

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
) No. AS 19-002
) (Adjusted standard)
Petition of Emerald Polymer)
Additives, LLC, for an)
Adjusted Standard from 35)
Ill. Adm. Code 304.122(b))

REPORT OF THE PROCEEDINGS held in the above entitled cause before Hearing Officer Carol Webb, called by the Illinois Pollution Control Board, taken by Steven Brickey, CSR, for the State of Illinois, 406 5th Street, Lacon, Illinois, on the 15th day of January, 2020, commencing at the hour of 8:36 a.m.

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A P P E A R A N C E S

MS. CAROL WEBB, Hearing Officer
MS. BRENDA CARTER, Board Member
MR. ANAND RAO, Technical Unit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BY: MR. REX L. GRADELESS
MS. CHRISTINE M. ZEIVEL
1021 North Grand Avenue East
PO Box 19276
Springfield, Illinois 62794
(217) 782-5544,
rex.gradeless@illinois.gov
christine.zeivel@illinois.gov

Appeared on behalf of the Illinois
Environmental Protection Agency;

ICE MILLER
BY: MR. THOMAS W. DIMOND
MS. KELSEY WEYHING
200 West Madison Street
Suite 3500
Chicago, Illinois 60606
(312) 726-7156,
thomas.dimond@icemiller.com
kelsey.weyhing@icemiller.com

Appeared on behalf of Emerald Polymer
Additives;

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I N D E X

THE WITNESS: SCOTT TWAIT

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THE WITNESS: MARK LISKA

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Marked for
Identification

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1 HEARING OFFICER WEBB: Good morning.
2 My name is Carol Webb and this is the continuation
3 of the hearing for AS 19-2: Petition of Emerald
4 Polymer Additives for an Adjusted Standard from
5 the Total Ammonia-Nitrogen Effluent Standard in 35
6 Ill. Adm. Code 304.122(b). It is January 15th,
7 2020, and we are beginning at approximately 8:40
8 a.m. I do want to mention that we did have one
9 member of the public join us yesterday and he will
10 be joining us later today to make a public
11 comment. Okay. We are -- let's pick up where we
12 left off.

13 Is the Agency ready to call its
14 next witness?

15 MR. GRADELESS: Yes, your Honor.
16 The Agency calls Scott Twait.

17 HEARING OFFICER WEBB: Would the
18 court reporter please swear in the witness.

19 WHEREUPON:

20 SCOTT TWAIT
21 called as a witness herein, having been first duly
22 sworn, deposeth and saith as follows:
23
24

1 D I R E C T E X A M I N A T I O N

2 BY MR. GRADELESS:

3 **Q. Can you please state your name for**
4 **the record.**

5 A. Scott Twait.

6 **Q. And, Mr. Twait, by whom are you**
7 **employed?**

8 A. Illinois EPA.

9 **Q. And what is your position with the**
10 **Illinois EPA?**

11 A. I'm a manager for the water quality
12 standards section.

13 **Q. And how long have you been a manager**
14 **for the water qualities section -- standards**
15 **section?**

16 A. I think it's been almost two years.

17 **Q. And what is your educational**
18 **background?**

19 A. I've got a BS in Civil Engineering
20 from the University of Illinois.

21 **Q. And tell me about how many employees**
22 **you supervise.**

23 A. Currently, two employees plus an
24 intern.

1 **Q. And what are your job**
2 **responsibilities at the Illinois EPA?**

3 A. We propose water quality standards,
4 derive criteria and participate in Board hearings
5 and write memos to help the permit section develop
6 limits for their permits.

7 **Q. Okay. And how are you involved in**
8 **today's case?**

9 A. I reviewed the adjusted standard
10 petition.

11 **Q. Okay. And you were part of a group**
12 **at the Agency, if I may, is that correct?**

13 A. Yes.

14 **Q. And that group is responsible for**
15 **the recommendation in this case?**

16 A. Yes.

17 **Q. What did you review with respect to**
18 **this case?**

19 A. I reviewed the adjusted standard,
20 their annual reports.

21 **Q. When you say their annual reports --**

22 A. Emerald's -- Emerald's annual
23 reports.

24 **Q. Okay. Did you review any DMR's?**

1 A. I reviewed the DMR's.

2 Q. Okay.

3 A. I looked over my water quality memo
4 from 2015 and I'll also note that I worked on the
5 review of the mixing zone and ZID back in the
6 early 2000's.

7 Q. You also conducted a reasonable
8 potential analysis, is that right?

9 A. Yes.

10 MR. DIMOND: Objection. Leading.

11 BY THE WITNESS:

12 A. In 2015.

13 HEARING OFFICER WEBB: For
14 efficiency, do you mind if -- I think it will just
15 be more efficient if he leads. Go ahead.

16 MR. GRADELESS: Okay.

17 BY MR. GRADELESS:

18 Q. As a part of your review, Mr. Twait,
19 you had an opportunity to review the April 17th,
20 2018, report submitted by Emerald Polymer
21 Additives to the Agency?

22 A. Yes.

23 Q. And, specifically, directing your
24 attention to the river water dilution alternative,

1 **what, if any, thoughts did you have with respect**
2 **to what was analyzed in that case?**

3 A. Well, they looked at diluting the
4 MBT in their process so that they get
5 nitrification. One of the things they noted was
6 that during the wintertime they had to add
7 additional heat to the incoming river water to
8 satisfy the microorganisms in the treatment
9 facility.

10 One of the things that they
11 didn't look at was just doing it during the
12 summertime wherein all the additional heat
13 wouldn't need to be added. I think they still
14 need to add heat, just not nearly as much. So in
15 that respect, I don't think that they looked at a
16 partial treatment to reduce ammonia.

17 **Q. And are you familiar with any cases**
18 **where partial seasonal field application -- I'm**
19 **sorry -- river water dilution has occurred?**

20 A. I don't believe so.

21 **Q. Okay.**

22 A. I'm not trying to say that it would
23 work or not. It's just they were looking at an
24 all or nothing type treatment, either they can do

1 it all year or they can just not do it.

2 **Q. Okay. So you're saying you wanted**
3 **it to be analyzed, is that what you're saying?**

4 A. Yeah, I think it's worth while to
5 get incremental improvements in the treatment
6 whether that's six months out of the year or a
7 partial treatment at the end.

8 MR. GRADELESS: Do we have
9 Petitioner's Exhibit 13 we can show the witness?
10 I think it's the DMR's.

11 MS. WEYHING: We have a witness
12 binder.

13 MR. GRADELESS: That will work.
14 Sure.

15 BY MR. GRADELESS:

16 **Q. Mr. Twait, I'd like to direct your**
17 **attention to what has been entered into evidence**
18 **as Petitioner's Exhibit 13. And it's already in**
19 **evidence, but those are the petitioner's DMR's, is**
20 **that your understanding as well?**

21 A. This looks like the individual data
22 for developing the DMR's, yes.

23 **Q. How about this, Mr. Twait --**

24 MR. GRADELESS: Let the record

1 reflect I'm showing Mr. Twait what has been
2 previously identified as State's Exhibit 7 and if
3 counsel can tell me that it's already in evidence,
4 that's fine. I just don't know.

5 (Document marked as State's
6 Exhibit No. 7 for
7 identification.)

8 BY MR. GRADELESS:

9 **Q. Mr. Twait, what have I just handed**
10 **to you that has been identified as State's Exhibit**
11 **7?**

12 A. This is the DMR data that I
13 downloaded.

14 **Q. Okay. And that's the data from the**
15 **petitioner?**

16 A. Yes, from Emerald Performance -- or
17 Emerald Polymer Additives.

18 **Q. And is this the data that you**
19 **reviewed in helping the Agency reach its**
20 **recommendation in this case?**

21 A. Yes.

22 **Q. Is it a fair and accurate copy of**
23 **when you last saw this data?**

24 A. Yes.

1 **Q. And this is the data that was**
2 **submitted from the petitioner to the State of**
3 **Illinois, is that correct?**

4 A. Yes.

5 **Q. Okay.**

6 MR. GRADELESS: At this time, the
7 State moves into evidence State's Exhibit 7.

8 MR. DIMOND: I just have a couple of
9 questions about the foundation of it.

10 Do you want me to ask them now
11 or later?

12 HEARING OFFICER WEBB: Now.

13 MR. DIMOND: Mr. Twait, the data
14 that is reflected on Exhibit 7, did this come out
15 of an Illinois EPA managed database?

16 THE WITNESS: It came out of ISIS,
17 yes.

18 MR. DIMOND: What is ISIS?

19 THE WITNESS: I'm trying to remember
20 what the acronym is.

21 MR. DIMOND: I'm not so much
22 interested --

23 THE WITNESS: It's --

24 MR. DIMOND: -- in what the acronym

1 is.

2 THE WITNESS: I'm sorry. It's our
3 database that holds the DMR data that the
4 petitioner has submitted.

5 MR. DIMOND: Okay. Does -- does
6 someone from Illinois EPA key the information into
7 the database?

8 THE WITNESS: My understanding is
9 they do not.

10 MR. DIMOND: How does the
11 information get into the database?

12 MS. ZEIVEL: I believe the
13 discharger enters it electronically.

14 MR. DIMOND: If that's -- so when
15 you say you believe the discharger enters it
16 electronically, is that the case today?

17 THE WITNESS: Yes.

18 MR. DIMOND: Was that historically
19 the case before the Agency started having DMR data
20 submitted electronically?

21 THE WITNESS: No.

22 MR. DIMOND: Before the Agency
23 started having data submitted electronically, how
24 was the data put into the database?

1 THE WITNESS: I believe it was keyed
2 in, but I'm -- I'm definitely not an expert at how
3 they handled the data.

4 MR. DIMOND: Okay. When you say it
5 was keyed in, by whom was it keyed in?

6 THE WITNESS: I believe paper copies
7 came into the Agency, but I don't know who would
8 key it in.

9 MR. DIMOND: Would it have been an
10 Agency employee?

11 THE WITNESS: Yes.

12 MR. DIMOND: Can you tell us what
13 time period is reflected in the data that is
14 reflected in Exhibit 7?

15 THE WITNESS: October 16th to 2019,
16 I believe.

17 MR. DIMOND: I'm sorry. Did you
18 mean October 2016 to November 2019?

19 THE WITNESS: October 16th to
20 November of 2019.

21 MR. DIMOND: I'm confused as to
22 whether you're saying October 16th or October
23 2016.

24 THE WITNESS: Oh, October 2016.

1 MR. DIMOND: Okay. And how can you
2 determine it's October 2016 to November 2019?

3 THE WITNESS: The dates are
4 included.

5 HEARING OFFICER WEBB: I have a
6 question.

7 On my copy, the first entry is
8 from May of 2016, is that correct?

9 MR. GRADELESS: Fourth column.

10 MR. RAO: The back page it goes up
11 to May.

12 MR. GRADELESS: April 30th, 2016.
13 The very last -- back of that last page there's a
14 sneaky, tricky one there.

15 HEARING OFFICER WEBB: Oh, okay.
16 April 2016. Okay.

17 MR. DIMOND: I don't even see where
18 the April 2016 is.

19 HEARING OFFICER WEBB: You think
20 there's nothing on the back page, but there's one
21 little line.

22 MR. DIMOND: By Jove, you're right.
23 So in this Exhibit 7, is this organized so that
24 all the supposedly reported data for a particular

1 parameter, and I'm using parameter because that's
2 a column title, is grouped together?

3 THE WITNESS: Yes, and also the
4 outfall is grouped -- the outfalls are grouped
5 together.

6 MR. DIMOND: So which column -- help
7 me. Which column would be the outfall?

8 THE WITNESS: It would be the limit
9 set and on the first page that's 001-0.

10 MR. DIMOND: Okay. So -- so if I
11 look at Page's 1 and 2 and 3, those are all for
12 limit set or what you're calling outfall 001-0?

13 THE WITNESS: Yes.

14 MR. DIMOND: Then that continues
15 onto Page 4 and then it switches over to limit set
16 or outfall A010?

17 THE WITNESS: Yes.

18 MR. DIMOND: And within each
19 outfall, then it's grouped by the parameter?

20 THE WITNESS: Yes.

21 MR. DIMOND: I guess the A01-0
22 continues for several pages and eventually flips
23 over to A01-A.

24 THE WITNESS: Yes.

1 MR. DIMOND: Since these pages
2 aren't paginated, I can't -- it's not easy to give
3 you a page number, but, Mr. Twait, I'm looking at
4 a copy of the Emerald facilities current NPDES
5 permit that was attached to the petition and it
6 indicates that there is an outfall A01 and an
7 outfall -- an outfall B01, but I don't see any
8 reference to an outfall 001-0, can you explain
9 that discrepancy?

10 THE WITNESS: The outfall A01 is the
11 outfall and dash 0 is an indicator that it's
12 monthly data. The dash -- the A01-A is an annual
13 data. They have some metals and other parameters
14 that they have to take annually.

15 MR. DIMOND: Okay. So when we get
16 to the -- we get to the end of the A01-A, there
17 are some values with a limit set column that says
18 A01-Q, are those outfall A01, but quarterly?

19 THE WITNESS: Yes.

20 MR. DIMOND: Then after the A01-Q,
21 there are several entries that are B01-0 or, I
22 guess, 0?

23 THE WITNESS: 0.

24 MR. DIMOND: So those would be daily

1 values?

2 THE WITNESS: Those would be the
3 monthly reports.

4 MR. DIMOND: The monthly reports.
5 I'm sorry. Okay. So thank you for that. I
6 actually asked a slightly different question.

7 So on the Page's 1, 2 -- 1, 2, 3
8 and starting onto Page 4, the limit set column
9 says 001-0. What I'm wondering is how does that
10 correspond to the information in the NPDES permit
11 that identifies the outfalls as A01 and B01?

12 THE WITNESS: 001 I believe is the
13 combined effluent of A01 and B01.

14 MR. DIMOND: Okay. So the only --
15 the only parameters that are reported for the
16 limit set 001-0 are the total nitrogen and the
17 ammonia-nitrogen, is that -- and I guess flow, is
18 that correct?

19 THE WITNESS: Yes.

20 MR. DIMOND: Okay. I think that's
21 the questions I have for Mr. Twait.

22 Hearing officer, if I can ask
23 counsel for the Agency, you sent us a document a
24 week ago that you indicated -- I think you

1 indicated you were going to make a hearing
2 exhibit. When I attempted to print it out, it
3 looked a little different than this. It may be
4 the same thing, but it's just hard for me to tell.

5 Is this the same thing you
6 e-mailed to me?

7 MR. GRADELESS: I can explain that.
8 Mr. Twait helped me print it out so we could read
9 it better.

10 MR. DIMOND: Because I had a very
11 hard time reading it --

12 MR. GRADELESS: I did, too.

13 MR. DIMOND: -- when I printed it
14 out. I even put on my cheater glasses --

15 MR. GRADELESS: I'm sorry for that.

16 MR. DIMOND: -- and I still couldn't
17 read it, but this is the same -- it's the same
18 data?

19 MR. GRADELESS: Yes.

20 MR. DIMOND: We don't have any
21 objection.

22 HEARING OFFICER WEBB: Okay. The
23 Agency's Exhibit 7 is admitted.

24

1 BY MR. GRADELESS:

2 Q. Now, Mr. Twait, I understand that
3 one aspect of the Agency recommendation is
4 complete denial of this adjusted standard.
5 However, the Agency has also in Paragraph 1 of its
6 recommendation recommended that "Due to the
7 changes within petitioner's processes in the fall
8 of 2018 and taking the highest values within the
9 petitioner's DMR between September 2018 and May
10 2019, any adjusted standard, if granted by the
11 Board, should not exceed the daily maximum of 110
12 mg/L and no more than 553 pounds per day. The
13 petitioner's 30-day average should not exceed 89.9
14 mg/L and no more than 475 pounds per day."

15 There's a footnote that says,
16 "This should only serve as a ceiling for any
17 adjusted standard granted by the Board and not be
18 construed as the Agency changing its previous
19 positions that a lower standard is more
20 appropriate to compel the petitioner to eventually
21 act." And then it goes on "Notably, petitioner's
22 averages are much lower than the maximum.
23 Therefore, the Board should consider that fact
24 when evaluating the appropriateness of any

1 adjusted standard."

2 Were you responsible for these,
3 assisting in that portion of the recommendation?

4 A. Yes.

5 Q. Now, did the petitioner submit to
6 you any analysis of what would be an appropriate
7 limit in this case?

8 A. In their petition, they put in what
9 they thought was appropriate.

10 Q. And that's what they -- their
11 current standard, is that correct --

12 A. Yes.

13 Q. -- in their petition at least?

14 Okay. Did they provide you with
15 any kind of analysis for any other basis for any
16 other numbers?

17 A. I don't believe so.

18 Q. Okay. And when you helped create
19 these -- sort of the ceiling you reviewed -- you
20 used the DMR's, is that correct?

