I believe
15 it's page 3 of your testimony, yes, page 3 -- you list
16 in several different categories a number of facilities
17 that you have worked on installing nitrification systems
18 that are in some way comparable to the work you have
19 done in this case, correct?

20 A In this case I have evaluated nitrification
21 facilities. And in these other cases I've actually
22 developed designs which were installed.

23 Q So in all these cases designs have actually
24 been installed and implemented?

1 A In the cases listed on page 3, these are
2 facilities that have been installed and they are
3 operational.

4 Q With the exception --

5 A With the exception of Eli Lilly in Puerto
6 Rico which is currently under construction.

7 Q What about the Lower Bucks County?

8 A Rohm and Haas combined with Lower Bucks
9 County, Bristol, Pennsylvania, facility; that facility
10 was designed but never installed due to lack of funding.

11 Q How much was that project projected to cost?

12 A We were responsible for developing the design
13 for a construction -- sorry, for a detailed design
14 engineering firm, and they were the ones who prepared
15 the capital costs for that facility. So I'm unaware of
16 what their cost was for that facility.

17 Q What about the others?

18 A The other facilities -- if you will, these
19 facilities, my role in them, let me say, was primarily
20 to develop the process design.

21 Q So in none of these were you responsible for
22 coming up with the cost estimates then?

23 A On none of these -- let me look at this one
24 moment.

1 (Pause in proceedings.)

2 A On none of these was I responsible for coming
3 up with the cost.

4 Q Did any of these plants, once the facilities
5 were implemented, have a discharge exceeding 225
6 milligrams per liter of ammonia-nitrogen?

7 A In each of these cases these facilities were
8 designed to provide complete nitrification. And so the
9 effluent ammonia concentrations were very low.

10 Q Like lower than 5?

11 A They were certainly lower than 20. However,
12 I should note that for several of these facilities the
13 incoming ammonia concentration was as high as 400 to 600
14 or higher.

15 Q Pounds per day?

16 A Milligrams per liter. On a pounds-per-day
17 basis it would have been on some of these greater and on
18 some of these less.

19 Q Looking on page 19 -- well, I might be
20 looking at page 19 of your old testimony. I'm having a
21 little trouble going from --

22 (Pause in proceedings.)

23 Q In your testimony you discussed upgrading of
24 the tankage at the Noveon plant, correct, to be fully

1 compliant with the ten state standards?

2 MR. LATHAM: Where is his testimony?

3 MS. WILLIAMS: It's in here somewhere.

4 Q Is it true -- I mean, if you don't recall
5 testifying to that then I can ask another question.

6 (Pause in proceedings.)

7 Q There we go, page 21, second paragraph. Are
8 you following me now?

9 A I am.

10 Q And you state that Noveon expanded aeration
11 in 1998 by 100 percent; is that correct?

12 A That is true.

13 Q Isn't this because of an expansion in
14 production?

15 A It was done for several reasons. One was to
16 accommodate expanded production. Two was to provide
17 greater treatment plant flexibility.

18 Q Can you explain in more detail what you mean
19 by "greater flexibility"?

20 A Certainly. There are ways -- if all you
21 needed was greater oxygen aeration upgrades, there are
22 ways to accomplish that within a given tankage.
23 However, when you go to the extent of building
24 additional tankage, not only do you get the additional

1 oxygen transfer, you get the additional flexibility of
2 having added tankage. That allows you, if needed, to
3 take aeration tanks out for service and other
4 flexibilities.

5 Q And they doubled the tankage, correct?

6 A They did.

7 Q Did this doubling provide greater oxygen
8 transfer?

9 A The additional aeration equipment that came
10 with this doubling certainly did.

11 Q Did it provide any improvement in ammonia
12 effluent levels?

13 A It did not to my knowledge.

14 Q Can you explain why?

15 A I believe the reason that it didn't was
16 because of the presence of bio-inhibitors in the
17 influent to the Noveon-Henry plant wastewater treatment
18 facility.

19 Q Did it have anything to do with alkalinity?

20 A The Noveon-Henry plant has adequate
21 alkalinity to initiate and accomplish some
22 nitrification.

23 Q What do you mean by "some nitrification"?

24 A In nitrification you require -- when the

1 bacteria removes essentially a pound of ammonia, they
2 consume approximately seven pounds of alkalinity. They
3 will continue to do that until they reach a limiting
4 concentration of alkalinity at which time they were
5 unable to provide additional ammonia removal. The
6 Noveon-Henry plant does, in fact, have alkalinity
7 present at concentrations great enough to achieve some
8 nitrification if it were not for the presence of
9 bio-inhibiting compounds that inhibit nitrification.

10 Q So can you explain to us the statement on
11 page 16, "Consequently, if biological nitrification
12 could be implemented with inhibitor control, the
13 majority of alkalinity would have to be chemically
14 added"?

15 A Clearly my two statements are very
16 consistent.

17 Q I'm not saying they are inconsistent. I'm
18 just asking you to explain them for us.

19 A Glad to. The Noveon-Henry plant --

20 Q We are having a much more friendly proceeding
21 today than yesterday, Mr. Flippin.

22 A The Noveon-Henry plant wastewater, when we
23 have analyzed it in the past, contained about 200 to
24 200-- between 200 and 300 milligrams per liter of

1 alkalinity. We have found in our work that a limiting
2 concentration of alkalinity nitrifiers, basically,
3 quote, unquote, become inhibited because of a lack
4 thereof, is around 50 parts per million. So what you
5 see is Noveon wastewater frequently and commonly
6 contains about anywhere from 200 to 250 extra milligrams
7 per liter of alkalinity that could be used for
8 nitrification. If you divide the 200 to 250 by 7, what
9 you will see is that normally they can remove -- they
10 can nitrify approximately 30 milligrams per liter --

11 Q 5.7, 35.7.

12 A -- of ammonia. But, if you will, the ammonia
13 that needs to be nitrified if they were to provide
14 complete nitrification is certainly greater than 30 on
15 average. And so that is why I am saying that if they
16 were required to nitrify completely the bulk of the
17 alkalinity that they would need would have to be added.
18 There is just not enough present to do complete
19 nitrification.

20 Q Can you explain why Mr. Giffin told us
21 yesterday that they didn't add alkalinity when they
22 worked on attempting to reduce inhibitors?

23 A What the facility did do is they ran a
24 pretreatment system designed to remove

1 mercaptobenziothiazole to a degree -- also known as MBT
2 in my testimony -- and that pretreatment system was
3 successful in removing up to 50 percent MBT and even
4 greater. If you will, they then after running that
5 pretreatment system for awhile with full scale
6 implementation, in other words, all of the polymer
7 chemicals wastewater went through it. After they had
8 run that pretreatment system for approximately two
9 months, they brought in nitrifiers from a facility whose
10 population was primarily that, nitrifiers, and added it.
11 When they added it, they had surplus alkalinity, surplus
12 dissolved oxygen. And if there had not been an
13 inhibiting environment, nitrification would have
14 initiated and would have been maintained to a certain
15 degree. And so the reason -- the fact that they did
16 not, quote, unquote, add any additional alkalinity did
17 not, if you will, jeopardize the ability to see if this
18 trial would initiate and maintain a certain level of
19 nitrification.

20 Q You also talk in your testimony about
21 something you call alpha. Can you explain what you mean
22 by alpha?

23 A Yes. Alpha is the oxygen transfer in
24 wastewater divided by the oxygen transfer in tap water

1 or clean water, if you will. And so the higher the
2 alpha, the easier it is to transfer oxygen in a
3 wastewater.

4 Q And you testify that Noveon's alpha is
5 something like half that of a typical municipal?

6 A Yes. Right. Typically, in a municipal
7 wastewater an alpha value for fine bubble-diffused
8 aeration is approximately 0.6. In 1987 when Gerry
9 Shell, a nationally recognized expert in oxygen
10 transfer, did test work on the Noveon-Henry plant
11 wastewater, they found with fine bubble-diffused
12 aeration an alpha of .35.

13 Q Did you do any tests since then to figure out
14 what's causing it?

15 A I have not.

16 Q Of course, it can be assumed that if that
17 number was higher, the efficiency of treatment at the
18 plant would be better, correct?

19 A The oxygen transfer does not define the
20 treatment efficiency. What happens, the lower your
21 alpha, the more horsepower or the more aeration
22 equipment you have to install to provide the same level
23 of treatment.

24 Q Does that translate to a rate of 4.6 pounds

1 of oxygen per pound of nitrogen? Would you agree with
2 that?

3 A I'm sorry, would you repeat the question?

4 Q Did they supply a rate of 4.6 pounds of
5 oxygen per pound of ammonia-nitrogen they were trying to
6 remove in the tanks?

7 MR. KISSEL: I just -- I don't get the context. Is
8 there some document that we are referring to? I just
9 want to make sure the witness understands what the
10 question is. That's all.

11 THE WITNESS: And, candidly, I don't.

12 MR. KISSEL: I sort of figured that.

13 Q We are trying to get at just simply whether
14 there was an attempt made to provide as much oxygen as
15 would have been necessary to nitrify. I mean, we know
16 there is an issue with bio-inhibition, as well, but it
17 seems relevant to find out whether there was enough
18 oxygen provided as well?

19 A Yes, it is relevant. And the answer to that
20 question is when the plant ran its interim pretreatment
21 system on a full-scale plan, treating all of the PC
22 wastewater for two months before adding the nitrifiers
23 at the time prior to the addition of the nitrifiers,
24 after the addition of the nitrifiers and for subsequent

1 weeks following that addition, the plant maintained
2 ample dissolved oxygen for the nitrifiers to have been
3 able to nitrify.

4 Q Can you quantify the ample oxygen for us at
5 all?

6 A I can. The plant has a policy of typically
7 operating at dissolved oxygen levels of 3 milligrams per
8 liter or greater. And those concentrations by no means
9 would inhibit nitrification.

10 Q Now sometimes they go lower than that,
11 correct, because your testimony says a minimum of 1.5
12 milligrams per liter?

13 A At times they will go lower than 3, down as
14 low as 1-1/2. But again, let me say that plenty of
15 nitrification systems maintain nitrification at 1-1/2
16 milligrams per liter DO.

17 Q On page 29, last paragraph -- I know I'm
18 jumping around a little bit. I apologize ahead of time.

19 A That's okay.

20 Q You talk about comparing the present worth
21 costs per pound removal with municipal plants. In the
22 last paragraph there you say, "It is less likely that
23 the present worth cost comparison of these facilities
24 reveal that the cost of ammonia-nitrogen removal is less

1 than 20 cents a pound." Can you tell me where you get
2 this, and is there something we can look to to find
3 figures like these?

4 A Yes. There is something that you can look
5 to. We evaluated the surcharge cost for the City of
6 Nashville, Tennessee. And in making such an
7 evaluation --

8 Q Surcharge to industrial sources, or --

9 A Surcharge to anyone who discharged
10 concentrations that the city considered greater than the
11 concentration associated with typical domestic sewage.

12 MR. KISSEL: I think he is referring to industrial
13 user charges --

14 MS. WILLIAMS: Right.

15 MR. KISSEL: -- which a lot of sanitary districts
16 have.

17 Q This isn't looking at how much it costs to
18 treat the domestic waste then, or is it?

19 A This is looking at how much does it cost to
20 treat the concentrations -- this is looking at the cost
21 of what it takes to treat wastewaters that are stronger
22 in concentration than domestic sewage.

23 Q By a domestic plant that's not built to do
24 that?

1 A No. By a domestic plant that is built to do
2 that.

3 Q And that is which plant here are we talking
4 about?

5 A The Knoxville Utility Board operates multiple
6 plants that receive industrial wastewaters and also
7 apply surcharges based on BOD, suspended solids and
8 ammonia.

9 Q Did you look at any other? Was that the only
10 one you looked at?

11 A I looked at the City of Chattanooga; the City
12 of Nashville, Tennessee; Louisville, Kentucky. We were
13 looking at plants of, at least, comparable size in the
14 national vicinity. The only one I found that was
15 surcharging on ammonia at that time was the Knoxville
16 Utility Board.

17 Q I don't understand how that provides a
18 comparison to what we are talking about here?

19 A The purpose in a surcharge is to recoup your
20 costs, and it's not just your operating costs.

21 Q Isn't sometimes a surcharge also imposed to
22 discourage industrial users from going over a certain
23 effluent limit?

24 A It is -- while it might be a discouragement,

1 it is to recoup their costs.

2 Q Let's move on. Now you stated that the ten
3 alternatives you provided to review in this case are
4 all -- are the -- I believe the word you used was
5 "proven"?

6 A Proven.

7 Q Proven technologies for providing
8 nitrification, correct?

9 A Proven technologies for reducing effluent
10 ammonia.

11 Q Okay. Thank you. I want to get that very
12 clear. These are all proven technologies? We are not
13 looking at experimental technologies, or --

14 A Exactly.

15 Q And they are technologies that are all in
16 place somewhere?

17 A Yes.

18 Q And have you worked with all of them
19 personally?

20 A In my resume the ones that you see that I
21 have worked with personally from a design go to
22 full-scale implementation, go to full-scale operation,
23 have been nitrification, biological nitrification and
24 breakpoint chlorination. All the others I have

1 evaluated on a bench scale treatability basis in order
2 to develop conceptual level designs and cost estimates
3 so the client themselves could see what their
4 alternatives were for reducing effluent
5 ammonia-nitrogen. So I have done that on other projects
6 as well this one.

7 Q So wouldn't it be fair to state then,
8 Mr. Flippin, that each of these technologies listed in
9 your testimony from a design standpoint are
10 technologically feasible to implement for reduction of
11 ammonia-nitrogen?

12 A Can they be built? Yes.

13 Q Thank you. That was all I wanted to know for
14 that question.

15 Now like I asked, I think in the
16 clarification that the figures that -- sorry, or the
17 technologies that you list in Exhibit 11 are the same
18 technologies that you go through the cost with in 1
19 through 10, numbered 1 through 10. And they are the
20 same technologies that you were looking at in Exhibits
21 12 and 13 that provide more detailed cost?

22 A That is true. The same technologies were
23 carried through.

24 Q At this point I would like to just sort of

1 ask you a number of questions about your cost figures.

2 I am not an economist, that's for sure. And so a lot of
3 these terms are somewhat unfamiliar to me so I would
4 appreciate a little bit of explanation about how you
5 derive them and maybe about what some of them mean.

6 Now with regard -- you discussed use of a
7 contingency. And you use a contingency in both the
8 capital component and the operating component, correct?

9 A I did.

10 Q And it sounded very logical to me what you
11 testified that, oh, it's always true that you miss
12 something, right? I mean, that certainly makes sense to
13 me. How did you come up with a figure 15 percent?

14 A When you look at a project and you look at
15 where it will be installed and you look at what
16 surrounds it and you look at the complexity of what you
17 are going to install, it derives what type of
18 contingency should you allow.

19 Q But wouldn't that have been different for
20 each of these alternatives, then, if that was the case?

21 A Thankfully the land where these would be
22 installed is essentially the same location. So that
23 made the uncertainty about location comparable to all.
24 It made the concern about proximity to other pieces of

1 equipment common to all. It made the uncertainties
2 about power, of delivery being in the same location, it
3 made that uncertainty common to all. And so the 15
4 percent you see there for capital cost contingency is
5 one based on this project and what was involved seemed
6 to be a reasonable value to apply.

7 Q But it pretty much was just your guess of
8 what seemed like a reasonable value? You didn't look to
9 a book, or --

10 A Actually, what I looked to were construction
11 cost estimators employed within our company that do
12 these type of cost estimates frequently. And they are
13 in a better position to make that determination than I
14 am.

15 Q What else did you use to develop this?

16 A Pardon?

17 Q Are you talking about a model that's used at
18 your company or a person? I guess is my first question.

19 A For developing construction cost estimates we
20 certainly have people.

21 Q Right.

22 A Construction cost estimators. We also have a
23 model that includes our historical knowledge of what it
24 costs to install various pieces of equipment, et cetera,

1 et cetera. And so when looking at this project and
2 hearing me describe to them the locations, the distances
3 between units, the distance to substations, what other
4 projects had been built in that same area, if you will,
5 I relied upon their judgment as to what level of
6 contingency should be applied. And what I have
7 explained earlier are the factors that they considered.
8 And the 15 percent value that you used there was
9 considered reasonable. And in my dealings in these type
10 of estimates, that is not an unreasonable or unusual
11 number.

12 Q So what would be the range?

13 A Contingencies?

14 Q Yeah.

15 A I don't think anyone would apply a
16 contingency smaller than 5 percent. I think, depending
17 on the uncertainty, that contingency can be as high as
18 25 percent.

19 Q This is all still very fuzzy to me, I guess.
20 I don't suppose we are going to have a witness to
21 testify about what goes into that model and how those
22 numbers were derived then? You relied on them, but they
23 are not going to be here to provide that information?

24 A I certainly reviewed their construction cost

1 estimates. And I certainly took the information that
2 they provided in those estimates and placed that
3 information in these tables.

4 Q So you did place them in the tables yourself?

5 A I did.

6 Q Why did you choose a different contingency
7 for O and M?

8 A On operation and maintenance costs, the good
9 news about operation and maintenance costs, is there is
10 less uncertainty there than in the actual capital
11 installed costs or construction cost estimates. So
12 that's why you see a lower contingency there. Now why
13 is there contingency still there? One thing is you will
14 notice that the cost of chemicals that you see me
15 providing were the cost of chemicals that Noveon
16 provided -- was paying at the time of this estimate.
17 Chemical --

18 Q So these are chemicals they currently use
19 already?

20 A The 50 percent sodium hydroxide is used
21 today. Sulphuric acid is used today; phosphoric acid is
22 used today. And so those chemicals are used today.

23 Q So you based that cost on what they pay?

24 A On what they paid at the time of this

1 estimate.

2 Q You stated that they had been able to
3 negotiate very good prices for those, correct?

4 A Yes. In comparison to other cost estimates I
5 have done, yes.

6 Q Can you give us some perspective on that?
7 What you mean by that?

8 A What do I mean by that?

9 Q 10 percent, 15 percent cheaper than other
10 companies?

11 MR. KISSEL: What is the question? I'm sorry. I
12 was distracted by my compatriot.

13 MS. WILLIAMS: I'm just asking -- he stated that
14 they have negotiated very good rates. And I asked for
15 some perspective, how much better than other facilities?

16 MR. KISSEL: If you know.

17 A For example, it's interesting at the time
18 there is a publication called the Chemical Marketing
19 Reporter that we use within our company where if we are
20 working with a client who is going to be using a new
21 chemical that they don't currently use, a Chemical
22 Marketing Reporter is a common document one refers to to
23 get the cost of a particular chemical. Let's just take,
24 for example, 50 percent caustic. If at the time this

1 cost estimate was developed Chemical Marketing Reporter
2 would have had you believe that you should pay about 300
3 to \$350 a ton for 50 percent caustic. And, yet, you
4 will see the number that I used was \$240 a ton, and that
5 is what Noveon was paying at the time.

6 Q I suppose it would make sense, though,
7 wouldn't it, they have gotten these good rates, if they
8 increase the amount they buy they might be able to
9 negotiate better rates, wouldn't they?

10 A There is two things that drive costs, of
11 course, one is availability and one is usage.

12 Q Supply and demand, is that what we call that?

13 A Exactly.

14 Q Let's talk about some of these other ones.
15 You give an estimate for gas and electric. What's that
16 one based on?

17 A The gas and electric was based on contacting
18 Noveon and asking what is a reasonable value to assume
19 for electrical costs and to use -- to assume for natural
20 gas costs.

21 Q Based on what they currently contribute to
22 PolyOne, or how do they -- based on what they currently
23 pay to run the plant?

24 A Right. Based on their current -- based on

1 their cost of electricity and cost of natural gas at the
2 time of these estimates, I simply ask, What is a
3 reasonable value for me to use in these cost estimates
4 for electrical and natural gas?

5 Q Do you know if they buy those off the market?

6 A I don't know how they purchase natural gas or
7 electricity.

8 Q But wasn't their testimony that -- yesterday
9 that they shared utilities with PolyOne?

10 A They do share utilities with PolyOne as it
11 equates to steam. They testified to that. As it
12 relates to river water treatment, they testified to
13 that. As far as electrical and natural gas, I don't
14 remember them testifying to that.

15 Q So you are not sure those figures are based
16 on buying it off the market or not?

17 A I don't know how they buy natural gas and
18 electricity.

19 Q Would we have to ask Mr. Giffin about that?

20 A Or Mr. Davids.

21 Q Mr. Davids, okay.

22 How about your labor costs, \$40 an hour;
23 what's that based on?

24 A Again, based on contacting Noveon and saying,

1 I need a labor cost including salary and benefits, what
2 values should I use that's reasonable. And \$40 an hour
3 is a value that was supplied to me.

4 Q And the only reason I'm requesting at
5 all -- we all understand the cost of benefits is pretty
6 substantial, but they did provide a figure elsewhere in
7 the petition of \$23 an hour of being the average salary
8 in the plant. So was this a precise figure of the
9 difference between that \$23 an hour and these benefits?

10 A If you will, Mr. Davids could testify to
11 that.

12 Q Was he the person you went to directly when
13 you wanted to get figures to plug into this table?

14 A Yes. And Mr. Giffin.

15 Q The next thing, I want to ask about labor;
16 and the last thing I want to ask about labor is, do you
17 assume for most alternatives, I think all of them except
18 1, 15 hours -- 15, did you call them man-hours -- 15
19 hours of labor a year to operate 1,500? On
20 exhibit -- turn to Exhibit 12. It looks like there is
21 some variety, but looking at Exhibit 12 the Labor Hours
22 line I think I was looking mostly at the second page
23 where they all were 1,500. The first page they do
24 range, several are 1,500, correct?

1 (Pause in proceedings.)

2 Q Is my question unclear?

3 A No. Your question is not unclear. I'm just
4 looking at the alternatives and what labor hours are
5 associated with them. 1,500 labor hours were associated
6 with alternative 3, alternative 5, alternative 6,
7 alternative 7, alternative 8 and alternative 10, when
8 complete treatment was provided.

9 Q And 1,500 hours comes out to about 30 hours a
10 week over 50 weeks. So, presumably, this would involve
11 having to hire another full-time person under each of
12 these alternatives 3, 5, 6, 7, 8 and 10?

13 A If you notice, if we were hiring a full-time
14 person, we would have put 2,080 labor hours. So it does
15 not represent hiring a full-time person. It represents
16 using people that are already on staff or using a
17 portion of a person, if you will.

18 Q People who are already being paid either \$23
19 an hour or that plus something, maybe 40, including
20 benefits, correct?

21 A For these labor hours.

22 Q When you give us the final figures on page 3
23 of Exhibit 11, the total at the bottom present worth
24 costs, you say they are based on a 10-year period which

1 you discussed in your direct examination, and you also
2 say they are based on 8 percent interest and no salvage
3 value. Can you tell us, why did you do that? What did
4 you base the 8 percent figure on, and why did you assume
5 no salvage value?

6 A Would you please show me which exhibit you
7 are referring to?

8 Q This is the same one from May 17th. I'm
9 sorry. Page 3.

10 MR. KISSEL: Here you go.

11 THE WITNESS: Thank you.

12 MS. WILLIAMS: Like I said, if I jump around too
13 fast, just holler.

14 THE WITNESS: That's okay. And the question again?

15 Q What did you base the 8 percent interest
16 figure on? What did you base your decision to use no
17 salvage value?

18 A In May of 2002 the interest rate which one
19 could get, if you will, or make on your money. In this
20 case 8 percent was considered by me, based on available
21 interest rate data at the time, to be a reasonable
22 value.

23 Q At what time was it based on?

24 A May 17th of 2002, just prior to that as I was

1 preparing this document.

2 Q That's what the interest rates were at that
3 time?

4 A That's what I believed one could make, in
5 fact, on their money.

6 Q Would that change at all if you were doing
7 this today?

8 A If we were doing this today, I would
9 certainly have to revisit that.

10 Q What about the no salvage value?

11 A The no salvage value if you -- anyone who has
12 operated wastewater treatment facilities and have
13 finished operating them and then closes it -- and then
14 you closed them down for some reason, there is just not
15 much of an aftermarket value on wastewater treatment
16 equipment.

17 Q Oh, I would buy it, wouldn't you?

18 MR. LATHAM: We will sell it to you.

19 Q But not nothing is it usually? Nothing?

20 A Well, I will be honest with you, we are
21 working on a project now in San Diego where a utility
22 company shut down their operations next to one of our
23 clients and said, You are welcome to have any of this
24 equipment if you will come get it.

1 Q Did you go get it?

2 A We are still looking to see what pieces we
3 can use.

4 Q On the first page of that same exhibit you
5 talk about the information that you based your analysis
6 on from the plant, operating information, right? I
7 guess the design parameters; is that the right thing we
8 call it, when you give flow rate?

9 A Are you looking at table 1, please?

10 Q Table 1, influent and waste load, yes.

11 A This is the design waste load, and I don't
12 call this the design untreated waste load because,
13 again, due to the recycling of solids through the PVC
14 tank. But this is the design waste load which we looked
15 at all the alternatives with.

16 Q And for a flow rate for the design waste load
17 you get an average of 401? Oh, no, I'm sorry, an
18 average of a total of 560?

19 A Yes.

20 Q And a peak of 769, correct?

21 A Yes.

22 Q Where did you get those figures from?

23 A We did an individual waste stream data
24 gathering and data -- we did an individual waste stream

1 characterization program in 1995 which provided the
2 basis for this table.

3 Q Is that something that you can submit to the
4 Board to help them in making their decision?

5 A The information is summarized here in
6 table 1.

7 Q The information is summarized, but the data,
8 is the data something that you can provide to the Board
9 or to the Agency for that matter?

10 A Yes. We could find that data and provide
11 that data.

12 MR. KISSEL: I'm not sure. We would have to
13 evaluate whether it's necessary. And this information
14 has been available to the Agency for some time. And we
15 don't think it's necessary for the Board to make its
16 determination unless they disbelieve Mr. Flippin. He
17 has made the determination. He has relied on data. And
18 at this point I would not intend to present it to the
19 Board unless asked to do so by the Board itself.

20 HEARING OFFICER HALLORAN: Ms. Williams?

21 MS. WILLIAMS: I would make the suggestion to the
22 Board that they consider asking for the data on which
23 these numbers are based themselves. And that's up to
24 them whether they want to do it or not.

1 HEARING OFFICER HALLORAN: This information has
2 been available for some time?

3 MS. WILLIAMS: I'm not aware of that. I don't
4 think we have that information.

5 MR. KISSEL: This table has been made available.

6 MS. WILLIAMS: The table has been, but the data on
7 which the table was derived from. I'm not aware of it.
8 I don't know what form it's in. You might have gotten
9 it somewhere in the boxes.

10 MR. KISSEL: That's not what I said. I said the
11 Agency has had this table for a long time, and we have
12 never received a request for the back-up information.
13 And, presumably, they used that to evaluate for our
14 Petition for Adjusted Standard. There was never any
15 request or need, from our point of view, from them that
16 they needed those data. I think it comes as rather a
17 surprise at this hearing to ask for that now.

18 HEARING OFFICER HALLORAN: What exhibit are we
19 talking about the data was for?

20 MR. KISSEL: Exhibit 11.

21 HEARING OFFICER HALLORAN: I will take that up at a
22 later date.

23 MR. KISSEL: Thank you.

24 HEARING OFFICER HALLORAN: How much more testimony

1 or cross -- I hate to interrupt, Ms. Williams, but are
2 you -- I'm not being sarcastic -- are you almost
3 finished? I'm trying to push this thing today because I
4 don't think lightning can strike three times. I'm not
5 sure we can get the courtroom tomorrow. So I'm trying
6 to get as much finished today.

7 MS. WILLIAMS: I think both parties agree
8 Mr. Flippin is Petitioner's primary witness that will
9 take longer than everybody else. I would say I'm
10 approaching the end. I have one major line of
11 questioning I haven't even started, but I wouldn't say
12 it would take more than 15.

13 HEARING OFFICER HALLORAN: We have redirect and the
14 technical people may want to ask some questions.

15 (Whereupon, a recess was taken and
16 Jennifer Johnson resumed as the court
17 reporter.)

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1 HEARING OFFICER HALLORAN: All right. We're
2 back on the record. It's February 18th, approximately
3 11:15. We did start this hearing -- excuse me, 11:20. We
4 did start this hearing at 9 a.m., and Miss Williams is
5 continuing with her cross on Mr. Flippin.

6 MR. KISSEL: That clock is about five minutes
7 off. It should be 11:16.

8 HEARING OFFICER HALLORAN: 11:16. Thank you.

9 CONTINUED CROSS-EXAMINATION

10 BY MS. WILLIAMS:

11 Q. Mr. Flippin, we talked a little bit just
12 before we went off the record about man-hours and how many
13 you used in your cost estimates. In your testimony, you
14 talk about the fact that you've been doing work for Noveon
15 and, prior to that, BF Goodrich since the mid '80s,
16 correct?

17 A. Actually, since 1988.

18 Q. So, late '80s. Do you have an estimate at all
19 of how many man-hours you've worked on this facility?

20 A. I do not.

21 Q. Would it be more than 1500, less than 1500?
22 I'm picking it arbitrarily, but something to give us an
23 idea of about how many.

24 A. Please bear in mind that I've been working

1 there since 1988, and the longest elapsed time that I
2 haven't been on the site has been about two years since
3 then. That's a lot of years and a lot of site visits, a
4 lot of work at my desk, a lot of work in the field.

5 Q. How about money; do you have an estimate of
6 how much money the client has paid your company over that
7 period of time?

8 A. I do not.

9 Q. Not even a guess?

10 A. Honestly, that side of the -- that side of our
11 practice I don't really spend much time on.

12 Q. Could you tell us if it's more or less than
13 the alternatives you described here for treatment?

14 MR. KISSEL: I'm going to object. I think
15 we're really trying to get into speculation again.

16 MS. WILLIAMS: Well, I didn't expect that he
17 wouldn't have any --

18 BY MS. WILLIAMS:

19 Q. Can I ask Mr. Davids; do you think he would
20 know how much he paid your company over that period of
21 time?

22 HEARING OFFICER HALLORAN: You know what? I
23 think -- as in the case of your witness yesterday,
24 Ms. Williams, I think this witness today has asked and

1 answered the best he could.

2 MS. WILLIAMS: That he just doesn't know?

3 Can I ask again if there's someone who would
4 know?

5 HEARING OFFICER HALLORAN: Yes, you may. I
6 would sustain Mr. Kissel's objection.

7 BY MS. WILLIAMS:

8 Q. Is there someone that would know?

9 A. I could certainly go to our accounting staff
10 at Brown and Caldwell and, and pull that information up.
11 I'm sure Noveon could go to their accounting staff and
12 pull that information up as well. I just don't know it.

13 Q. You just don't know. In all that time, in all
14 the different work that you've performed, did any of the
15 work that you performed for Noveon involve completing of
16 construction permit applications?

17 A. It did not.

18 Q. And presumably not -- nor operating permit
19 applications either?

20 A. It did not.

21 Q. And Mr. Giffin testified yesterday about some
22 source reduction activities that were undertaken by
23 Noveon?

24 A. Yes.

1 Q. Were you involved in those activities?

2 A. I was not.

3 Q. I would like to ask you some questions now
4 about your testimony and about Exhibit 13 -- 14? 14.
5 Sorry. Exhibit 14.

6 Now, in summary, I take this exhibit as saying
7 that -- trying to demonstrate, I guess, that you feel the
8 PE of this facility is calculated at a figure less than
9 50,000, correct?

10 A. That's true.

11 Q. And what is the significance of that?

12 A. I believe that the Illinois -- 35 Illinois
13 Administrative Code Standard 304.122(a) and (b) do not
14 apply.

15 Q. And by "not apply," what you're saying with
16 regard to 304.122(a) is that you believe the facility does
17 not trigger the 50,000 PE applicability threshold?

18 A. That is true.

19 Q. You do believe that that's the section that
20 would cover them, among the two sections?

21 A. That is true.

22 Q. And your testimony is that subsection B which
23 limits -- has an applicability threshold of 100 pounds per
24 day discharge does not apply, correct?

1 A. That is true.

2 Q. And if that section did apply, they would
3 trigger that threshold, correct?

4 A. If that section did apply.

5 Q. Right. So, the basis of this exhibit is to
6 explain to the Board why you concluded that under
7 subsection A they wouldn't have to treat for ammonia
8 because they don't trigger the threshold?

9 MR. KISSEL: Let me interject here so we can
10 put this in perspective and take just a second --

11 MS. WILLIAMS: Is that an objection? Are you
12 objecting?

13 MR. KISSEL: No, I think it's important to
14 know --

15 HEARING OFFICER HALLORAN: I'll allow
16 Mr. Kissel to state his case.

17 MR. KISSEL: I mean, what we did was we
18 asked -- we wanted Mr. Flippin to testify on the permit
19 appeal. Included in that testimony was a, a detailed
20 explanation of why there was less than 50,000 PE, and the
21 objection was made to that testimony and sustained that no
22 information post-1991 would be admitted into evidence. We
23 knew about that before we came to the hearing yesterday.

24 As a result of that, we asked Mr. Flippin to

1 look at pre-1991 information, which he did, and put
2 together Petitioner's Exhibit 14 which was introduced,
3 which was accepted in evidence, and on which there was
4 cross-examination on the permit appeal. I just want the
5 Board to -- if I --

6 MS. WILLIAMS: But why was it submitted today
7 then?

8 MR. KISSEL: To make sure that it's in the
9 record so that the Board has all of the information, just
10 as the reason we've asked the Hearing Officer to include
11 the entire -- if the transcript of the other record had
12 been included, we would not have had this. But -- and I'm
13 not being -- by this trying to find fault or say somebody
14 made a wrong decision or whatever it is, but it was
15 important because it was documents and information that
16 had been reviewed, and I thought that -- in the adjusted
17 standard hearing we thought that the Board should have
18 this information. That's the reason this is there. It
19 would not have been there except for reasons I've stated.

20 MS. WILLIAMS: Okay.

21 HEARING OFFICER HALLORAN: Ms. Williams?

22 MS. WILLIAMS: I -- do you want me to
23 continue, or do you want me to -- I don't really have
24 anything -- I guess you're trying to explain my

1 characterization or he has a right to explain his
2 characterization. I don't think it reflects on my
3 questioning.

4 MR. KISSEL: I'm just trying to say from the
5 public's point of view -- because the Board will review
6 the entire record. But from the public's point of view,
7 this is not the only document that Mr. Flippin has
8 prepared --

9 MS. WILLIAMS: Okay.

10 MR. KISSEL: -- to deal with the 50,000 PE.

11 MS. WILLIAMS: This in combination with his
12 testimony.

13 MR. KISSEL: Right, right.

14 MS. WILLIAMS: Exactly.

15 BY MS. WILLIAMS:

16 Q. This in combination with your testimony. I
17 think it's like page 12 and 13, right?

18 MR. KISSEL: Right. Or whatever it is.

19 BY MS. WILLIAMS:

20 Q. Page 12 and 13 of your testimony --

21 MR. KISSEL: Okay.

22 Q. -- together are there to show your belief,
23 right?

24 A. (Witness nods head.)

1 Q. Okay. I'm sorry if I -- I wasn't trying to
2 limit you to just what was in that exhibit regarding
3 pre-19-- we're going to look at all your figures.

4 I have to tell you I'm a little confused about
5 the figures that appear in your testimony. The reason I
6 asked the questions about Exhibit 11 and where that
7 information came from is that information made sense to me
8 as far as the flow values provided, BOD values provided,
9 COD values provided. That struck me as being within a
10 range of figures that I had seen before on this facility.
11 These figures don't look anything like that.

12 MR. LATHAM: Can you help us?

13 MS. WILLIAMS: Sure. The figures on page 12.

14 MR. LATHAM: There's a lot of figures.

15 MS. WILLIAMS: Well, it's a little complicated
16 how he does it.

17 BY MS. WILLIAMS:

18 Q. I believe it adds up to a total flow value of
19 265.6 as a total flow value for all four waste streams.
20 Now, you calculate them individually, I think, but the
21 total flow -- you don't -- when you total things out, you
22 don't total for us what you have as a flow for gallons per
23 minute, but I believe the flow total here is 265.6. Is
24 that correct?

1 MR. LATHAM: Where?

2 HEARING OFFICER HALLORAN: I'm on page 12 of
3 Mr. Flippin's testimony.

4 BY MS. WILLIAMS:

5 Q. Adding up the four items, the four bullet
6 points, the first four bullet points. The fifth bullet
7 point is the total. Do you see that?

8 HEARING OFFICER HALLORAN: Okay. Starts on
9 page 12.

10 MR. KISSEL: Bottom of 12.

11 BY MS. WILLIAMS:

12 Q. So, there's four bullet points where you break
13 down the waste streams, correct?

14 A. Here we go. What I do on pages 12 and 13 of
15 the testimony is I use data that was provided to me by
16 Mr. Davids, and in this I summarize what Mr. Davids
17 provided me for the period of July 2002 through June of
18 2003.

19 Q. July 2002 to what?

20 A. July 2002 to June of 2003.

21 Q. One year's worth of data, correct?

22 A. Yes.

23 Q. One year's worth of data on effluent?

24 A. If you will, on the PVC lift station, that --

1 that is an untreated PVC waste stream discharge. It has
2 no effect of return solids in it, and that's extremely
3 important because population equivalents are to be
4 calculated on the untreated raw waste load.

5 Q. And you got a figure of 133 gallons per minute
6 for that?

7 A. Yes. Mr. Davids did, in his summary of the
8 data that he provided me.

9 Q. Now, in Exhibit 11 you tell us that the total
10 flow for that waste stream, you call it something
11 different. You call it the --

12 A. PVC tank discharge.

13 Q. Discharge. Is 401 gallons per minute?

14 A. That is correct.

15 Q. And are you trying to tell us the difference
16 between those figures, 133 and 401 gallons per minute, is
17 all based on recycled solids?

18 A. Very well may be.

19 Q. Twice the process flow rate is responsible for
20 the recycling of solids?

21 A. Very well may be.

22 Q. Does that make sense to you, Mr. Flippin, in
23 your professional opinion?

24 MR. KISSEL: I'll object to that.

1 HEARING OFFICER HALLORAN: Objection
2 sustained.

3 MR. KISSEL: Okay.

4 BY MS. WILLIAMS:

5 Q. Do you agree with those figures that
6 Mr. Davids provided you as being credible?

7 A. I have no reason to doubt Mr. Davids' ability
8 to summarize waste load information.

9 Please, please bear in mind several things:
10 First, what goes back to the PVC tank -- this audience did
11 not have a chance to hear that, but I think it's relevant
12 to the audience. What goes back to the PVC tank, if you
13 will, is effluent sand filter backwash water. To give you
14 a feel for that, it's highly common for those values to be
15 as high as 15 percent of the forward flow going to those
16 units, if not higher, depending on the solids loading
17 going to them.

18 Q. Do you have a calculator up there?

19 A. I do. I'm not finished, though.

20 Q. Well, I think you answered that.

21 MS. WILLIAMS: Has he answered the question?

22 MR. LATHAM: He's still answering the
23 question.

24 A. I'm still answering the question.

1 Q. The question was what?

2 A. Why is there a difference between the PVC tank
3 discharge flow rate and the PVC lift station flow rate?

4 Q. I think I asked you if it made sense to you,
5 but you're right; go ahead.

6 A. Okay. First, you have an effluent filter
7 that's discharging backwash water. Again, common, common
8 discharge backwash water rates are as much as 15 percent
9 of the forward flow and even higher if the solids loading
10 to those filters is high and the condition of the filter
11 warrants more frequent backwashing.

12 Secondly, what also goes to the PVC tank is
13 when the filter -- when the filter press is dropping cake,
14 the primary clarifier underflow goes back to the PVC tank.

15 Next, the pond water can be, as I've testified
16 earlier, diverted to the PVC tank.

17 Q. And you don't count that in your values when
18 the pond water's included?

19 A. In the pond water sample that you -- in the
20 pond water value that you see here, that is the pond water
21 flow rate not going through the PVC tank.

22 Q. But it does go through the PVC tank; you
23 didn't count it as part of your flow?

24 A. I didn't count it twice.

1 Q. You counted the total in the other? No?

2 A. Where you see pond water listed --

3 Q. Okay. Now you're losing me. Where you see it
4 listed in your testimony or in your exhibit?

5 A. I did not count pond water twice. If pond
6 water went to the PVC tank, it's included in the PVC tank
7 flow. If it did not go to the PVC tank and went through
8 the filter prior to discharge, I counted it as pond water
9 in that category.

10 Q. So, pond water is included in this 133 gallons
11 per minute to the extent it went to the PVC --

12 A. It is not because pond water does not go
13 through the PVC lift station.

14 Q. So, it's in this 94 gallons per minute if it
15 went to the PVC tank?

16 A. If you will, pond water is -- the flow rate
17 for pond water is not included -- is not included on pages
18 12 and 13.

19 Q. Okay. Thank you. I'm sorry for that
20 confusion. So, it's not included in the total?

21 A. (Witness nods head.)

22 Q. You said you had a calculator? Would you mind
23 adding up for us the total flow that you used in coming up
24 with these PE values?

1 A. I did, and the value I get from summing what
2 you have here is what you reported earlier, 265.6 gallons
3 per minute.

4 Q. Can you tell us what Noveon reports its flow
5 to the Agency as in its discharge monitoring reports?

6 A. I have not reviewed Noveon's discharge
7 monitoring reports in some time.

8 Q. Would it be more or less than 265 gallons per
9 minute?

10 A. It would be more than 265 gallons per minute.

11 Q. What would happen if the Agency was to write
12 an NPDES permit for this facility based on this flow value
13 of 265?

14 MR. KISSEL: I'm going to object to the
15 question as being speculative.

16 HEARING OFFICER HALLORAN: You know, I'm going
17 to overrule it. If Mr. Flippin can answer it, he may.

18 A. I don't really understand the question.

19 Q. One moment, please.

20 So, would you say the remaining difference
21 between the flow value that you provide here, 265, and the
22 figure in Exhibit 11 of an average of 560, is that
23 difference something you would describe as dilutional
24 flow, or what would you call that difference?

1 A. It's other -- it is other process waste
2 waters, and it -- and it can be, on occasion, potentially
3 contact storm water. And you're also missing in this the
4 flow from well number two as well.

5 Q. What impact would a flow value like this 265
6 have on the mass limitations under the OCPSF regulations
7 in their permit if these values were used? Are you aware
8 of what would happen?

9 A. If, if you would restate your question, I'd
10 appreciate it.

11 Q. You're familiar with the OCPSF regulations,
12 correct? We talked about those yesterday.

13 A. Unquestionably.

14 Q. Okay. And you're aware that mass limitations
15 are calculated based on those?

16 A. I am.

17 Q. Do you know what would change about those mass
18 limitations if this flow value were used rather than
19 something more akin to 560 gallons per minute?

20 MR. KISSEL: I again object as to speculative.
21 The discharge from the plant has been well documented, and
22 a permit's been issued on that basis.

23 HEARING OFFICER HALLORAN: Ms. Williams?

24 MR. KISSEL: And I think she's trying to

1 find --

2 MS. WILLIAMS: They're asking us to accept a
3 flow value half of what's been used to calculate the PE.

4 MR. KISSEL: That's simply not the case.
5 That's simply not the case. That's a mischaracterization.

6 MS. WILLIAMS: And I'm trying to understand if
7 you take his flow value and use it for everything what
8 impact that would have on the plant.

9 HEARING OFFICER HALLORAN: You know what I'll
10 do? I will allow that question to stand.

11 I would ask the Board to note Mr. Kissel's
12 arguments. If Mr. Flippin can answer, he may.

13 BY MS. WILLIAMS:

14 Q. If you can.

15 A. I candidly believe it would be inappropriate
16 to, to use a flow of 265.5 gallons per minute in
17 developing an effluent permit because it does not include
18 all of the streams that are regulated by OCPSF.

19 Q. And I don't disagree with you, Mr. Flippin.
20 I'm just trying to understand why what has been presented
21 to me as a very simple calculation, PE -- yesterday we
22 talked quite a bit about what a simple calculation PE is.
23 You take flow, you take BODs, you take suspended solids,
24 you multiply them by multipliers, and you get a very

1 simple figure.

2 And this information you've provided in your
3 testimony is not at all to me a simple calculation.

4 MR. KISSEL: I'm going to object as
5 speculation. I don't think the questioner understands
6 what those numbers represent as to what the discharge is.
7 I think that's the whole difference. You're comparing
8 apples and oranges.

9 HEARING OFFICER HALLORAN: It sounds like
10 Mr. Flippin cannot answer the question Ms. Williams has
11 put forth, and I would take note that he, in the best of
12 his ability, has asked and answered it the best he can, so
13 we can move on.

14 BY MS. WILLIAMS:

15 Q. The figures that you did reach, can you just
16 tell us today, since we didn't go through this in your
17 direct, what the range is; what figures did you find for
18 PE under this method?

19 A. The population equivalents that I
20 calculated -- I should first say that I stated prior to
21 this calculation the streams that were not included in
22 this calculation and referred the reader to the Baxter and
23 Woodman report to see that information.

24 In calculating the population equivalents that

1 I did calculate, using what's written on pages 12 and 13
2 of my testimony, I got population equivalents for
3 suspended solids of 24,955 population equivalents.

4 Q. And you state in your testimony this is much
5 less than the PE of 265,000 calculated by the Illinois
6 EPA, correct?

7 A. I do say that.

8 Q. My understanding of your testimony is that you
9 chose to use different flow values than the EPA used,
10 correct?

11 A. I chose to use untreated waste load values.

12 Q. Untreated waste flow values, meaning what?
13 Why don't you define that for us?

14 A. Be glad to. The reason I believe that the
15 Illinois EPA calculated so much higher of a population
16 equivalent for total suspended solids is the Illinois EPA
17 used PVC tank discharge solids which are -- which are
18 inflated because of the presence of recycled solids within
19 the wastewater treatment facility.

20 A proper calculation of population equivalents
21 has to use untreated waste load information that excludes
22 streams that are merely recycled within the wastewater
23 treatment facility.

24 Q. And Mr. Davids is the one who explained to us

1 specifically for each waste stream what component the
2 recycled solids make up, or are you able to explain that
3 for us?

4 A. What, what Mr. Davids was able to do for me --
5 and it was critical to the calculation -- was to go
6 upstream of the PVC tank where all of these recycled
7 solids enter and give me what is the true untreated waste
8 load solids load going into that tank was, excluding
9 recycled solids. I had to have that to calculate a
10 population equivalent accurately.

11 Q. And based on -- I mean, you would agree,
12 though, that using the figures of Baxter and Woodman -- I
13 mean, I take your testimony that that's inappropriate
14 under your testimony. But --

15 MR. KISSEL: Again --

16 Q. -- you don't disagree with the accuracy of
17 this 265,000 on a pure mathematical basis?

18 If you take the flow Baxter & Woodman provided
19 and you plugged it into the calculation based on the TSS
20 values he provided, this is the figure you would get,
21 correct?

22 A. It wouldn't be a population equivalent.

23 Q. No, but this is the figure that he -- well, we
24 can -- you're saying it wouldn't be a population

1 equivalent because why?

2 A. It has -- it is not based on an untreated
3 waste load information which is required by population
4 equivalent calculation.

5 Q. Okay. But you don't dispute the math?

6 MR. KISSEL: I'm going to object. I think
7 we've been over this. For an issue which the Agency says
8 is not relevant to this proceeding, we've spent 40 minutes
9 on it.

10 MS. WILLIAMS: That's exactly what I warned
11 you of an hour ago, so --

12 MR. KISSEL: That wasn't -- I don't -- I
13 didn't hear the warning, I guess. But in addition, that
14 question's been asked and asked, and I think the Agency is
15 unsatisfied with the answer because it doesn't meet with
16 what they want. But he's answered the question --
17 questions.

18 MS. WILLIAMS: I think he -- did I ask it over
19 and over? I thought I asked the question once and he
20 answered, but that's fine.

21 HEARING OFFICER HALLORAN: I've heard it at
22 least once. But if you want to state it one more time, I
23 think I've heard the question once and the answer at least
24 once.

1 MS. WILLIAMS: Okay. The question about
2 whether he disagreed with the math?

3 HEARING OFFICER HALLORAN: I'm sorry?

4 MS. WILLIAMS: With whether he disagreed with
5 the math of the calculation?

6 HEARING OFFICER HALLORAN: Correct.

7 MR. KISSEL: Can we -- what is the math? Give
8 him the equation and let him tell you whether -- to use
9 his computer rather than speculate.

10 MS. WILLIAMS: Sure.

11 MR. KISSEL: I think, Mr. Hearing Officer, we
12 can agree and we can perhaps work it out --

13 MS. WILLIAMS: Maybe we can stipulate that
14 based on --

15 MR. KISSEL: -- that if you divide four by
16 two, you get two. I'll agree to that. Or whatever the
17 number is. We don't disagree with -- I don't think
18 Mr. Pinneo who, I think, did the calculations used a bad
19 computer. We'll check it, but I don't think he did. We
20 certainly --

21 MS. WILLIAMS: Are you willing to stipulate
22 that, as we presented in our discovery, those numbers --

23 MR. KISSEL: I'm willing to say that whatever
24 the number -- the division is, we do not agree that it is

1 a PE for that plant. Absolutely, unequivocally. Is that
2 okay?

3 MS. WILLIAMS: Absolute fine. That's all I
4 was trying to establish.

5 HEARING OFFICER HALLORAN: Okay. The record
6 should reflect that it is so stipulated, and we can move
7 on.

8 MS. WILLIAMS: I think if I can confer for
9 about one minute, I think we're done.

10 Okay. We're done with this witness. Thank
11 you for your patience, Mr. Flippin. I appreciate it.

12 HEARING OFFICER HALLORAN: Mr. Kissel,
13 redirect?

14 MR. KISSEL: Do you want me to wait until the
15 Board has -- it's the Board's discretion.

16 HEARING OFFICER HALLORAN: You know, I don't
17 know. Maybe.

18 MR. KISSEL: I just have a very short.

19 HEARING OFFICER HALLORAN: What do you think?
20 Have Mr. Kissel wrap it up and then --

21 MEMBER MELAS: It's up to you.

22 HEARING OFFICER HALLORAN: Let's finish up.

23 * * * * *

24

REDIRECT EXAMINATION

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BY MR. KISSEL:

Q. Okay. Mr. Flippin, during the course of your cross-examination, I guess, you were asked the question of whether the technologies that are listed in the various exhibits for reducing ammonia in the effluent from the Noveon plant were technically feasible. And you answered -- I believe I'm quoting you correctly -- they could be built. Would you like to explain your answer, please?

A. I would. I would like to explain my answer.

Q. How did I know that?

A. The -- candidly, any of these ten treatment alternatives can be built. That's not the issue. The issue is, when it comes to technical feasibility, there's more involved in whether or not you can build something. What's involved is how reliable is it and what performance will it achieve and what is involved in keeping it running.

And several of these technologies presented pose operational concerns that render them difficult, at best, to operate; and some of these, if you will, render themselves limited by what is present in the wastewater.

And let me explain. Take, for example, ion exchange. The salt concentration that you'll hear in

1 later testimony is high. And so when you put in ion
2 exchange, you just aren't removing ammonia; you're
3 removing a lot of competing cations. And so the frequency
4 of ion exchange regeneration will be extremely frequent.

5 Take, for example, some of the struvite
6 precipitation. Can it be done? Sure can. It generates
7 tremendous quantities of sludge and only provides a
8 nominal effluent ammonia reduction. So -- and I have
9 prepared as an exhibit, and it's been entered, a whole
10 discussion of reliability, of what's involved, of pros and
11 cons; and I think those things have to be considered if
12 you're going to discuss technical feasibility.