21 A. Yes.

22 Q. Can you explain how we looked at the
23 DMR's?

24 A. The concentration three is the daily

1 maximum that is reported on the monthly DMR.

2 Concentration two is the monthly average.

3 MR. DIMOND: Your Honor, Hearing
4 Officer Webb, I don't understand what he means by
5 concentration three and concentration two.

6 HEARING OFFICER WEBB: Can we
7 clarify?

8 MR. GRADELESS: We can clarify,
9 yeah.

10 BY MR. GRADELESS:

11 Q. Tell us --

12 A. The column that is listed under
13 concentration three --

14 Q. Okay.

15 A. -- is the daily maximum.

16 Q. In mg/L?

17 A. In mg/L.

18 Q. Okay.

19 A. The column concentration two is also
20 in mg/L and it is a monthly average. The quantity
21 two column is the daily maximum loadings in pounds
22 per day and quantity one is the monthly average
23 loading in pounds per day and what I did was since
24 they identified September 2018 as when they did

1 something to reduce the MBT and the MBTS system --

2 Q. Is it fair to say in one of their
3 processes?

4 A. In one of their processes.

5 MR. DIMOND: Objection. Foundation.

6 MR. GRADELESS: I can try to help.

7 HEARING OFFICER WEBB: All right.

8 BY MR. GRADELESS:

9 Q. Mr. Twait, it was your understanding
10 that the petitioner had made some kind of process
11 change in their facility between September 20 --
12 starting September 2018, is that correct?

13 A. Yes.

14 Q. And after September 2018, you
15 noticed drops in the DMR's?

16 A. Yes.

17 Q. Can you tell us about those?

18 A. In September, October and November,
19 they were each at 110 mg/L. From there, it
20 dropped -- for the next four months dropped into
21 the 90s, 70 and 80, and then it went down 17, back
22 up to 60 between 60s and 70s for three months, and
23 then has dropped down again to 16 and 39 as daily
24 maximums.

1 Q. Okay. Was there anything else that
2 was considered when you looked at the pounds per
3 day or making this recommendation that you can
4 think of?

5 A. Yeah, we noticed the same -- same
6 pattern for the monthly averages going down and as
7 well as the loading to the river.

8 Q. Okay. Have you seen -- so with
9 respect to this sort of ceiling type of
10 recommendation, have you seen limits in your
11 experience in your 14 years -- 14 years at the
12 Agency?

13 A. I have been there 23.

14 Q. Okay.

15 A. Twenty-three years.

16 Q. In your experience of 23 years at
17 the Agency, have you seen levels -- limits set for
18 ammonia at 110 mg/L?

19 A. No.

20 MR. DIMOND: Objection. Foundation.

21 HEARING OFFICER WEBB: I'm not sure
22 what kind of foundation you're --

23 MR. DIMOND: There is no --

24 HEARING OFFICER WEBB: Oh, of what

1 he looked at?

2 MR. DIMOND: Well, there is no
3 evidence of what he looked at or what sources
4 Mr. Gradeless is asking him about and there is no
5 foundation for -- he works in the water quality
6 section. He doesn't write permits. It's not
7 clear how he would have a foundation to know what
8 ammonia limits are set for other entities.

9 HEARING OFFICER WEBB: Well, I think
10 it's a general question. Is there anything we can
11 elaborate on with respect to --

12 BY MR. GRADELESS:

13 Q. Scott, have you ever seen an ammonia
14 limit ever, whatsoever, in your 23 years in any
15 level?

16 A. I have not and we do as part of our
17 helping set permit limits for the permit section
18 as we look at the ammonia water quality standard
19 and develop water quality standards for the permit
20 section.

21 Q. Okay. I want to direct your
22 attention now to the third recommendation from the
23 Illinois EPA. It is mentioned that "Incentives
24 for compliance should be the hallmark of any

1 **adjusted standard brought by the Board. An**
2 **interim standard should require petitioner to**
3 **always provide or seek to provide incremental**
4 **reductions even when it may fail to meet the**
5 **prescribed 3 milligrams per limit in Section**
6 **304.122." Why was that recommended?**

7 MR. DIMOND: This is described as
8 the third recommendation -- is this actually
9 number two?

10 MR. GRADELESS: Paragraph 3.

11 MR. DIMOND: Are you reading from
12 the recommendation? Okay. I'm sorry. You are
13 reading from No. 3. I apologize.

14 BY THE WITNESS:

15 A. Yeah, we -- we believe that when the
16 Board gives an adjusted standard, the petitioner
17 should be working towards compliance and, you
18 know, they may not be able to get there in the
19 next five years, but they should be working
20 towards reductions.

21 BY MR. GRADELESS:

22 **Q. Additionally, the Agency recommends**
23 **in 3B "Petitioner must provide the Agency with its**
24 **financial balance sheets each fiscal year**

1 following the Board's order and shareholders
2 reports, a financial breakdown of petitioner's
3 expenses following the Board's order and the
4 projected annual operation maintenance cost of
5 each fiscal year following the Board's order."

6 What is the basis or reasoning
7 for obtaining that kind of information?

8 A. The basis for that is to develop
9 some information so that the Board can make a
10 determination of whether it's economically
11 reasonable in the future.

12 Q. Letter H. "Given the petitioner
13 current only -- let me take this out.

14 Letter I. I'm sorry.
15 "Petitioner must provide the Agency with actual
16 capital improvement costs for its biotreaters each
17 fiscal year following the Board's order."

18 What is the basis for providing
19 the actual annual capital improvement costs for
20 the biotreaters that it's claimed to have -- that
21 they're going to put in operation?

22 A. The reason that we suggested putting
23 that in there was so that after a five-year period
24 the Board could know how much they're spending

1 annually to -- on capital costs and could then
2 determine whether or not future expenditures at
3 those levels would be reasonable.

4 Q. And you said -- you mentioned after
5 a five-year period.

6 Is there any window which you've
7 actually set or is that -- can you describe what
8 you're talking about?

9 A. I was thinking of if the Board were
10 to grant the adjusted standard for five years and
11 I know there is no magical number on the time.

12 Q. Okay. We also mentioned in
13 Paragraph J "Petitioner must continue to
14 investigate improvements to reaction processes of
15 all its processes and provide the Agency with an
16 annual report detailing improvements made to the
17 reaction process in detail any plans to improve
18 the reaction process. The annual report must
19 include the capital cost or expected capital cost
20 for improvements to these processes."

21 Can you tell us why the Agency
22 made that kind of recommendation?

23 A. That recommendation was based on
24 their improvements to their process and, you know,

1 they thought that they had removed a large amount
2 of MBT from their process prior to treatment.

3 Q. And are you talking about the
4 changes in the summer of 2018?

5 A. Yes.

6 Q. Okay.

7 A. And we just -- we thought that would
8 be worthwhile to document going on in the future.

9 Q. Okay. Directing your attention to
10 Paragraph N, "The petitioner must annually
11 investigate new treatment methods and technologies
12 prior to and following the secondary clarifier,
13 including but not limited to, the Algaewheel
14 technology, and annually evaluate implementation
15 of new and existing treatment technology based on
16 current plan condition. Where practical --
17 practicable, petitioner must substitute current
18 treatment methods or technologies with new ones
19 so long as that substitution generates less
20 ammonia in petitioner's discharge."

21 So that's, again, assuming that
22 the adjusted standard is not denied completely,
23 you've suggested that they investigate new
24 treatment methods, is that correct?

1 A. Yes.

2 **Q. Okay.**

3 MR. GRADELESS: Let the record
4 reflect I'm showing the witness what has been
5 previously identified as State's Exhibit 8 for
6 identification.

7 (Document marked as State's
8 Exhibit No. 8 for
9 identification.)

10 BY MR. GRADELESS:

11 **Q. Okay. Mr. Twait, I've handed you**
12 **State's Exhibit 8, can you identify that for the**
13 **Pollution Control Board?**

14 A. Yes, that is -- it is information
15 about the Algaewheel that was available online.

16 **Q. And is this information your**
17 **understanding of -- general understanding of the**
18 **Algaewheel technology?**

19 A. Yes.

20 **Q. What is an Algaewheel?**

21 A. It's a process where they're using
22 algae to remove BOD, total suspended solids --
23 well, BOD and ammonia in treatment systems.

24 **Q. And is it -- what kind of treatment**

1 would an Algaewheel be considered? Let me ask it
2 in a different way.

3 A. Thank you.

4 Q. Is this a form of tertiary
5 nitrification?

6 MR. DIMOND: Objection. Leading. I
7 don't mind leading on easy stuff, but here he is
8 really testifying for the witness.

9 MR. GRADELESS: I mean, we all know
10 it's tertiary nitrification.

11 HEARING OFFICER WEBB: Well, I mean,
12 I think we do need a certain amount of leading
13 just to -- for efficiency sake, but to the extent
14 that you cannot testify for the witness --

15 MR. GRADELESS: Sorry.

16 HEARING OFFICER WEBB: -- that would
17 be appreciated.

18 MR. GRADELESS: Okay.

19 BY MR. GRADELESS:

20 Q. Scott --

21 A. It can be used as tertiary
22 treatment. Some of the small facilities are using
23 it as a primary treatment.

24 Q. Now, when you say small facilities,

1 **what facilities are -- what do you mean?**

2 A. The way that I became --

3 **Q. Where are these small facilities?**

4 A. There is a facility that is
5 installing it near Dwight, I believe.

6 **Q. In Illinois?**

7 A. Yes, and that is how I became aware
8 of the system.

9 **Q. And that's communities using this as**
10 **their primary treatment system?**

11 A. I believe so.

12 **Q. Okay. And I noticed in this**
13 **information it mentions the Cincinnati Nature**
14 **Center, what, if anything, do you know about that**
15 **project?**

16 A. They designed it --

17 **Q. It's on Page 9.**

18 A. -- to treat their effluent from
19 bathroom shower facilities and restaurant and they
20 have high spikes of ammonia, up to I believe it's
21 120 mg/L, and they were able to meet their permit
22 limits and get it down to 2.3 mg/L.

23 **Q. And any information about the**
24 **Indiana Dunes State Park?**

1 A. Very --

2 MR. DIMOND: Is that in the
3 document?

4 MR. GRADELESS: That's Page 13.
5 Sorry.

6 MR. DIMOND: What was the --

7 MR. GRADELESS: Page 9 was
8 Cincinnati.

9 BY MR. GRADELESS:

10 **Q. Directing your attention, Mr. Twait,**
11 **to Page 13, there's a project from the Indiana**
12 **Dunes State Park used as an example.**

13 **What, if anything, do you know**
14 **about this project?**

15 A. They're also using it to remove BOD
16 and ammonia. They have high concentrations up to
17 I believe it was 120 mg/L and they're getting down
18 into the single digits also.

19 **Q. Is it fair to say your general**
20 **knowledge of these two projects is essentially the**
21 **information here contained in State's Exhibit 8?**

22 A. Yes.

23 **Q. Okay.**

24 MR. GRADELESS: At this time, the

1 State moves into evidence State Exhibit 8.

2 MR. DIMOND: I have just one, I
3 think, question about this document, which I'll at
4 least initially direct to Mr. Gradeless.

5 Are these the same pages that
6 were attached as an exhibit to the Illinois EPA's
7 recommendation?

8 MR. GRADELESS: Yes.

9 MR. DIMOND: Mr. Twait, did you pull
10 these off of the Internet?

11 THE WITNESS: They were pulled off
12 the Internet. I did not do it.

13 MR. DIMOND: Who did it?

14 THE WITNESS: After I mentioned the
15 Algaewheel technology, I believe Rex had somebody
16 that found it.

17 MR. DIMOND: Okay.

18 MR. GRADELESS: I think it was an
19 intern if you want to know.

20 MR. DIMOND: And so the testimony
21 that you gave about the Cincinnati Nature Center
22 and the Indiana Dunes, all you know is what is in
23 the document itself, right?

24 THE WITNESS: Yes.

1 MR. DIMOND: You don't have any
2 independent source of knowledge?

3 THE WITNESS: No.

4 MR. DIMOND: We don't have any
5 objection to Exhibit 8.

6 HEARING OFFICER WEBB: The Agency's
7 Exhibit 8 is admitted.

8 MR. GRADELESS: I believe can I
9 clarify whether 7 -- 7 has been admitted, is that
10 correct, the DMR's?

11 HEARING OFFICER WEBB: Yes.

12 MR. GRADELESS: I have nothing
13 further for Mr. Twait.

14 HEARING OFFICER WEBB: Okay.

15 MR. DIMOND: I guess that means I'm
16 up.

17 HEARING OFFICER WEBB: You're up.

18 C R O S S E X A M I N A T I O N

19 BY MR. DIMOND:

20 Q. Mr. Twait, since -- since pretty
21 much all you know about the Algaewheel is in
22 Exhibit 8, are there -- are there any examples in
23 Exhibit 8 of the Algaewheel being used to treat a
24 chemical plant effluent?

1 A. Not that I'm aware of.

2 Q. Are there any examples in Exhibit 8
3 of the Algaewheel being used to treat a wastewater
4 stream that has nitrification inhibitors in it?

5 A. Not that I'm aware of.

6 Q. Do you need to refer to the
7 documents so you can give a plain no answer?

8 A. I'll say no for both of those.

9 Q. Let's -- let's stay on the
10 Algaewheel here since we're on it.

11 So based on the testimony you
12 gave to Mr. Gradeless, you do agree with
13 Mr. Flippin that the Algaewheel is just another
14 form of tertiary nitrification, right?

15 A. It can be, yes.

16 Q. As it would be applied at the
17 Emerald plant, it would just be another form of
18 tertiary nitrification, wouldn't it?

19 A. Yes.

20 Q. Have you done any evaluation
21 yourself of how effective the algae wheel would be
22 for the effluent at the Emerald plant?

23 A. No.

24 Q. Have you done any analysis of your

1 own of what the costs would be of implementing
2 that technology at the Emerald plant?

3 A. No.

4 Q. So you can't have any idea whether
5 the Algaewheel would be more costly or less costly
6 or what it would cost at all in relationship to
7 the tertiary nitrification alternative that
8 Mr. Flippin analyzed, right?

9 A. Correct.

10 Q. Given -- you were here yesterday,
11 you heard, Mr. Flippin's testimony about the
12 Algaewheel, right?

13 A. Yes.

14 Q. And one of the things that he said
15 is given that it's a newer technology it would
16 almost certainly be more expensive than the
17 rotating biological -- I think the phrase is
18 rotating biological contactor that he analyzed as
19 a tertiary nitrification, do you remember hearing
20 that?

21 A. Yes, I do.

22 Q. If it's -- if it's already more
23 expensive based on Mr. Flippin's testimony than
24 the tertiary nitrification alternative that he

1 analyzed, what's the point of doing further
2 analysis on it?

3 A. Well, the reason that the Agency
4 brought it up in the first place is we didn't know
5 how the MBT would affect the algae, whether it
6 would inhibit nitrification or not. So that's --
7 that's the reason we originally suggested that it
8 be looked at.

9 Q. Well, now, all these -- all these
10 tertiary nitrification alternatives would be
11 applied after the secondary clarifier, right?

12 A. Correct.

13 Q. And while the most recent data may
14 not be -- may not be all the data and may not be
15 consistent with all the data, as you understand
16 it, the most recent data after the secondary
17 clarifier is that the MBT is either not present or
18 not present at levels that would inhibit
19 nitrification, right?

20 A. I know that now.

21 Q. So why -- why -- why would the
22 Agency be concerned about what the impact to the
23 MBT would be on the Algaewheel and how would that
24 have any impact on why you ought to analyze it?

1 A. When we originally made the
2 recommendation, we did not know that the effluent
3 had no MBT.

4 **Q. So knowing that -- knowing that**
5 **that's the most recent sample data, does that**
6 **change your view on whether this needs to be**
7 **studied?**

8 A. If we think that it's more expensive
9 than an RBC unit, then it could probably not be
10 analyzed.

11 **Q. You were here and you heard**
12 **Mr. Flippin's testimony?**

13 A. Yes.

14 **Q. Does that change your view on this**
15 **recommendation at all?**

16 A. I believe it would.

17 **Q. So what does -- what is your view**
18 **today?**

19 A. That alternatives should continue to
20 be looked at. This may not be one alternative
21 that needs to be looked at.

22 **Q. I probably asked this in a slightly**
23 **different way, but I'll ask it.**

24 **So as far as you know, the**

1 **Algaewheel technology has not been used at any**
2 **facility like Emerald's plant, right?**

3 A. Not that I'm aware of.

4 MR. DIMOND: Now, I'm not going to
5 ask this to be entered as an exhibit. I am only
6 going to provide it to the witness so he can refer
7 to it. I am going to provide the witness a copy
8 of the Agency's recommendations without the
9 attached exhibits because I have a number of
10 questions about the recommendations that were made
11 that I want to ask.

12 HEARING OFFICER WEBB: Okay.

13 MR. DIMOND: So I'm not going to ask
14 to have it introduced as an exhibit, but I want
15 the witness to be able to refer to it. So,
16 Mr. Twait, I'm going to hand you, as I said, a
17 copy of the Agency's recommendation, but --
18 actually, it does have the exhibits to it. I
19 apologize. It does have the exhibits to it.

20 BY MR. DIMOND:

21 Q. So I'm going to hand that to you so
22 when I'm asking you questions about various
23 recommendations that the Agency has made, you can
24 have that language in front of you.

1 We've been talking about the
2 Algaewheel which is included in I believe it's
3 recommendation 3N, as in Nancy, on Page 29 of the
4 recommendation, are you at the same spot that I
5 am?

6 A. Yes.

7 Q. So the Algaewheel is mentioned in 3N
8 and I've asked you a number of questions about
9 that. The recommendation also suggests that we --
10 that Emerald investigate new treatment
11 technologies annually.

12 Why did you recommend that the
13 treatment technologies be all -- be evaluated
14 annually?

15 A. Just to look for new treatment
16 methodologies that are out there.

17 Q. Wouldn't that -- are you suggesting
18 that Emerald should retain Mr. Flippin once a year
19 to re-do the analysis that is, you know, basically
20 in his expert report in October of 2019?

21 A. No, I think this is specifically --
22 specific to new treatment methods and
23 technologies.

24 Q. So this is only -- you're only

1 referring to things that are beyond what
2 Mr. Flippin has already analyzed, something that
3 would be completely new?

4 A. Yes.

5 Q. So wouldn't that -- wouldn't that
6 essentially be -- okay. In my -- in my curious
7 way, I'm going to ask -- this is a little
8 discombobulated, but I have a question about
9 Exhibit 7, the DMR summaries.

10 Did you compare the -- the total
11 nitrogen and the ammonia-nitrogen values that are
12 in the Agency's Exhibit 7 with the more detailed
13 data that is in Petitioner's Hearing Exhibit 2 and
14 Petitioner's Hearing Exhibit 13?

15 A. I did not.

16 Q. You can put 7 away and go back to
17 the recommendation. The recommendation -- one of
18 the recommendations is recommendation 3J which is
19 on -- which Mr. Gradeless asked you some questions
20 about. It's on Page 28. What I want you to do is
21 could you sort of compare recommendation 3J to
22 recommendation 3M. You don't have to read them,
23 but just read them to yourself.

24 So my question is, how is

1 **recommendation 3J really any different from**
2 **recommendation 3M?**

3 MR. GRADELESS: I'm just going to
4 object to foundation. Mr. Twait didn't write
5 these recommendations, per se. He was involved in
6 a group that, you know, helped formulate some of
7 these recommendations, but to the extent Mr. Twait
8 can speculate or, you know, try to compare the
9 recommendations, I would just say that --
10 Mr. Twait was not the author of this
11 recommendation.

12 HEARING OFFICER WEBB: Do you know
13 the difference? He didn't ask if he authored it.
14 Can you explain the difference?

15 THE WITNESS: Yes, I think so.

16 BY THE WITNESS:

17 A. J is specific to the reaction
18 process of the processes and M is investigating
19 new production methods. So possibly using a
20 different process.

21 BY MR. DIMOND:

22 **Q. What do you mean by new production**
23 **process?**

24 A. New production methods and I don't

1 know -- I'm not a chemical engineer to know enough
2 whether there's an alternate methodology to
3 develop the same chemical or not.

4 Q. So you were here yesterday when
5 Mr. Hathcock testified about the ten products that
6 the plant principally makes today, right?

7 A. Yes.

8 Q. So what you're saying is you don't
9 know if there's a new way to manufacture any one
10 of those ten products?

11 A. Correct.

12 Q. So you addressed -- maybe partially
13 addressed one of Mr. Gradeless' objections.

14 You talked about this group at
15 the Agency that got together to come up with the
16 recommendations?

17 A. Yes.

18 Q. Who was in that group?

19 A. Myself, Mark Liska, Darin LeCrone
20 and Gary Bingenheimer.

21 Q. Was anybody else in the group?

22 A. Rex Gradeless.

23 Q. Okay. And so how did -- how did the
24 group -- so the group worked on coming up with

1 **these recommendations collectively?**

2 A. Yes.

3 **Q. So -- so were you the author of 3J?**

4 A. No.

5 MR. GRADELESS: I'm going to object
6 to attorney/client privilege at this point. You
7 know, my participation in the group was as an
8 attorney, first of all, and it's a workgroup we
9 have at the Agency. So to the extent we're
10 getting into drafting, I think we're getting into
11 some attorney/client privilege issues.

12 HEARING OFFICER WEBB: I mean, is it
13 enough he can explain it? Do you need to know who
14 wrote what?

15 MR. DIMOND: Well, I'm not sure
16 attorney/client privilege applies here.

17 HEARING OFFICER WEBB: I'm not
18 sure -- I'm not sure either.

19 MR. DIMOND: If Mr. -- if
20 Mr. Gradeless is functioning as a member of the
21 group that is setting policy for the Agency, he is
22 not acting as an attorney. Attorney/client
23 privilege only applies where a client is seeking
24 legal advice from a lawyer.

1 HEARING OFFICER WEBB: Yeah, I --

2 MR. DIMOND: If he's acting not as a
3 lawyer, but acting as an Agency policymaker,
4 privilege doesn't apply.

5 HEARING OFFICER WEBB: Well, I'm
6 going to overrule it. He is a manager in the
7 Bureau of Water. He should be able to address it.

8 BY MR. DIMOND:

9 Q. So you didn't author 3J?

10 A. No.

11 Q. Did you even -- did you come up with
12 that idea in the collective group?

13 A. I don't remember specifically.

14 Q. Did you come up with the idea that
15 is 3M? In the collective group, were you the one
16 that came up with the idea that is 3M?

17 A. We also used the previous
18 recommendations. I'm not sure who came up with
19 3M.

20 MR. GRADELESS: I'm just going to
21 object. Assumes facts not in evidence that one
22 single person came up with a recommendation. So
23 for what it's worth, that one individual came up
24 with L and Mr. Twait's was M. I mean, it was a

1 group effort here. So the fact that one person
2 would have maybe created --

3 HEARING OFFICER WEBB: What is your
4 goal?

5 MR. DIMOND: I'm just -- I'm trying
6 to figure out what the process was and figure out
7 who is behind these recommendations. So --

8 MR. GRADELESS: I think it's
9 further -- for the record, it's further signed off
10 by the bureau chief of the Division of Water
11 Pollution Control Sanjay Sofat. So to the extent
12 that may help your process, you know, it's not
13 just like we got in a room and came up with
14 something. It was vetted beyond Mr. Twait's
15 supervisor and everyone in that group. So to the
16 extent that we want --

17 HEARING OFFICER WEBB: That they did
18 not act unilaterally?

19 MR. GRADELESS: Correct.

20 HEARING OFFICER WEBB: All right.

21 BY MR. DIMOND:

22 Q. So, Mr. Twait, my question is -- my
23 next question is in the -- in the Agency's -- in
24 the answers to interrogatories that the Agency

1 provided in this -- in this proceeding, you were
2 identified as the person who was going to support
3 recommendation 3J.

4 How did -- how did you get
5 designated as the person to support 3J if you
6 weren't the person who came up with the idea?

7 A. We worked as a workgroup and I may
8 have come up with this idea or somebody else might
9 have come up with the idea and then I supplemented
10 it.

11 Q. You actually remember supplementing
12 it or are you just making that up as we go here?

13 A. I don't remember what -- what
14 contribution I had for each and every one of
15 these.

16 Q. Okay. So 3J asks to continually
17 investigate improvements into the reaction process
18 and, of course, you want this information reported
19 to the Agency, right?

20 A. Yes.

21 Q. What would the Agency do with that
22 information?

23 MR. GRADELESS: I would object. It
24 misstates the witness' testimony that Mr. Twait

1 wants this reported to the Agency. This is the
2 Agency's recommendation. The Agency wants this
3 information reported to the Agency.

4 HEARING OFFICER WEBB: Overruled.
5 You can answer it.

6 BY THE WITNESS:

7 A. It would be useful in making a
8 determination for any renewal of the adjusted
9 standard.

10 BY MR. DIMOND:

11 **Q. Are you a process engineer with**
12 **expertise in improving chemical reaction processes**
13 **at a chemical plant?**

14 A. No.

15 **Q. Are you aware of the Agency having**
16 **anyone who is a chemical process engineer?**

17 A. We have chemical engineers. Whether
18 they're chemical process engineers or not, I don't
19 know.

20 **Q. Does the Agency have any expertise**
21 **in operating a chemical plant?**

22 A. Not that I'm aware of.

23 **Q. Does the Agency have any expertise**
24 **in improving reaction processes at a chemical**

1 plant?

2 A. Not that I'm aware of.

3 Q. I want to go back to the first
4 recommendation here which is the recommendation --
5 it's on Page's 25 to 26. This is the
6 recommendation where you came up with -- well,
7 either you or the Agency, I'm not sure which, but
8 you're the person who has been designated to
9 support this recommendation.

10 So either you or the Agency came
11 up with the recommendation for a -- that if an
12 adjusted standard is granted, the daily maximum
13 should be 110 mg/L, 553 pounds per day and then
14 the 30-day average should be 89.9 and 475 pounds
15 per day.

16 So that's either your
17 recommendation or the Agency's recommendation,
18 right?

19 A. Yes.

20 MR. GRADELESS: If I may respond,
21 that's not what the recommendation said. That's
22 the ceiling, not necessarily a recommended number
23 to clarify for the record.

24 HEARING OFFICER WEBB: Okay.

1 BY MR. DIMOND:

2 Q. So you've already testified you're
3 manager of the water quality standard section of
4 the Agency, right?

5 A. Yes.

6 Q. And one thing you do in that
7 position is you make recommendations to the
8 Agency's permit section to include permit limits
9 including possibly ammonia permit limits in NPDES
10 permits to meet the ammonia water quality
11 standards, right?

12 A. Yes.

13 Q. And those are sometimes called water
14 quality based effluent limits, right?

15 A. Yes.

16 Q. Now, these limits that are in
17 recommendation 1, those aren't water quality based
18 effluent limits, are they?

19 A. No.

20 Q. So that's not the sort of permit
21 limit that you normally -- that you and your group
22 normally work on setting?

23 A. No, it's not. But these numbers
24 were based on what we had seen in the DMR's.

1 Q. These limits -- the numeric values
2 that are in Agency recommendation 1 were not
3 calculated to meet the ammonia water quality
4 standard in the Illinois River, right?

5 A. Correct.

6 Q. Now, to get the concentration
7 limits, the numeric values that are in Agency
8 recommendation 1, you only looked at Emerald's
9 discharge data for nine months, right?

10 A. No, I believe we started in
11 September of 2018 and --

12 Q. Doesn't Agency recommendation 1
13 say --

14 MR. GRADELESS: Can the witness
15 finish the answer?

16 BY THE WITNESS:

17 A. And I believe we made the
18 recommendation in July. So it might have been
19 nine months of data.

20 BY MR. DIMOND:

21 Q. Doesn't the recommendation say you
22 looked at petitioner's DMR's for September 2018 to
23 May 2019?

24 A. Yes.

1 Q. And if I do my math correct, that's
2 nine months, right?

3 A. Yes.

4 Q. Did you take into account what
5 Emerald's production levels had been in 2018 or
6 2019 in looking at the data?

7 A. No.

8 Q. In your experience, does the Agency
9 usually set permit limits to restrict plant
10 production?

11 A. No.

12 Q. You were here yesterday and you
13 heard Mr. Hathcock's testimony about how
14 production levels had been significantly down in
15 2019, right?

16 A. Yes.

17 Q. Do you really think it's appropriate
18 to base an analysis of what the permit limits
19 should be based on nine months of data where many
20 of those months had production that was not
21 reasonable maximum production to be expected for
22 the facility?

23 MR. GRADELESS: I'm going to object
24 to lack of foundation with respect to this witness

1 has already testified that he did not consider
2 production in this case.

3 MR. DIMOND: I'm asking whether he
4 thinks it's appropriate. He is the witness who
5 has been put forth to support this --

6 HEARING OFFICER WEBB: Overruled.
7 Go ahead.

8 MR. DIMOND: -- for the Agency. So
9 I think he has to support it.

10 BY THE WITNESS:

11 A. I don't believe our intent was to
12 limit production. We did not know that production
13 was down during these months.

14 BY MR. DIMOND:

15 Q. So now that you know that production
16 was decreasing throughout 2019, does that change
17 your view of whether or not it's appropriate to
18 rely on those nine months to set the permit
19 limits?

20 A. Something unique has happened. I
21 believe with the reduction of these ammonia limits
22 these are the lowest I've -- I've seen in the five
23 years of data that I've looked at. It's possible
24 that it's not appropriate.

1 Q. Now, when you say these are the
2 lowest, are you -- are you referring to the
3 last -- the last six months of data that is after
4 the May 2019 that you looked at in coming up with
5 the recommendation?

6 A. Yes.

7 Q. So if you can look in the book at
8 Tab 14, that's the summary that was done of the
9 daily DMR data. So -- I'd ask you to -- it's
10 actually the fourth page of the exhibit, but it's
11 numbered Page 3 at the bottom. So --

12 MR. GRADELESS: Which number?

13 MR. DIMOND: Petitioner's Hearing
14 Exhibit 14.

15 MR. GRADELESS: Thank you.

16 BY MR. DIMOND:

17 Q. I'm on the last page. So when you
18 were referring to the low levels, you were really
19 sort of referring to the numbers for July through
20 December of 2019?

21 A. June also had a very low number --

22 Q. Okay.

23 A. -- but yes.

24 Q. Okay.

1 A. And this is -- this is after the
2 fact or after our knowledge that they did
3 something -- a production change in 2018 to reduce
4 the MBT.

5 Q. Okay. Now, you say that -- you say
6 that you believe that Emerald did something in
7 2018 to reduce the level of MBT.

8 What is your -- what is your
9 basis for that?

10 A. A meeting that we had at the Agency.

11 Q. Okay. When did that meeting occur?

12 A. I don't recall.

13 Q. Was it in -- I'm going to see if I
14 can refresh your recollection. Was it in June of
15 2019?

16 A. It could have been.

17 Q. But you don't remember?

18 A. I don't.

19 Q. Okay. So I want to -- back to
20 Agency recommendation 1. So that you don't have
21 to keep flipping back and forth, Mr. Twait, if you
22 can find a way to sort of keep that out. We're
23 going to keep coming back to that.

24 So one of the numbers that is in

1 Agency recommendation 1 is a daily maximum load --
2 what you call a load limit in pounds per day of
3 553 pounds per day, that's correct, right?

4 A. Yes.

5 Q. Okay. And you derived that because
6 that was the highest load limit that was in the
7 DMR data for September 2018 to May 2019, right?

8 A. Yes.

9 Q. Do you know how the Agency normally
10 sets load limits on an NPDES permit?

11 A. I know generally, but not
12 specifically.

13 Q. What is your general knowledge?

14 A. They will base it on the design
15 average flow of the facility and use the
16 concentration to derive a load limit.

17 Q. Okay. And so here is what I've
18 learned. You tell me if I've got it right.

19 My understanding is that if
20 you're trying to -- if you're doing a daily
21 maximum load limit, you would take the daily
22 maximum concentration, you would multiply it --
23 which is in mg/L, right?

24 A. Yes.

1 Q. That's typically the units that it
2 is in. And then you multiply it by the design
3 maximum for -- this is for the daily maximum load
4 limit. You would take the daily maximum
5 concentration in mg/L, you would multiply it by
6 the design maximum flow in millions of gallons per
7 day?

8 A. Yes.

9 Q. And then there's a conversion factor
10 that works out to be roughly 8.34 and you multiply
11 that out and that's how you get the load limit for
12 the concentration that has already been set?

13 MR. GRADELESS: Compound question.

14 BY MR. DIMOND:

15 Q. Have I understood the process right?

16 A. Yes.

17 Q. And that 8.34 is sort of a
18 conversion factor that is pretty well-known in the
19 industry, right?

20 A. Yes.

21 Q. So when you came up with this 553
22 pounds per day, you didn't take the 110 mg/L that
23 you specified as the -- as the daily maximum and
24 then apply the formula using the design maximum

1 **flow and the 8.34 conversion factor, did you?**

2 A. No.

3 MR. DIMOND: I'm sorry. Was there a
4 question?

5 BY MR. DIMOND:

6 **Q. The design -- the design maximum**
7 **flow -- do you know what the design maximum flow**
8 **for the Henry plant permit is?**

9 A. No, not offhand.

10 MR. DIMOND: Again, I don't think we
11 need to have this marked as a hearing exhibit.
12 This is Exhibit 3 to Emerald's petition. It is a
13 copy of the plant's current NPDES permit.