13 And that comment was not made when I said,
14 sure, they can be built. And that's basically what I'd
15 like to communicate.

16 Q. Thank you.

17 MR. KISSEL: That's all I have.

18 HEARING OFFICER HALLORAN: Thank you. Any
19 recross, Ms. Williams?

20 MS. WILLIAMS: No, thank you.

21 HEARING OFFICER HALLORAN: Okay. Personnel of
22 the Board, Member Melas, do you have any questions to pose
23 to this witness?

24 MEMBER MELAS: Yeah. Mr. Flippin, last

1 evening as I was going through this testimony of yours --
2 I might say, a very thorough job -- one question comes
3 into my mind. At one point, you're talking about total
4 discharge from this plant at 800,000 gallons per day; and
5 in the breakdown, 360 come from PolyOne, and 180 from
6 Noveon. That leaves 260 gallons per day that I am not
7 quite sure of where they come from.

8 THE WITNESS: Thank you. And that is -- the
9 documentation of where that comes from has been provided;
10 I believe Miss Deely's going to get that.

11 MR. KISSEL: Can you describe it some before,
12 while she's doing that?

13 THE WITNESS: I would prefer, Dick, to have
14 that in front of me.

15 MS. DEELY: We prepared a written document
16 responding to all the questions you submitted to us, and I
17 guess we can ask that that be submitted as an exhibit. I
18 just have to find it.

19 MR. KISSEL: Miss Deely is referring to a
20 document we received from the Board, Mr. Melas, Board
21 Technical Staff.

22 MEMBER MELAS: Yeah, I have that.

23 MR. KISSEL: In response to that, we have --
24 if we can find it -- Sheila, is it --

1 MS. DEELY: Yes.

2 MR. KISSEL: Is that the right -- Sheila, is
3 that the final one or --

4 MS. DEELY: Yes.

5 MR. KISSEL: Okay.

6 MS. WILLIAMS: Can we hold on until I can get
7 a copy, too, or are you just using it to refresh your
8 recollection?

9 MS. DEELY: I believe he's just --

10 MR. KISSEL: We're not introducing it as an
11 exhibit at this point.

12 MS. WILLIAMS: Okay. That's fine.

13 THE WITNESS: It's a good question, and the --
14 what was excluded was well number two discharge which is
15 10 gallons a minute. The, the water coming from the pond
16 that goes through the sand filter before it combines with
17 the final outfall of 30 gallons a minute, pond number
18 one's flow, if you will, that also was being discharged to
19 the facility and the filter backwash water, which was 70
20 gallons a minute, and the filter backwash water coming
21 from the tertiary filter of 70 gallons a minute, when all
22 added together equals 180 gallons a minute or 260,000
23 gallons a day.

24 MEMBER MELAS: From all those various sources?

1 THE WITNESS: Yes, sir. Yes, sir.

2 MEMBER MELAS: Most of them -- not all of
3 them, but most of them internal to the plant itself?

4 THE WITNESS: Yes, sir.

5 MEMBER MELAS: The well, I don't understand
6 where that -- what's the significance of that well?

7 THE WITNESS: The well is a -- is a recovery
8 well and is being treated in the wastewater treatment
9 facility.

10 MR. MELAS: Okay. All right. Has that
11 document been sent to us?

12 MR. KISSEL: Yeah, we have re -- we have
13 prepared a response to the Board's questions.

14 MEMBER MELAS: Okay.

15 MR. KISSEL: We'll probably ask that it be
16 entered into the record as our response, but clearly the
17 Board will have a copy of that.

18 MEMBER MELAS: Okay.

19 MS. WILLIAMS: Not today?

20 MS. DEELY: Yes, today. Just when we moved, I
21 don't know where it is, so --

22 MEMBER MELAS: Getting on to some of those
23 other bullet points, Mr. Flippin, a number of them have
24 the concept of stripping?

1 THE WITNESS: Yes, sir.

2 MEMBER MELAS: The first one, I think, was
3 nitrification. So, when you do strip, convert the
4 nitrogen from the liquid phase to a gaseous phase and it
5 goes up in the air --

6 THE WITNESS: Yes, sir.

7 MEMBER MELAS: -- what kind of a problem does
8 that create?

9 THE WITNESS: It, candidly, transfers ammonia
10 from a -- it, candidly, transfers ammonia from being --
11 going out in your wastewater to simply going out in your
12 air emissions.

13 MEMBER MELAS: And what effect would that have
14 on the standard here in this area?

15 THE WITNESS: I'll need to defer that question
16 to Mr. Giffin, who's worked on their Title V and other air
17 permits.

18 MEMBER MELAS: Okay. The other thing
19 that's -- on another matter that's -- that answer will
20 come; I'm quite sure that I know what it will be anyhow.

21 There's been an awful lot of discussion about
22 this population equivalent. Now, that is -- is that not
23 generally something that is commonly known throughout the
24 entire industry, throughout the entire country, wherever

1 you're talking about wastewater treatment plants? Isn't
2 it commonly accepted methods of technology or calculation
3 that will translate it into what's called PE?

4 THE WITNESS: Yes, sir.

5 MEMBER MELAS: And from the work that you've
6 done, as I understand it, that's looking at page 12 and 13
7 here, you come up with your conclusion that there is no
8 question that the population equivalent contributed by the
9 wastewater of this particular plant comes to the 25,000
10 whatever number?

11 THE WITNESS: Certainly less than 50,000, yes,
12 sir.

13 MEMBER MELAS: That was my only question.

14 HEARING OFFICER HALLORAN: Thank you,
15 Mr. Melas.

16 MEMBER MELAS: I would defer to --

17 HEARING OFFICER HALLORAN: Miss Liu?

18 MS. LIU: It would be helpful, before we
19 proceed with our line of questioning, to have the answers
20 to the hearing officer questions.

21 MS. DEELY: Sure. Can we take a two-minute
22 break? I don't want to disrupt everybody.

23 HEARING OFFICER HALLORAN: Sure.

24 (Whereupon, a recess was taken.)

1 HEARING OFFICER HALLORAN: Mr. Flippin?

2 All right. We're going to go back on the
3 record. We took a few-minute break to find some
4 documents. I believe our technical unit was going to pose
5 some questions of this witness.

6 MS. LIU: Good afternoon, Mr. Flippin.

7 THE WITNESS: Afternoon.

8 MS. LIU: Could you please identify the
9 address of your office with Brown and Caldwell?

10 THE WITNESS: I can. It's 501 Great Circle
11 Road, Suite 150, Nashville, Tennessee, 37228.

12 MS. LIU: Could you also please identify the
13 location of the corporate headquarters?

14 THE WITNESS: It is in -- it has recently
15 moved. It is now in Walnut Creek, California.

16 MS. LIU: On page six of your prefiled
17 testimony, you mention a C-18 waste stream that was
18 previously sent off site for treatment?

19 THE WITNESS: Yes, ma'am.

20 MS. LIU: Would you happen to know why they no
21 longer do that?

22 THE WITNESS: I do. I participated in
23 conducting a treatability study that led to the design of
24 a pretreatment facility that allowed the Noveon plant to

1 pretreat the C-18 wastewater in such a way that it
2 rendered it treatable in the existing activated sludge
3 system that they have.

4 MS. LIU: Using the pretreatment system, does
5 a C-18 waste stream contribute to the ammonia in the
6 effluent now?

7 THE WITNESS: The C-18 wastewater contains
8 organic nitrogen compounds that would biodegrade and
9 release ammonia into the wastewater, so C-18 does
10 contribute nitrogen loading on the facility and, and
11 should presumably contribute to the effluent ammonia.

12 MS. LIU: Would eliminating this waste stream
13 again from the Henry plant have an impact on the level of
14 ammonia that is now experienced in the effluent?

15 THE WITNESS: The, the contribution of C-18 to
16 the total effluent ammonia load, candidly, is quite low.
17 Would it reduce the effluent ammonia some? Most likely.
18 Much? Not really.

19 MS. LIU: Could you quantify, please?

20 MEMBER MELAS: Just roughly.

21 THE WITNESS: I'll be glad to. I'd like to
22 refer to -- and this was one of the reasons for doing the,
23 the 1995 individual waste stream characterizations, and in
24 that -- I'm turning to it -- it's -- I've got it here as

1 exhibit --

2 Dick, is that Exhibit 11? The May 17th, 2002.

3 MS. DEELY: Yes.

4 THE WITNESS: Thanks. C-18 -- C-18, on
5 average, contributes 82 pounds per day of total Kjeldahl
6 nitrogen, and the total Kjeldahl nitrogen going into the
7 treatment facility is 1,038. So, if --

8 MEMBER MELAS: Okay. That's good.

9 THE WITNESS: That represents 8 percent. The
10 C-18 wastewater contributes 8 percent of the total
11 Kjeldahl nitrogen going into the facility.

12 MEMBER MELAS: May I just add, that sounds a
13 heck of a lot better than "some" and "more" and "much."

14 THE WITNESS: Thank you. I apologize. I'll
15 be more definitive in my answers.

16 MS. LIU: On page nine of your prefiled
17 testimony, you mentioned the presence of bioinhibiting
18 compounds that frustrate the nitrification process. And
19 in the proven technologies that you discussed for possible
20 treatment alternatives, you said that they would work much
21 better if those bioinhibiting compounds weren't there.

22 In the Agency's recommendation on page 17, the
23 Agency suggests that Noveon should have looked more
24 thoroughly at the alternative of using granular-activated

1 carbon to remove those inhibitors before treatment. Do
2 you know if Noveon looked into that at all?

3 THE WITNESS: Let me explain what we did do,
4 and then I think it sheds light on granular-activated
5 carbon usage. On page 18 of my testimony, we actually
6 were running a continuous flow treatability study. Let me
7 let you get there.

8 MEMBER MELAS: Okay.

9 THE WITNESS: We were running a continuous
10 flow treatability study early on to look at what manner of
11 pretreatment would be required to render C-18 wastewater
12 treatable within the existing facility. And during that
13 period, we noticed that even though we were providing
14 ample alkalinity, ample dissolved oxygen, really warm
15 temperatures, ample means of residence time, we were not
16 getting any nitrification.

17 And so the question became, could we get
18 nitrification if we were to add powdered-activated carbon
19 to the activated sludge treatment facility. And what we
20 found was the answer to that question was yes, we could
21 get nitrification in our -- in our trial experiment by
22 adding 5,000 milligrams per liter of powdered-activated
23 carbon to the treatment facility.

24 At that dose, we would be using about 17 tons

1 a day of carbon, and we -- that made us realize two
2 things. It made us realize that while carbon was removing
3 the inhibitor, it obviously was removing a lot more
4 because of the large dose required. And when you look at
5 the C-18 -- sorry, when you look at the PC tank wastewater
6 that contains C-18 -- sorry, that contains the primary
7 inhibitor, we believe, which is mercaptobenzothiazole, in
8 Exhibit 11, which I've referred to earlier, you'll notice
9 that I list the PC tank as having an average flow rate of
10 107 gallons a minute and an average soluble COD of 8,280
11 pounds per day. That gives it a soluble COD, just by
12 doing the math, of 6,440 milligrams per liter, so you've
13 got -- what you've got is you've got a waste stream that's
14 got 6,000 milligrams per liter of COD, a waste stream that
15 contains the inhibitor, and you'll see in testimony on
16 page 12 of this -- of my written testimony, you'll see
17 that the PC tank discharge also has 900 milligrams per
18 liter of total suspended solids.

19 So, our concern for -- the reason we did not
20 look further at granular-activated carbon was several
21 fold: One is we would have to remove the suspended solids
22 from this waste stream before we, we placed it through a
23 granular-activated carbon column. Number two, a waste
24 stream that has 6,000 COD, if you will, and our prior

1 experience of seeing that a lot of the carbon went to
2 removing other things than MBT, we felt like that the
3 carbon usage on this system would be tremendous -- would
4 be -- would be large. Maybe instead of 17 tons per day,
5 the pack would have required -- maybe it would have been
6 -- even if it was a fifth of that because of the driving
7 force in isotherms and the way it passes through the
8 column, we would have been in the multiple tons per day.

9 And because the PC wastewater not only
10 contains an inhibitor and 6,000 COD, the good news is it
11 also contains some readily degradable compounds like
12 tertiary butyl alcohol and some other things that would be
13 readily degradable. If we were to place that on a carbon
14 column, we couldn't help it but turn that carbon column
15 into an anaerobic treatment vessel and grow slime all over
16 the carbon. And it would by no means, because of fouling,
17 because of slime, and also this wastewater has a high salt
18 content, we're bound to experience scaling on the carbon,
19 too. All of those factors made us not look at carbon on
20 the PC tank wastewater to remove the inhibitors.

21 MS. LIU: Thank you.

22 HEARING OFFICER HALLORAN: Mr. Rao, any
23 questions? Oh, I'm sorry.

24 MR. RAO: I didn't have any questions of this

1 issue, but --

2 MS. LIU: Moving right along, in its
3 recommendation, the Agency took the numbers that you had
4 provided on cost figures for the treatment alternatives
5 and tried to compare them with municipal projects that
6 needed to remove ammonia from their effluent as well.
7 They came up with some dollars per pound figure, but they
8 did not go into the present worth cost calculations that
9 you did, nor did they include the O & M maintenance costs.
10 It makes it a little difficult to compare apples and
11 oranges. The Agency says that the O & M costs that you
12 document seem to be very significant, and I was just
13 wondering if you could characterize why Noveon's O & M
14 costs would be different than a municipality's O & M costs
15 for the same type of ammonia removal?

16 THE WITNESS: I'll be glad to. Most, most
17 municipalities, the nitrification that they provide is
18 single-stage nitrification. And the good news about that
19 is they're able to accomplish BOD removal and ammonia
20 removal in the exact same tankage. And also the good news
21 about it is most domestic wastewaters contain adequate
22 alkalinity or almost adequate alkalinity to support
23 complete nitrification without alkalinity addition.

24 Also, most municipalities, when you look at

1 the oxygen demand exerted by the ammonia versus the oxygen
2 demand exerted by BODs, the oxygen demand exerted for
3 nitrification, while important, if you will, does not
4 greatly -- is comparable if not slightly lower than that
5 for BOD demand.

6 In the -- the second thing is in
7 municipalities, the alpha value for oxygen transfer, it's
8 a lot -- it's easy, relatively easy to transfer oxygen
9 into municipal wastewater in comparison to other
10 industries.

11 And so what makes the single-stage
12 nitrification at Noveon so much more expensive than
13 municipal wastewater treatment plants and why is the
14 operating cost and the capital cost so much greater -- I
15 think that's the question -- and the answer to that is,
16 the only way that Noveon can experience single-stage
17 nitrification is to remove the inhibitors. The only
18 inhibitor removal step that we demonstrated would work --
19 and so does the chemistry demonstrate this. The good news
20 about MBT, which we believe is the primary inhibitor, the
21 good news about it is it can be precipitated as you lower
22 the pH. And we did experiments where we lowered the pH to
23 3, and then we lowered the pH to 2 and found that we
24 needed to lower it to pH 2 to get the MBT low enough to

1 support single-stage nitrification.

2 You can imagine that when you're starting with
3 a stream at 120 gallons a minute or 107 gallons a minute
4 that naturally starts at about pH 10, when you lower it to
5 pH 2 and go through a precipitation stage, clarifiers,
6 solid separation, separate dewatering -- because you can't
7 take what was at pH 2, combine it with other materials at
8 pH 7 and hope to keep the MBT out -- or insoluble, so we
9 needed a separate pretreatment system that separated those
10 solids, that separately dewatered the solids, and got them
11 out of the system while still at pH 2.

12 Then we had to take that 100 to 120
13 gallon-a-minute stream and bring it back up to at least
14 8-1/2's before we put it in the biological treatment
15 system so that we could have adequate alkalinity to
16 support nitrification. If you remember, to support
17 nitrification, Noveon has to add the bulk of their
18 alkalinity to support nitrification.

19 Secondly, Noveon has a wastewater that's
20 almost twice as difficult to transfer oxygen in as a
21 municipal wastewater, so, the aeration horsepower is about
22 twice as big. So, you've got higher energy cost, you've
23 got higher alkalinity cost, you've got the chemical cost
24 of taking a stream from pH 10 to pH 2, back up to pH

1 8-1/2. You've got the cost of a separate pretreatment
2 facility that's made out of fairly robust materials to
3 operate at pH 2. And you've also got, at the Noveon
4 plant, because of the poor oxygen transfer, if you were to
5 provide complete nitrification, you would have to add
6 additional aeration equipment because, while they do have
7 adequate aeration to support some nitrification, certainly
8 not complete nitrification. So, more aeration equipment
9 would have to be added.

10 And so -- and when you look at the
11 Noveon-Henry plant, I give them -- I'll say this. They
12 were -- they were wise in only providing the power they
13 needed to the treatment plant. The bad news is any
14 upgrade that's needed has to come from a substation of
15 electrical power that has to be run from a substation
16 about a half a mile away. So, you've got quite an
17 electrical component to that.

18 Next, the place that they have to build any
19 additional facilities are located where a pond had been,
20 and the fill material put in the pond was great for making
21 sod, but if you were to try to put aeration tanks on it,
22 you would have to dig all that soil out and put soil back
23 that could support the structure of aeration basins,
24 et cetera.

1 So, candidly, when you lump all that together,
2 you end up with just a much, much more expensive treatment
3 system to provide single-stage nitrification than a
4 municipality has to incur. And the biggest difference not
5 only is in the capital cost but the ongoing operating cost
6 of higher aeration requirements because of the poor oxygen
7 transfer, higher alkalinity addition because of not being
8 able to have enough alkalinity in the raw wastewater and
9 then, three, the whole ongoing chemical cost to take waste
10 streams from 10 to 2 to 8-1/2.

11 Does that -- does that answer your question?

12 MS. LIU: Very thoroughly.

13 THE WITNESS: Thank you. Thank you.

14 MS. LIU: I understand in all of the treatment
15 alternatives that you've researched and how thoroughly you
16 went through them you understand better than anyone else
17 how much they will cost and what they're capable of
18 achieving as far as reaching compliance, and there seems
19 like there's no perfect solution, no silver bullet, as
20 Mr. Giffin put it.

21 In the Agency's recommendation they did
22 mention that even if the best degree of treatment didn't
23 achieve full compliance, they would consider supporting
24 the adjusted standard. Looking at the glass as kind of

1 half full rather than half empty, knowing the cost per
2 pound for removal, knowing the percent efficiency, knowing
3 the reliability of this system, could you in your best
4 engineering judgment make a recommendation to Noveon as to
5 a solution to the problem that might be a compromise?

6 THE WITNESS: The, the, the difficult part --
7 the difficult part here is a couple of things, honestly.
8 One is there's a fundamental -- there's a fundamental
9 disagreement about whether 304.122 even applies to Noveon.
10 And therefore, there's a fundamental disagreement about
11 whether any effluent ammonia reduction should even be
12 required of the facility. It is my opinion that
13 304.122(a) nor (b) apply. And so, candidly, I can't see
14 in the Illinois regulations why effluent ammonia reduction
15 would be required by the regulations. I honestly can't
16 see it in 304.122(a) or (b).

17 And so any treatment that they would provide
18 would, would -- I don't see why they would since it's not
19 required by the Illinois regulations, in my -- in my
20 opinion. Are there things that could be done to provide
21 some ammonia reduction? That was the whole reason that we
22 went through, and it's part of our exhibit. It's, it's
23 Exhibit 12, where we went through the incremental cost
24 because Noveon, in working with IEPA, everyone wanted to

1 find some technically feasible, reasonable cost
2 alternative that could be used in reaching an agreement,
3 and we just didn't find one that, that met with agreement.

4 MR. RAO: Can I follow up on that?

5 THE WITNESS: Did I answer the question?

6 MS. LIU: You did.

7 THE WITNESS: Okay.

8 MR. RAO: I would just like to follow up on
9 it. You mentioned how you had these discussions with IEPA
10 as to what you were -- I thought you were saying something
11 like what your -- what Noveon was willing to do.

12 Could you explain it to the Board, what these
13 discussions entailed or in terms of whether you were
14 willing to implement any of these treatment alternatives
15 or --

16 MR. KISSEL: Mr. Hearing Officer, if I can
17 respond to that, I -- we -- the difficulty we have in
18 responding to that question is not because there's
19 anything that was said there that we wouldn't tell the
20 Board, but the fact is that we -- when the original permit
21 appeal was suspended, it was suspended for the purpose of
22 the Agency and Noveon, then BF Goodrich, discussing and
23 studying various alternatives. We had -- we filed,
24 therefore, a petition for variance with the Board which we

1 have recently dismissed because these proceedings were
2 going to go forward.

3 During the course of that period of time,
4 which has been the last 12 years, we have had innumerable
5 meetings with the Agency and a lot of technical papers.
6 You're hearing the summary of it here in the testimony.

7 The difficulty with going through it is that,
8 at the beginning of every meeting that I attended -- and I
9 think I attended most of them, as did some of the other
10 people in this room -- we said, "These are settlement
11 discussions," and so to allow for the openness and
12 frankness between us, that nothing in those meetings would
13 be brought forward to the -- to anybody else, not just the
14 Board, but, but to preserve the sanctity of settlement
15 discussions.

16 Now, so I, I think before we would respond to
17 that, I would want to discuss with the Agency whether they
18 would want us to really go into it because in those
19 meetings, do they want us to tell the Board what went on,
20 or the public, for that matter? I can say, without going
21 into detail about what was said, because I wouldn't do
22 that, there -- you have the sum and substance of that 12
23 years of work before you today.

24 I don't know if that answers the question or

1 what the Agency wants to do. Perhaps we can talk about
2 it. But that's the reason that I would say that we really
3 would be remiss in having Mr. Flippin or anybody else in
4 this room testify as to those discussions because they
5 were in terms of trying to settle this whole matter.

6 MR. RAO: I guess where I was coming from was
7 from the Agency's recommendation when this had -- even if
8 full compliance was not achieved, there are certain things
9 that maybe, you know, the Board could order Noveon to do.
10 And that's one side of the picture we have. I just wanted
11 to get some input from Noveon as to whether there was
12 some, you know, suggestions on Noveon's part that they
13 were willing to do. You know, it's up to you --

14 MR. KISSEL: Right.

15 MR. RAO: -- to complete the record.

16 MR. KISSEL: First of all, let me say that it
17 is my perception and belief that while the Agency is
18 required by law to file a recommendation, that is not
19 evidence in this proceeding. That's merely a guide of
20 what they say. If the Agency wants to come on the stand
21 here, which they are perfectly capable of doing, they have
22 people -- Mr. Pinneo is here, Mr. Mosher is here,
23 Mr. Frevert is not that far away -- and testify what they
24 would accept, we would be more than happy to listen to

1 them.

2 So, our position was that -- or is that the
3 technology is economically unreasonable or technically
4 infeasible, as that term is defined in the Board's
5 regulations and statute. Secondly, that even if you
6 required the most stringent of technologies, a later
7 witness will testify what is being done right now; and
8 when the diffuser is installed, there will be -- there
9 will be -- and the Agency agrees -- no impact on water
10 quality. Has not been and will not be. So, is the
11 technology being required as a tax to accomplish something
12 that really accomplishes nothing in the environment? In
13 fact, the effluent will be as, quote, toxic without
14 ammonia as it is with it. That's what the testimony will
15 be. And that's, in a nutshell, BF -- or Goodrich/Noveon's
16 position.

17 HEARING OFFICER HALLORAN: Ms. Williams, do
18 you want to respond now? I saw you shaking your head.

19 MS. WILLIAMS: I'm sorry.

20 HEARING OFFICER HALLORAN: No, now is as good
21 a time as any.

22 MS. WILLIAMS: No, I wasn't at a lot of those
23 meetings as Dick points out. As he says, the people who
24 were there are -- many of them are still available. I do

1 have on my witness list Toby Frevert, who's the manager,
2 Division of Water Pollution Control. The primary reason
3 he's on my witness list, is not here today -- I did tell
4 him to save tomorrow if we needed him -- is that if the
5 Board really does want someone with authority to get on
6 the stand and say, "This is what we would accept," he's
7 available to do that. I don't know that there was any --
8 I mean, you know, I don't want to go back on any
9 commitment not to reveal anything in the course of
10 settlement, obviously, but I don't know that there was
11 ever anything that anybody looked at in that vein in those
12 meetings.

13 MR. KISSEL: I think that in and of itself, if
14 you believe that, is disclosing what was said at those
15 meetings.

16 MS. WILLIAMS: I wasn't there so I can't speak
17 for sure.

18 MR. KISSEL: I don't want to say it, but this
19 is what I say.

20 MS. WILLIAMS: It would seem like that you
21 would have had to have made an offer in the hope of
22 settlement, right, that you don't want to disclosed. If
23 it was an offer made in the hope of settlement --

24 HEARING OFFICER HALLORAN: I think we can talk

1 about this at lunch or off the record, but --

2 MS. WILLIAMS: But anyway, I guess the only
3 reason I say anything is I would like maybe the Board to
4 let me know this afternoon so I can let Toby know if you
5 feel that's something that you do really need the Agency
6 to respond to, we can have him available.

7 HEARING OFFICER HALLORAN: Thank you.

8 MS. RAO: Mr. Kissel, the Board summarized
9 their position well for us, and I just wanted to get
10 something from --

11 MR. KISSEL: Okay. I was not being -- I'm not
12 trying to be lecturing there, but I did feel it was
13 important to bring this into perspective for the Board.

14 MR. RAO: Yeah. Thanks.

15 MS. LIU: Based on the discussion we just had,
16 minus your legal conclusion that 304.122(b) should not
17 apply, would you make a recommendation to Noveon as to
18 which treatment alternative to utilize?

19 THE WITNESS: I don't know several things that
20 I would need to know. I don't know what target is trying
21 to be hit. And I know that if the question of -- if the
22 question of relevancy to the cost of a POTW is, is one of
23 relevancy, if that is one of relevancy, what I do know is
24 that no matter what alternative we would select, whether

1 you based it on a 20-year project life or whether you
2 based it on a 10-year project life, the cost for Noveon to
3 remove a pound of ammonia is about 18 to -- is about 12 to
4 18 times the cost of a municipal wastewater treatment
5 facility. And so you can see why I would hesitate, with
6 that kind of order of magnitude difference, ammonia
7 removal if not required.