14 Mr. Twait, I am incredibly
15 unprepared. I don't have a copy for myself so I'm
16 going to ask the Hearing Officer's permission just
17 to stand over his shoulder --

18 HEARING OFFICER WEBB: Yes.

19 MR. DIMOND: -- for just a moment.

20 BY MR. DIMOND:

21 **Q. If I can ask you to turn to Page --**
22 **the pages aren't -- it's Page 2. Page 2. I'm**
23 **going to use my finger and point. So does -- does**
24 **the permit say that the total discharge for**

1 outfall A01 is a design average flow of 0.917
2 million gallons per day and a design maximum flow
3 of 1.4 million gallons per day?

4 A. Yes.

5 Q. I'm just going to ask you to -- I'm
6 going to ask you to trust me on this. But I used
7 an Excel spreadsheet and I did the math.

8 If I take 110 mg/L and I
9 multiply it by 1.4 million gallons per day and I
10 apply the conversion factor of 8.34, I come up
11 with about 1,284 pounds per day, does that seem in
12 the ballpark?

13 A. Yes.

14 Q. And -- but your recommendation was
15 553 pounds per day, right?

16 A. The Agency's recommendation was,
17 yes.

18 Q. Now, in -- back to Agency's
19 recommendation 1. You recommended a 30-day
20 average load limit of 475 pounds per day, can you
21 tell me how you came up with that?

22 A. In the same way. It was the highest
23 monthly average loading.

24 Q. Okay. I'm looking at --

1 MR. DIMOND: Let me see Exhibit 7.

2 BY MR. DIMOND:

3 Q. So you said on Agency Exhibit 7 the
4 monthly average in pounds per day is the column
5 labeled quantity one, right?

6 A. Yes.

7 Q. Okay. So if I look from October
8 2018 to May 2019, I don't see 475 gallons per day
9 and that's why I wanted to ask the question how
10 you came up with that?

11 A. I don't know.

12 Q. I'm sorry. Your Agency
13 recommendation 1 says you looked at September -- I
14 was doing October.

15 September 2018 to May 2019, but
16 even when I include September it looks as if the
17 highest number in that stretch for the pounds per
18 day is roughly 430, right?

19 A. Yes.

20 Q. So you don't know where the 475 came
21 from?

22 A. I do not.

23 Q. Do you know who would know where
24 that came from?

1 A. No. I don't know if it was a
2 transcription error on my part or somebody else's
3 part.

4 Q. Now, we just went through some --
5 some math on how daily maximum load limits are
6 typically calculated for permits.

7 Do you follow a somewhat similar
8 formula -- does the Agency typically follow a
9 somewhat similar approach for calculating the
10 30-day average load limit?

11 A. I believe so, yes.

12 Q. So what the Agency would typically
13 do is they would take the 30-day average
14 concentration stated in mg/L, multiply it by the
15 design average flow stated in million gallons per
16 day and then multiply it by the 8.34 conversion
17 factor, right?

18 A. Yes.

19 Q. And so, again, I'll just ask you to
20 sort of trust my math on this or maybe Excel's
21 math. You recommended a 30-day average of 89.9
22 mg/L. If I take that number and multiply it times
23 the design average flow of 0.917 million gallons
24 per day and then multiply it by the conversion

1 factor, I get about 687.5 pounds per day, am I in
2 the ballpark?

3 A. Yes.

4 Q. I want to ask you to look at Agency
5 recommendation 3A.

6 A. Okay.

7 Q. So Agency recommendation 3A says,
8 "Within 90 days of the Board's order, petitioner
9 must quantify the amount of ammonia attributable
10 to Mexichem entering petitioner's treatment plant
11 and provide that information to the Agency."

12 Was this an idea that you came
13 up with in the working group?

14 A. I don't recall specifically.

15 Q. I'd like you to also look at -- I'd
16 like you to compare recommendation 3A with
17 recommendation 3D. Recommendation 3 -- you can
18 read it to yourself, but for the benefit of others
19 recommendation 3D says, "Within 180 days of the
20 Board's order, petitioner must investigate and
21 quantify the amount of ammonia and MBT coming into
22 the PVC tank, the C-18 tank and the PC tank and
23 submit this data to the Agency."

24 Aren't those recommendations --

1 given that Mexichem discharges into the PVC tank,
2 aren't those two recommendations pretty
3 overlapping?

4 A. I believe the testimony yesterday
5 was that there is some side streams that are
6 coming from Emerald into the PVC tank, but they're
7 similar.

8 Q. Do you know if the side streams have
9 any material contribution of MBT or ammonia?

10 A. My understanding from our meeting
11 with Emerald prior was that there was no MBT in
12 the PVC tank.

13 Q. Okay. Did you read that Emerald
14 produced data to the Agency in this proceeding on
15 the ammonia coming from the PC and the PVC tanks?

16 A. I remember seeing it, but I don't
17 remember when.

18 Q. Have you looked at it in any detail?

19 A. I have not.

20 Q. Why haven't you looked at it in any
21 detail?

22 A. Because I'm not the person that
23 would evaluate what treatment would be necessary.

24 Q. Who would be the person who would

1 evaluate what treatment would be necessary?

2 A. I believe Mark Liska might have
3 looked at it.

4 Q. Now, Mr. Gradeless asked you some
5 questions about 3B, which asks Emerald to provide
6 the Agency with a laundry list of financial data.

7 So was that -- within the
8 working group, was that your idea?

9 A. I believe -- I can't remember
10 specifically, but I believe that we determined we
11 needed some information.

12 Q. So how did -- how did you get picked
13 to take the bullet to defend this recommendation?

14 MS. ZEIVEL: Objection.
15 Mischaracterization.

16 HEARING OFFICER WEBB: Overruled.

17 MR. GRADELESS: A bullet? I don't
18 know. I think he raised his hand.

19 BY THE WITNESS:

20 A. Yeah, I think I raised my hand.
21 That's a good --

22 MR. GRADELESS: The truth.

23 BY MR. DIMOND:

24 Q. I assume you're at least sort of

1 vaguely aware that the Agency requested this sort
2 of data in this proceeding and that Emerald ended
3 up providing it over objection?

4 A. Yes.

5 Q. So that -- that data is within the
6 Agency now. Have you looked at it?

7 A. I have not.

8 Q. Why haven't you looked at it?

9 A. I just haven't had time.

10 Q. Has -- to your knowledge, has
11 anybody in the Agency looked at it?

12 A. No, but it's for the Board to look
13 at to determine economic reasonableness.

14 Q. Okay. So if this is for the Board,
15 why does Agency -- why does Emerald need to
16 produce it to the Agency on an annual basis? Why
17 can't we just produce it to the Board if and when
18 we apply for -- file a petition for a renewal or a
19 new adjusted standard?

20 A. I don't know that there is any
21 reason not to.

22 Q. You mean you don't know there is any
23 reason not to just provide it to the Board if we
24 apply for a new petition?

1 A. Correct.

2 Q. Now, I think you were also
3 designated in the Agency's answers to
4 interrogatories to stand up for recommendation 3H.

5 3H says, "Given petitioner
6 currently only operates one of its four
7 bioreactors" -- just as an aside, bioreactor is
8 another name for biotreater, right?

9 A. Yes.

10 Q. "So one of its four bioreactors and
11 is currently renovating one bioreactor.
12 Petitioner must repair, operate and maintain," et
13 cetera, et cetera.

14 So you were here yesterday and
15 you heard Mr. Hathcock's testimony that Emerald
16 needs to repair those so that it has redundant
17 capacity for the 1.4 million gallon biotreater
18 that is currently operating, right?

19 A. Yes.

20 Q. Given Mr. Hathcock's testimony, what
21 is the purpose of this recommendation?

22 A. The purpose of this recommendation
23 was that the Agency believed that it was prudent
24 to use the bioreactors that they had.

1 **Q. If they're just used as bioreactors**
2 **in series with the current bioreactors, is it**
3 **going to result in any reduction in ammonia?**

4 MR. GRADELESS: Speculation.

5 HEARING OFFICER WEBB: You can
6 answer.

7 BY THE WITNESS:

8 A. I don't know.

9 BY MR. DIMOND:

10 **Q. Now, we talked about yesterday**
11 **that -- we call it a biotreater, but right now**
12 **it's just an empty tank, right?**

13 A. Yes.

14 **Q. So just running the water through**
15 **the tank isn't going to improve the ammonia in the**
16 **discharge, is it?**

17 A. Not unless it's recycled from
18 your -- the final settling tank into the other
19 biotreaters.

20 **Q. When you say the final settling**
21 **tank, do you mean the secondary clarifier?**

22 A. Yes.

23 **Q. So the -- and Mr. Flippin and others**
24 **testified yesterday that taking the effluent from**

1 the secondary clarifier and running it back
2 through those bioreactors having them set up let's
3 say the rotating biological contactor technology,
4 that's just another way of doing tertiary
5 nitrification, right?

6 A. Yes.

7 Q. You haven't done any analysis that
8 indicates that would be more cost-effective than
9 just building a new tertiary nitrification system,
10 have you?

11 A. I have not done an analysis, no.

12 Q. Recommendation 3I this one says,
13 Petitioner, Emerald, must provide the Agency with
14 actual annual capital improvement costs for its
15 bioreactors each fiscal year following the Board's
16 order."

17 And you told Mr. Gradeless that
18 you wanted to be sure -- or maybe it was the
19 Agency wanted to be sure that after five years the
20 Board would know how much was spent, but if
21 repairing the biotreaters is just being done to
22 provide redundant capacity for the 1.4 million
23 gallon tank, what does that have to do with the
24 ammonia and the effluent and what does it have to

1 **do with this adjusted standard?**

2 A. I think that the cost of upgrades
3 was -- is worthwhile information because once the
4 biotreaters are -- have been refurbished, then
5 that's capital that could be used for additional
6 treatment at the end of the process.

7 Q. It's capital -- was -- if the -- if
8 the money has been spent to -- to refurbish the
9 three biotreaters that are currently out of
10 service, the capital is gone, it's not available
11 to be spent on anything else, right?

12 A. That's correct.

13 Q. It's been paid out to the
14 contractors and the design engineers and it's
15 gone. So I come back to how does this information
16 help the Board or how does it help the Agency?

17 A. Well, if they're spending \$6 million
18 a year to refurbish the biotreaters, then once the
19 biotreaters are refurbished, they might have money
20 to spend on additional treatment.

21 Q. I'm going to ask you to go back to
22 recommendation 3B. One of the pieces of minutia
23 that the Agency asked for in 3B is a breakdown of
24 Emerald's expenses, including operation of

1 maintenance costs for each fiscal year following
2 the Board's order.

3 What's the point in having that
4 information provided to the Agency?

5 A. I think for the same reason, so
6 that -- to determine economic reasonableness.

7 Q. Well, I know it's -- I know it's not
8 sort of the Bureau of Water's thing at the Emerald
9 plant, but you've heard of the NaSH unit at the
10 Emerald plant? Have you -- have you heard of it?

11 A. I'm not quite sure that I remember
12 what it was.

13 Q. Well, I'm going to ask you to take
14 my word for it. There's this thing at the Emerald
15 plant called the NaSH unit and it's got a bunch of
16 air pollution control equipment on it and we've
17 got a permit for it. I think we even have a CAAPP
18 permit for it. CAAPP is an acronym C-A-A-P-P.

19 So suppose Emerald has to spend
20 a million dollars to maintain that piece of
21 pollution control equipment so that we maintain
22 compliance with our CAAPP permit, the fact that we
23 spent that money, what does that have to do with
24 the ammonia adjusted standard that we have

1 requested in this petition?

2 A. I'm not specifically sure it would
3 be worth while.

4 Q. I believe one of the other
5 recommendations that you were identified as the
6 person who would support it in the Agency's
7 interrogatory answers was recommendation 30.

8 Now, 30 says, "Petitioner must
9 conduct quarterly monitoring of ammonia-nitrogen
10 in the Illinois River" and then there's a whole
11 bunch of details about how we do it or -- well, I
12 don't know about how, but there's a parenthetical
13 with some details about how we do it to
14 demonstrate compliance with the ammonia water
15 quality standards in accordance with 35 Ill. Adm.
16 Code 302.212.

17 Now, you work in the water
18 quality division or department of the Bureau of
19 Water, right?

20 A. Yes.

21 Q. So did you come up with this
22 recommendation?

23 A. I believe it was a carryover from
24 the last adjusted standard.

1 Q. Okay. So you think there's a
2 condition in AS 13-2 that requires this sampling?

3 A. I believe so. That was my
4 understanding.

5 Q. That was your understanding. Okay.
6 So, Mr. Twait, I'm going to show you a copy of
7 AS -- of the Board's opinion in AS 13-2 and,
8 admittedly, I'm showing you the opinion from April
9 16th, 2015, which was slightly revised in December
10 of 2016. But if I could ask you to look at -- so
11 I've got you on Page's 68 and 69 of the Board's
12 opinion in AS 13-2 and this is the section of the
13 order and it's got the conditions 1 and then 2A
14 through I -- is it H -- I. It goes 1 through 2I.

15 Is there any condition in there
16 that requires any sampling in the Illinois River
17 to show compliance with the water quality
18 standard?

19 A. I don't see it.

20 Q. So the ammonia water quality
21 standard in 302.212, it has a reasonable component
22 to it, right?

23 A. Yes.

24 Q. And there's basically two seasons?

1 **There is -- I think of it as sort of spring and**
2 **the rest of the year. How do you think of it?**

3 A. When we derive limits, we do
4 spring/fall season, a summer season and a winter
5 season.

6 **Q. When you say you derive limits --**

7 A. For NPDES permits --

8 **Q. Okay.**

9 A. -- and the spring/fall and summer
10 are using the same calculations, but we separate
11 them because the temperature is typically
12 different than what we see in the summer.

13 **Q. Okay. So my question is going to**
14 **be -- or my question is -- but you do agree that**
15 **the ammonia water quality standard just has two**
16 **seasons in it, I think one of them is like it's**
17 **called a season for when young aquatic life is**
18 **present and when young aquatic life isn't present,**
19 **is it?**

20 A. Yes.

21 **Q. I haven't gotten the terminology**
22 **right, but I got the right idea, right?**

23 A. Yes, presence and absence.

24 **Q. So my question is given that there**

1 is only two seasonal components to the ammonium
2 water quality standard, why do -- why do we need
3 to sample quarterly? Why wouldn't semiannual,
4 once during each period, be adequate?

5 A. It may.

6 Q. Now, you indicated that you reviewed
7 Emerald's reports that it submitted to the Agency
8 in response to the adjusted standards both
9 AS 02 -- well, I understood you to say you had
10 reviewed those annual reports for both AS 02-5 and
11 AS 13-2, did you review them both or just one?

12 A. I'm not sure how far back we were.

13 Q. You're not sure how far back you
14 were.

15 Did you notice there was some
16 water -- there was some sampling data from within
17 the Illinois River measuring the ammonia level in
18 the Illinois River?

19 A. Yes.

20 Q. Wasn't -- didn't all that sampling
21 data show that the levels of ammonia were either
22 non-detect or quite low?

23 A. Yes.

24 Q. In fact, I think you -- you

1 thought -- at least at one time I think you
2 thought that they were basically background,
3 right?

4 A. I believe that's probably accurate.

5 Q. Do you think the fact that the
6 historic sampling -- well, you've looked at some
7 of the sampling, right?

8 A. Yes.

9 Q. Do you remember how many quarters or
10 what limit -- do you remember how many sampling
11 events there have been?

12 A. I know that I looked at three or
13 four years.

14 Q. And how many were done each year?

15 A. Four.

16 Q. So you've seen at least 16 or so?

17 A. Yes.

18 Q. Would it surprise you if I told you
19 that I counted them up and I think it's in the
20 mid-30s?

21 A. No.

22 Q. Mr. Twait, if you could now turn to
23 in the Agency recommendation I think it's on Page
24 29, Item 3Q.

1 This one says, "Based upon
2 review of annual reports required by condition 3P,
3 the Agency may petition the Board to modify the
4 relief granted by the Board's order" and this is
5 all in the context of the Agency doesn't want the
6 adjusted standard issued, but if it is issued
7 you'd like to see this condition, right?

8 A. Yes.

9 Q. So, again, I think in the Agency's
10 interrogatory answers you were identified as the
11 person to support this -- this recommendation.

12 Do you know why this
13 recommendation was put in there?

14 A. I believe it was a holdover from the
15 previous one. So --

16 Q. You're right this time. You are
17 right. It's a holdover from AS 13-2.

18 So when the annual reports were
19 submitted by Emerald pursuant to AS 13-2, did the
20 Agency ever petition the Board for any
21 modification of the relief in AS 13-2?

22 A. Not that I'm aware of.

23 Q. Now, I don't think -- I don't think
24 you were identified in the Agency's interrogatory

1 answers and I should have them here, but I don't.
2 I looked at them when I was preparing my
3 cross-examination for you. I don't think you were
4 identified as the person to support recommendation
5 3R, but on the other hand, if I recall correctly,
6 no one was. So I'm going to take some liberty and
7 I'm at least going to ask you about it.