8 MS. LIU: If Mr. Frevert were to come later on
9 and testify as to what a potential target might be, and if
10 you did have to choose, would you be able to do that?

11 THE WITNESS: If, if he gave us a target, I
12 certainly would be able to go back. And if the Board
13 deemed applicable that target, I would certainly be able
14 to go back, based on the studies we've done, and pick a
15 technology that would be the more appropriate of the ones
16 we studied.

17 MS. LIU: Thank you. Mr. Hearing Officer, may
18 we retain this witness to recall him after Toby Frevert
19 speaks, if he does?

20 HEARING OFFICER HALLORAN: Sure, I guess.
21 Mr. -- is it Frevert, the earliest he can be here is
22 tomorrow, correct?

23 MS. WILLIAMS: I mean, I guess I could call
24 him now. But as far as I know, the earliest would be

1 tomorrow. I mean, I don't know -- you know, at some point
2 it's the Board's decision, you know. He can speak to
3 our -- come to our -- how our recommendation might have
4 been different, but I guess I wanted some feedback from
5 the Board about how important that was based on -- rather
6 than the Board themselves, you know, being able to weigh
7 the evidence and make that decision, but --

8 MR. RAO: It's just that, you know, you made
9 some recommendations to the Board, and we wanted to know a
10 little bit more in detail as to what those recommendations
11 mean. It's just that in order to have full information in
12 the record, say they could have -- instead of achieving
13 full compliance, you said to the Board that maybe the
14 Board order them to implement some of these alternatives
15 to, if not full compliance, partial compliance, if I can
16 use that word, which I know -- so, we wanted to know what,
17 you know, it entailed or what target was the Agency
18 thinking of when it made the suggestion.

19 MS. WILLIAMS: I think --

20 HEARING OFFICER HALLORAN: I guess there's a
21 couple of ways we can handle it. You need to call
22 Mr. Frevert at lunch.

23 MS. WILLIAMS: We can do post-hearing --

24 HEARING OFFICER HALLORAN: Right, right. If

1 he answers Mr. Rao's question, maybe Mr. Flippin can
2 respond in a reply or we can set a separate briefing
3 schedule. But we could work that out.

4 MR. RAO: Of course, the Board will make its
5 decision. It's just that our part in this hearing is to
6 get all the information together so that the Board will
7 have as much information as possible in front of it when
8 it makes its decision.

9 MS. WILLIAMS: Absolutely.

10 HEARING OFFICER HALLORAN: Any other
11 questions, Mr. Rao? Miss Liu, I'm sorry. I forgot who
12 was up. Tag-teaming.

13 MR. RAO: I have a clarification question for
14 Mr. Flippin, and this is in Exhibit 13. And let me see
15 what the table number is. On -- let's see -- page one of
16 four, it's a comparison of removals and reliability of
17 effluent ammonia-nitrogen removal processes?

18 THE WITNESS: Yes.

19 MR. RAO: You go through all the alternatives,
20 and you have assigned a reliability rating for each
21 alternative?

22 THE WITNESS: Yes, sir.

23 MR. RAO: And some of these ratings are, you
24 know, think it goes from the scale of one to ten?

1 THE WITNESS: Yes, sir.

2 MR. RAO: And they're close to 10; you know,
3 there are a lot of number of 8's, 7's in there. And I
4 just wanted to get a clarification from you as to when you
5 talk about this reliability rating, are you talking about
6 reliability in terms of treatment in the general, you
7 know, wastewater treatment arena; or if it was implemented
8 at the Noveon plant, would we still have the same kind of
9 reliability rating?

10 THE WITNESS: Thank you. These reliability
11 ratings were my -- were my professional opinion about how
12 reliable this process would be at reducing effluent
13 ammonia-nitrogen at the Noveon-Henry plant.

14 MR. RAO: Okay. So, for example, if I pick PC
15 tank stripping with off-gas control which has a
16 reliability rating of 8, if this option was implemented,
17 then you can, you know, on a general sense assume that
18 this treatment option would be capable of removing 27
19 percent of hydrogen. I think that's what it says, average
20 removal rate is 27 percent?

21 THE WITNESS: Yes, sir.

22 MR. RAO: So, is that something that we can
23 make that assumption with this treatment option, that's
24 the removal rate that can be reliably achieved?

1 THE WITNESS: One way to look at that would be
2 I certainly believe on average it would remove 27 percent.
3 I do believe that.

4 MR. RAO: Okay.

5 THE WITNESS: I believe that one way to look
6 at this reliability rating would be in a calendar year,
7 what percent of the time might you not achieve an average
8 removal rate of 27 percent.

9 MR. RAO: Okay.

10 THE WITNESS: And something that has a
11 reliability rating of 8 in a calendar year, you may see 20
12 percent of the days in which it really doesn't get an
13 average removal of 27 percent.

14 MR. RAO: Okay. Thank you.

15 MS. LIU: Thank you for explaining everything
16 so clearly. We appreciate that.

17 THE WITNESS: Glad to. Glad to.

18 HEARING OFFICER HALLORAN: Thank you. In
19 light of the questions posed, Mr. Kissel, do you have any
20 re-redirect of Mr. Flippin?

21 MR. KISSEL: None.

22 HEARING OFFICER HALLORAN: Ms. Williams,
23 re-recross?

24 MS. WILLIAMS: I will spare Mr. Flippin a

1 re-recross.

2 HEARING OFFICER HALLORAN: You know, and I
3 promised the public before we took our lunch that if
4 anybody wanted to come up before lunch and make a comment
5 or statement to do so now. If not, we can revisit that
6 after lunch.

7 In light of the timing and everything, is it
8 possible for everyone to be back here at, say, 1:35? Grab
9 a bite across the street and get this thing going again?

10 Thank you and have a great lunch.

11 (Whereupon, a noon recess was taken.)

12 HEARING OFFICER HALLORAN: All right. I think
13 we'll go back on the record. It's approximately 1:40.
14 Thank you for being so prompt. I hope you all had time to
15 brush and floss. I doubt it, but we'll proceed.

16 Mr. Flippin just finished his testimony for
17 now, and Mr. Kissel --

18 MR. KISSEL: We have our next witness,
19 Mr. Corn.

20 (Witness sworn.)

21 MICHAEL R. CORN, P.E.,
22 called as a witness, after being first duly sworn, was
23 examined and testified upon his oath as follows:

24 * * * * *

DIRECT EXAMINATION

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BY MR. KISSEL:

Q. Would you identify yourself for the record, please?

A. I'm Michael R. Corn.

Q. Mr. Corn, I show you what has been marked as Petitioner's Exhibit Number 16 and ask you to identify that, please?

A. That's the expert written testimony that I prepared for this hearing.

Q. Okay. Did you prepare it yourself?

A. Yes, I did.

Q. And is the statement -- are the statements contained therein true and correct to the best of your knowledge and belief?

A. They are. I would like to make a few corrections.

Q. We'll get to that.

A. Okay.

Q. But other than the corrections you would make --

A. Yes.

Q. -- it's correct?

MR. KISSEL: Okay. I would like to move the

1 exhibit -- Petitioner's Exhibit 16 into evidence, please.

2 HEARING OFFICER HALLORAN: Now, is that Number
3 16 or 17, Mr. Kissel, because we have this one outstanding
4 one here with the responses to the Illinois Pollution
5 Control Board's questions.

6 MR. KISSEL: We have not marked that as an
7 exhibit yet.

8 HEARING OFFICER HALLORAN: Okay. I'll just
9 let that -- okay. Number 16, Miss Williams?

10 MS. WILLIAMS: He stated there were some
11 corrections?

12 MR. KISSEL: There's just some additions.

13 MS. WILLIAMS: Additions?

14 MR. KISSEL: Well, additions or corrections.

15 MS. WILLIAMS: I mean, I have no objection.

16 I've stated before that I have no objection to the
17 prefiled testimony as it's been submitted, so --

18 HEARING OFFICER HALLORAN: Okay, terrific. It
19 is so admitted.

20 BY MR. KISSEL:

21 Q. Mr. Corn, I show you what has been marked as
22 Petitioner's Exhibit 17 and ask you to identify that,
23 please?

24 A. This is my resume, specifically on water

1 quality and related experience.

2 Q. Did you prepare that document?

3 A. I did.

4 Q. Is it true and correct to the best of your
5 knowledge and belief?

6 A. It is.

7 MR. KISSEL: I move the admission of
8 Petitioner's Exhibit 17.

9 MS. WILLIAMS: This is --

10 MR. KISSEL: His resume.

11 MS. WILLIAMS: So far as we're going along,
12 we're going with the same stuff that was attached to his
13 testimony?

14 MR. KISSEL: Yes.

15 MS. WILLIAMS: Okay. As long as you let me
16 know when we get off that, I'm good.

17 MR. KISSEL: As far as I know, all of it is,
18 but I'm not sure.

19 HEARING OFFICER HALLORAN: Okay. Petitioner's
20 Exhibit Number 17 is also admitted into evidence.

21 BY MR. KISSEL:

22 Q. And Petitioner's Exhibit 17, Mr. Corn, is that
23 the -- referred to in your testimony on page two as your
24 resume? It says, "My resume is attached." Is that what

1 you're referring to?

2 A. That is correct.

3 Q. Okay. I show you what's been marked as
4 Petitioner's Exhibit 18 in this proceeding and ask you to
5 identify that, please?

6 A. This is a -- basically a USGS topographic map
7 of the site. The Henry plant sits up on a bluff as
8 cross-hatched here. It's about 80 to 90 feet above the
9 river. POTW is over in this direction. It, again, is up
10 on a bluff. The two discharges come together and are
11 discharged at a point, oh, about 1,000 feet downstream
12 from the Noveon plant. Do you have --

13 Q. Where did you get that? Where did we find --
14 you find that exhibit? Did you put it together?

15 A. Yes, I did.

16 Q. And from what document?

17 A. It's the USGS topographic map with the
18 location of the discharge as presented in the NPDES
19 permit.

20 Q. Does that accurately reflect that which it
21 intends to reflect?

22 A. Yes, it does.

23 MR. KISSEL: All right. I move the admission
24 of Petitioner's Exhibit Number 18.

1 MS. WILLIAMS: No objection.

2 HEARING OFFICER HALLORAN: Petitioner's
3 Exhibit Number 18 is admitted.

4 BY MR. KISSEL:

5 Q. Is that the document you referred to in your
6 testimony as Figure 1?

7 A. It is.

8 Q. Show you what's been marked as Petitioner's
9 Exhibit 19. Would you tell us what that is, please?

10 A. In October of 1989, I directed a study on the
11 Illinois River of the Noveon discharge -- at that time, it
12 was BF Goodrich discharge -- and it shows basically the
13 effluent plumes from the discharge going out into the --
14 into the Illinois River.

15 Since that time, I might add, the POTW has
16 been added to the discharge.

17 Q. Did you prepare that document?

18 A. I did.

19 Q. Is that a true and correct, accurate -- and
20 accurate representation of the discharge from the Noveon
21 facility?

22 A. Yes, it is.

23 MR. KISSEL: Move the admission of Exhibit
24 Number 19.

1 THE WITNESS: 19.

2 MS. WILLIAMS: No objection.

3 HEARING OFFICER HALLORAN: Exhibit Number 19

4 is admitted.

5 BY MR. KISSEL:

6 Q. Is that exhibit referred to in your testimony
7 as Figure 2?

8 A. It is.

9 Q. Show you what's been marked as Exhibit Number
10 20. Can you tell me what that is, please? I'm sorry.

11 A. The exhibit is the -- basically the hydraulic
12 characterization of an effluent plume as it goes from a
13 near field, which is the area of rapid and immediate
14 mixing, into a far field, which is basically ambient river
15 diffusion. There are basically well-developed
16 mathematical models for each of these zones.

17 We have a jet momentum zone which, in many
18 cases, is referred to as a zone of initial dilution.
19 There may be a restratification zone. If the -- if the
20 dispersion is not enough, it may stratify like a heated
21 temperature plume. We have a buoyant spreading zone. The
22 buoyant spreading zone is really a transition zone from
23 the near field into the far field. It's basically
24 gravitational spreading caused by any density differences

1 between the two plumes, the river and the plume.

2 And then you have a far field zone which is
3 basically ambient driven dispersion, basically the energy
4 of the river disperses the plume at that point.

5 Q. Did you prepare that document, or did you get
6 it from someplace?

7 A. No, I prepared this.

8 Q. You did. And it's true and correct in
9 reflecting what it purports to reflect?

10 A. Yes, it is.

11 MR. KISSEL: I move the admission of
12 Petitioner's Exhibit Number 20.

13 MS. WILLIAMS: No objection.

14 HEARING OFFICER HALLORAN: Thank you.
15 Petitioner's Exhibit Number 20 is admitted into evidence.

16 BY MR. KISSEL:

17 Q. Mr. Corn, is that referred to in your
18 testimony as Figure 3?

19 A. Yes, it is.

20 Q. I will show you what's been marked as
21 Petitioner's Exhibit Number 21. Would you identify that,
22 please?

23 A. This is a drawing, a schematic that was
24 developed by the National Academy of Sciences back in

1 1972, and really set the stage for mixing zones from that
2 time forward. And it basically enters in the concept of
3 time and concentration as important to toxicity to aquatic
4 species.

5 Q. Where did you get that from?

6 A. This actually came from the Technical Support
7 Document for Water Quality Based Toxic Control. It's a
8 U.S. EPA document. I believe it came out in 1988 and --
9 but it was not in the current version, the '91 version.

10 Q. Is that -- is Petitioner's Exhibit 21 a
11 document on which you rely in your business as evaluating
12 discharges in water quality?

13 A. Yes, it is.

14 MR. KISSEL: I move the admission of
15 Petitioner's Exhibit Number 21.

16 MS. WILLIAMS: We are on Figure 4 now?

17 MR. KISSEL: Yes.

18 THE WITNESS: Yes.

19 MS. WILLIAMS: No objection.

20 HEARING OFFICER HALLORAN: So admitted.

21 BY MR. KISSEL:

22 Q. And that is referred to as Figure 4 in your
23 testimony?

24 A. Yes, sir. Yes, sir.

1 Q. Show you what's been marked as Petitioner's
2 Exhibit 22. Will you tell us what that is?

3 A. This is a detailed drawing of the jet momentum
4 zone, and basically it gives a couple of different zones
5 -- a zone of flow establishment, and then basically a
6 concentration profile along the center line of the plume.
7 The zone of flow establishment I speak of in my testimony
8 as something called 50 times the square root of the
9 cross-sectional area, which is one of the things that EPA
10 designates as determining how, how much mixing should
11 occur in a ZID. And it's usually a limiting factor, that
12 basically they say that within that zone of flow
13 establishment you should achieve at least 10 times or 10:1
14 dispersion. It's not a total limit on the mixing zone; it
15 just says you have to meet 10:1 dispersion within that
16 short zone.

17 If we were looking at an effluent diffuser,
18 you would not have plume mergers at this point, but later
19 on in the -- at the end of the jet momentum zone, you
20 would still have plume mergers. It would still be an
21 individual plume.

22 Q. Did you prepare that document?

23 A. Yes, I did. It came from a U.S. EPA approved
24 document.

1 Q. It came from the TST?

2 A. It actually came from a model description of
3 the UDKHDEN model.

4 Q. And is that a document on which you rely in
5 your profession?

6 A. Yes, it is.

7 MR. KISSEL: I move the admission of
8 Petitioner's Exhibit Number 22.

9 MS. WILLIAMS: I'm sorry. No objection.

10 HEARING OFFICER HALLORAN: Number 22 is
11 admitted.

12 BY MR. KISSEL:

13 Q. I show you what has been marked as
14 Petitioner's Exhibit Number 23. Can you tell us what that
15 is?

16 A. This is another depiction from one of the
17 other computer models that we rely on, the core mix model.
18 And it basically shows a profile view of the plume as it
19 reaches the surface, the buoyant spreading area, then the
20 ambient dispersion downfield. And the jet momentum zone
21 or the ZID is usually defined in this first part right
22 here.

23 Q. Did you prepare that document?

24 A. This came actually out of the core mix

1 documentation for the model.

2 Q. Okay. Is that a document on which you rely in
3 your profession?

4 A. It is.

5 MR. KISSEL: I move the admission of Exhibit
6 Number 23.

7 MS. WILLIAMS: No objection.

8 HEARING OFFICER HALLORAN: Petitioner's
9 Exhibit Number 23 is admitted into evidence.

10 BY MR. KISSEL:

11 Q. I didn't ask the last time, but Petitioner's
12 Exhibit 22 is referred to in your testimony as Figure 5?

13 A. That's correct.

14 Q. And Petitioner's Exhibit 23 is referred to as
15 Exhibit 6?

16 A. Correct.

17 Q. Okay.

18 A. Figure 6.

19 Q. Figure 6. I'm sorry. Show you what's been
20 marked as Petitioner's Exhibit Number 24.

21 A. This is an actual profile of a plume from a
22 diffuser or diffuser port. And typically, the diffuser
23 models depict the end of the ZID as where the edge of the
24 plume reaches the surface, and that's usually where we --

1 there or a short distance downstream is where we define
2 the zone of initial dilution from a hydraulic standpoint.

3 Q. Did you prepare that document?

4 A. Yes, I did.

5 Q. And is it true and correct in what it intends
6 to depict?

7 A. Yes, it is.

8 MR. KISSEL: Move the admission of
9 Petitioner's Exhibit Number 24.

10 MS. WILLIAMS: No objection.

11 HEARING OFFICER HALLORAN: Exhibit Number 24
12 is admitted into evidence.

13 BY MR. KISSEL:

14 Q. And that is referred to as Figure 7?

15 A. Figure 7, correct.

16 Q. This is a little upside down, but --

17 A. We've got a big, big poster of this one.

18 Q. Yes. Show you what's been marked as
19 Petitioner's Exhibit Number 25. Could you tell us what
20 that is, please?

21 A. This is another depiction of an actual
22 isopleth from our actual study of the plume that we did
23 back in 1989, and it just basically shows the
24 concentration profiles. Maximum concentrations are always

1 along the center line of the plume which is along the
2 length of the -- of the river.

3 Q. Did you prepare that document?

4 A. Yes, I did.

5 Q. That was based on studies you did for
6 BF Goodrich/Noveon?

7 A. That's correct.

8 MR. KISSEL: Move the admission of
9 Petitioner's Exhibit Number 25.

10 MS. WILLIAMS: No objection.

11 HEARING OFFICER HALLORAN: Admitted.

12 BY MR. KISSEL:

13 Q. And that Petitioner's Exhibit 25 is referred
14 to as Figure 8 in your testimony?

15 A. That is correct.

16 Q. Show you what's been marked -- we're almost
17 done -- Petitioner's Exhibit Number 26. Will you please
18 describe that?

19 A. This is the cross-sectional area of the
20 Illinois River at the discharge point. And in this
21 depiction, we are depicting one of the things in the
22 Illinois regulations and also in the U.S. EPA guidance on
23 mixing zones, is that the mixing zones, including the ZID,
24 are allowed a 25 percent of the cross-sectional area or

1 volume of flow. And this just gives how much volume of
2 flow the present diffuser is using which, in this case,
3 is, I believe, about 16 percent of the -- of the
4 cross-sectional area.

5 Q. Did you prepare that document?

6 A. I did. It's actually prepared from a Corps of
7 Engineers' bathometric profile of the river.

8 MR. KISSEL: I move the admission of
9 Petitioner's Exhibit Number 26.

10 MS. WILLIAMS: No objection.

11 HEARING OFFICER HALLORAN: So admitted.

12 BY MR. KISSEL:

13 Q. And that is -- that Petitioner's Exhibit
14 Number 26 is referred to as Figure 9 in your testimony?

15 A. That is correct.

16 Q. Show you what's been marked as Petitioner's
17 Exhibit 27.

18 A. 27 is basically a planning profile view of
19 what the diffuser would look like. We have -- basically
20 were asked to look at a diffuser design, conceptual
21 diffuser design, and this is a multiport diffuser which
22 would give us greater dispersion in a smaller area.

23 It shows the port at an angle. We would point
24 these ports at a 60-degree angle to make sure, because

1 it's a denser plume, that we get it up into the water
2 column so the mixing is good. And the diffuser would
3 basically be about 15 feet long with four three-inch
4 ports.

5 There's a couple different designs we've
6 looked at, but that's sort of the one we're looking at
7 right now.

8 Q. Did you prepare that document, Mr. Corn?

9 A. I did.

10 Q. And is it true and correct to the best of your
11 knowledge and belief?

12 A. Yes, it is. I may add that the diffuser is a
13 fairly benign object or dispersion mechanism, not very
14 much maintenance on it. Usually send a hardhat diver down
15 to check it once a year to make sure the ports aren't
16 clogged or broken. And usually diffusers last on the
17 order of about 30 years.

18 MR. KISSEL: Move the admission of Exhibit
19 Number 27.

20 MS. WILLIAMS: No objection.

21 HEARING OFFICER HALLORAN: 27 so admitted.

22 BY MR. KISSEL:

23 Q. That Exhibit 27 is referred to as Figure 10 in
24 your testimony?

1 A. That is correct.

2 Q. Okay. Show you what's been marked as
3 Petitioner's Exhibit Number 28. Can you tell me what that
4 is?

5 A. That is a model run of a diffuser -- the
6 multiport diffuser, and the projected plume with a ZID,
7 and a total mixing zone, which might range from about 200
8 feet down to about 750 feet depending on the flow of the
9 river. As flow increases, it tends to elongate that plume
10 because ambient velocity pushes it a little bit further
11 downstream.

12 HEARING OFFICER HALLORAN: Mr. Kissel, do you
13 have a copy for either myself or, Miss Williams, do you
14 have a copy of it?

15 MS. WILLIAMS: Actually this one wasn't
16 attached. Sheila did give me some color copies that
17 include this one. So, I do have one in front of me right
18 now.

19 HEARING OFFICER HALLORAN: Okay. My
20 exhibit --

21 MS. DEELY: Is it just that one that you want
22 a copy of?

23 HEARING OFFICER HALLORAN: Well, I just want
24 to make it known that my exhibits stop there as far as

1 Figure 10.

2 MR. KISSEL: Okay.

3 HEARING OFFICER HALLORAN: But in any event,
4 I'm sorry to interrupt, Mr. Corn.

5 THE WITNESS: Oh, that's okay.

6 MR. KISSEL: Do you have any objection to that
7 exhibit being introduced, Exhibit 28?

8 MS. WILLIAMS: I don't think so. Sheila had
9 pointed out to us this morning that she saw there was one
10 that we didn't have, and she gave it to us. So, that's
11 fine.

12 HEARING OFFICER HALLORAN: Okay. Terrific.
13 Thank you.

14 MS. DEELY: It was those two?

15 MR. KISSEL: This is for you.

16 HEARING OFFICER HALLORAN: Thank you.

17 BY MR. KISSEL:

18 Q. That document is referred to as what exhibit
19 in your testimony?

20 A. As Figure --

21 Q. Or figure?

22 A. -- 11.

23 Q. 11?

24 A. Uh-huh.

1 Q. I show you what's been marked as Petitioner's
2 Exhibit Number 29. Could you tell us what that is?

3 A. This is a report prepared by EA Engineering
4 entitled "Results of an Acute Toxicity Identification
5 Evaluation," TIE, on a filter effluent sample from BF
6 Goodrich.

7 Q. What is that document? How did you come about
8 having it?

9 A. This document I used in preparation of my
10 testimony on determining the toxicity of effluent. One of
11 the things we have to look at in mixing zones is to make
12 sure -- we, we make sure that the toxicity is diminished
13 at the end of the ZID and in the mixing zone.

14 Q. Did you rely on that document in preparing
15 your testimony?

16 A. Yes, I did.

17 Q. Who's the author of that testimony?

18 A. Mr. Goodfellow who, I believe, will be
19 testifying later.

20 MR. KISSEL: All right. I move the admission
21 of Exhibit Number 29.

22 MS. WILLIAMS: So you want this entered with
23 Mr. Corn's testimony?

24 MR. KISSEL: He's referring to it. If you

1 don't -- if you have an objection, Mr. Goodfellow will
2 verify it.

3 MS. WILLIAMS: It's not so much an objection.
4 It just seemed logical to us in some ways that
5 Mr. Goodfellow would have gone first, so I'm a little
6 surprised about that.

7 MR. KISSEL: I don't think we did it
8 alphabetically. I'm not sure how we came about that.

9 MS. WILLIAMS: That's fine.

10 HEARING OFFICER HALLORAN: Okay. Number 29 is
11 admitted.

12 BY MR. KISSEL:

13 Q. Mr. Corn, you have your testimony before you
14 which is your Exhibit Number 16. Have you reviewed that
15 testimony since it's been submitted to the Board?

16 A. Yes, sir.

17 Q. Are there any areas which you'd like to
18 comment on or, or change or modify?

19 A. A couple -- a couple of additions and --

20 Q. Okay.

21 A. -- some things that the Board has asked for
22 that I'd like to point out in my testimony.

23 Q. Okay. Go ahead.

24 A. On page two at the end of my qualifications

1 and experience, I just wanted to note that I've been
2 working on water quality-related projects at Noveon/BF
3 Goodrich since 1989.

4 Q. Okay.

5 A. Also on page two, the Board asked a question
6 about what the average concentrations were of ammonia in
7 the effluent in 2003 and for the summer period. And I
8 believe that's in the document we gave you. It was 77
9 milligrams per liter as an average. We've reported 135
10 milligrams per liter based on the work that Mr. Flippin
11 has done. But last year, in 2003, the average in the
12 summer was 77, and I think it's 94 for the winter period.

13 MS. WILLIAMS: Can we -- so this is coming
14 from -- can we please give it a number? Is that too much
15 to ask at this point, if we're reading from the Board's
16 answers?