8 So 3R says, "Petitioner must
9 operate in full compliance with the Clean Water
10 Act, its National Pollutant Discharge Elimination
11 System permit, the Board's water pollution
12 regulations and any other applicable requirement."

13 Do you know why the group at the
14 Agency got together and decided to include that in
15 this recommended list of conditions?

16 A. I believe that, once again, it was a
17 holdover.

18 Q. You think it was -- again, you're
19 right. It is a holdover. But all these things
20 that are mentioned in here, Emerald has to comply
21 with those anyway whether it's an adjusted
22 standard condition or not, right?

23 A. I believe that's accurate.

24 Q. Okay. So this is just duplication,

1 **isn't it? I mean, it doesn't really serve any**
2 **purpose at all, does it?**

3 MR. GRADELESS: Objection.
4 Speculation.

5 HEARING OFFICER WEBB: Overruled.

6 BY THE WITNESS:

7 A. It is duplication. I don't know if
8 it holds a specific reason or not.

9 BY MR. DIMOND:

10 **Q. The only -- the only justification**
11 **I've been able to think for it is that the Agency**
12 **would like to multiply the number of violations**
13 **that it issues, can you think of any other purpose**
14 **to it?**

15 MR. GRADELESS: Objection.
16 Speculation.

17 HEARING OFFICER WEBB: Overruled.

18 You can answer.

19 BY THE WITNESS:

20 A. I don't know that the Agency has
21 used this provision to pile on.

22 BY MR. DIMOND:

23 **Q. Are you familiar with the two**
24 **violation notices that have been entered in the**

1 record as Petitioner's Hearing Exhibit 5 and 6? I
2 remember reading them or looking at them.

3 A. I was not involved with them.

4 Q. You weren't involved in issuing the
5 violation notices?

6 A. No.

7 Q. You weren't involved in accepting
8 the compliance commitment agreements that Emerald
9 entered into with the Agency?

10 A. No.

11 Q. I think I know the answers to these,
12 but just to be sure.

13 Have you ever designed a
14 treatment plant to treat a chemical plant
15 wastewater?

16 A. No.

17 Q. Have you ever overseen the
18 construction of the treatment plant to treat a
19 chemical plant wastewater?

20 A. No.

21 Q. Have you ever operated a treatment
22 plant to treat a chemical plant wastewater?

23 A. No.

24 Q. Now, if you were going to compare

1 two treatment alternatives, you would consider
2 both capital and operating costs, right?

3 A. I think that would be appropriate,
4 yes.

5 Q. So the effluent limit regulation
6 that we're seeking an adjusted standard from here
7 is 35 Ill. Adm. Code 304.122(b). If that -- if
8 that effluent limitation did not exist for the
9 segment of the Illinois River that the Henry plant
10 discharges into, Emerald would be allowed a zone
11 of initial dilution and mixing zone to meet a
12 water quality based effluent limit, right?

13 A. The Agency would have to determine
14 whether the best degree of treatment was being
15 accomplished and if best degree of treatment was
16 being accomplished, then we could give a mixing
17 zone.

18 Q. Did you give a deposition in this
19 case?

20 A. Yes.

21 Q. At the deposition, did you give a
22 different answer to that question?

23 A. I hope not.

24 Q. Okay. At the deposition, were you

1 asked this question and did you give this answer?

2 Question: If this regulation,
3 meaning 35 IAC 304.122(b) did not exist, would the
4 Henry plant be allowed a mixing zone, a zone of
5 initial dilution, in order to meet water quality
6 based effluent limits for ammonia?

7 Answer: Yes.

8 Is that the question you were
9 asked and the answer you gave?

10 A. Yes.

11 Q. And the ZID and the mixing zone that
12 the plant would be eligible for would be based on
13 the operation of the high rate multiport diffuser
14 that Emerald constructed and operated, right?

15 A. Yes.

16 Q. And the diffuser is -- diffuser is
17 accomplishing the mixing that it was designed for,
18 right?

19 A. Yes.

20 Q. In fact, you've never calculated a
21 water quality based effluent limit for ammonia for
22 the Henry plant, right?

23 A. Correct.

24 Q. Now, this effluent limit regulation

1 that Emerald is seeking an adjusted standard from,
2 it doesn't apply throughout the state, does it?

3 A. No.

4 Q. It basically applies to the Illinois
5 River and a few things that flow into the Illinois
6 River, right?

7 A. Yes.

8 Q. And we could actually read it and
9 see what all the details are, but basically the
10 Illinois River and things that flow into it?

11 A. Yes.

12 Q. So like the Des Plaines River is
13 covered, right?

14 A. Yes, I believe so.

15 Q. Is the Kankakee River covered?

16 A. No, I don't think so.

17 Q. Why isn't the Kankakee River
18 covered?

19 A. I don't know.

20 Q. We -- we met each other in the CAWS
21 proceedings before proceeding before the Board,
22 right?

23 A. Yes.

24 Q. If I remember correctly, don't the

1 Des Plaines River and the Kankakee River meet up
2 to form the Illinois River?

3 A. Yes.

4 Q. So this effluent -- this effluent
5 regulation that sets a 30-day or a monthly average
6 of 3 mg/L, it only applies, as you said, to the
7 Illinois River and some things that flow into it.

8 So it doesn't apply to the Rock
9 River, does it?

10 A. No.

11 Q. It doesn't apply to the Embarras
12 River that runs south of Champaign, does it?

13 A. Correct.

14 Q. It doesn't apply to the Kaskaskia
15 River that I believe flows past Springfield,
16 right?

17 A. It doesn't flow past Springfield,
18 but yes.

19 Q. It doesn't apply to the Kaskaskia
20 River?

21 A. Right.

22 Q. It's near my dad's farm. That's
23 what I remember.

24 So if the Emerald plant was

1 located on the Rock River or if it was located on
2 the Embarras River or the Kaskaskia River, it
3 wouldn't need an adjusted standard because this 3
4 mg/L effluent limit would not apply to it, right?

5 A. Correct.

6 Q. Mr. Gradeless asked you some
7 questions about the river water dilution scenario
8 that Mr. Flippin had evaluated in his April 2018
9 report, do you remember those questions from
10 Mr. Gradeless?

11 A. Yes.

12 Q. I believe -- I don't want to put
13 words in your mouth, but I understood you to say
14 that you didn't think the analysis was complete
15 because Mr. Flippin didn't consider applying it on
16 a seasonal basis, right?

17 A. Correct.

18 Q. Do you have a thought as to what
19 season of the year Mr. Flippin should have further
20 evaluated it for?

21 A. My thought was that he could have
22 looked at seasonal -- the summertime only.

23 Q. So are you talking, like, calendar
24 summer year, like, June through September, like

1 June 21st through September 21st or something like
2 that?

3 A. No, I was thinking when the
4 temperature of the water is warmer, probably five,
5 six months of the year.

6 Q. Do you remember -- so in that April
7 of 2018 report, Mr. Flippin evaluated two
8 alternatives, right?

9 A. Yes, I believe so.

10 Q. The other one -- the other one from
11 river water dilution was granular activated
12 carbon, right?

13 A. Yes.

14 Q. Do you remember what the relative
15 cost of the granular activated carbon alternative
16 was compared to the -- compared to the river water
17 dilution?

18 A. I do not.

19 Q. You were here yesterday, right?

20 A. Yes.

21 Q. And Mr. Flippin answered a number of
22 questions about combinations of alternatives, do
23 you remember that?

24 A. Yes.

1 Q. What would be the point of doing
2 river water dilution on a seasonal basis, however
3 one would define that, when there are other
4 alternatives that could achieve compliance 100% of
5 the time and you don't need to have two systems?

6 A. I think my point was I don't believe
7 that they have looked at alternatives to decrease
8 the amount of ammonia. I don't know that this
9 would make it affordable.

10 Q. Well, let me ask you this question.
11 If -- if you only need one car
12 to get to work, would there be a reason to buy a
13 second car and just leave it in the garage all the
14 time?

15 MR. GRADELESS: Objection. Lack of
16 foundation.

17 HEARING OFFICER WEBB: I don't
18 understand the question. Go ahead.

19 BY THE WITNESS:

20 A. If you needed a redundant --

21 MR. GRADELESS: Are we talking about
22 cars now? Objection.

23 BY THE WITNESS:

24 A. I have --

1 MR. GRADELESS: I objected.

2 MR. DIMOND: I'll withdraw the
3 question.

4 MR. GRADELESS: Can I have a ruling
5 on that issue?

6 MR. DIMOND: I'll withdraw the
7 question.

8 BY MR. DIMOND:

9 Q. In your role as the head -- I don't
10 mean to misstate it, but head or supervisor of the
11 water quality division of Bureau of Water -- I'm
12 sure I mangled that horribly. I apologize.

13 A. Okay.

14 Q. Do you have any role in reviewing
15 the results of Whole Effluent Toxicity tests that
16 dischargers submit to the Agency?

17 A. My group would do that, yes.

18 Q. So did Mr. Koch work under you?

19 A. He did.

20 Q. So yesterday we marked as
21 Petitioner's Hearing Exhibit, I believe, 8. I
22 think it's all of the Whole Effluent Toxicity test
23 results that have been done from 2012 to 2019 and
24 you don't need to look at them necessarily. I'm

1 just saying that for the record. The WET toxicity
2 test results submitted by Emerald did not raise a
3 concern because of Emerald's use of the high rate
4 multiport diffuser and the mixing available in the
5 Illinois River, right?

6 A. Correct.

7 Q. And the Board previously found that
8 Emerald should have a mixing zone, right?

9 A. Yes.

10 Q. And a zone of initial dilution?

11 A. Yes.

12 Q. And those WET toxicity test results
13 that were submitted from 2012 to 2019, those
14 haven't indicated any violations of -- of
15 Emerald's permit, right?

16 A. I believe that's correct.

17 Q. And they haven't indicated any
18 violations of the statute either, have they?

19 A. No.

20 MR. DIMOND: Hearing Officer Webb, I
21 need to consult with my colleague to tell me if
22 I've missed something.

23 HEARING OFFICER WEBB: Okay.

24 MR. DIMOND: I also need to consult

1 with Mr. Gradeless about a matter to determine if
2 there is some additional cross-examination that I
3 need to ask Mr. Twait.

4 HEARING OFFICER WEBB: Would you
5 like to take a five or ten-minute break?

6 MR. DIMOND: Could we take a five or
7 ten-minute break?

8 HEARING OFFICER WEBB: Sure.

9 (Whereupon, a break was taken
10 after which the following
11 proceedings were had.)

12 HEARING OFFICER WEBB: Let's go back
13 on the record.

14 Mr. Twait, you are still under
15 oath and let's continue cross-examination.

16 MR. DIMOND: Thank you, Hearing
17 Officer Webb.

18 BY MR. DIMOND:

19 Q. Mr. Twait, I'm going to hand you a
20 copy of what has been marked as Petitioner's
21 Hearing Exhibit 15.

22 (Document marked as Petitioner's
23 Exhibit No. 15 for
24 identification.)

1 MR. DIMOND: I have two -- two for
2 you if I can actually get them separated.

3 BY MR. DIMOND:

4 Q. Mr. Twait, I've handed you what I
5 have marked as Petitioner's Hearing Exhibit 15.

6 Have you seen this document
7 before?

8 A. Yes.

9 Q. What was the context in which you
10 saw it?

11 A. I can't remember, but I've seen it
12 before. Was it provided at the meeting that the
13 Agency had?

14 Q. I can't testify, Mr. -- Mr. Twait.
15 I can't testify.

16 A. It may have been at the meeting that
17 the Agency had with Emerald.

18 MR. GRADELESS: I can proffer we
19 will offer this for Mr. Liska if that helps you.

20 BY MR. DIMOND:

21 Q. As best you can recall, does this
22 appear to be data that was submitted to the Agency
23 by Emerald related to the Henry plant?

24 A. Yes.

1 Q. And as you recall, it was -- it has
2 data that is shown in the chart and in the table
3 were -- your understanding is that that's data
4 that was generated by Emerald, right?

5 A. Yes.

6 Q. Now, so I'm going to ask you to look
7 at -- so there is sort of, like, an excerpt from
8 an Excel spreadsheet that is on the left side of
9 the document, does that appear to be correct?

10 A. Yes.

11 Q. And that seems to have sample dates
12 from May 1st through May 31st of 2019 and then
13 it's got a column called Time, there is a couple
14 called PC Tank, Primary Clarifier and Secondary
15 Clarifier, correct?

16 A. Yes.

17 Q. As this document was shown to you
18 and you read it, what did you understand the value
19 in the column secondary clarifier to be?

20 A. The final effluent prior to, I
21 believe, it's the sand filter.

22 Q. Okay. And the -- the numeric values
23 that are reflected there, did you understand those
24 to be a particular parameter?

1 A. Yes.

2 Q. What did you understand it to be?

3 A. MBT.

4 Q. Okay. Now, on the right-hand part
5 of the page, there is two graphs or charts, right?

6 A. Yes.

7 Q. Can you describe for us what is
8 depicted in the uppermost chart?

9 A. That is showing the concentrations
10 coming out of the PC tank and the primary
11 clarifier of MBT.

12 Q. And the parameter is MBT?

13 A. Yes.

14 Q. And does the document indicate what
15 time period is covered here?

16 A. It looks like 1,000 days after
17 October 1st, 2016.

18 Q. And from the legend at the bottom,
19 did you interpret that the dark dots in the chart
20 are for the PC tank and the lighter dots are for
21 the primary clarifier?

22 A. Yes.

23 Q. So this top chart indicates that
24 there are levels of MBT both in the PC tank and

1 **the primary clarifier, am I reading it right?**

2 A. Yes.

3 **Q. Now, what is -- what is reflected in**
4 **the bottom chart?**

5 MR. GRADELESS: I'm going to object
6 to lack of foundation. Mr. Twait has said he has
7 seen this maybe once. That's all we know. He is
8 sitting here and reading the chart, but to what
9 extent, if any, he has ever used this in making
10 any part of any recommendation for the Agency,
11 that foundation has not been laid and I don't
12 necessarily know that it exists.

13 MR. DIMOND: I'm not tying it up
14 with any recommendation --

15 MR. GRADELESS: He is reading off of
16 a chart.

17 HEARING OFFICER WEBB: I mean, if he
18 doesn't know, you can say you don't know.

19 MR. DIMOND: Hearing Officer, we
20 allowed him to read off the Agency's hearing
21 exhibit about the Algaewheel.

22 HEARING OFFICER WEBB: Mm-hmm.

23 MR. GRADELESS: You could have
24 objected.

1 HEARING OFFICER WEBB: Well, if you
2 know the answer, you may answer.

3 BY MR. DIMOND:

4 Q. What did you understand to be
5 reflected on the lower of the two charts on the
6 right-hand side of Petitioner's Hearing Exhibit
7 15?

8 A. The level of MBT coming out of the
9 secondary clarifier.

10 Q. And, again, as you understood the
11 chart this covered 1,000 days after October 1st of
12 2016?

13 A. Yes.

14 Q. And the chart -- the chart reflects
15 that the levels of MBT after the secondary
16 clarifier were either -- it's a little hard to
17 tell from the scale -- were zero or very low for
18 substantial periods of time?

19 MR. GRADELESS: Which chart are we
20 talking about?

21 MR. DIMOND: The bottom chart.

22 BY THE WITNESS:

23 A. Yes, for a substantial amount of
24 time, it's very low.

1 BY MR. DIMOND:

2 Q. But there were also spikes where the
3 MBT following the secondary clarifier were fairly
4 significant, right?

5 A. There is some values that are
6 greater than a hundred, yes.

7 Q. And, in fact, there are a number of
8 values that are greater than 20, right?

9 A. Yes.

10 Q. Now, there was testimony in the
11 prior -- there was testimony in the prior adjusted
12 standard and there has been testimony in this
13 adjusted standard that MBT generally inhibits
14 nitrification at 3 mg/L, do you have any
15 information to contradict that?

16 A. No, I do not.

17 Q. Okay.

18 MR. DIMOND: That's all I have on
19 Petitioner's Hearing Exhibit 15.

20 Hearing Officer, may I approach
21 the witness to help him find an exhibit?

22 HEARING OFFICER WEBB: Yes.

23 BY MR. DIMOND:

24 Q. Mr. Twait, I need to ask you a few

1 questions about Agency Exhibit 1 and I just want
2 to help you find it.

3 A. It is here.

4 Q. It may be in this. Bingo. Now,
5 Petitioner's Hearing Exhibit 1 was admitted into
6 evidence yesterday. And as I understand it, this
7 was extracted from a database that the Agency
8 maintains in Mr. Bingenheimer's department, did I
9 understand his testimony correctly?

10 A. I believe so.

11 Q. So -- so this exhibit lays forth
12 certain information from that Agency database for
13 two projects in Geneva, one in Batavia, one in
14 St. Charles, one in Kishwaukee, one in Newark, one
15 in Fox River and then one in Mount Carmel, did I
16 get it right?

17 A. Yes.

18 Q. Some eight total projects, seven
19 municipalities?

20 A. I believe that's correct, yes.

21 Q. So I'm going -- I'm just going to
22 collapse the two Geneva projects together. I'm
23 going to talk about it as seven projects. I don't
24 want to confuse you with that. I know it's sort

1 of listed as eight projects here, but I always
2 think of it as seven. So bear with me or
3 understand that that's the way I'm using the
4 phrase seven projects.

5 Each of these seven projects
6 considered population increases in coming up with
7 the projections -- the projects that were approved
8 by the Agency, right?

9 A. I believe that is correct with --
10 with the possible exception of -- of one of them,
11 but I don't know that it didn't include a
12 population increase.

13 Q. Which one do you think may not have
14 included a population increase?

15 A. It's possible that the Fox River one
16 did not have a population increase.

17 Q. Okay.

18 A. But I don't know that from the
19 description.

20 Q. Okay. None of these seven projects
21 treat chemical plant waste, do they?

22 A. No.

23 Q. And none of these seven projects
24 have nitrification inhibitors in the wastewater

1 that they treat, right?

2 A. No.

3 Q. None of them have MBT in the
4 wastewater that they treat, right?

5 A. No.

6 Q. You don't really know how these
7 seven projects were identified as relevant and put
8 into this document, right?

9 A. I do not remember.

10 Q. With regard to the Geneva project
11 specifically, the increased capacity that was part
12 of that project, that would also treat BOD and
13 TSS, correct?

14 A. Correct.

15 Q. For the record, BOD is biological
16 oxygen demand?

17 A. Yes.

18 Q. And TSS is total suspended solids?

19 A. Yes.

20 Q. So I'm looking at the project
21 description for Geneva. I'm looking at the first
22 one. I guess it's got the L17 number 0986.

23 A. Okay.

24 Q. So I'm starting to read from the

1 first line "Sludge handling" and it seems to be a
2 new sentence "the proposed project consists of
3 upgrading the city's sludge handling facilities,
4 flood-proofing and providing upgraded employee
5 facilities specifically including the following
6 improvements;" and then it starts to list a whole
7 bunch of things.

8 Would the flood-proofing and the
9 upgrading of the employee facilities have anything
10 to do with the ammonia control?

11 A. No.

12 Q. So whatever costs are included in
13 the \$5.4 million that relate to the flood-proofing
14 and the upgraded employee facilities, they don't
15 relate to ammonia control?

16 A. Correct.

17 Q. And you don't know how much of the
18 \$5.4 million relates to those two elements that I
19 just talked about, right?

20 A. Correct.

21 Q. And if I continue on, it talks about
22 two new anaerobic digesters with covers and
23 equipment. Later on, it talks about a heat
24 exchanger system and digester -- digester gas and

1 safety equipment, does that have anything to do
2 with ammonia control?

3 A. No.

4 Q. And you don't know how much of the
5 \$5.4 million relates to those items, right?

6 A. Correct.

7 Q. So you don't know how much of \$5.4
8 million relates to ammonia control, do you, if
9 any?

10 A. Correct.

11 Q. So if I read -- if I continue
12 reading down, I think there is references to fine
13 screens and raw sewage pumps and a GRIP tank and
14 UV disinfection, do those have anything to do with
15 ammonia control?

16 A. No.

17 Q. And, again, you don't know what the
18 costs are associated with those elements of the
19 project?

20 A. Correct.

21 Q. I'm going to turn the page and look
22 at Batavia. It's project L17 1385.

23 So this project addressed some
24 pollutants other than ammonia, right?

1 A. Yes.

2 Q. Did it address fecal coliform?

3 A. Yes.

4 Q. And it also dealt with an expansion
5 and rehabilitation of the anaerobic digester,
6 right?

7 A. Yes.

8 Q. You don't know how much of the
9 \$10,791,000 was used for -- was attributable to
10 the expansion and rehab of the anaerobic digester
11 or the fecal coliform, do you?

12 A. No.

13 Q. So if I read down the project
14 description for this, I'm starting in the fourth
15 line, "Specifically, the proposed project includes
16 the construction of an influent flow measurement
17 structure (partial flume), installation of a new
18 mechanical bar screen, construction of a new
19 primary settling tank, replacement of primary
20 clarifier equipment in the existing tanks."

21 None of that has anything to do
22 with ammonia control, right?

23 A. Correct.

24 Q. And you don't know what the -- what

1 portion of the \$10.791 million in costs are
2 attributable to those components of the project?

3 A. No.

4 Q. I'm counting one, two, three, four,
5 five lines from the bottom of that project
6 description sort of on the right-hand side. It
7 says ", construction of a new ultraviolet
8 disinfection facility," that ultraviolet
9 disinfection facility wouldn't have anything to do
10 with ammonia control, right?

11 A. Correct.

12 Q. And you don't know what the cost of
13 the -- what portion of the \$10.791 million related
14 to the new ultraviolet?

15 A. No, I do not.

16 Q. So you don't know how much of the
17 \$10.791 million related to ammonia control, do
18 you --

19 A. No.

20 Q. -- if any?

21 If we look then at St. Charles,
22 project L17 2288. I'm reading on the first line
23 "The project consists of the following
24 improvements; modification of the head works

1 diversion structure; rehabilitate the ferric
2 chloride and GRIP buildings; replace the scum
3 troughs on the primary clarifiers."

4 Any of that have to do with
5 ammonia control?

6 A. No.

7 Q. Do you know what the cost -- what
8 portions of the \$9,871,000 related to those
9 components?

10 A. No.

11 Q. Later on down in the description
12 one, two, three, four, five I think it's the sixth
13 line if my count is right. It says, "Install
14 baffles in the final clarifiers and tipping
15 buckets and new weirs in the wet weather flow
16 clarifiers, replace pumps and adjustable frequency
17 drives on the return, activated and waste
18 activated sludge pump stations."

19 If I stopped at the wet weather
20 flow clarifiers, does any of that have to do with
21 ammonia?

22 A. No.

23 Q. Again, you don't know what portion
24 of the \$9.8 million and change cost relate to

1 **those elements?**

2 A. No.

3 Q. So of the \$9,871,000 here, you don't
4 know how much relates -- how much, if any, relates
5 to ammonia control?

6 A. Well, the if any I know they have
7 some ammonia control stuff in there, but I don't
8 know how much.

9 Q. Next page Kishwaukee.

10 MR. GRADELESS: If you need -- we're
11 willing to stipulate here, Tom, that -- you know,
12 the point you're making I think has been made --

13 MR. DIMOND: Well, let me --

14 MR. GRADELESS: -- to speed it up.

15 BY MR. DIMOND:

16 Q. Let me ask Mr. Twait this question.

17 If I went through the rest of
18 these projects, for any of these projects, can you
19 tell me the portion of the dollar figure that is
20 listed in the final cost column that relates to
21 ammonia control, if any?

22 A. No.

23 Q. And all of these projects have some
24 project elements that do not relate to ammonia

1 control, right?

2 A. Correct.

3 MR. DIMOND: That's the end of my
4 cross-examination. Thank you for your time,
5 Mr. Twait.

6 HEARING OFFICER WEBB: Thank you.

7 R E D I R E C T E X A M I N A T I O N

8 BY MR. GRADELESS:

9 Q. Mr. Twait, I have just a few --
10 couple follow-ups. Hopefully, I don't take too
11 long here. You mentioned the cost of the -- you
12 mentioned the cost of the Algaewheel earlier in
13 your testimony.

14 You testified that you weren't
15 sure whether or not -- or is it fair to say you're
16 not sure whether that's more costly than the
17 alternatives proposed by the petitioner or less
18 costly?

19 A. I did not make any analysis.

20 Q. So you have no idea one way or the
21 other what the Algaewheel alternative may or may
22 not cost?

23 A. I do not.

24 Q. Is that a yes?

1 A. Yes.

2 Q. We also discussed how an
3 Algaewheel -- you consider it a form of tertiary
4 nitrification and the petitioner -- Mr. Dimond
5 mentioned whether or not that Algaewheel could be
6 installed at the end of the second clarifier at
7 the Emerald plant, do you remember that testimony?

8 A. Yes.

9 Q. And you testified that you
10 perhaps -- one of the original ideas was that,
11 perhaps, the Algaewheel may react differently to
12 any MBT that was seen after the secondary
13 clarifier, is that correct?

14 A. Yes.

15 Q. And, at that time, you believed that
16 there was still MBT coming out of the secondary
17 clarifier, correct?

18 A. That was my belief.

19 Q. Okay. Do you have a belief --
20 having been here yesterday and hearing all the
21 testimony, do you have a belief now with respect
22 to whether or not tertiary nitrification using the
23 Algaewheel would be -- was worth evaluating at the
24 end of the pipe given what's in the secondary

1 **clarifier from what you heard yesterday?**

2 MR. DIMOND: I'm going to object
3 that the question calls for an opinion and
4 Mr. Twait was not disclosed as an opinion witness.
5 He was not disclosed as an opinion witness or as
6 an expert. The Agency had an opportunity to
7 identify experts. They chose not to -- they can
8 ask him about facts, but I don't think they can
9 ask him about his opinion.

10 HEARING OFFICER WEBB: Well, he's a
11 manager in the Bureau of Water. I think he can
12 express his opinion if he has one.

13 BY THE WITNESS:

14 A. I think tertiary nitrification is
15 worth looking at.

16 BY MR. GRADELESS:

17 Q. **And would you agree that an**
18 **Algaewheel is a form of tertiary nitrification?**

19 A. Yes.

20 Q. **Okay. Could that Algaewheel be**
21 **looked at as a potential, one way or another,**
22 **end-of-pipe alternative in your view?**

23 A. Yes.

24 Q. **Could the Algaewheel also be looked**

1 at as a potential tertiary nitrification option
2 prior to Mexichem's waste stream entering the
3 waste stream of the petitioner?

4 MR. DIMOND: I'm going to object
5 that that misuses the term tertiary nitrification.

6 HEARING OFFICER WEBB: Can you ask
7 the question or can you --

8 MR. GRADELESS: Sure.

9 BY MR. GRADELESS:

10 Q. Mr. Twait, based on everything
11 you've heard in this case today, yesterday, do you
12 have any opinions with respect to whether or not
13 an Algaewheel could possibly be an alternative
14 used to reduce the ammonia levels coming in from
15 Mexichem?

16 A. The Cincinnati and Indiana State
17 Dunes used it as their treatment. So it's
18 possible that it could be used for treatment of
19 Mexichem's wastewater.

20 Q. And that would be before it enters
21 what is known as the PVC tank, is that correct?

22 A. It could.

23 Q. Okay. Mr. Dimond mentioned at your
24 deposition previously that you were asked the

1 question if the regulation did not exist, would
2 the Henry plant be allowed a mixing zone in the
3 zone of initial dilution in order to meet the
4 water quality based effluent limits for ammonia.

5 And in that deposition, you
6 answered yes, is that your recollection?

7 A. Yes.

8 Q. And today you answered yes to that
9 question as well?

10 A. Yes.

11 Q. And today you also mentioned that
12 they would also be required to use best degree of
13 treatment for the Agency?

14 A. Yes.

15 Q. Now, in your deposition, you were
16 never asked about whether or not the petitioner
17 would ever have to use any kind of best degree of
18 treatment, were you?

19 A. No, I don't believe so.

20 Q. Mr. Dimond discussed in length some
21 of these improvement projects from POTW's and
22 whether or not you knew the cost breakdown of the
23 ammonia reductions with respect to each project,
24 is that your recollection of the previous

1 testimony?

2 A. Yes.

3 Q. If you stripped away all of those
4 costs that were not related to ammonia reductions,
5 do you believe that the final costs of the
6 projects attributable to ammonia reductions would
7 be less than the final cost digit number here in
8 Petitioner's Exhibit 1 that you looked at?

9 MR. DIMOND: I'm going to object on
10 foundation for that. He's testified he doesn't
11 know how much of those cost figures relate to
12 ammonia. If he doesn't know, how could he
13 possibly answer that question?

14 MR. GRADELESS: I'm just asking if
15 he knows it will be less or more. I mean, basic
16 logic would tell us one thing, but I'm asking if
17 Mr. Twait has that knowledge.

18 MR. DIMOND: Basic knowledge would
19 tell you if he doesn't know how much the cost
20 figure relates to ammonia control, he can't
21 compare it to anything.

22 MR. GRADELESS: I'm just --

23 HEARING OFFICER WEBB: Overruled.
24 I'll ask him what he knows.

1 BY THE WITNESS:

2 A. If the final cost number includes
3 something that wasn't for ammonia, the ammonia
4 cost would have to be less than the final cost.

5 MR. DIMOND: I don't understand the
6 question and the answer. Could I ask that they be
7 read back just so I understand them --

8 HEARING OFFICER WEBB: Sure.

9 MR. DIMOND: -- or at least try to
10 understand them?

11 (Whereupon, the record was read
12 as requested.)

13 MR. DIMOND: If the final cost
14 number includes something less than ammonia?

15 (Whereupon, the record was read
16 as requested.)

17 HEARING OFFICER WEBB: Can we -- I
18 know what he is saying, but do you want him to say
19 it more clearly?

20 MR. DIMOND: So was that -- that was
21 the question, correct?

22 (Whereupon, the record was read
23 as requested.)

24 MR. DIMOND: Thank you for your

1 indulgence. I had a very hard time understanding
2 it, but I do now.

3 MR. GRADELESS: I have nothing
4 further for Mr. Twait.

5 HEARING OFFICER WEBB: Okay.
6 Mr. Dimond, anything further?

7 MR. DIMOND: Oh, I'm pondering.

8 HEARING OFFICER WEBB: Also, I don't
9 think you admitted it. You offered this.

10 MR. DIMOND: Thank you.

11 HEARING OFFICER WEBB: I don't think
12 you offered, I will say for the record,
13 Petitioner's Hearing Exhibit 15.

14 MR. DIMOND: No further questions.

15 HEARING OFFICER WEBB: No further
16 questions. Are you --

17 MR. DIMOND: I have a very poor
18 short-term memory.

19 We would -- we would move the
20 admission of Petitioner's Hearing Exhibit 15.

21 MR. GRADELESS: No objection.

22 HEARING OFFICER WEBB: Petitioner's
23 Hearing Exhibit 15 is admitted. Okay. And we're
24 done with this witness? You did not have any

1 further questions?

2 MR. DIMOND: I did not.

3 HEARING OFFICER WEBB: Thank you,
4 Mr. Twait.

5 MR. RAO: I do.

6 HEARING OFFICER WEBB: I'm sorry.
7 I'm sorry. We're not done with you, Mr. Twait. I
8 have a short memory also today.

9 MR. RAO: I have some questions for
10 the Agency based on the Agency's recommendation
11 and I'm not sure whether Mr. Twait would be the
12 one to answer all the questions, but I'd like to
13 pose these questions on the record so in case you
14 have to respond in writing so there.

15 Good morning, Mr. Twait.

16 THE WITNESS: Good morning.

17 MR. GRADELESS: Just to note we also
18 plan on calling other Agency witnesses to talk
19 about portions of the recommendation. So I don't
20 know if --

21 MR. RAO: I don't know what parts of
22 the recommendation who is going to answer.

23 MR. GRADELESS: Okay.

24 MR. RAO: If you can tell me as I

1 ask the question, I can defer --

2 MR. GRADELESS: Okay.

3 MR. RAO: -- to them. Whatever is
4 more efficient.

5 On Page 11 of IEPA's
6 recommendation, the Agency notes that Emerald has
7 formed a team to identify and evaluate potential
8 modification of processes and product formulations
9 to recover MBT and other organic nitrogen
10 compounds.

11 Based on the information in the
12 record, could you please comment on whether IEPA
13 believes that process improvements at the Henry
14 plant would have a significant impact on Emerald's
15 ability to comply with the ammonia-nitrogen
16 effluent standards without implementing additional
17 end-of-pipe solutions.

18 MR. GRADELESS: We can reserve that
19 question.

20 MR. RAO: Okay.

21 MR. GRADELESS: I don't know that
22 Mr. Twait would be the one for that.

23 MR. RAO: Mm-hmm. On Page 14, IEPA
24 states that the Board should give little or no

1 weight to stale and outdated information in the
2 record.

3 In this regard, please comment
4 whether the updated information submitted by
5 Emerald -- I think that's in Petitioner's Exhibit
6 12 addresses IEPA's concerns regarding stale
7 information.