17 MR. KISSEL: What he's doing is not
18 necessarily reading from those. What he's doing is he put
19 that together, and he's testifying as to it. I'll be
20 happy to give it a number. You know, we hadn't decided
21 whether we would move its admission or just submit it to
22 the Board, but -- can we get a number to that?

23 MS. DEELY: If we want, yeah.

24 MR. KISSEL: Sure.

1 MS. WILLIAMS: I mean, I think it would be
2 easier for me to be able to refer to it as an exhibit.

3 BY MR. KISSEL:

4 Q. Okay. Anything else, Mr. Corn?

5 A. Yes. On page five when I'm describing the
6 different zones --

7 Q. What about page -- I thought you said you had
8 something on page three?

9 A. I must have skipped over that.

10 Q. Yes.

11 A. Page three, the background pH in the report
12 says it's 7.7. It's actually 7.77. And the background
13 ammonia concentration should be 0.3 milligrams per liter,
14 and I believe we had -- I thought I put 0.09.

15 Q. So that -- the background concentration is in
16 paragraph one on page three, and the background ammonia
17 concentration is in paragraph three; is that correct?

18 A. That's correct.

19 Q. All right. Above that, it said the water --
20 the sentence, "The water quality characteristics," my
21 statement says, "U.S. EPA stored data." Should that be
22 Storet?

23 A. Storet. Thank you.

24 MS. WILLIAMS: Can you refer me to that line

1 again?

2 MR. KISSEL: It's the water quality
3 characteristics, U.S. EPA. It should be Storet database.

4 MS. WILLIAMS: Thank you.

5 A. On page -- on page five, I previously
6 described the different zones of a mixing zone, of a
7 hydraulic mixing zone. And under near field zone, I
8 describe that in the fourth sentence down. The sentence
9 reads, "This zone consists of a jet momentum zone, a
10 restratification zone, depending upon plume river density
11 differences after the jet zone, a transition zone, the
12 buoyant spreading zone," which I said was sort of a
13 transition zone between the near field and the far field,
14 and then the -- it should say, "and far field zone, "which
15 is a mixing area where the plume goes from
16 effluent-dominated mixing to mixing totally dominated by
17 the river ambient diffusion, which is a natural energy and
18 dispersive or spreading out forces of the receiving
19 stream.

20 Q. Okay. Anything else?

21 A. On page seven, the Illinois regulations
22 specify that you can only use 25 percent of the
23 cross-sectional area or volume of flow to establish the,
24 the mixing in a mixing zone. And that applies to the zone

1 of initial dilution as well as the total mixing zone.

2 The intent of the -- all the guidance is to
3 minimize the area you use; and the more mixing you can get
4 in the ZID or the closer to the diffuser, the better you
5 are from impacts to the river. So, I would like to add,
6 after number two --

7 Q. On page seven?

8 A. -- on page seven, "The ZID dispersion is
9 limited by 25 percent of the volume of flow or
10 cross-sectional area."

11 Q. Thank you. Next? Anything else?

12 A. Just a clarification under -- on page eight
13 under number two, that is describing the -- what we looked
14 at for the Noveon single port diffuser as it exists today.
15 For other discharges that don't meet the
16 10-foot-per-second port exit velocity criterion, such as
17 for the Noveon discharge, and each of the following A, B
18 and C's describe how we calculated that ZID distance.

19 Q. What about paragraph 2(b)?

20 A. 2(b) should be and/or. You use the -- use the
21 smallest distance to establish your ZID.

22 Q. Okay. Anything else?

23 HEARING OFFICER HALLORAN: Yes, Miss Williams?

24 MS. WILLIAMS: I'm lost. I'm sorry. We're

1 changing on page eight, is that what we're doing here?

2 MR. KISSEL: Yes, ma'am. Where it says e.g.,
3 in paragraph two, Mr. --

4 MS. WILLIAMS: Oh, that should be and/or?

5 MR. KISSEL: No, that should be "for the
6 Noveon discharge," right?

7 THE WITNESS: Correct.

8 MS. WILLIAMS: Okay. And then --

9 MR. KISSEL: Paragraph B, just add "slash or"
10 at the end of it.

11 MS. WILLIAMS: Thank you.

12 MR. KISSEL: Okay. You're welcome.

13 BY MR. KISSEL:

14 Q. Anything else, Mr. Corn?

15 A. On page ten, the last sentence under multiport
16 diffuser. "And the multiport diffuser will normally meet
17 chronic numeric criteria and chronic co-effluent toxicity
18 within about 100 to 250 feet from the diffuser with a
19 maximum distance on the order of about 750 feet, based on
20 flow."

21 Q. You're adding the words "with a maximum" --

22 A. -- "distance on the order of 750 feet."

23 Q. Okay.

24 A. And then under number two, it's got -- we talk

1 about waste. It should be effluent. It's treated
2 effluent.

3 Q. All right. Anything else?

4 MS. WILLIAMS: Hang on. Let me catch up.
5 Where does "treated effluent" go?

6 MR. KISSEL: Pardon?

7 MS. WILLIAMS: I'm sorry. Where does "treated
8 effluent" go?

9 MR. KISSEL: Paragraph 6(2), it says, "and the
10 waste is mixed." It should be, "and the treated effluent
11 is mixed primarily by ambient turbulence."

12 MS. WILLIAMS: Okay.

13 BY MR. KISSEL:

14 Q. Anything else, Mr. Corn?

15 A. On page eleven, we have at -- right before
16 water quality effects, IEPA allows a total of 26 acres for
17 the total mixing zone and the 16 acres, and that last
18 sentence should be 26 acres.

19 Q. Anything further?

20 A. The -- a little bit of clarification on the
21 two ammonias. NH_4 which is the ionized form of ammonia is
22 not considered toxic. The un-ionized form, NH_3 , which
23 Mr. Flippin talked about being able to strip from because
24 it turns into a gas, is a toxic form, which shows up in

1 aquatic toxicity tests.

2 Q. So, your addition is to add the word --

3 A. Under -- after NH₄ which is not considered
4 toxic.

5 Q. So the word "considered" is added. Okay.

6 MS. WILLIAMS: Oh, I'm sorry, I lost -- I'm
7 lost again. I followed the words he was saying; I just
8 don't understand exactly where -- I lost the line.

9 MR. KISSEL: I'm sorry. Oh, sure.

10 MS. WILLIAMS: Where does it say --

11 MR. KISSEL: It's on page eleven, ammonia or
12 NH₃, the last paragraph.

13 MS. WILLIAMS: Right.

14 MR. KISSEL: The sentence reads, "Ammonia
15 exists in the environment both as" --

16 MS. WILLIAMS: There it is.

17 MR. KISSEL: Yes. Okay.

18 MS. WILLIAMS: Thank you.

19 MR. KISSEL: You're welcome.

20 BY MR. KISSEL:

21 Q. Anything else, Mr. Corn?

22 A. On page 12, and we're talking about dissolved
23 oxygen. Just a clarification. The river meets DO
24 standards. It's the next-to-last sentence in that

1 paragraph under dissolved oxygen. "The river meets DO
2 standards based on the available data for downstream
3 locations that would potentially be affected by the Noveon
4 discharge." It's just to make sure that we're talking
5 solely about the Noveon discharge at this point.

6 Q. Okay. Anything else?

7 A. I believe I've already -- on page 13 under
8 ammonia water quality standards, we're talking about a
9 distance of 100 to 250 feet from the diffuser, and I've
10 clarified that that would normally be the distance to meet
11 the total mixing zone or chronic zone for ammonia.

12 Q. Anything else, Mr. Corn?

13 A. That is it.

14 Q. Okay. I call your attention to page three of
15 your testimony, the last sentence on the page that reads,
16 "Data for the winter indicate that these months are not
17 limiting periods for ammonia discharges." When you use
18 the term "limiting periods," what do you mean?

19 A. When we look at discharges, we try to find out
20 what is the most critical period that we have to design
21 for as far as the diffuser would go. And the summer
22 conditions of low flow, high temperatures gives us the
23 most critical periods to design for, both from a water
24 quality standpoint and toxicity standpoint.

1 Q. Water quality standards for ammonia are
2 divided into two times of the year; is that correct?

3 A. Summer and winter.

4 Q. Okay. And what is generally the summer, and
5 what is generally the winter, or what is -- do you know
6 what they are in Illinois regulations?

7 A. What the two different standards are?

8 Q. No, what, what the months are? Do you know
9 what the --

10 A. Oh, the months for summer are April through
11 October, and then November through March for winter.

12 Q. All right. And for each of those periods,
13 there are -- what standards exist? What kinds of
14 standards?

15 A. There's whole effluent toxicity standards, but
16 there's also specific ammonia acute standards, which is a
17 number that would be derived from pH data, and then there
18 is a specific chronic ammonia standard that you would have
19 to meet.

20 Q. So, Illinois has summer and winter standards;
21 and summer, there's summer acute, summer chronic, winter
22 acute and winter chronic. Is that correct?

23 A. Correct.

24 Q. And in this instance of the Noveon discharge,

1 what is the standard that you -- is most limiting, if you
2 will, as you defined that in your testimony?

3 A. The one that we've always been limited in is
4 the acute standard which is at the edge of the ZID limits,
5 the -- what dispersion we have to meet --

6 Q. And what, what time of the year?

7 A. -- to meet the standards. During the summer,
8 and September being the critical period because that's the
9 lowest flow period for the Illinois River.

10 MR. KISSEL: That's all I have.

11 HEARING OFFICER HALLORAN: Thank you.

12 Miss Deely, do you have copies of Mr. Corn's written
13 testimony for the members of the public?

14 MS. DEELY: Yes, I think I passed them out.

15 HEARING OFFICER HALLORAN: Anybody else want a
16 copy of Mr. Corn's written testimony?

17 AUDIENCE MEMBER: How can we arrange for
18 exhibits of that as well?

19 HEARING OFFICER HALLORAN: Well, you can go on
20 our website, and I believe they scan them, or you can come
21 in personally to the Chicago office, or you can call the
22 clerk, and I think he can take care of you there. And I
23 will give you -- next break I'll give you our website, and
24 I will make it for the record at the conclusion.

1 With that said, Miss Williams, is your cross,
2 do you know -- your crystal ball -- going to be long? The
3 reason I'm asking, Mr. Melas, Member Melas, has to take a
4 flight back to Chicago for a Board meeting, and he's got
5 to leave about three. And I was remiss in -- I stated
6 earlier, but I wanted to see if any members of the public
7 wanted to make public comments, statement while Member
8 Melas is here and before he takes off to Chicago. And
9 that's not to say you can't make it later if you don't
10 make it now, but --

11 MS. WILLIAMS: I think it would be appropriate
12 to break off now. I would probably actually like to take
13 a couple minutes to make a call back to the office, and if
14 we want to allow for public testimony during that period?

15 HEARING OFFICER HALLORAN: You don't want to
16 be here?

17 Does anybody want to make a public comment,
18 statement at this time? I don't see any hands.

19 Do you need to take a minute break?

20 MS. WILLIAMS: Just two or three minutes,
21 yeah.

22 HEARING OFFICER HALLORAN: Okay. We're off
23 the record. Thanks.

24 (Whereupon, a recess was taken.)

1 HEARING OFFICER HALLORAN: We're back on the
2 record, and I think Mr. Kissel has finished his direct,
3 and it's Miss Williams' turn.

4 CROSS-EXAMINATION

5 BY MS. WILLIAMS:

6 Q. Good afternoon, Mr. Corn. How are you today?

7 A. Very good.

8 Q. Just like to ask you a few questions about
9 your testimony today. On page one, you talk about your
10 participation in the adoption of the Board's mixing zone
11 rules; is that correct?

12 A. Correct.

13 Q. And you testified in those hearings?

14 A. I did.

15 Q. And who were you representing when you
16 testified in those hearings?

17 A. The Village of Sauget, S-a-u-g-e-t.

18 Q. Not Song Jay is what came through yesterday.
19 Were you here for that part? No?

20 A. I was here.

21 Q. And on page two of your testimony, in number
22 three, description of effluent and river, but then there's
23 another number three under that, do you see that? It
24 starts with, "The Henry facility."

1 MR. KISSEL: Subparagraph three.

2 BY MS. WILLIAMS:

3 Q. Subparagraph three, I guess you'd call it, one
4 through four?

5 A. Yes.

6 Q. In that paragraph, it said, "Ammonia
7 measurements made by IEPA and Noveon or their contractors
8 indicate that ammonia concentrations in the effluent
9 average around 900 pounds per day or 135 milligrams per
10 liter." Is there a specific place that you looked to to
11 come up with those figures?

12 A. The number of 135 milligrams per liter, I
13 consulted with Mr. Flippin, and he gave me that number.
14 I've also looked back through numbers available from IEPA
15 and the people that have done the work.

16 Q. When you say "numbers available from IEPA,"
17 could you --

18 A. They have collected samples for ammonia
19 analysis over the years.

20 Q. So, the annual discharge monitoring?

21 A. Whatever they've monitored.

22 Q. Okay.

23 A. I believe all the samples have been grabs, but
24 I'm not sure.

1 Q. And on page three of your testimony, too, I
2 just wanted to clarify, you made a change -- and I'm not
3 sure if I heard you correctly -- background ammonia
4 concentration in the river, and it said 0.09. You changed
5 that to 0.3?

6 A. 0.3.

7 Q. And was that a typo, or is that based on newer
8 information?

9 A. No, that's a typo. Sometimes my 3's look like
10 9's.

11 Q. But you also put in an extra zero then, too?

12 A. I didn't, but --

13 Q. Okay.

14 A. But that is .3 based on the --

15 Q. You don't do your own typing, Mr. Corn?

16 A. Sometimes I do.

17 Q. I do my own typing.

18 A. Most of the typing I do.

19 Q. And on page six, you state under the subtitle
20 Actual Mixing Zone, you say, "The existing single port
21 diffuser is effective in dispersing the effluent into the
22 Illinois River, and the effluent has been and will
23 continue to meet water quality and whole effluent toxicity
24 limits in this mixing zone."

1 A. Correct.

2 Q. Now, are you talking about the acute and
3 chronic standards?

4 A. Acute and chronic.

5 Q. And are you talking about a regulatory mixing
6 zone here, or are you talking about something different
7 than that?

8 A. The mixing zone as we monitored and reported
9 to IEPA.

10 Q. I guess maybe I need you to explain that for
11 me a little bit more.

12 A. The, the mixing zone as we measured, using
13 conductivity, basically went out to about 100 feet, and we
14 achieved a dispersion on the order of about 20:1 at that
15 point, and we will meet acute toxicity and numeric
16 criteria in the mixing zone for that mixing zone as, as
17 described.

18 Q. Now, when you say you measured, you don't mean
19 that you went out and took samples of the water quality in
20 the river?

21 A. We went out and we collected or measured
22 conductivity and used it as a surrogate to look at
23 dispersion in the river.

24 Q. But you didn't actually measure to confirm

1 whether your models were correct what the actual mixing
2 zone is?

3 A. We confirmed that with the conductivity. It
4 is a tracer that can be used to measure the dispersion.

5 MS. WILLIAMS: I'm not sure if he answered my
6 question.

7 BY MS. WILLIAMS:

8 Q. You did -- I mean, you didn't actually take
9 samples to make sure, at the edge of the mixing zone, the
10 water quality standard was being met?

11 A. The water quality standard for?

12 Q. The mixing zone would be chronic, I guess, or
13 at what your ZID would be that the acute was being met?

14 A. For?

15 Q. Ammonia.

16 A. Ammonia? No, we did not take ammonia samples.

17 Q. Thank you. That's all I was trying to get at.
18 And you state here in that same paragraph, "The dispersion
19 achieved at the downstream edge of the plume at about
20 1,000 feet downstream is 100:1 or more"?

21 A. Correct.

22 Q. 1,000 feet; that's about the length of, what,
23 three football fields? Is that pretty close?

24 A. Correct.

1 Q. Are you aware of any other mixing zones in
2 Illinois that are this long?

3 A. I believe there is one that I know of that's
4 that long, and I believe the Village of Sauget has one
5 that's that long or longer.

6 Q. And where does the Village of Sauget discharge
7 to?

8 A. Mississippi River.

9 Q. Are you aware of any others?

10 A. The Olin diffuser at Alton, East Alton, we
11 requested 1,000 feet; I have not seen what the final
12 number they got. The 3M diffuser, we requested 1,000 feet
13 as well. That's in Cordova, Illinois.

14 Q. Are you aware that the Board's water quality
15 standards for ammonia were amended recently?

16 A. Yes, I am.

17 Q. Can you tell us when they were amended?

18 A. I believe that was in the 2001-2002 time
19 period.

20 Q. Do you know if that changed the winter and
21 summer time periods at all?

22 A. Not that I know of.

23 Q. Are you familiar with the term that was used
24 in that rule-making, the subchronic water quality

1 standard?

2 A. No, I have not looked at that.

3 Q. So, you haven't looked at whether Noveon is
4 meeting that standard?

5 A. I have not looked at that.

6 Q. On -- I'm looking at page eight now of your
7 testimony. And down towards the second paragraph from the
8 bottom, the second sentence here, "Both Noveon and Henry
9 keep POTW discharging through the single port diffuser
10 and, using background, temperature, pH and total ammonia
11 values from upstream monitoring stations, total ammonia
12 concentration of 155 milligrams per liter could be
13 discharged from a single port diffuser and meet water
14 quality standards at the edge of the downstream edge of
15 the ZID."

16 That's your testimony, the effluent standard
17 that's required in the summer months --

18 A. Correct.

19 Q. -- to meet the -- to meet the acute water
20 quality standard?

21 A. The acute, correct.

22 Q. And that's as it stands currently with the
23 single port diffuser?

24 A. That is correct.

1 Q. And with the multiport diffuser, you're saying
2 they could go up to 220 milligrams per liter?

3 A. Well, the dispersion for the multiple diffuser
4 that we have, have the conceptual design for would meet a
5 dispersion of 43:1, and that's much greater than 200
6 milligrams per liter.

7 Q. So, it would be your testimony that with the
8 multiport diffuser they'd actually be able to increase
9 their discharges of ammonia and comply with the water
10 quality standards still?

11 A. I think it would give them a much greater
12 safety factor.

13 Q. Now, can you -- I'm not sure that you really
14 exactly explained for us how you used Mr. Goodfellow's
15 data in your calculations. Could you maybe explain that
16 to me a little bit? I'm not real familiar with his stuff
17 yet.

18 A. Mr. Goodfellow -- and he will testify on this,
19 but basically, he identified two constituents in the
20 Noveon effluent that causes toxicity in whole effluent
21 toxicity tests. One of those constituents was ammonia,
22 and one was salt or total dissolved solids. Based on his
23 work and based on work that I've done in the past, the
24 salt alone will cause -- will require dispersion of on the

1 order of 6 to 9 to 1 to meet just the salt toxicity.

2 So, I relied on that work to make sure that
3 when we design a multiport diffuser that we design it to
4 meet all the whole effluent toxicity acute standards and
5 the chronic as well. Obviously, 43:1 is much greater than
6 we would need to meet that toxicity from the salt.

7 Q. But 43:1 is based on what?

8 A. The multiport diffuser.

9 Q. I'm sorry, I take that back. What do you
10 believe you need to address ammonia then? What is that
11 based on?

12 A. That is based on the multiport diffuser for
13 the future. There have been a couple of readings that I
14 have seen that are grab samples that are in the 200
15 milligram per liter range; and to ensure that we can meet
16 whole effluent toxicity for that, from an acute
17 standpoint, the multiport diffuser would be the assurance
18 that we would need for that.

19 Q. Just a second. What I'm trying to understand,
20 Mr. Corn, is this: It appears to me from looking at
21 Mr. Goodfellow's work that he doesn't know exactly how
22 toxic Noveon's effluent limit goes because even at the
23 most diluted ratio of 6.25 percent, toxicity was
24 discovered, correct?

1 A. You'll have to ask Mr. Goodfellow about that.

2 Q. Well, I'm trying to decide -- that's why I was
3 hoping he would go first because I have questions about
4 how he got his numbers. So, I guess to the extent there
5 are questions about his numbers, do they call into
6 question any of your findings with regard to the mixing
7 zone?

8 A. I don't believe so.

9 Q. So, it's not necessary for determining the
10 mixing zone to know how chronic and toxic Noveon's
11 effluent is?

12 A. The chronic toxicity? Yes, it is.

13 Q. It is necessary? And what figure did you use
14 for that?

15 A. I used 100:1.

16 Q. And where did you -- how did you choose that?

17 A. That was based on the 155, 155 milligrams per
18 liter.

19 MS. WILLIAMS: Well, Mr. Hearing Officer, my
20 technical advisor is asking me if he has permission to ask
21 a follow-up question of the witness. It's up to you
22 whether you're willing to break that kind of protocol.

23 HEARING OFFICER HALLORAN: Mr. Kissel?

24 MR. KISSEL: I think we're sort of doing this

1 through lawyers right now. If Mr. Mosher wants to do a
2 public comment --

3 HEARING OFFICER HALLORAN: I agree. Let's try
4 to keep it to the attorneys because that could open a
5 whole floodgate.

6 MS. WILLIAMS: I warned him, but I told him
7 I'd ask.

8 HEARING OFFICER HALLORAN: Thank you.

9 BY MS. WILLIAMS:

10 Q. Now, what -- can you repeat for us what the
11 dimension is of the ZID that you calculated?

12 A. The ZID is less than five -- the ZID?

13 Q. Yes.

14 A. For which, which diffuser?

15 Q. Start with the single port.

16 A. The single port diffuser would be about 66
17 feet long, and I think at that point it may be 30, 50 feet
18 wide, something like that. Maybe a little bit wider.

19 Q. How long does it take to travel that distance
20 through the Illinois River?

21 A. Well, if you look at just the velocity in the
22 river, it's less than a few minutes.

23 Q. And is less than a few minutes -- I mean, I
24 would say less than a few minutes definitely means more

1 than a minute, right?

2 A. Less than a few minutes is three minutes or
3 less.

4 Q. About three minutes? Is about three minutes
5 what you mean when you say rapid and immediate mixing?

6 A. Yes.

7 Q. Remember that when it takes me three minutes
8 to look through whether I have any more questions.

9 Okay. A couple places in your testimony you
10 refer to the 1990 -- 1972 National Academy of Sciences'
11 theory of -- regarding limiting exposure time for aquatic
12 life?

13 A. Correct.

14 Q. Isn't it true that the Illinois EPA explicitly
15 rejected this concept in its guidance?

16 A. And I so state in my testimony.

17 Q. Are you aware of whether that guidance has
18 been approved by U.S. EPA?

19 A. The EPA, the --

20 Q. Whether the Illinois EPA guidance has been
21 approved by U.S. EPA?

22 A. I don't know.

23 Q. Are you aware of whether the Illinois EPA
24 water quality regulations still rely on un-ionized ammonia

1 for measuring?

2 A. That was my assumption when I've done most of
3 this work since 1989.

4 Q. You know that U.S. EPA has gone to looking at
5 total ammonia again, though, correct?

6 A. I have heard that.

7 Q. Can you tell us whether you feel aquatic life
8 will be impaired inside the regulatory mixing zone you
9 proposed?

10 A. I don't believe so.

11 Q. And what do you base that on?

12 A. Basically, the velocity of these discharges,
13 basically the sweep are rapid enough to move aquatic life
14 away from the maximum concentrations.

15 Q. So, what you're saying is aquatic life are
16 unable to even live in the mixing zone based on that?

17 A. In the zone of initial dilution, the ZID area.

18 Q. What about in the mixing zone?

19 A. In the mixing zone, they may pass through
20 that. They could -- they could potentially live there.

21 Q. What would be the impact on mussels or clams
22 in the bottom of the river?

23 A. I have no data to base that on.

24 Q. Now, you state that -- I believe on page seven

1 that Noveon has asked for less than five acres for its
2 total mixing zone; is that what -- that's what we're using
3 TMZ here for, right? Less than five acres?

4 A. That is correct.

5 Q. Are you aware of any other mixing zones in
6 Illinois that are equal to or greater than five acres?

7 A. I would assume the ones that I've mentioned in
8 that area would be that distance, be that size area.

9 Q. And do you think the mixing zone regulations
10 as adopted by the Board intended for an area of five acres
11 without clams or mussels to exist in them?

12 A. The -- as I understand it, the 26 acres is for
13 the total mixing zone, and that's -- includes the ZID and
14 the total mixing zone, and I would assume that they
15 considered that.

16 Q. And so you think it means that within that
17 maximum of 26 acres, it's okay for there not to be a
18 condition to support mussels or fingernail clams or that
19 type of bottom life?

20 A. I think that what they've said is that they
21 will allow 26 acres for the total mixing zone.

22 MS. WILLIAMS: I think that's all I have. Can
23 I just confer for one second?

24 HEARING OFFICER HALLORAN: Sure.

1 (A pause was had in the record.)

2 MS. WILLIAMS: Okay. I think I'm done. Thank
3 you.

4 HEARING OFFICER HALLORAN: Thank you.

5 Mr. Kissel, before your redirect, I want to ask Member
6 Melas if he had any questions before you took off for your
7 scheduled flight?

8 MEMBER MELAS: None, Mr. Court.

9 HEARING OFFICER HALLORAN: Okay. Thank you.

10 Mr. Kissel, you may proceed.

11 REDIRECT EXAMINATION

12 BY MR. KISSEL:

13 Q. Mr. Corn, there was some discussion on --
14 using conductivity here?

15 A. Yes.

16 Q. And what, what is conductivity just for
17 purposes of our discussion here?

18 A. Conductivity is a way to measure salt content
19 or the concentration in the plume area.

20 Q. All right. Is it also called salinity?

21 A. Salinity is another name for conductivity.

22 Q. And is salinity used as a tracking chemical?

23 A. Yes, it is. It's a conservative constituent.

24 And whatever happens to the salt or salinity, any other

1 constituent would undergo those same dispersive forces.

2 Q. So, if there's another contaminant in the
3 discharge and you track the salt, that contaminant will
4 act identically to the salt in the hydraulic atmosphere;
5 is that correct?

6 A. That's correct. If you have a 13:1 dispersion
7 of salt, you would have a 13:1 dispersion of the ammonia
8 or any other constituent.

9 Q. There was some discussion by Miss Williams
10 about this setting the dilutions and so forth. Is what
11 you're attempting to do is to really set a water
12 quality-based effluent limit? Is that basically what
13 you're doing?

14 A. That's correct.

15 Q. And how do you do that?

16 A. You basically take the dispersion at the edge
17 of the ZID and translate that back to the end of pipe.

18 Q. By using -- meeting what standard at the end
19 of the ZID?

20 A. The water quality standard.

21 Q. For?

22 A. For salt or ammonia.

23 Q. Would that be the acute standard at the end of
24 the ZID?

1 A. At the end of the ZID, it would be the acute
2 standard. At the end of the total mixing zone, it would
3 be the chronic standard.

4 Q. So, take us through with a 43:1 in terms of
5 the -- of the acute standard at the end of the ZID, you
6 determined that there was a dilution of 43:1 based upon
7 your studies; is that correct?

8 A. Correct.

9 Q. Which means at the end of the zone of initial
10 dilution where that 43:1 dilution exists, then you -- how
11 do you translate that back to a water quality-based
12 effluent?

13 A. You would take the water quality -- the
14 acute -- the acute ammonia water quality standard and
15 multiply that by basically 43, and then that would be your
16 end-of-pipe discharge.

17 Q. Also some question -- a question about the
18 time between the discharge and the end of the ZID, and I
19 think you said it was three minutes. And my understanding
20 of what you said, correct me if I'm wrong, was that was
21 based on the flow of the river?

22 A. Well, it's actually based on both, the flow of
23 the river and on the port exit velocity.

24 Q. So, it would be a --

1 effluent limits. Have you ever seen those or read those?

2 A. I don't believe.

3 Q. For ammonia specifically? I'm sorry.

4 A. For ammonia. I don't recall.

5 MS. WILLIAMS: I think that's all I have.

6 HEARING OFFICER HALLORAN: Thank you.

7 MR. KISSEL: I have nothing else.

8 HEARING OFFICER HALLORAN: Thank you.

9 Technical Unit, any questions of Mr. Corn?

10 MS. LIU: Good afternoon, Mr. Corn. Would you
11 happen to know how much it might cost Noveon to install
12 the multiport diffuser and to maintain it?

13 THE WITNESS: Noveon had an engineering firm,
14 Horner and Schiffrin, they're out of Belleville, Illinois,
15 and St. Louis, Missouri, an engineer named Tom Thompson
16 came up with a cost, and I think we've put that in the
17 unit response. But it was \$666,000 a few years ago, and
18 we used a 3 percent inflation rate and brought that up to
19 today's dollars of \$800,000.

20 MS. LIU: Thank you.

21 MEMBER MELAS: I had one question.

22 HEARING OFFICER HALLORAN: Yes, Member Melas?

23 MEMBER MELAS: One part I read that the single
24 port diffuser that's used now is jointly used by the

1 Noveon discharge and the Henry POTW?

2 THE WITNESS: That is correct.

3 MEMBER MELAS: And do they share the cost, or
4 how do they operate that? Do you have any idea?

5 THE WITNESS: The -- it's my understanding
6 that Noveon made the diffuser available for the City. We
7 met with IEPA and that was approved.

8 MEMBER MELAS: Okay. Makes sense.

9 MR. KISSEL: Maybe we should be charging them.
10 No.

11 MEMBER MELAS: No. You're good citizens.

12 MR. KISSEL: That is right. Excuse me. We
13 are.

14 I'm going to mark this as an exhibit. I've
15 asked the hearing officer -- or I marked as Exhibit Number
16 30 the documents that we gave to the Pollution Control
17 Board so we can now refer to that.

18 MS. WILLIAMS: Thank you.

19 HEARING OFFICER HALLORAN: Any --

20 MR. KISSEL: I just have a couple more.

21 FURTHER REDIRECT EXAMINATION

22 BY MR. KISSEL:

23 Q. Following up on that question of the technical
24 advisor to the Board, Mr. Corn, what about -- what would

1 be the construction schedule for the installation of a
2 diffuser?

3 A. We have estimated a -- about a one-year
4 construction schedule. We do have a conceptual design.
5 We think we can do the detailed engineering in three
6 months. We have put in three months for regulatory
7 approval. That would be IEPA, as well as the Corps of
8 Engineers. You have to get a Corps of Engineers permit.

9 And then the optimum time for building a
10 diffuser is obviously during the summertime, during low
11 flows. Then we would need a one- to two-month period to
12 knock any cobwebs out of the system. So, basically about
13 a year to get the diffuser up and running.

14 Q. Is there any maintenance cost involved?

15 A. Maintenance costs are pretty minimal. Hardhat
16 diver once a year, and then if you have electric --
17 electrical lights or anything at your river control
18 structure for the diffuser. You're not talking -- a
19 couple hundred, maybe a thousand dollars a month or, or
20 less.

21 MR. KISSEL: Thank you. That's all I have.

22 HEARING OFFICER HALLORAN: Any follow-up,
23 Miss Williams?

24 * * * * *

FURTHER CROSS-EXAMINATION

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BY MS. WILLIAMS:

Q. Just one question about what you just brought up there. When you said IEPA approval, can you explain?

A. We met with --

Q. I'm sorry. When you -- you talked about the requirement to get IEPA approval as part of your construction schedule?

A. Correct.

Q. Do you know -- because my technical staff was explaining to me yesterday, I think, that you don't need a permit for that, an actual construction permit. So, is there some other type of permit?

A. The Corps of Engineers requires -- I believe the Corps of Engineers requires IEPA to okay the addition of the diffuser under a 404 permit.

Q. Okay. That's probably what we call a 401 certification; does that sound right?

A. I think that's it. The water quality certification under that, I believe.

Q. Thank you.

A. We've gotten that before on other diffusers.

MS. WILLIAMS: That's all I have.

HEARING OFFICER HALLORAN: Okay.

1 MR. KISSEL: Thank you, Mr. Corn.

2 HEARING OFFICER HALLORAN: Thank you,
3 Mr. Michael R. Corn. You can step down.

4 Petitioner's Exhibit Number 30, any objection
5 for moving this into evidence, Miss Williams? It's the
6 responses to the Board's questions.

7 MS. WILLIAMS: No.

8 HEARING OFFICER HALLORAN: So admitted.

9 MR. KISSEL: Thank you.

10 (A pause was had in the record.)

11 MR. KISSEL: Would you identify yourself for
12 the record, please?

13 HEARING OFFICER HALLORAN: I'm sorry. Please
14 raise your right hand, and Jennifer will swear you in.

15 (Witness sworn.)

16 WILLIAM L. GOODFELLOW, JR.,
17 called as a witness, after being first duly sworn, was
18 examined and testified upon his oath as follows:

19 DIRECT EXAMINATION

20 BY MR. KISSEL:

21 Q. Would you identify yourself for the record,
22 please?

23 A. Yes. My name is William L. Goodfellow, Jr.

24 Q. And where do you live, Mr. Goodfellow?

1 A. I live in York, Pennsylvania.

2 Q. I show you what has been marked as
3 Petitioner's Exhibit 31 and ask you to tell me what that
4 is?

5 A. It is my written testimony for this
6 proceeding.

7 Q. Did you prepare that?

8 A. I did.

9 Q. And is it true and correct to the best of your
10 knowledge and belief?

11 A. Yes, it is.

12 MR. KISSEL: I move the admission of
13 Exhibit -- Petitioner's Exhibit 31.

14 MS. WILLIAMS: No objection. Does that
15 include --

16 MR. KISSEL: No, I'm going to add --

17 MS. WILLIAMS: -- the resume?

18 MR. KISSEL: It does include it.

19 BY MR. KISSEL:

20 Q. But would you identify -- tell me what
21 Petitioner's Exhibit 32 is, please?

22 A. Yes. It is my resume.

23 Q. And --

24 A. Minus the header page that's on the -- on the

1 other document.

2 Q. But is that a true and correct recitation of
3 your experiences, education, et cetera?

4 A. Yes, it is.

5 MR. KISSEL: All right. Move the admission of
6 Petitioner's Exhibit Number 32, I believe.

7 THE WITNESS: Yes.

8 MS. WILLIAMS: No objection.

9 MR. KISSEL: For the record, Exhibit 31 does
10 have this attached, but I thought we would have it
11 separately.

12 MS. WILLIAMS: What page does it start on?
13 Can you -- Exhibit 32 starts on page --

14 MR. KISSEL: Well, his, his testimony runs ten
15 pages.

16 THE WITNESS: Page eleven.

17 MS. WILLIAMS: So, page eleven.

18 MR. KISSEL: For the record, Mr. Hearing
19 Officer, all the testimony we've entered will be entered
20 into the record as so read, correct?

21 HEARING OFFICER HALLORAN: That's correct.

22 MR. KISSEL: Including Goodfellow and Flippin
23 and Corn.

24 HEARING OFFICER HALLORAN: So, Exhibit Number

1 31 and 32 are admitted into evidence without objection?

2 MS. WILLIAMS: (Counsel nods head.)

3 HEARING OFFICER HALLORAN: And also,
4 Miss Deely, do we have copies of --

5 MS. DEELY: I just handed them out.

6 HEARING OFFICER HALLORAN: You're way ahead of
7 me. Thank you. You may proceed.

8 MR. KISSEL: I don't have any specific
9 questions. He's familiar with cross-examination.

10 HEARING OFFICER HALLORAN: Okay. When you get
11 your bearings, Miss Williams, you can --

12 MS. WILLIAMS: Shouldn't take too long.

13 CROSS-EXAMINATION

14 BY MS. WILLIAMS:

15 Q. Can we start, I guess, maybe give -- have a
16 good transition here. Mr. Corn just testified that he
17 made use of your tests that you performed --

18 A. Yes.

19 Q. -- for Noveon, and I'm aware of two separate
20 tests that were performed, correct, from your testimony?

21 A. Correct. Two rounds of testing.

22 Q. Two rounds. Can we call them the March '99
23 and the May '99 or --

24 A. I think it was January and March.

1 Q. I'm going off the -- the one that was entered
2 as Exhibit 29 has March on the front of it. Is that the
3 first or the second?

4 A. That would be the January testing.

5 Q. Okay. Would you mind if we called it March --

6 A. That's fine.

7 Q. -- since --

8 A. I think on the -- when the sample was
9 collected, but that's fine.

10 Q. We can call it the first round -- I guess
11 we'll call it the first round and second round.

12 A. That would be fine.

13 Q. By first round we're referring to Exhibit 29.

14 A. That's fine.

15 Q. Can you explain for us how you communicate --
16 what you communicated to Mr. Corn to give him the
17 information he needed to perform his mixing zone --

18 A. Sure.

19 Q. -- evaluation?

20 A. I provided him the written documentation, as
21 well as we had one meeting at Illinois EPA to discuss the
22 findings of the results, but it was --

23 Q. So, you provided him the summary here or data
24 as well or --

1 A. It was the written report, yes.

2 Q. So, the same as what we had here as --

3 A. Uh-huh.

4 Q. He relied on Exhibit 29?

5 A. Correct.

6 Q. Did you also provide him the second round of
7 tests, or did he rely purely on the first round?

8 A. I am not sure. I provided it to Gardner,
9 Carton & Douglas, and then from there I don't know what
10 happened to it.

11 Q. So, you didn't directly communicate with
12 Mr. Corn in order to explain to him your results or
13 anything; he just relied on writing -- your written
14 report?

15 MR. KISSEL: I think he testified he had a
16 meeting with him in Springfield.

17 BY MS. WILLIAMS:

18 Q. At the IEPA?

19 A. Uh-huh.

20 MR. KISSEL: Yeah.

21 BY MS. WILLIAMS:

22 Q. I would like to talk about pages four and five
23 of your testimony.

24 A. Okay.

1 Q. And here you're discussing the results of the
2 first round of testing, correct?

3 A. Correct.

4 Q. And can you -- I guess since Counsel didn't
5 really have anything to ask you, I guess I'd appreciate it
6 if you summarized real briefly for us what those first
7 round of tests concluded?

8 A. Sure. We were asked to evaluate the effluent,
9 given the test species that were being used by the Agency
10 which were the water flea -- Ceriodaphnia dubia -- and the
11 fathead minnow, which is Pimephales promelas. And we
12 selected the chronic toxicity test as well as the acute
13 toxicity test.

14 However, at that time -- and I have yet to see
15 any additional data -- only acute toxicity testing was
16 performed. We selected chronic toxicity testing to also
17 be one of the parameters to evaluate because it uses three
18 samples within a short period of time so we could
19 determine if there was any kind of temporal variability of
20 effluent toxicity. And then we were going into it with
21 the -- proceeding to if it was toxic, to evaluate using
22 toxicity identification evaluation procedures. And we did
23 that on the most toxic sample of, of the --

24 Q. You abbreviate that TIE?

1 A. Yeah, toxicity identification evaluation is
2 also referred to as the acronym TIE. The -- I'm sorry.

3 Q. You state on -- you state on page four that
4 the objective was to determine the no observed effect
5 concentration, the lowest observed effect concentration,
6 which are abbreviated NOEC and LOEC respectively?

7 A. Correct.

8 Q. And the chronic value?

9 A. Correct. As well as the acute end point.

10 Q. Then on page five you state, "The chronic
11 toxicity suite of samples were also chronically toxic with
12 the NOEC of less than 6.25 percent effluent and LOEC of
13 6.25 percent effluent for both species"?

14 A. Correct.

15 Q. So, can you tell us, Mr. Goodfellow, what is
16 the no observed effect concentration for Noveon's
17 effluent?

18 A. It was less than 6.25.

19 Q. Do you know how much less than 6.25?

20 A. It was --

21 Q. Did you test anything less -- more diluted
22 than 6.25?

23 A. No, because the objective of the tests we were
24 performing was just to find the most toxic sample to then

1 further take it through the acute TIE procedures.

2 Q. But you said on page four that part of the
3 objective was to determine the no effect?

4 A. Yes, and we determined that it was less
5 than --

6 Q. That it was less than 6.25?

7 A. Less than 6.25 percent, which is a valid
8 toxicological end point.

9 Q. Well, I don't disagree with that. I guess I
10 just want to understand why then, when you went through
11 the samples collected in March --

12 A. Uh-huh.

13 Q. -- you had the same results, correct, less
14 than 6.25?

15 A. Correct.

16 Q. And this was true even though the ammonia
17 concentrations were lower in the second round of samples,
18 correct?

19 A. Correct. However, the salinity was higher.

20 Q. Wouldn't it have made sense in the second
21 round of testing to go below 6.25 to get something lower?

22 A. Again, the objective of the test was to
23 determine -- to try to pick the most toxic of the three
24 samples within a chronic test to run an acute TIE

1 procedure.

2 Q. So, Mr. Corn couldn't have used your data then
3 to make his estimates, could he?

4 A. Yes, he could. Less than 6.25 is a valid
5 toxicological end point.

6 Q. So, he just used less than 6.25; not a
7 specific number, just that it was less than 6.25?

8 A. I -- you would have to ask him.

9 Q. Okay. Well, let's, let's talk about the
10 fractionation test, all right? That's what you're saying
11 was the primary goal, to go through that?

12 A. Correct.

13 Q. That was your primary goal. And you state in
14 your testimony, don't you, that none of those tests were
15 successful in removing toxicity?

16 A. Not completely, correct.

17 Q. So, how can you conclude what's causing the
18 toxicity?

19 A. That's a good question. The fractionation
20 procedure, which is also synonymous to the TIE, is a
21 series of physical and chemical procedures that is meant
22 to evaluate various fractions of the effluent, to thus
23 track and determine the characteristics of the wastewater.

24 Information, when you fractionate a sample,

1 you will both be -- you will gain information from
2 removing toxicity as well as not removing toxicity. We
3 were looking for activities to determine if there was any
4 organic toxicity, any ammonia toxicity, any metal
5 toxicity, any oxidant toxicity, as well as reducible
6 compounds.

7 Virtually the only parameter that stays after
8 doing all those treatments is salinity, and salinity is,
9 is the treatment that doesn't get altered. In fact, many
10 of the other treatments actually add toxicity because
11 they're actually increasing the, the total dissolved
12 solids in the wastewater that you're evaluating.

13 Q. How are you able to conclude that there was no
14 organic toxicity?

15 A. By using the C-18 column. The C-18 column is
16 a solid phase extraction column that is selective for
17 pulling out non-polar organic compounds that are less than
18 2,000 molecular weight. C-18 columns are chosen over some
19 of the other columns because when a molecule is over 2,000
20 in its molecular weight, it can't pass the membranes of a
21 cell. So, it's -- they're really not toxic.

22 MR. KISSEL: For purposes of the record,
23 there's also a C-18 treatment facility. These are
24 unrelated.

1 THE WITNESS: Yeah, just coincidentally.

2 MR. KISSEL: We didn't use the plant to
3 determine that, the C-18 column.

4 HEARING OFFICER HALLORAN: Thank you.

5 BY MS. WILLIAMS:

6 Q. When you talk about non-polar organic
7 compounds and amine contributing organic compounds, can
8 you explain to us --

9 A. Sure. The reason I said that one of the
10 principal toxicants in the testimony was un-ionized
11 ammonia and/or amine contributing organic compounds,
12 primary amines as well as secondary and tertiary amines
13 often, as part of the degradation process, get pushed
14 toward ammonia, so I can't determine that those -- whether
15 the ammonia contribution was coming from inorganic ammonia
16 or from organic ammonia using these procedures.

17 I do know from, from data that I have seen
18 that primarily most of the ammonia is un-- of the
19 un-ionized ammonia is inorganic, but there is an organic
20 ammonia level.

21 But we -- I did evaluate other -- well, let me
22 back up. The amine contributing organics are also very
23 water soluble; and water-soluble organics, with the
24 exception of very few polymers, are non-toxic because,

1 again, they stay in the water and don't pass the membranes
2 because there's a higher affinity to stay in the water
3 than to go into the organism. And it can only be toxic if
4 it goes inside the organism.

5 MS. WILLIAMS: I think that's all I have,
6 Mr. Goodfellow. Thank you.

7 HEARING OFFICER HALLORAN: Okay. Mr. Kissel?

8 REDIRECT EXAMINATION

9 BY MR. KISSEL:

10 Q. Yes, I just want to get this 6.25 percent
11 stuff so I can clarify it. Can you sort of explain what
12 that is --

13 A. Sure.

14 Q. -- Mr. Goodfellow?

15 A. When we set up a test, the standard test
16 procedures would be to set up an effluent with 100, then
17 50 percent by sections of the effluent. It would be a
18 whole effluent which is 100 percent, 50 percent,
19 25 percent effluent, 12.5 and 6.25, and a laboratory
20 control. We selected those because we were really trying
21 to just determine the slope of the toxicity and such.

22 Q. Is this a --

23 A. It's the standard.

24 Q. Right. Is there such a thing as going to 3.1

1 percent, or do you -- is that called for in the test
2 procedure?

3 A. If I was running it as a permit compliance
4 test, I would have run it at whatever the permit
5 compliance point was.

6 Q. Did you feel it was necessary?

7 A. But -- no, because the objective was to
8 determine the principal toxicants as part of the TIE. We
9 selected this procedure because we were actually -- even
10 though we never got to -- we actually had more toxicity
11 statistically at the 6.25 percent to allow it to be
12 determined as the NOEC, we did get a lot of information on
13 the slope of the toxicity during the actual test itself.

14 MR. KISSEL: Okay. Thank you.

15 HEARING OFFICER HALLORAN: Anything further,
16 Miss Williams?

17 RE-CROSS-EXAMINATION

18 BY MS. WILLIAMS:

19 Q. Just to reclarify, it would be possible to go
20 lower than 6.25?

21 A. It would.

22 Q. And wouldn't it be valuable to know the
23 definitive NOEC, no effect concentration?

24 A. I guess if you had another objective of the

1 test, but what we were asked to do back in '98 and '99 was
2 to determine the TIE.

3 MS. WILLIAMS: Great. Thanks.

4 The only other question, I guess, I have for
5 Counsel, you submitted as an exhibit the first test that
6 he refers to but not the second? Is there any reason not
7 to enter them both as exhibits?

8 MR. KISSEL: No.

9 MS. WILLIAMS: Was it just --

10 MR. KISSEL: I don't know.

11 MS. DEELY: I think we have them here if you
12 want them.

13 MR. KISSEL: We used it only for Mr. Corn.
14 Mr. Goodfellow has testified to the results. The Agency
15 has copies of the tests and has for some time.

16 MS. WILLIAMS: We do. So, if the Board, I
17 guess, wants them, they can ask us for copies if they need
18 them.

19 HEARING OFFICER HALLORAN: Okay. Thank you.

20 MR. KISSEL: Thank you.

21 HEARING OFFICER HALLORAN: Miss Liu, Mr. Rao?
22 Any questions of Mr. Goodfellow?

23 MS. LIU: Good afternoon, Mr. Goodfellow.

24 THE WITNESS: Good afternoon.

1 MS. LIU: Could you please identify the
2 address of your office with the --

3 THE WITNESS: Yes. It is 15 Loveton Circle,
4 Sparks, Maryland.

5 MS. LIU: Is that the corporate headquarters
6 as well?

7 THE WITNESS: Corporate office is in actually
8 Hunt Valley, Maryland, which is two and a half miles from
9 our science and engineering operation.

10 MS. LIU: When you did the TIE to identify the
11 specific toxicants in the effluent, your results pointed
12 to salinity, un-ionized ammonia, and the amines; is that
13 correct?

14 THE WITNESS: Correct. The first round of
15 testing that we did, it became very highly suspicious that
16 it was ammonia and salinity. The second round of testing
17 that we did, we actually used what's called an EPA Tier II
18 procedure which is trying to more definitively identify --
19 in this case more definitively identify the toxicity
20 associated with ammonia, as well as other treatments to
21 make sure that the suspicions that it was salinity were
22 also valid.

23 And we added treatments and coupled them
24 together such as Zeolite, which is a natural aluminum

1 silicate resin and various different pH's and graduated
2 pH's and such to more definitively narrow it down as to
3 the toxicant, make sure that what we were finding in the
4 first round was truly apparent in the second.

5 MS. LIU: Would there be any benefit in a test
6 like that to remove things like the ammonia and the --

7 THE WITNESS: We did, and the reason we used
8 Zeolite was that that has a high affinity for ammonia
9 removal, and, in fact, you're able to remove about 99
10 percent of the ammonia out of the effluent. And we did
11 that; we still have remaining toxicity.

12 With the salinity that's in this wastewater
13 for Ceriodaphnia, you would expect somewhere between 15 to
14 20 percent would be your acute toxicity, regardless of
15 what else was in the effluent.

16 MS. LIU: So, you don't think there was
17 anything else that might have been masked?

18 THE WITNESS: That's why we, we couple them in
19 different, different proportions and in different
20 sequences to make sure that you can determine if there is
21 something underneath the toxicity because you can only
22 kill an organism once, and -- you know, so you really
23 can't determine, unless you do those tests, if there's
24 anything underneath. And we did do the procedures to

1 determine there wasn't anything underneath other than it
2 was just salinity and ammonia.

3 MS. LIU: Thank you very much.

4 THE WITNESS: Okay.

5 HEARING OFFICER HALLORAN: Okay. Any
6 follow-up questions?

7 MR. KISSEL: None from me.

8 HEARING OFFICER HALLORAN: You may step down.

9 MS. WILLIAMS: Can I ask one follow-up?

10 HEARING OFFICER HALLORAN: Sure. Sure.

11 FURTHER RECROSS-EXAMINATION

12 BY MS. WILLIAMS:

13 Q. You were talking about that you used Zeolite?

14 A. Uh-huh.

15 Q. Can you tell us what else Zeolite removes
16 besides ammonia?

17 A. Zeolite also removes -- actually it has a
18 higher affinity for removing potassium, followed by
19 ammonia, and then considerably lesser affinity for other
20 salinity ions. But it's -- by far, it removes potassium
21 first and then ammonia and then everything is -- follows a
22 long way down the chain for removal.

23 MS. WILLIAMS: Okay. Thanks a lot.

24 HEARING OFFICER HALLORAN: Thank you. You may

1 step down. Let's take a five-minute break.

2 (Whereupon, a recess was taken.)

3 HEARING OFFICER HALLORAN: We're going to go
4 back on the record; in fact, we are. It's 3:30. By the
5 looks of the clock, it's 3:35, and right now I want to ask
6 anybody who wants to make public comment, please do so.

7 Yes, sir? Now, do you want to be sworn in?
8 And what I mean by that is if you give public comment,
9 it's just public comment. If you get sworn in, it's a
10 public statement, and the Board will give it more weight.
11 And as long as it's relevant to the matter at hand, you
12 may do so.

13 MR. JANSSEN: Just make a comment for right
14 now.

15 HEARING OFFICER HALLORAN: A comment? Okay.
16 You can have a seat here. You can state your name for the
17 record.

18 MR. JANSSEN: My name is Richard Janssen, and
19 I'm a former BFG employee. I worked there from 1970 to
20 1993. And my comment has to do with what I've heard in
21 the last couple days. And what really troubles me is that
22 the EPA has a standard, and now -- not BFG anymore, but
23 Noveon says this doesn't apply, this doesn't apply.
24 Something has to be the standard, and everybody applies to

1 the standard.

2 I look at it like a car on Interstate 80 going
3 90 miles an hour. And the cop stops a person, gets picked
4 up, gives them a ticket. They go in front of the judge,
5 and the person says, "Well, my car is high-powered. I
6 feel better, and I save a lot of time if I do 90."

7 Well, the judge says you're guilty. And the
8 person goes and says to the judge, "Well, I'll pay the
9 ticket, I'm guilty, but I'm going to continue to do the
10 same thing over and over again."

11 So, there should be a standard. The company
12 should meet that standard, and the EPA should put the
13 standard out, make it clear, to the point, and go from
14 there.