8 MR. GRADELESS: Which page? I'm
9 sorry.

10 MR. RAO: Page 14. I don't have the
11 recommendation.

12 MR. GRADELESS: I see.

13 MR. RAO: If you want to get back to
14 us on this one, that's fine, too.

15 MR. GRADELESS: I can answer it
16 probably.

17 MR. RAO: Okay.

18 MR. GRADELESS: Generally, no.
19 Petitioner's Exhibit 12, I believe --

20 MR. RAO: Are you testifying now?

21 MR. GRADELESS: I'm sorry. Did you
22 direct it to me or --

23 MR. RAO: This is a question for the
24 Agency --

1 MR. GRADELESS: Okay.

2 MR. RAO: -- on your recommendation.

3 If you want to respond in writing, that's --

4 MR. GRADELESS: In post-hearing
5 brief. We'll do that. Sorry.

6 MR. RAO: On Page 16 regarding the
7 evaluation of GAC treatment alternative, IEPA
8 states that Emerald failed to complete an economic
9 reasonableness analysis. Please explain what IEPA
10 considers as a complete economic reasonableness
11 analysis.

12 Also, comment on whether Emerald
13 has provided necessary economic information to
14 perform a complete economic analysis. If not,
15 list the specific costs information that the
16 Agency needs from Emerald to perform the analysis.

17 On Page 18, IEPA notes AkzoNobel
18 Surface Chemistry, LLC, utilizes spray irrigation
19 of treated process wastewater, sanitary wastewater
20 and stormwater through their NPDES permit.

21 Please clarify if AkzoNobel owns
22 the land on which they're applying
23 ammonium-nitrogen wastewater from their treatment
24 plant. Is the Agency aware of any other spray

1 irrigation permits in the state that allow for
2 industrial wastewater to be applied to farmland?
3 If so, please provide relevant examples of such
4 permits.

5 On Page's 21 and 22, IEPA states
6 that capital costs -- cost estimates for treatment
7 alternatives considered by Emerald are
8 comparable -- are lower than capital costs
9 expended by POTW's. IEPA provides several
10 examples of capital costs of the upgrades at
11 Illinois POTW's to treat ammonia-nitrogen.

12 Please comment on Emerald's
13 response that at a conceptual level comparing
14 alternatives solely based on estimated capital
15 costs makes no sense. Also, comment on Emerald's
16 contention that the examples of POTW upgrades were
17 not solely intended for ammonia removal, but were
18 implemented to accommodate higher flows, greater
19 BOD and TSS removal.

20 On Page 23, IEPA notes that it
21 continues to be concerned about the Whole Effluent
22 Toxicity, or WET, test within the petitioner's
23 effluent specifically referring to substances such
24 as MBT that inhibit nitrification.

1 Please comment on whether there
2 will be any benefit to requiring Emerald to
3 perform toxicity studies on individual components
4 of its effluent rather than the WET test for the
5 whole effluent or the combined effluent coming out
6 of the treatment plant. If such studies indicate
7 that chemicals like MBT is toxic to aquatic life,
8 comment on whether procedures of 35 Ill. Adm. Code
9 302 Subpart F could be used to derive permit
10 limits.

11 Is this something Mr. Twait can
12 answer or do you want to defer?

13 MR. GRADELESS: I think we want to
14 reserve and respond.

15 MR. RAO: On Page's 23 and 24, IEPA
16 notes that Emerald's effluent toxicity LC50 test
17 results of 3.87% is not found in any other
18 Illinois facility. To give an idea to the Board
19 regarding the magnitude of the LC50 values, please
20 provide examples of WET test results of other
21 NH3-N or ammonium-nitrogen dischargers in the
22 state.

23 On Page 24, IEPA -- IEPA states
24 that a mixing zone is improper because petitioner

1 is not providing the best degree of treatment.
2 Please comment on whether Henry plant's
3 ammonia-nitrogen discharge would have any adverse
4 impact on aquatic life if Emerald did not have a
5 zone of initial dilution or a mixing zone.

6 In response to IEPA's concern
7 regarding viability of and costs associated with
8 the treatment alternatives, Emerald has submitted
9 an expert report with updated information. That's
10 Petitioner's Exhibit 12. Among the five
11 alternatives reevaluated by Emerald, please
12 comment on whether IEPA has a preference to which
13 alternatives are technically feasible and
14 economically reasonable for possible inclusion in
15 the adjusted standard.

16 Based on Emerald's response,
17 please comment on whether IEPA wishes to revise or
18 modify any of its recommendations on Page's 25
19 through 29 of the recommendation filed on July
20 19th, 2019. If so, please submit specific
21 language changes.

22 MR. GRADELESS: Thank you.

23 HEARING OFFICER WEBB: Okay.

24 MR. RAO: I have just one question.

1 HEARING OFFICER WEBB: Go ahead.

2 MR. RAO: This is for Scott based on
3 his response to Mr. Dimond's questioning about the
4 recommended limits for ammonia-nitrogen discharge.

5 There is a question of how you
6 determined the limits -- the loading limits, not
7 concentrations, and you responded that you did not
8 use the treatment plant flow, design flows, to
9 come up with the loading limits that you
10 recommended.

11 Can you tell us whether the
12 recommended limits are -- did you come up with
13 those consistent with how Emerald has proposed
14 their limits looking at the data and not on the
15 flows?

16 THE WITNESS: We just looked at the
17 highest load since September of -- of 2018. It
18 might be a -- so we did not use the flow
19 calculations.

20 MR. RAO: Do you think Emerald has
21 used flow calculations in their proposed --

22 THE WITNESS: I'm not sure -- I'm
23 not sure how theirs was calculated offhand.

24 MR. DIMOND: Would you like me to

1 answer that because I know the answer?

2 MR. RAO: Yes.

3 MR. DIMOND: The limits that were
4 expressed in AS 13-2, the load limits, were
5 calculated using the basic formula that I
6 questioned Mr. Twait about and that he agreed
7 about. In other words, the concentration limit
8 that was established by the Board in AS 13-2 was
9 essentially multiplied by either the design
10 maximum flow or the design average flow depending
11 upon whether it was the maximum or the average and
12 then by the conversion factor of 8.34.

13 That's how the load limits in AS
14 13-2 were calculated. I have run the numbers. It
15 does calculate out. In our petition that we filed
16 in April, we proposed no change in either the
17 concentration or the load limits. The Hearing
18 Officer asked us to file a document on December
19 30th explaining what changes we would like to see,
20 both parties would propose to the conditions in AS
21 13-2.

22 In response to that, Emerald
23 filed a document that said that based on our
24 analysis of the data, and this is explained in

1 Mr. Hathcock's -- in his written testimony at
2 Paragraph's 45 through 51 and was touched on a
3 little bit during his testimony yesterday. We
4 still believe based on our analysis of the data
5 for the last -- well, since the Board granted --
6 at least since the Board granted the relief in AS
7 13-2 that we need the concentration limits of the
8 daily maximum of 140 mg/L and a 30-day average of
9 110 mg/L.

10 MS. ZEIVEL: Objection. This goes
11 beyond the Board's questioning and has led into
12 testimony.

13 HEARING OFFICER WEBB: Was your
14 question answered?

15 MR. RAO: He's about to get there, I
16 think.

17 MR. DIMOND: I'm about to get there.

18 HEARING OFFICER WEBB: Okay. Go
19 ahead.

20 MR. DIMOND: You have to understand
21 the background.

22 MR. RAO: I just wanted this on the
23 record so the Board understands. So please go
24 ahead.

1 MR. DIMOND: So Emerald's technical
2 people and its site director Mr. Hathcock
3 testified about this and the testimony that is in
4 Paragraph's 45 to 51 of his written testimony
5 explains that Emerald has looked at the load
6 discharge data for the last several years and its
7 site director and technical people have testified
8 that we can -- even though that the
9 concentration -- we're not proposing a change in
10 the concentration limits we can accept a 25
11 percent decrease in the load limits.

12 So the way we calculated the
13 load limit that we proposed on December 30th was
14 to use the concentration, times the 8.34
15 conversion factor, times either the design maximum
16 flow or the design average flow and then times
17 75%, which is the same thing as a 25% reduction.
18 That's what is explained in Paragraph's 45 to 51
19 of Mr. Hathcock's testimony. So I'm not
20 testifying. I'm repeating for you the testimony
21 that Emerald has put in the record through its
22 witnesses.

23 MR. RAO: Thank you.

24 MR. GRADELESS: And with respect to

1 the question and how the Agency -- Mr. Liska will
2 be able to testify about that issue and how it was
3 calculated.

4 HEARING OFFICER WEBB: Any more
5 questions?

6 MR. RAO: No, that's it.

7 HEARING OFFICER WEBB: Does anyone
8 have any more questions for this witness? Okay.
9 Thank you very much. It is 11:43. Do we want to
10 get through at least the direct testimony of the
11 next witness before we break for lunch or --

12 MR. GRADELESS: It's going to be
13 long.

14 HEARING OFFICER WEBB: Well, we
15 could take public comment. We could take our
16 public comment now and then break for lunch. Do
17 you want to do that? Does that sound okay?

18 Mr. Pinneo, are you ready to
19 make your public comment?

20 MR. PINNEO: I can give my comments
21 now.

22 HEARING OFFICER WEBB: You don't
23 have to be sworn in, but could you please state
24 your name and maybe stand just so everybody can

1 hear you, especially the court reporter needs to
2 hear.

3 MR. PINNEO: Sure. My name is
4 Richard Pinneo spelled R-I-C-H-A-R-D. Last name
5 P-I-N-N-E-O. And I'm very familiar with this
6 facility. I've worked at Illinois EPA for over 30
7 years. I retired back in 2015 and I wrote permits
8 for the plant. It was BFGoodrich back then and
9 then it changed to Noveon and Polywon and now it's
10 Emerald Performance Products or Performance
11 Materials and Mexichem or Mexichem, but, anyway,
12 and -- I have a degree in chemical engineering
13 from the University of Illinois and I worked at
14 Monsanto as a pilot plant operator and I also
15 worked at a waste oil refinery facility and
16 produced the finished waste oil product -- used
17 waste oil, of course.

18 So I have some questions. I'm
19 just wondering how many waste streams contain MBT?
20 It was stated that the process wastewater from the
21 BDETF production contains MBT in the levels above
22 3 PM inhibits nitrification. I'm just wondering
23 why can't this waste stream be segregated and
24 treated separately?

1 It was stated separate treatment
2 of waste streams was infeasible, but a better
3 explanation needs to be provided. I think it
4 could be treated separately either by pretreatment
5 or full treatment. I believe that each production
6 unit produces wastewater independently and could
7 easily be segregated. They have multiple
8 biological reactors that are not being used. So
9 it's not like they don't have the facilities or
10 capacity.

11 Has reverse osmosis been
12 considered for pretreatment and if it was used,
13 could the reject water from reverse osmosis be
14 reintroduced in the manufacturing process?

15 Comparing the cost of removing
16 ammonia with municipalities is not appropriate.
17 This is a unique plant with unique wastewater and
18 should be evaluated based on the efforts of
19 evaluation -- of evaluating wastewater treatment
20 alternatives, but also the production side as
21 evident in the testimony that this is now under
22 investigation. It was also identified that MBT
23 will not be in the influence of the wastewater
24 treatment plant if chemical reactions are allowed

1 to come -- to completion. So why aren't they?
2 That's the question. Why aren't they allowed to
3 come to completion?

4 Houston Flippin's testimony
5 specifically stated that the chemicals produced at
6 the plant are biologically resistant and that
7 influent BOD levels are low. So why is biological
8 treatment being utilized? It seems to me they
9 should have investigated an alternative treatment
10 to begin with or was this just an attempt to give
11 the appearance that they were providing best
12 degree of treatment?

13 It was revealed that ammonia
14 levels from September 2019 through December 2019
15 were 0.3 mg/L or essentially non-detect. Were any
16 toxicity tests performed during this time period?
17 And, if so, what were the results?

18 It was stated that COD
19 concentrations in the discharge range from 300 to
20 600 mg/L with an average of 450 mg/L, is this a
21 true average? How often do they test for COD in
22 their effluent? What chemicals in their
23 effluent -- what chemicals are in their effluent
24 that create such a high COD?

1 If ammonia was reduced to
2 acceptable levels, would the discharge still
3 exhibit toxicity? Are these chemicals toxic? If
4 they are toxic and they are so persistent, what
5 are they doing to the river downstream of the
6 discharge? Are they getting into public water
7 supply intakes?

8 I don't think that we should
9 allow ammonia to be identified as the only
10 problem. High TDS and high COD levels in the
11 discharge are just as problematic.
12 Finger-pointing on ammonia and saying, "This is
13 our only problem" needs to be reconsidered. We
14 need to be holistic and examine the entire process
15 and results from beginning to end. What would
16 happen if we allow ourselves to consider the best
17 results?

18 HEARING OFFICER WEBB: Thank you,
19 Mr. Pinneo. If the parties would like to, they
20 may respond to any of those questions in their
21 post-hearing briefs. Mr. Pinneo, if you have
22 anything further to add, the Board is accepting
23 written public comment through February 14th.

24 Okay. Having said that, shall

1 we break for lunch? Okay. Break for lunch. Come
2 back in an hour, if you can.

3 (Whereupon, a break was taken
4 after which the following
5 proceedings were had.)

6 HEARING OFFICER WEBB: All right.
7 We'll go back on the record and the Agency may
8 call its next witness, please.

9 MR. GRADELESS: The Agency calls
10 Mark Winters.

11 MR. LISKA: Liska.

12 MR. GRADELESS: Liska. Sorry. Too
13 many Mark's.

14 HEARING OFFICER WEBB: Will the
15 court reporter please swear in the witness.

16 WHEREUPON:

17 MARK LISKA
18 called as a witness herein, having been first duly
19 sworn, deposeth and saith as follows:

20 D I R E C T E X A M I N A T I O N

21 BY MR. GRADELESS:

22 Q. Good afternoon, Mr. Liska.

23 A. Hi.

24 Q. Can you please state your name for

1 **the court reporter.**

2 A. Mark Liska.

3 **Q. Can you spell the last name?**

4 A. L-I-S-K-A.

5 **Q. Mr. Liska, by whom are you employed?**

6 A. I'm employed by the Illinois EPA.

7 **Q. And what is your position at the**
8 **Illinois EPA?**

9 A. I am an engineer for the industrial
10 unit of the Bureau of Water.

11 **Q. And how long have you been an**
12 **engineer for the industrial unit of the Bureau of**
13 **Water?**

14 A. Roughly 14 years.

15 **Q. And what is your educational**
16 **background that led you to become an engineer at**
17 **the Illinois EPA?**

18 A. I have a bachelor's and a master's
19 degree in chemical engineering from the University
20 of Illinois-Chicago.

21 **Q. And did you have any prior work**
22 **experience prior to the Illinois EPA?**

23 A. I did work at a couple other places,
24 at a couple of chemical plants.

1 Q. Now, are you familiar with the
2 petitioner's facility in this case?

3 A. Yes.

4 Q. And how are you familiar?

5 A. I wrote their last permits, I worked
6 with the EPA on their last petition, the AS 13-2,
7 I think.

8 Q. Let me stop you for a second.

9 When you say the last petition,
10 you mean the last adjusted standard?

11 A. The last adjusted standard, yes.

12 Q. You were involved in that case?

13 A. Yes.

14 Q. Okay. How else may you be familiar
15 with the Henry facility?

16 A. I have -- I wrote their last permit.

17 Q. Okay. And is my understanding you
18 also are familiar with the recommendation in this
19 case, is that correct?

20 A. Yes.

21 Q. Now, Mr. Liska, as part of your
22 duties as an engineer at the Illinois EPA, what --
23 what -- I know you're familiar with the permit,
24 but what do those duties include?

1 A. I'm sorry. The duties of --

2 Q. **Your job duties.**

3 A. Just my general job duties?

4 Q. **That's right.**

5 A. Oh, writing NPDES permits for
6 industrials, state construction and operating
7 permits, I would handle phone duties of answering
8 calls on my specific day from consultants for
9 industrial calls, grade Class K operator licenses,
10 I train new engineers. That's about all I can
11 think of at the moment.

12 Q. **Okay. Now, you said you're familiar**
13 **with the Henry plant facility in this particular**
14 **adjusted standard, right?**

15 A. Yes.

16 Q. **If I were to show you a map diagram**
17 **of the facility, would you be able to identify it**
18 **for the Pollution Control Board?**

19 A. Yes.

20 MR. GRADELESS: Let the record
21 reflect I'm showing the witness what has been
22 previously identified as State's Exhibit 4 for
23 identification.

24

1 (Document marked as State's
2 Exhibit No. 4 for
3 identification.)

4 BY MR. GRADELESS:

5 Q. Now, Mr. Liska, can you please
6 identify the document I just handed you.

7 A. This is a flow diagram of Emerald's
8 and Mexichem's treatment plant.

9 Q. Now, when you say this is a flow
10 diagram, what is a flow diagram?

11 A. It will show where different
12 discharges flow from one unit operation to the
13 next.

14 Q. And is your understanding that this
15 flow diagram represents the Emerald Performance --
16 I'm sorry -- the Henry facility at issue in this
17 case as it operates today?