15 I disagree with some of the statements that
16 were made, and one of them that I disagree with is that
17 nothing can be done to improve the quality of water that
18 they discharge into the river. When I worked there, I was
19 given an opportunity to work in several areas, and I
20 assisted in the waste treatment several times. And it
21 goes back to the process buildings where all this waste
22 comes from. And over the years, when I first started
23 there in 1997 -- or 1970, they made so many pounds of
24 material. And every year, there was an expansion to make

1 more pounds, more pounds. And it seemed like somewhere in
2 the '80s, they lost sight of treating the waste. It was
3 more based on how many pounds you could make and how many
4 dollars you were getting for this pound of material.

5 And what really bothers me today is I don't
6 know how much Noveon makes off their chemicals a year, I
7 don't -- I haven't looked into, if I could even find that
8 out, but they would have to treat the waste, put it into
9 the river so it's not harming the fish, the wildlife. And
10 I'm thankful that I live up river the other way, but I do
11 go to Peoria, Chillicothe; and I go to a restaurant, I get
12 a glass of iced tea, you know, and I'm not able to see
13 through it. I don't know what's in the water. This
14 really bothers me.

15 My family -- I'm disabled, but my family boats
16 in the Illinois River; my grandchildren, they play in
17 there. And I just want the quality of the water to be the
18 best it can be. And I think that's basically what
19 everyone wants, is the water quality to be safe for
20 drinking, for pleasure, for wildlife.

21 So, I don't have all of the degrees that a lot
22 of people that spoke here have, and I have a disability,
23 and I have had quite a few problems in the past, but I
24 rely on the EPA and the Pollution Board and all the people

1 that work there to follow procedures.

2 Now, when I worked there, not everybody
3 followed procedures. There were a lot of spills. These
4 are not taken -- I never heard anything yet here about
5 spills and what happens to that, you know. I, I believe
6 the -- Goodrich trained me on several things, and one was
7 analytic troubleshooting. And I believe this whole
8 wastewater system to be a day-one deviation, because when
9 certain processes run, and when some of them run together,
10 the waste they put in is a lot different than on other
11 days. So, you know, I was involved a little bit in the
12 collection of this wastewater that they're talking about
13 in the late '80s when I worked there and the '90s. And
14 when some of these samples were taken, processes were not
15 discharging; the actual process was not discharging into
16 the sewer. And so I don't know how you can tell, you
17 know, unless you collect samples, you know, at different
18 times, when they are discharging, you know. I just don't
19 think it was -- in my estimation, I don't think that it
20 was the right thing, right way to go about this.

21 I had a couple other things here. I left BF
22 Goodrich down there not on too good of terms; in fact,
23 it's the only job I've ever been fired from. And I
24 testified against BF Goodrich in 1990 -- end of '91, '92

1 on a wrongful death suit -- two wrongful death suits.
2 There was a fire and explosion, killed two people at
3 Goodrich. And I suffered from post-traumatic stress
4 disorder, tied to blood pressure, and I've been on
5 medication ever since. And I just want to see things at
6 that plant, you know, because you really can't tell what
7 goes on at that plant.

8 I was listening, and I heard that there was a
9 discharge that went into the river that wasn't treated
10 water, you know. These things in the years from '85 up
11 through the '90s when I was fired, these things happened.
12 And also about spills and stuff. And I can tell you
13 firsthand, because I have the accident report right here.
14 I was given this under court order. And this is 1991,
15 midyear.

16 Carbon disulfide. I was working at the tank
17 farm, and carbon disulfide spilled out of the underground
18 bunker, and 400 gallons went down the ditch and was going
19 toward the river. I was in this area by myself. I tried
20 to get it diked up, tried to stop it as quick as I could,
21 but I couldn't get it all. If you have a spill of carbon
22 disulfide, when it's more than five pounds, you're
23 supposed to report it to the federal government. Well,
24 all they did was send out a crew with some 55-gallon drums

1 and try to get up as much as they could. The rest washed
2 toward the river, and was a low place, and sunk into the
3 ground. And these kind of things were happening.

4 I got wrote up for it. And they dropped --
5 they dropped going any farther than giving me any kind of
6 discipline for it for the simple fact was I was doing four
7 jobs at one time. And different people were gone, and I
8 was the back-up for these areas. And this is the kind of
9 thing for several years that was going on. And it's
10 just -- well, you can see what it did to me. I mean, I
11 haven't been right, and I won't be right. So, I just hope
12 somebody else don't have to go through, you know, the
13 things that I've gone through in the last 12 years.

14 But I have gone to the funeral of many of my
15 friends who worked at Goodrich, and, you know, they aren't
16 much older than I am. And there's gotta be reasons why
17 these people came down with the things that they did when
18 they worked at Goodrich.

19 And so I suppose I'm gonna catch a lot of hell
20 from Goodrich about this, but you can expect that I am
21 going to be filing a lawsuit against BF Goodrich for
22 wrongful discharge in 1993. And I'm sure they're going to
23 want to argue about that, but I am willing to go to court.
24 My doctors have always told me they thought the stress

1 would not be good for me, but I plan on getting this
2 concluded this year. So, I've tried to work with them
3 before, have communication to Goodrich headquarters. I
4 don't get anywhere. I hired a couple lawyers to do it for
5 me, paid them money; evidently, they weren't working for
6 me because they didn't follow through. But I have new
7 legal staff now, and I have an agency that works with the
8 people with disabilities; and I do believe that this will
9 be, you know, the year that it's gonna happen in 2004,
10 because I don't know how many more years I have left. My
11 blood pressure, I've had three strokes in the last year
12 and a half.

13 HEARING OFFICER HALLORAN: If I had some water
14 I'd give it to you.

15 MR. JANSSEN: No, I don't need water. So, I
16 wanted to say a lot more, but I better cut it short and do
17 a little bit of what my doctor has suggested, take it as,
18 as I can because I don't think that I'm going to be able
19 to do too much more.

20 So, that was my comment. The EPA has a
21 standard, and it should be followed. And that standard
22 should be their -- they are trained in this field, and
23 that standard should be that it's safe for wildlife, for
24 downstream drinking water. You know, nobody should be in

1 the river for recreation if it's going to be harmful. But
2 I guess that's the end of my comment.

3 Thank you.

4 HEARING OFFICER HALLORAN: Thank you very
5 much, sir. I appreciate it.

6 I think, Mr. Kissel, you were going to call
7 your fourth witness or -- is that correct or no?

8 MR. KISSEL: Number five.

9 HEARING OFFICER HALLORAN: Five. Okay. I
10 lost count.

11 MS. WILLIAMS: Four today, five total.

12 MS. DEELY: It's fourth out of five.

13 MS. WILLIAMS: No. You had one yesterday.

14 HEARING OFFICER HALLORAN: You had one
15 yesterday. Then I am right.

16 MS. DEELY: You are right. We're going to
17 call Linda Shaw as our next witness.

18 (Witness sworn.)

19 LINDA M. SHAW,
20 called as a witness, after being first duly sworn, was
21 examined and testified upon her oath as follows:

22 DIRECT EXAMINATION

23 BY MS. DEELY:

24 Q. Can you state your name for the record,

1 please?

2 A. My name's Linda M. Shaw.

3 Q. Okay. I'm going to show you what we've marked
4 as Petitioner's Exhibit 33. Can you identify that for us,
5 please?

6 A. This is a written testimony that I prepared.

7 Q. And is that true and correct to the best of
8 your knowledge, information and belief?

9 A. Yes, it is.

10 MS. DEELY: I'd like to move that we admit
11 Petitioner's Exhibit 33 as if read.

12 MS. WILLIAMS: Can we just clarify for the
13 record how this compares with what was prefiled on
14 February 6th?

15 MS. DEELY: What we prefiled on February 6th
16 was redacted. There's -- the subject of Miss Shaw's
17 testimony is financial, so we had redacted some
18 information. I think we have went back and tried to
19 narrow our redactions so that this testimony is in its
20 entirety; there's been nothing removed or redacted from
21 it. So, the public has access to the testimony.

22 MS. WILLIAMS: I mean, the reason I'm asking
23 is sort of twofold: One, to make sure I have read what's
24 in here because I've read an unredacted version.

1 MS. DEELY: Yes. You were provided with the
2 unredacted version originally, so this is what you have
3 received.

4 MS. WILLIAMS: And the second question then
5 would pertain to understanding if there are outstanding
6 trade secret claims so that the Agency is clear on what
7 we're protecting and, you know, just to keep our files --

8 MS. DEELY: Okay. There are outstanding trade
9 secrets, not in this exhibit. When we get to that
10 exhibit, I'll address them.

11 HEARING OFFICER HALLORAN: So, Exhibit Number
12 33, do you have any objection?

13 MS. WILLIAMS: Oh, no.

14 HEARING OFFICER HALLORAN: Okay. It's
15 admitted.

16 MS. DEELY: Okay.

17 BY MS. DEELY

18 Q. Can you identify that document, please, Miss
19 Shaw?

20 A. Yes. This is my resume.

21 Q. And is that accurate to the best of your
22 knowledge, information and belief?

23 A. Yes, it is.

24 MS. DEELY: Okay. I move that Petitioner's

1 Exhibit Number 34 be admitted into the record.

2 MS. WILLIAMS: Do we have that? A resume? Is
3 that what you said?

4 HEARING OFFICER HALLORAN: Correct.

5 MS. WILLIAMS: I'm just making sure we have
6 it.

7 MS. DEELY: Do you have it?

8 MS. WILLIAMS: Yes. Fine. No objection.

9 HEARING OFFICER HALLORAN: Okay. 34 is
10 admitted.

11 BY MS. DEELY

12 Q. I'd like to show you what's been marked as
13 Petitioner's Exhibit 35. Can you identify that, please?

14 A. Yes. This is a spreadsheet that I prepared
15 showing the historical results of the last three years,
16 plus doing some sensitivities.

17 MS. DEELY: Okay. And just to be clear, this
18 information -- this spreadsheet we have redacted some
19 information. We've only redacted cost information,
20 nothing else. So, that cost information is trade secret
21 protected and confidential, but everything else is, you
22 know, free to Agency and public to view.

23 I'd like to move Petitioner's Exhibit Number
24 35 be admitted into the record.

1 MS. WILLIAMS: So, you're saying this is
2 exactly the same thing that we were provided -- this isn't
3 exactly what we were provided, is it?

4 MS. DEELY: This is exactly what you were
5 provided, which is with the redactions.

6 MS. WILLIAMS: Would you mind giving us just a
7 second to check?

8 MS. DEELY: Sure.

9 MS. WILLIAMS: Okay. Thanks. That's fine.

10 HEARING OFFICER HALLORAN: Okay. Petitioner's
11 Exhibit Number 35 is admitted into evidence.

12 BY MS. DEELY

13 Q. Okay. I'd like to show you what has already
14 been marked as Petitioner's Exhibit 11. When you refer to
15 the memorandum of Houston Flippin dated May 17th, 2002, is
16 that what you're referring to?

17 A. Yes, it is.

18 Q. And this is what you used to assess the
19 various costs on the Henry Noveon plant?

20 A. Yes, it is.

21 MS. DEELY: Okay. Thank you. I have no
22 questions for Miss Shaw.

23 HEARING OFFICER HALLORAN: Okay. Thank you.

24 MS. DEELY: You can hold onto that.

1 THE WITNESS: Okay.

2 HEARING OFFICER HALLORAN: Miss Williams?

3 CROSS-EXAMINATION

4 BY MS. WILLIAMS:

5 Q. So when -- hi, Miss Shaw. Good afternoon.

6 A. Hi. Hi.

7 Q. Takes me a little minute to get adjusted
8 when -- it's easier when you go through the testimony
9 first; it's more fresh in my mind. So, I need to get a
10 little adjusted here.

11 So, just to clarify what Miss Deely said, when
12 you analyzed the cost of treating -- the cost of
13 implementing some of the alternatives, you based those
14 costs on what Mr. Flippin provided to you, correct?

15 A. I based it on the information in that
16 memorandum.

17 Q. Did you assist Mr. Flippin with obtaining data
18 from Noveon when he --

19 A. No.

20 Q. You didn't help him at all in preparing his
21 memorandum?

22 A. No.

23 Q. He did that, and the first you saw of it was
24 you --

1 A. No, I was just asked to use these numbers and
2 show the impact at the Henry plant.

3 Q. All right. Great. So, when he provided
4 figures such as labor cost and electricity cost, you
5 didn't question any of those?

6 A. That's correct.

7 Q. And from your testimony, you specifically
8 looked at four of the alternatives?

9 A. Yes.

10 Q. How did you choose those four from the
11 alternatives provided in Mr. Houston's (sic) memo?

12 A. Those were the four they asked me to do the
13 financial analysis on.

14 Q. And "they" meaning Gardner, Carton & Douglas
15 or --

16 A. Yes.

17 Q. Mr. Flippin has testified previously that
18 PolyOne Corporation provides a flow of about 60 percent to
19 the wastewater treatment plant at --

20 A. Uh-huh.

21 Q. -- Henry plant?

22 Are you aware of what percentage of the cost
23 of operating that plant they provide to Noveon?

24 A. No, I'm not.

1 Q. If, for example, the cost in Mr. Flippin's
2 memo had been 60 percent less, would that have changed
3 your conclusions in your memo, if the cost to Noveon had
4 been reduced by 60 percent? I assume that would have
5 changed your conclusions somewhat, right?

6 A. It would have changed the results.

7 Q. Right. On page two of your testimony, I'd
8 like to -- you provide several definitions of the terms in
9 the chart?

10 A. Yes.

11 Q. And I'd just like you to explain to us, when
12 you define -- I see it here both in the definition of
13 volume and the definition of revenue, you use the phrase
14 non-affiliated third parties?

15 A. That's true.

16 Q. Can you explain to us if there's such a thing
17 as affiliated third parties or second parties or --

18 A. There is. What that means is that means trade
19 sales. That means it doesn't include any transfers to --
20 within the company. It's actually product that is going
21 to third parties external to Noveon.

22 Q. And transfers within the company means it
23 could go to another plant to be used in the production of
24 a different chemical, or how would that happen? How would

1 you have transfers within the plant --

2 A. Well --

3 Q. -- or within the company?

4 A. What that means is there's a very small amount
5 of this product that is used at another plant. What I
6 mean by intercompany sales, we have offices in Europe and
7 offices in Asia that we transfer price to them at a
8 certain price. We don't want to double-count those sales
9 to them and then count their final sales. So, we just
10 include the final sale to an unaffiliated third party in
11 our results because you would be double-counting the same
12 product sale.

13 Q. Okay. I understand how from an accounting
14 perspective that's true, right? Would you be
15 double-counting it for the purposes of the company as a
16 whole?

17 A. Uh-huh.

18 Q. But that means, under your table, for the
19 purposes of this plant that product's not getting counted
20 at all, correct?

21 A. That's not true.

22 Q. Okay.

23 A. You know, we have to -- for tax reasons, you
24 need to sell to foreign affiliated parties at a transfer

1 price. So, we are pricing to them at a particular price,
2 with a little bit of margin for ourselves. But then they
3 eventually sell that same product to a third party, so I
4 am including in my numbers their sales of that product.

5 Q. So, you follow the product to the --

6 A. Exactly.

7 Q. Okay.

8 A. Exactly.

9 Q. That was definitely not clear to me from this.

10 Thank you for that clarification.

11 And what you just leave out then is the
12 markup, or you include that in eventually, too?

13 A. No. What we include in, in these results is
14 their selling price, the cost to make it in the United
15 States, or at the Henry plant in this case.

16 Q. Let's see if I have anything else. Can you
17 explain on page -- I just want to understand in your
18 conclusions here on page five and six, you talk about
19 declines in the return in revenue from the plant, 2001,
20 2002 to 2003.

21 But for the second numbers, you provide return
22 on net plant property and equipment, you just give 2002
23 and 2003. Can you explain why you didn't provide 2001 for
24 that figure?

1 A. It's not available.

2 Q. Why is that?

3 A. We went to a new fixed asset system that
4 tracks this type of data.

5 Q. And presumably, the reason the data only goes
6 back to 2001 is because that's the year that Noveon was
7 spun off or however you like to phrase it -- created?

8 A. I guess I just -- I chose to give you a
9 three-year sample, you know, the most recent information.

10 Q. So, could you have gone back then more than
11 three years for that type of information?

12 A. Well, I could have definitely gone back five
13 years. I've been in the job since 1998. But the trend is
14 the same.

15 Q. Could you say from your recollection where we
16 were at five years ago?

17 A. No, I can't.

18 Q. And by "the same," you mean that this plant is
19 -- what; how would you describe it?

20 A. That --

21 Q. How would you --

22 A. That the return on revenue as well as the
23 return on net property is declining, not only over the
24 last three years, but over the last five years.

1 Q. That's not true for the company as a whole, is
2 it? Just for this plant?

3 A. I can only speak about this plant.

4 Q. You don't work just for this plant, though, do
5 you? I mean, when you say I can only speak for this
6 plant, you mean you don't have information?

7 MR. LATHAM: Objection.

8 MR. KISSEL: Objection.

9 MS. DEELY: I'm gonna object. I'm just gonna
10 object. We're talking about the Henry plant, not any
11 other facility; so, I'm just not sure why it's relevant.

12 MS. WILLIAMS: I think the financial health of
13 the company as a whole is relevant to the Board in
14 considering whether they can afford the cost of these
15 treatment alternatives, isn't it? I mean, that's what I
16 was trying to get at, but --

17 MS. DEELY: I don't --

18 MS. WILLIAMS: Just the general financial
19 health.

20 HEARING OFFICER HALLORAN: I would overrule
21 your objection; and if the witness can answer, she will do
22 so.

23 A. I, I am not -- I don't have that information
24 on total Noveon. What I will tell you, however, that I am

1 the finance manager for the polymer additives business
2 unit. The Henry plant is one piece of that business unit.

3 Noveon looks at each business unit separately,
4 as a stand-alone business, and makes -- and evaluates the
5 results at that point.

6 Q. They look at each unit separately?

7 A. Business unit.

8 Q. And that -- what -- how many plants would be
9 in the business unit that you know?

10 A. There's two. There's Henry and the Akron
11 plant.

12 Q. Did you have a chance last week to take a look
13 at your website, your Internet -- the company's website
14 where they have news, press releases?

15 A. Uh-huh.

16 Q. And just generally, those press releases,
17 would you agree, stated things like -- about 2003 --
18 "Sales up, third quarter, sales up, second quarter"? Are
19 you aware of that?

20 A. In other business units, that's true.

21 Q. "Record sales, second quarter of 2003"? Does
22 that sound correct?

23 A. In other business units, that's true.

24 Q. Okay. "Revenue of 1.1 billion in 2002." Does

1 that sound accurate?

2 A. It's in that neighborhood, for total Noveon.

3 MS. WILLIAMS: Okay. That's all I have.

4 Thank you.

5 HEARING OFFICER HALLORAN: Thank you.

6 Miss Deely, any redirect?

7 MS. DEELY: No, I don't think so.

8 HEARING OFFICER HALLORAN: Okay. Mr. Rao,

9 Miss Liu?

10 MR. RAO: Miss Liu had a question.

11 MS. LIU: Good afternoon, Miss Shaw.

12 THE WITNESS: Uh-huh.

13 MS. LIU: Could you tell us where the
14 headquarters for Noveon is?

15 THE WITNESS: Sure. Do you want the address?

16 It's in Brecksville, Ohio.

17 MS. LIU: Does Noveon have any other plants
18 besides Henry and Akron that produce those types of
19 products?

20 THE WITNESS: No.

21 MS. LIU: Is Noveon a private or a publicly
22 held company?

23 THE WITNESS: It's private. It's private.

24 MS. LIU: Does Noveon have any competitors for

1 the products that it produces at the Henry plant?

2 THE WITNESS: Yes. Yes.

3 MS. LIU: Do you happen to know who those
4 competitors are and where they're located?

5 THE WITNESS: I can tell you who the
6 competitors are. Flexis, Behr, Crompton are the three big
7 ones, and there's smaller competitors.

8 MS. LIU: In the table that you provided, you
9 mentioned that it only represents -- if Noveon were to pay
10 the entire cost for a treatment alternative --

11 THE WITNESS: Uh-huh.

12 MS. LIU: -- if you were to share that cost
13 with PolyOne, it would change these numbers. Would you be
14 able to recalculate, based on sharing, to provide that in
15 a post-hearing brief for us later?

16 THE WITNESS: Noveon has the responsibility
17 for operating the water, wastewater treatment so the way I
18 did my analysis was we have the ultimate responsibility
19 for the capital investment as well as the operating cost.

20 There are contracts in place with the PolyOne
21 part of the Henry plant that could potentially look at
22 those and maybe change those, but I, I couldn't say what
23 that percentage would be or have any idea what it would
24 be.

1 MS. LIU: Okay.

2 THE WITNESS: Or whether they could do it.

3 MR. RAO: Just a follow-up question on that.

4 You mentioned that you have contracts with PolyOne for
5 treating their waste stream. Does that involve any, you
6 know, certain amount of money that Noveon charges PolyOne?

7 THE WITNESS: I'm not close enough to that
8 situation. Maybe, maybe Mr. Davids can help you out on
9 that.

10 MR. RAO: Okay. If there is such a
11 contractual agreement which, you know, brings in a certain
12 amount of money for treating PolyOne's waste, is that
13 something that you can work in your calculations to show
14 what kind of impact it would have?

15 THE WITNESS: Can you rephrase it?

16 MR. RAO: Yeah. You know, if you're getting
17 an income by treating their waste, like if you're charging
18 them so many dollars per year --

19 THE WITNESS: Okay.

20 MR. RAO: -- can you put -- calculate that
21 cost in income and see what kind of change?

22 THE WITNESS: These costs are net.

23 MR. RAO: Okay.

24 THE WITNESS: These are strictly what is

1 Noveon's cost so that's already -- so that's already been
2 taken out.

3 MR. RAO: Oh, it's already been taken out?

4 THE WITNESS: If we are charging them for
5 waste treatment, that is billed to them, and that is their
6 expense. These are strictly what belongs to Noveon at
7 that plant.

8 MR. RAO: Okay. Thanks.

9 HEARING OFFICER HALLORAN: Any follow-up,
10 Miss Deely?

11 MS. DEELY: I don't think so.

12 HEARING OFFICER HALLORAN: Miss Williams?

13 RECROSS-EXAMINATION

14 BY MS. WILLIAMS:

15 Q. Just maybe to clarify the question they asked
16 about the number of plants, you said there were two that
17 manufacture -- how do you define it, the unit that you
18 work for is?

19 A. Oh, polymer additives business unit.

20 Q. Polymer additives?

21 A. Uh-huh.

22 Q. How many plants total does Noveon have?

23 A. I want to say in the neighborhood of 20, 28,
24 something -- in the 20's.

1 MS. WILLIAMS: Thank you. That's all I have.

2 HEARING OFFICER HALLORAN: No further
3 questions. You may step down, Miss Shaw. Thank you very
4 much.

5 Here is what we're going to do. We have to
6 take a short break now. The Clerk of the Court informs us
7 that she's leaving at 4:30, and we want the parties -- if
8 they have to lock stuff up because, what I wanted to do, I
9 wanted to finish this hearing today, but it doesn't look
10 like it's going to happen.

11 My thought is -- and correct me if I'm wrong
12 here -- to finish up Noveon's case in chief. I think you
13 have one more witness.

14 MR. LATHAM: Right.

15 HEARING OFFICER HALLORAN: I assume the IEPA
16 has two witnesses that will probably take a couple hours
17 and then Noveon will probably have a rebuttal. So, it's
18 not going to happen tonight unless we stay till 8, and I
19 don't think anybody wants to do that.

20 So, let's take a short break and come back
21 here in five, ten minutes, and we'll wrap it up for today.
22 Thank you.

23 (Whereupon, a recess was taken.)

24 HEARING OFFICER HALLORAN: We're going to go

1 back on the record. Sorry about that; I had to call work.

2 In any event, we're back on the record. It's
3 approximately 4:25, and I think Noveon is still presenting
4 its case in chief.

5 MR. LATHAM: Right. We have one more witness.

6 HEARING OFFICER HALLORAN: Okay. Mr. Latham,
7 you're on.

8 MR. LATHAM: Call Guy Davids.

9 (Witness sworn.)

10 MR. LATHAM: Just so everybody knows, we did
11 not file prefiled testimony for Mr. Davids, so --

12 HEARING OFFICER HALLORAN: Thank you.

13 GUY DAVIDS,
14 called as a witness, after being first duly sworn, was
15 examined and testified upon his oath as follows:

16 DIRECT EXAMINATION

17 BY MR. LATHAM:

18 Q. Would you please state your name for the
19 record?

20 A. Guy H. Davids.

21 Q. What's your current address?

22 A. Current address is Chillicothe, Illinois. Do
23 you want the --

24 Q. Could you summarize your educational

1 background for us, please?

2 A. I have a bachelor of science in chemistry from
3 the California State Polytechnic University in Pomona.

4 Q. When did you graduate?

5 A. 1990.

6 Q. Prior to Noveon -- can you summarize your work
7 experience prior to joining Noveon?

8 A. Sure. In chronologic order, I've worked for
9 Chevron USA in El Segundo Refinery; that's El Segundo,
10 California. Also worked for Betts Laboratories in
11 Beaumont, Texas, as a technical sales representative. And
12 also Baker Petrolite, also in the Houston area, as a
13 business development manager.

14 Q. And when did you join Noveon?

15 A. I joined -- actually joined BF Goodrich in
16 April 1999, and then subsequently became Noveon.

17 Q. What was your first position with Noveon or BF
18 Goodrich?

19 A. I was hired as maintenance and utilities
20 supervisor in the Henry plant.

21 Q. What were your responsibilities in that role?

22 A. My responsibilities were the day-to-day
23 operation of the waste treatment facility at the Henry
24 plant.

1 Q. Did you have any other positions at the Henry
2 plant?

3 A. Yes, sir, I did. In March of 2000, I was
4 appointed the production superintendent, which basically
5 meant that I kept the existing responsibilities I had and
6 picked up responsibilities for the day-to-day production
7 of products in the plant.

8 Q. Any other positions at the Henry plant?

9 A. In October of 2001, I was promoted to site
10 manager.

11 Q. And as the site manager, can you summarize
12 your responsibilities in that role?

13 A. Yes. My responsibilities basically entailed
14 day-to-day operation, compliance with all regulatory --
15 regulatory issues, meeting the business objectives, as
16 well as the compliance objectives of the plant.

17 Q. In your time at the -- what's your current
18 position with Noveon?

19 A. My current position is plant manager at the
20 Noveon Wilmington, Massachusetts, facility.

21 Q. While at Henry, did you have any involvement
22 with the wastewater treatment --

23 A. Yes.

24 Q. -- facility?

1 A. Yes. I actually was supervising the operation
2 in my first position, and actually through all the
3 positions I had at least -- I had responsibility and
4 interaction at least several times a week, if not daily,
5 in the operation of the unit.

6 Q. I think you testified that as the site manager
7 you helped the plant meet its business objectives. Can
8 you tell us a little bit more about that role?

9 A. Sure. Yes. The business -- the polymer
10 additives business has business objectives as far as
11 sales. We were charged with making the product that the
12 salespeople would sell. We were also charged with
13 improving efficiencies throughout the plant, both in raw
14 materials, utilities, and throughput, through the plant.

15 Q. In that role, did you have the opportunity to
16 interact with management back at the corporate
17 headquarters?

18 A. Yes.

19 Q. Let me -- I just want to show you what's
20 already been marked as Petitioner's Exhibit Number 35 when
21 Miss Shaw was testifying. Can you take a look at that for
22 a minute?

23 A. Okay.

24 Q. Have you seen that document before?

1 A. I believe I have seen the version that does
2 not have the redacted information. I've studied that,
3 that one. This one I have seen today.

4 Q. Okay. I just want to ask you a couple
5 questions about -- under the heading 2003 Historical
6 Restated for Treatment Alternatives, there's a --

7 MS. WILLIAMS: Mark, could you speak up just a
8 little bit?

9 BY MR. LATHAM:

10 Q. Yes, I'll repeat that. I just want to ask you
11 a couple questions about this column that's headed 2003
12 Historical Restated for Treatment Alternatives, and I'm
13 going to focus on this box here that's called Adjusted
14 Operating Income, Percent Return on Revenue.

15 As the former site manager at the Henry plant,
16 what do these numbers show to you?

17 A. Basically, these numbers show that I -- that
18 the return on revenue would be very small, if not
19 negative, for the treatment alternatives three, six, seven
20 and ten. Basically this product, this, this product line,
21 this plant would be at a negative return.

22 Q. Negative return, meaning it would lose money?

23 A. That's correct.

24 Q. Now, as far as that, what impact, if any,

1 would that have on your ability to attract new capital to
2 the plant based on your dealings with Noveon management
3 and helping the plant achieve its business objectives?

4 A. Based on these numbers, I would have a very
5 difficult time justifying essentially any capital in this
6 plant. Not to say that I wouldn't get any, but I would
7 have a very difficult time justifying it, and I would
8 expect that I would get -- I would be -- I would probably
9 be made to operate with what I could, what I could get by
10 with.

11 Q. Uh-huh. Would these numbers have any -- what
12 impact, if any, would the numbers we just discussed have
13 on your ability to attract new products to the plant?

14 A. It would be very difficult to attract new
15 products.

16 Q. As the site manager, with this type of
17 financial return, would that raise any concerns about the
18 long-term viability of the plant in your mind as the
19 former site manager?

20 A. I would be concerned about the long-term
21 viability.

22 Q. Thank you. I just want to show you what's
23 already been marked as Petitioner's Exhibit Number 11 --
24 Mr. Houston Flippin used this in his testimony -- if you'd

1 just take a look at that?

2 A. I'm familiar with this document.

3 Q. Okay. Under table 1, there's flow data
4 provided. Based on your experience at the Henry plant,
5 does that -- are those flows consistent with what you saw
6 when you were responsible for the wastewater treatment
7 plant?

8 A. Those numbers are consistent with my
9 recollection, yes.

10 Q. There was also discussion during Mr. Flippin's
11 testimony about certain O & M costs that he included in
12 his calculations I'd like to ask you about. If you could
13 just take a look at table 4 --

14 A. Right.

15 Q. -- for a second?

16 One of the O & M costs that he has is the
17 labor for the various treatment alternatives, and he's
18 used a \$40-per-hour cost. Are you familiar with that --

19 A. Yes.

20 Q. -- labor cost?

21 A. \$40 per hour is a number that we would use.
22 It is a general number that would take into account the
23 wage, the benefits, projected overtime with a given
24 position, and some increase in that wage over a period of

1 time.

2 Q. Of that \$40, what would the wage -- hourly
3 wage be?

4 A. In the area that we're talking about, an
5 operator makes \$23.60 an hour straight wage.

6 Q. So, would it be fair to say that the 17 --
7 roughly \$17 would be benefits, and the other --

8 A. Keep in mind that based on their schedule,
9 they're paid a premium for hours worked over 40 hours in a
10 week. They typically work a schedule that would build in
11 some overtime into that.

12 Q. So, it would be typical that they would have
13 some overtime?

14 A. In a typical -- in a typical one-month
15 rotation, the operator will be paid some portion of that
16 at time and a half, double time for Sundays, double time
17 for anything over seven days. And that's, that's not too
18 common, but it does happen.

19 Q. Okay. There's a couple other of these costs.
20 Are you familiar with these electrical costs?

21 A. Yes.

22 Q. Can you explain the successive kilowatt hours?

23 A. Successive kilowatt hours is a number that
24 would be accurate. Again, I've been away from this

1 facility for a couple of months now, but my understanding
2 is that 6 cents, 5-1/2 to 6 cents is the current rate
3 right now.

4 Q. Yes?

5 A. And -- go ahead.

6 Q. I'm sorry. When this was prepared in May of
7 2000, you were at the facility, correct?

8 A. That's correct.

9 Q. Okay.

10 A. That's correct.

11 Q. What about the natural gas cost of 6 cents a
12 therm?

13 A. Natural gas cost at the time was 6 cents.

14 From what I understand, it would be 8 cents today.

15 Q. Okay. There was testimony during Mrs. Shaw's
16 testimony about the polymer additive business, and it has
17 -- consists of two plants, one in Akron and then the other
18 one at Henry?

19 A. That's correct.

20 Q. Do those plants make the same products?

21 A. No, sir.

22 Q. What's the difference?

23 A. They make completely different -- completely
24 different products. They go into similar end uses, but

1 there's no chemistry that is practiced in Akron that is
2 practiced in Henry and vice versa.

3 MR. LATHAM: Thank you very much. That's all
4 I have.

5 HEARING OFFICER HALLORAN: Thank, Mr. Latham.
6 Miss Williams?

7 CROSS-EXAMINATION

8 BY MS. WILLIAMS:

9 Q. Why don't we just start with where you left
10 off. The Akron and Henry plants make totally different
11 products; no crossover?

12 A. That's, that's correct.

13 Q. Would you say all the Noveon plants make
14 different products from each other?

15 A. I'm -- can you --

16 Q. Does it -- there are over, what, 20? How many
17 plants does Noveon have?

18 A. I think 26, 28 is correct.

19 Q. Okay. Is it true that they all make different
20 things or --

21 A. Some --

22 Q. -- do any of them make the same thing that
23 they make at Henry?

24 A. No.

1 Q. Do any of them make the same thing that's made
2 in Akron?

3 A. No.

4 Q. And there are probably other examples of
5 Noveon plants that make things that none of the other
6 plants make, aren't there?

7 A. Yes, that's correct.

8 Q. And when you talked about the cost component
9 of the labor portion --

10 A. Yes.

11 Q. -- and you explained a portion of that is
12 overtime as well as the regular wage and benefits as
13 well --

14 A. That's correct.

15 Q. -- you said in there?

16 But it's not your testimony that you're going
17 to have to hire additional staff to run any of these
18 treatment alternatives, is it?

19 A. That's, that's correct.

20 Q. You also testified that your concern, if
21 Noveon was forced to implement one of these alternatives
22 at the Henry plant, is that it would have an impact on the
23 long-term viability of the plant and its viability to
24 attract new products, correct?

1 A. That's my opinion.

2 Q. Can you tell us when the last time was a new
3 product line was implemented at the Henry plant?

4 A. Yes. After a lot of lobbying on our part, we
5 were able to bring a new product, made -- actually made
6 for another division within Noveon. At the beginning of
7 2003, we made several -- between the beginning of 2003 and
8 my departure in December of 2003.

9 Q. And what department within Noveon is that that
10 you're making those for?

11 A. That was personal care.

12 Q. Personal care?

13 A. Very small volumes.

14 Q. But even with the uncertainty of this
15 proceeding, you've been able to attract new product lines
16 to that plant?

17 A. The product lines that we were able to attract
18 were currently being made by outside manufacturers. They
19 were being tolled by Noveon, toll manufactured by other,
20 other manufacturers. We were able to bring them to the
21 Henry plant.

22 Q. I think that was yes, right? Yes, they were
23 able to attract new --

24 A. Yes.

1 Q. I asked Miss Shaw about what caused her to
2 evaluate the four alternatives that she chose here, three,
3 six, seven and ten, and her testimony was that Noveon's
4 attorneys directed her to look at those alternatives. Are
5 you aware of why other alternatives were not analyzed for
6 their financial impact?

7 A. I don't remember being part of that
8 discussion.

9 Q. So, it's possible that some of these other
10 alternatives might have an impact on the plant that's less
11 than what's presented in Exhibit 35?

12 A. It's possible.

13 Q. I believe Mark asked you about the flow data
14 provided on this Exhibit 11 dated May 17th?

15 A. Yes.

16 Q. It's your testimony that in the Total line
17 where it says total average flow of 560 gallons per
18 minute, that's an accurate flow value for the Henry
19 facility, correct?

20 A. That's --

21 Q. To the best of your recollection?

22 A. That's a number that would be inside of what I
23 would expect, inside the range of what I would expect.

24 Q. How big is the range of what you would expect?

1 A. I would typically see between 500 gallons per
2 minute and 600 gallons per minute on a day-to-day basis,
3 somewhere in there.

4 Q. Yesterday around this time -- maybe a little
5 later -- I asked Mr. Giffin about some of the in-process
6 reductions that he looked at?

7 A. Yes.

8 Q. And one question that I asked him that he
9 wasn't able to answer I just thought I'd ask you, if maybe
10 you know. I had asked him about how much TBA is used at
11 Noveon. There were some figures provided about a
12 treatment that was able to reach 5 percent reduction. We
13 were trying to go -- back-calculate from that, and I asked
14 him if he knew, and he said he didn't know. Do you know?

15 A. What number are you looking for? What are you
16 looking for?

17 Q. Pounds per day.

18 A. Pounds per day? Off the top of my head, I
19 don't know what that number is, pounds per day. It's
20 going to depend on the actual production for that day.

21 Q. So -- yeah, would it vary? Would there be
22 some days where it would be much less, some days much more
23 based on what was being produced?

24 A. If we're not making that product, it would be

1 zero. If we are making that product, there would be an
2 average amount that would be used in a day to make the
3 product and/or process losses.

4 Q. I believe Miss Shaw also told us that you
5 would be the one to talk to about contracts with PolyOne?

6 A. Yes.

7 Q. Do you want to explain how those work for us?

8 A. Do you have something specific, or do you want
9 me to explain the whole --

10 Q. Her testimony -- well, was it her testimony?
11 I think it was Mr. Giffin's testimony that said the costs
12 would vary based on suspended solids, BOD, that it was
13 complicated. So, as simplified as you can make it for us.

14 A. Okay. As simplified as I can make it. In
15 1994, the current contract was negotiated such that at the
16 time Geon, now PolyOne, pays 55 percent of the monthly
17 operating cost of the waste treatment facility.

18 Q. Well, that's pretty simple. Thank you. We'll
19 just leave it right there.

20 And does that have an expiration date? I
21 guess the contract --

22 A. It is an evergreen contract. We have
23 annual -- we have the ability to adjust it annually,
24 although it's never been adjusted.

1 Q. Okay. The only other thing I can recall that
2 was -- that came up where they said, "Well, you have to
3 ask Mr. Davids about that," was when we talked to
4 Mr. Flippin about the information he used to calculate the
5 PE of the facility; he said he was provided figures from
6 you, data from July 2002 to June 2003.

7 A. Okay.

8 Q. Are you able to provide those to the Board and
9 to the Agency as well?

10 A. I would expect that data should be available.
11 Mr. Flippin should have it. I don't have access to it
12 because I'm not in that plant right now, but it should be
13 available. That's, that's data that's collected daily;
14 it's daily averages.

15 Q. Daily averages?

16 A. Yes. All the data came from our data
17 collection system.

18 Q. You're not required under your permits to
19 measure daily effluent data, are you?

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

21 Q. I think that's -- just one second.

22 If I give you a -- I would like to maybe ask
23 one more quick question. When we talked about TBA, I
24 realize you didn't know exactly how many pounds per day

1 would be an average, but if I -- would a number like
2 10,000 be in the ballpark that you would consider as an
3 estimate or --

4 A. An estimate for?

5 Q. 10,000 pounds per day.

6 A. Used per day?

7 Q. Used per day.

8 A. I, I would have to --

9 Q. If you don't know, you can say you don't know.

10 But if you think that's in the ballpark or it sounds like
11 you can give us some perspective, I would appreciate it.

12 A. Again, it depends on if the product -- are you
13 looking for a daily average or over a year, or are you
14 looking for -- again, if we're not making a product,
15 there's none used.

16 MR. PINNEO: Daily average over --

17 A. Daily average over the year?

18 I would hesitate to give a number at this
19 point in time, but probably it could be -- it could be
20 found. It, it is -- it's relatively easily found from the
21 plant data.

22 Q. Based on usage data?

23 A. That's correct.

24 MS. WILLIAMS: Thanks. That's all I have.

1 HEARING OFFICER HALLORAN: Mr. Latham?

2 MR. LATHAM: Can I take a quick, like
3 60-second break with the witness?

4 HEARING OFFICER HALLORAN: Sure. We're off
5 the record.

6 (A discussion was held off the record.)

7 HEARING OFFICER HALLORAN: Mr. Latham?

8 MR. LATHAM: Yes.

9 HEARING OFFICER HALLORAN: We're back on the
10 record.

11 REDIRECT EXAMINATION

12 BY MR. LATHAM:

13 Q. Mr. Davids, I just have a couple of other
14 questions for you. You're familiar with the cost figures
15 that Linda Shaw used. Can you tell us whether that
16 includes -- that 55 percent, whether that -- those numbers
17 account for that 55 percent of operating costs that
18 PolyOne pays for?

19 A. My understanding is that Linda Shaw's analysis
20 used numbers -- the cost numbers were Noveon's portion of
21 the waste treatment cost.

22 Q. Now, you had testified in response to
23 questions by Ms. Williams that PolyOne, under a contract,
24 pays 55 percent of the operating cost of the wastewater

1 treatment plant?

2 A. That's correct.

3 Q. Are you -- under that same contract, is
4 PolyOne required to pay 55 percent of any capital costs
5 associated with the wastewater treatment plant?

6 A. Not in any provisions that I'm aware of in the
7 contract. As a matter of fact, I do have an example of a
8 situation we talked -- I heard testimony earlier about the
9 expansion of the waste treatment plant to basically double
10 the capacity. The agreement at that time was that PolyOne
11 did not pay the depreciation portion associated with the
12 equipment that was installed. There is -- to my
13 knowledge, there is no obligation of PolyOne to pay the
14 capital costs -- pay for any portion of the capital costs
15 provided for in that contract.

16 Q. Are you aware of any provision in the contract
17 that would obligate PolyOne to pay any costs of additional
18 ammonia being used?

19 A. No, I'm not aware of any provision in that
20 contract.

21 MR. LATHAM: Thank you. That's all I have.

22 HEARING OFFICER HALLORAN: Thank you,

23 Mr. Latham. Miss Williams?

24 * * * * *

RE-CROSS-EXAMINATION

1

2 BY MS. WILLIAMS:

3 Q. Mr. Davids, aren't the upgrades you're
4 referring to, weren't those in order to deal with the
5 increases on the PC side, the Noveon side?

6 A. That's correct.

7 Q. And can you explain for us what you base your
8 conclusion on that the figures in Exhibit 35 included only
9 Noveon's portion?

10 A. My discussion with, with Miss Shaw.

11 Q. Prior to her testimony?

12 A. No.

13 Q. After her testimony?

14 A. Yes.

15 Q. Because when I asked her, if -- that's not
16 what she testified to, I don't believe, is it?

17 A. That's what I --

18 Q. Do you believe that's what you heard her to
19 say?

20 A. That's what I understood her to say, and she
21 clarified that, yes. That's what I understood her to say,
22 and that's what I clarified with her before I came here.

23 Q. Can we look real quick again at Exhibit 11?
24 Do you still have it up there?

1 A. I don't have it up here, no.

2 HEARING OFFICER HALLORAN: Here you go. I got
3 it.

4 BY MS. WILLIAMS:

5 Q. I'm looking at Exhibit 8 -- or alternative
6 number eight, and I just wanted to ask you more
7 specifically, is there a reason that the impact of the
8 cost of alternative number eight was not considered?

9 A. Can someone tell me -- oh, let's see. What is
10 number eight?

11 Q. It goes back to ion exchange.

12 A. Right. Can you repeat your question, please?

13 Q. Why you didn't plug that alternative into one
14 of the alternatives you analyzed impact on the plant for?

15 A. Again, I think I testified earlier that I
16 wasn't a part of the decision. I wasn't part of the
17 conversation to decide which alternatives would be.

18 MS. WILLIAMS: Okay. Well, that's fine.
19 Thank you.

20 HEARING OFFICER HALLORAN: Anything else?

21 MS. WILLIAMS: That's all I have. I'm sorry.

22 HEARING OFFICER HALLORAN: Mr. Latham, any
23 redirect?

24 Mr. Rao?

1 MR. RAO: Yeah, I have a clarification
2 question.

3 I was looking at the table prepared by
4 Miss Shaw --

5 THE WITNESS: Yes.

6 MR. RAO: -- Exhibit 35, and for the 2003
7 Historical Restated for Treatment Alternatives, I was just
8 looking at alternative three. And there is one of the
9 items that's listed as incremental costs; and for
10 alternative three, it's 1049; I guess it's followed by
11 three zeros. That's the dollar amount?

12 THE WITNESS: That's correct.

13 MR. RAO: Does this incremental cost represent
14 the annual, you know, operating and maintenance costs?

15 THE WITNESS: Would it be possible to look at
16 the --

17 MR. RAO: Yeah, if you look --

18 THE WITNESS: -- previous exhibit so I can see
19 what number three is?

20 HEARING OFFICER HALLORAN: Which, which
21 exhibit?

22 THE WITNESS: The other one I just handed back
23 to you, I think.

24 MR. RAO: If you look at Exhibit 11 on page

1 three, table 4 --

2 THE WITNESS: It looks like alternative three
3 is alkaline air stripping of secondary clarifier effluent.
4 It's the incremental costs Miss Shaw identifies as annual
5 operating and maintenance cost estimates for treatment
6 alternatives, a million dollars a year to operate the
7 system would, would not be outside of, of what I --

8 MR. RAO: Yeah, it seems like it's the same
9 number that's in this table number 4 for alternative three
10 in Exhibit 11?

11 THE WITNESS: That's correct. That's correct.

12 MR. RAO: And you testified earlier that
13 PolyOne would not be contractually obligated to share any
14 costs for the -- any capital costs involved in upgrading
15 your plant?

16 THE WITNESS: That's correct.

17 MR. RAO: Would they still contribute to the
18 annual operation and maintenance costs, incremental annual
19 operation and maintenance costs?

20 THE WITNESS: I don't -- that I don't know.
21 It's not provided for in the current contract. I couldn't
22 say whether they would or not. I, I feel that they would
23 contest it.

24 MR. RAO: So, if you -- for whatever reason if

1 you upgraded the plant and your costs go up, there's still
2 -- you know, under the contract, they can continue to pay
3 what was your operating costs in '94? Is that how it is?

4 THE WITNESS: They can actually -- they can do
5 that as a mechanism in the contract. If they dispute some
6 cost, they can pay what they think is fair.

7 MR. RAO: Okay. And if they do agree to share
8 the cost, will the numbers in the table prepared by
9 Miss Shaw change?

10 THE WITNESS: I --

11 MR. RAO: If they contribute 55 percent of
12 this operating and maintenance cost?

13 THE WITNESS: I, I would -- I would have to
14 defer that question to either Miss Shaw or Mr. Flippin as
15 to whether that would change or not. I'm really not sure
16 for the purposes of this analysis. I'm not sure if I can
17 answer the question.

18 MR. RAO: Okay.

19 THE WITNESS: I can say that they're not
20 contractually obligated.

21 MR. RAO: So, there are no conditions in the
22 contract that in case your treatment cost increases for
23 whatever reasons that you cannot renegotiate with them, or
24 is that --

1 THE WITNESS: We can renegotiate, but it's a
2 negotiation. They can -- they can choose to pay or not
3 pay based on the outcome of the negotiation. Ultimately,
4 Noveon is responsible for the cost.

5 MR. RAO: Are you aware of whether PolyOne has
6 other alternatives to treat their waste stream?

7 THE WITNESS: I would expect any alternative
8 would be open to them.

9 MR. RAO: Okay. Thank you.

10 HEARING OFFICER HALLORAN: Thank you. Any --
11 I'm sorry, Miss Liu?

12 MS. LIU: Hi.

13 THE WITNESS: Hello.

14 MS. LIU: Are you familiar with Noveon's
15 competitors?

16 THE WITNESS: Yes, I am.

17 MS. LIU: Miss Shaw identified some of them by
18 name. Are those domestic?

19 THE WITNESS: Some are domestic, some have
20 capacity in and outside of the U.S.

21 MS. LIU: For the ones that have plants that
22 produce products similar to Noveon-Henry plant, do you
23 know what states they're located in?

24 THE WITNESS: I know that there is -- one of

1 the competitors currently has a facility located in West
2 Virginia. The other I'm not absolutely sure of.

3 MS. LIU: Thank you.

4 THE WITNESS: You're welcome.

5 HEARING OFFICER HALLORAN: Mr. Latham,
6 anything in follow-up?

7 MR. LATHAM: No, sir.

8 HEARING OFFICER HALLORAN: You may step down,
9 Mr. Davids. Thank you very much.

10 Does the petitioner have anything else to
11 present in its case in chief? Mr. Kissel?

12 MR. KISSEL: Yes, I talked to Miss Williams
13 about it. We would like to include in our case
14 Petitioner's Exhibit 36 which is a memo dated
15 October 30th, 1990, from Tim Clugge (phonetic) to the
16 Industrial Unit Staff, and the subject of that is
17 Permitting Guidance for Best Degree of Treatment
18 Determinations. It's an Agency document which we received
19 through discovery, FYA.

20 And secondly, Petitioner's Exhibit Number 37,
21 which is a memo dated February 5, 2001, from Scott Twait
22 of the Agency to Rick Pinneo with the subject Ammonia
23 WQBELs, BF Goodrich, NPDES Number IL0001292 (Marshall
24 County). Those are both Agency documents. I don't know

1 as they need verification.

2 HEARING OFFICER HALLORAN: Okay.

3 Ms. Williams, 36 and 37?

4 MS. WILLIAMS: You know, do you have an extra
5 one actually?

6 MR. KISSEL: Well, what happened is -- we can
7 hold this off till --

8 MS. WILLIAMS: Did you take them back?

9 MR. KISSEL: They're locked.

10 MS. WILLIAMS: Oh. Because I, I thought you
11 gave me one.

12 HEARING OFFICER HALLORAN: You know what? I
13 don't want to push it. We can hold it off till tomorrow
14 morning and revisit it, and we can pick up your case in
15 chief if you want to.

16 MR. KISSEL: We are looking at a couple of
17 minor, relatively minor --

18 HEARING OFFICER HALLORAN: Why don't you hold
19 this until tomorrow.

20 MR. KISSEL: Okay. We have a couple of things
21 we are looking at that came up in examination from the
22 Board member or members of the Board staff and Agency, and
23 we would like to -- going to take us overnight to just
24 look at them. Not going to do as much homework as

1 Ms. Williams did last night.

2 MS. WILLIAMS: I take no credit for, by the
3 way.

4 MR. KISSEL: We still have that issue of the
5 transcript to go.

6 HEARING OFFICER HALLORAN: We still have the
7 issue of the data to back up -- I forget which table it
8 was in the Exhibit 11. We will visit that tomorrow. My
9 inclination is to have Noveon file the data. Do you
10 recall that?

11 MR. KISSEL: I remember the discussion.

12 HEARING OFFICER HALLORAN: I'm not sure what
13 table, but we can address that first thing.

14 MR. KISSEL: Okay.

15 HEARING OFFICER HALLORAN: So, I guess we
16 really don't rest, but we'll pick it up tomorrow
17 morning --

18 MR. KISSEL: Right.

19 HEARING OFFICER HALLORAN: -- at 9.

20 And before I forget, based on my legal
21 experience, judgment and observations, I find there are no
22 credibility issues with the witnesses that testified here
23 today.

24 Before I go on, do any members of the public

1 want to have their piece before we close up shop for
2 tonight and start tomorrow morning at 9 a.m.?

3 Okay. And for the record, too, this was
4 noticed up in the board room, but I have put a notice
5 outside of the board room downstairs stating that the
6 hearing is up here. And from my information, it looks
7 like we're here tomorrow. I don't think the judge is
8 going to be in, so that's good news.

9 And while I'm on the judge, I do want to thank
10 the judge, Judge Shore, and the Clerk of the Circuit Court
11 for their gracious hospitality; it's been beyond reproach,
12 and we've been lucky to get the courtroom.

13 So, with that said, if there are no more
14 issues, have a great evening, and I'll see you tomorrow
15 morning at nine.

16 (Whereupon, the hearing was adjourned at
17 5:02 p.m. on February 18, 2004.)

18 (Proceedings continued in Volume III.)

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