18 A. Yes.

19 Q. I'm going to go over this first page
20 where the sticker says Exhibit 4 on it. I
21 understand there's a back page, but I'm just
22 talking about this front page with the exhibit
23 sticker, are you with me?

24 A. Yes.

1 **Q. Okay. Can you please describe to us**
2 **what, you know, this depicts here in the first**
3 **row? It's labeled it looks like on the left-hand**
4 **side pretreatment.**

5 **A. That would depict any**
6 **pretreatment -- treatment for the three different**
7 **flows that go ultimately through their entire**
8 **treatment system. This would be treatment that**
9 **ultimately goes to the PVC tank from Mexichem as**
10 **shown here.**

11 **Q. When you say here, can you identify**
12 **where you're talking about?**

13 **A. I am pointing from the part that is**
14 **listed -- it's listed at Poly 1 Corporation, some**
15 **kind of units, process discharges and cooling**
16 **tower, some or all of it goes to some kind of**
17 **pretreatment before discharging to the PVC tank.**

18 **Q. Let me back you up --**

19 **A. Sure.**

20 **Q. -- for a second.**

21 **You mentioned there's a Poly 1**
22 **Corporation. Can you identify to the Board what**
23 **your understanding is of the Poly 1 Corporation**
24 **waste stream?**

1 A. I understand that now is that they
2 are now Mexichem's waste stream.

3 Q. Okay. It appears that the rectangle
4 immediately to the right of the Mexichem waste
5 stream it says Emerald Performance Materials, do
6 you see that?

7 A. Yes.

8 Q. What is your understanding of that
9 particular rectangle in this flow diagram?

10 A. The process discharges from Emerald
11 Performance Materials. Some of it goes to their
12 C-18 pretreatment and eventually to their C-18
13 tank. The rest of it, without pretreatment, goes
14 to their PC tank.

15 Q. Okay. So is it fair to say you're
16 sort of reading this from top to bottom --

17 A. Yes.

18 Q. -- when you look at this sheet? Is
19 that a yes? I'm sorry.

20 A. Yes.

21 Q. You mentioned a PVC tank, a C- -- is
22 it C-18 tank and a PC tank, are those circles
23 depicted in the equalization and diversion row,
24 the second row from the top?

1 A. Yes.

2 Q. Okay. And can you describe briefly
3 then what happens in this waste stream?

4 A. After it's --

5 Q. After -- I'm sorry. After the
6 equalization and division process.

7 A. Okay. From there, it would go to
8 primary treatments. They all kind of meet
9 together and flow toward the left of the sheet and
10 down first to the neutralization tank where there
11 is some kind of pH adjustment.

12 Q. Can you identify where the
13 neutralization tank is on the flow diagram?

14 A. It's on the primary treatment row.
15 It would be third from the left and this just says
16 neut tank, but it's for neutralization tank.

17 Q. Okay.

18 A. From there, they would all flow to
19 the box to the right of it that says, "Coagulant
20 addition tank" where coagulant would be added to
21 the combined stream for future use that I'll
22 explain in a different unit. From there, it would
23 go to the right again to the flocc tank, which is
24 adding flocculation to the combined stream of

1 those three. I mentioned previously the PVC tank,
2 the C-18 tank and the PC tank.

3 From there, it will go to the
4 primary clarifier. The primary clarifier will use
5 the flocculent and it will draw out solids. The
6 sludge will go to the right, to the sludge
7 dewatering system which is one more to the right
8 where sludge will then go to an approved landfill.

9 The effluent from it, the liquid
10 effluent from that, will go slightly to the right
11 but then it will go down -- let's see. No sludge
12 dewatering. It will then -- some of it will
13 filter back to the neutralization tank. The rest
14 will go around to -- into the secondary treatment
15 section will go to the biotreater -- I'm sorry.
16 The bioreactors as they're listed here.

17 **Q. Okay. Now, let me stop you there.**
18 **Now, you're looking at the bioreactor section in**
19 **this waste stream, is that right?**

20 A. Yes.

21 **Q. And that is in the third -- fourth**
22 **column from the top labeled secondary treatment,**
23 **is that correct?**

24 A. Yes.

1 Q. Now, I notice on there that it says
2 north bioreactor, an east bioreactor, a central
3 bioreactor and an east bioreactor, do you know why
4 it may say that there are two east bioreactors in
5 this facility?

6 A. What I've been told earlier is that
7 there was a -- that is just an error. One of
8 those east bioreactors should be listed as west
9 bioreactor.

10 Q. Okay. Now, is it also your
11 understanding -- tell me. I'm sorry.

12 Are you aware whether the north
13 bioreactor, is that the one that is operational?

14 A. Yes.

15 Q. Okay. Can you tell us what happens
16 after it's in secondary treatment in the north
17 bioreactor?

18 A. After it goes through the north
19 bioreactor, that's where most of the -- I'll get
20 to that. From -- from the north bioreactor, it
21 would go then to the secondary clarifier.

22 Q. So it actually skips the east
23 bioreactor and the central bioreactor and the west
24 bioreactor, do you know why?

1 A. Currently, it skips all of those
2 because none of those are in operation right now.

3 **Q. Okay. Do you know of any time any**
4 **of those three were ever in operation?**

5 A. Since I've been doing their permit,
6 I can't recall a time.

7 **Q. Do you remember about the adjust --**
8 **previous adjusted standard one way or another**
9 **whether the biotreaters were working?**

10 A. Okay. I recall from that that there
11 were two bioreactors working at the time. It was
12 the north bioreactor and one of those three other
13 ones. I can't recall exactly which one.

14 **Q. Okay.**

15 A. But I know the north one was
16 working.

17 **Q. Okay. But in the last permit cycle,**
18 **you have not been aware of all -- or more than one**
19 **bioreactor working, is that correct?**

20 A. Correct. Since then, only the north
21 one is working.

22 **Q. Okay. Now, when the waste stream**
23 **then enters -- you said it then goes to the**
24 **secondary clarifier?**

1 A. Yes.

2 **Q. And that's the circle -- the**
3 **furthest circle to the right under secondary**
4 **treatment, is that correct?**

5 A. Correct.

6 **Q. Okay. What happens after the**
7 **secondary clarifier with respect to the waste**
8 **stream?**

9 A. From there, the clarified effluent
10 will go to one of two sand filters.

11 **Q. And where are the sand filters on**
12 **this flow diagram?**

13 A. The sand filters are on the next row
14 down, the very bottom row, listed as tertiary
15 treatment and they're both on the far right next
16 to Exhibit 4 east sand filter and west sand
17 filter.

18 **Q. Okay. After the waste stream enters**
19 **the sand filters in the tertiary treatment column,**
20 **what happens?**

21 A. That is the final piece of treatment
22 prior to discharge through outfall 001.

23 **Q. Okay. Now, you've sat here, you**
24 **know, yesterday and today.**

1 A. Mm-hmm.

2 Q. There's been a lot of discussion of
3 MBT's. So I just wanted to talk about your
4 understanding of where the MBT is in this
5 facility.

6 A. Okay.

7 Q. So I want to first start with
8 Mexichem's discharge into the facility. Are they
9 discharging MBT into the Emerald facility?

10 A. They are not discharging MBT into
11 the Emerald facility treatment center.

12 Q. Now, when does the MBT, if you know,
13 get into the waste stream at the Henry facility?

14 A. There is MBT in both the C-18 tank
15 and the PC tank prior to it going into what starts
16 as the primary treatment system.

17 Q. And I believe -- is that looking in
18 the equalization and division column there --

19 A. Yes.

20 Q. -- on the right-hand side the C-18
21 tank and the PC tank?

22 A. Yes.

23 Q. Is there any other -- what about the
24 PVC tank?

1 A. There is no MBT in the PVC tank.

2 **Q. What about after the PVC tank, are**
3 **you aware of whether or not after the PVC tank**
4 **they have MBT?**

5 A. After the PVC tank, all three of
6 those tanks; the PVC tank, the C-18 tank and the
7 PC tank all mix together. Since the C-18 tank and
8 PVC tank have MBT in it, it -- now, the total
9 waste stream will have MBT in it.

10 **Q. Okay. Now, does Mexichem's waste**
11 **stream go anywhere else before -- I'm sorry. Does**
12 **it mix with Emerald Performance -- Strike that.**

13 **Does the waste stream of**
14 **Mexichem mix with the waste stream of the**
15 **petitioner at any point in time before the PVC**
16 **tank?**

17 A. Before the PVC tank?

18 **Q. Right.**

19 A. No, it does not.

20 **Q. Now, a lot of talk was -- there was**
21 **some talk about some side streams, do you know**
22 **what that was referring to with respect to the PVC**
23 **tank?**

24 A. There are some process discharges

1 from Poly 1 and there may be some water -- from
2 what is here on the very top in Emerald
3 Performance Materials, the -- it looks like there
4 is some water -- treatment wastewater going to it,
5 but it's not water treatment as in the primary,
6 secondary and tertiary.

7 This would be treatment, I
8 believe, that conditions water for treatment. It
9 would be wastewater off of that. That would be
10 before any kind of process wastewater. It's not
11 involved with any process wastewater and it does
12 not have any MBT in it.

13 **Q. Now, I want to direct your attention**
14 **to the second from the bottom column known as**
15 **secondary treatment, specifically the secondary**
16 **clarifier.**

17 **Is there MBT showing up in what**
18 **is the circle entitled Secondary Clarifier?**

19 A. The secondary clarifier is much like
20 that primary clarifier. It settles out solids.
21 There would be solids -- MBT it is assumed that it
22 is in the solids. However, from DMR data we have
23 seen, there is no MBT coming from the treated
24 effluent water coming out of the secondary

1 clarifier.

2 Q. Now, why is that relevant?

3 A. It's the MBT that is causing
4 inhibition of nitrification in the bioreactors
5 just preceding the secondary clarifier.

6 Q. So correct me -- I'm a little
7 confused then.

8 If there is no MBT coming out of
9 the secondary clarifier, is it still considered --
10 I'm sorry. Scratch that.

11 After the secondary clarifier,
12 it's still part of the petitioner's waste stream,
13 correct?

14 A. Yes.

15 Q. And there is no MBT there?

16 A. Correct.

17 Q. Okay. Now, Mr. Liska, are there
18 ways that you know to reduce MBD -- MBT prior to
19 the waste stream?

20 MR. DIMOND: Objection. Foundation.

21 MR. GRADELESS: Mr. Liska is a
22 chemical engineer, a master's degree in chemical
23 engineering, he wrote this facilities permit.

24 HEARING OFFICER WEBB: Overruled.

1 MR. GRADELESS: I don't know what
2 else I can say.

3 BY THE WITNESS:

4 A. What was the question again?

5 BY MR. GRADELESS:

6 Q. Well, you know, there's been a lot
7 of talk about MBT being an inhibitor and
8 therefore, we can't nitrify.

9 So do you know of any ways, I
10 guess, to reduce the MBT prior to the effluent?

11 A. Prior to the effluent at what point?

12 Q. The final effluent.

13 A. Well --

14 Q. Or at any point.

15 A. At any point. I --

16 MR. DIMOND: If he is going to say
17 any point, I'll object to compound. I think we
18 ought to have a specific --

19 HEARING OFFICER WEBB: Okay. Let's
20 do it.

21 MR. GRADELESS: That's fair.

22 BY MR. GRADELESS:

23 Q. Let's go through all and any points
24 you know.

1 A. Sure. Well, we -- we do know they
2 are already getting rid of the MBT in the
3 secondary clarifier. We know that works. We know
4 it's in there prior to it. We know that it's not
5 in there past it. We assume that it is going
6 through -- it is coming out of the sludge and we
7 know that works.

8 Prior to that, if we go all the
9 way back to the beginning of the process prior to
10 any treatment, we know that MBT -- we know that
11 the MBT can be through manipulation of their
12 reactions to make their products that they can run
13 their reactions in a way that would minimize or
14 possibly eliminate MBT in the products that use
15 them.

16 **Q. Okay. Have you discussed or are you**
17 **aware of how these process changes have evolved**
18 **over time?**

19 A. As far as their process changes in
20 their manufacturing of their chemicals, we've been
21 told by the previous people that they are running
22 their reactions further and getting less MBT.
23 Prior to that in all of our prior adjusted
24 standards, we have been told that that was not

1 possible.

2 Q. What about removing the MBT from the
3 waste stream altogether, is that possible? Let me
4 clarify that.

5 A. Sure.

6 Q. Are there other ways MBT can be
7 removed within the waste stream?

8 A. Other than through the secondary
9 clarifier and reacting it through, I believe
10 there -- one of the -- possibly Mark Winters
11 mentioned using a chemical to basically react it
12 out -- this could be done at possibly several
13 points through -- through this whole treatment
14 center.

15 Q. What about separating the MBT from
16 the waste stream, is that a possibility?

17 MR. DIMOND: Objection. Vague as to
18 what he means.

19 HEARING OFFICER WEBB: Can you
20 clarify what you mean?

21 MR. GRADELESS: Sure.

22 BY MR. GRADELESS:

23 Q. Is it possible to separate the MBT
24 waters from the waste -- any further from the

1 **waste stream?**

2 A. Well, we've been told through these
3 proceedings that there are ten -- they make ten
4 different chemicals. Four of them go -- four of
5 them have MBT in their discharge at some rate. It
6 could be possible to run -- to re-pipe and run
7 those separately from the rest of the wastewater
8 discharges.

9 **Q. And where would those go?**

10 A. Which ones? The --

11 **Q. The MBT ones. I'm sorry.**

12 A. The MBT ones could go through a
13 separate system that could possibly -- that could
14 possibly use other treatment, extra clarification
15 or some of the -- some of the 16 different
16 treatment alternatives that were worked while the
17 rest could go through the system and nitrify.

18 **Q. You mentioned the potential of**
19 **refining reactions even further, is that correct?**
20 **What did you mean by that? I'm sorry. What did**
21 **you mean by that?**

22 A. Well, the reactions that they're
23 running use MBT and they run these reactions at,
24 I'm assuming, a certain heat and pressure. They

1 will run those -- they would run those in
2 equilibrium with whatever product that they want
3 to make. Through that, they could further -- I'm
4 just going to say run their reaction, but run --
5 but change the equilibrium that the MBT on one
6 side could be far less or possibly eliminated. It
7 would get more products and reduce MBT.

8 **Q. Now, are you familiar -- you did**
9 **identify it here on the chart, but are you**
10 **familiar with tertiary nitrification?**

11 A. Yes.

12 **Q. What is tertiary nitrification?**

13 A. Tertiary nitrification would be if
14 you had -- would be past the secondary clarifier
15 in this case or past any point where there would
16 be no more MBT in this case that they could then
17 nitrify the wastewater which up to that point
18 contains -- contains ammonia and nitrify that out.
19 The ammonia would change to nitrogen and bubble
20 out.

21 **Q. You mentioned potentially providing**
22 **this after the secondary clarifier and I do want**
23 **to talk about that possibility, but let's back up**
24 **a little bit into the waste stream and let's talk**

1 **about the waste stream coming from Mexichem.**

2 A. Okay.

3 **Q. Are you aware of whether or not**
4 **tertiary nitrification methods could be applied to**
5 **the waste streams coming from Mexichem?**

6 A. They could be applied in that way.
7 What they would do -- they would actually just
8 nitrify almost in the same way that they're doing
9 currently, at least the way they're setup
10 currently, but without the MBT coming from
11 Mexichem's waste stream or more specifically the
12 waste stream in the PVC tank. Since that wouldn't
13 have MBT, I would find no reason that they
14 wouldn't be able to nitrify it and get rid of the
15 ammonia.

16 **Q. And we did mention tertiary**
17 **nitrification. Would other alternatives prior to**
18 **the PVC tank achieve nitrification, if you know,**
19 **with respect to Mexichem's waste stream?**

20 A. To get rid of the ammonia or what
21 could be turned into ammonia from the PVC tank,
22 that would probably be the best way to do it.

23 **Q. And what was that way you were**
24 **saying?**

1 A. The tertiary nitrification.

2 **Q. And why would it be the best way?**

3 A. There aren't a lot of other systems
4 that would specifically break down the ammonia
5 that would be both technically feasible and
6 economically reasonable.

7 **Q. Now, Mr. Liska, we talked a little**
8 **bit about these bioreactors.**

9 A. Yes.

10 **Q. And I think they have been**
11 **synonymously called during these hearings**
12 **biotreaters?**

13 A. Yes, I say bioreactor because that's
14 what they have on their sheet here.

15 **Q. Okay. And is in the secondary**
16 **treatment column, right?**

17 A. Yes.

18 **Q. Now, would it be able -- scratch**
19 **that.**

20 **Would you be able to achieve**
21 **nitrification in these bioreactors?**

22 A. In absence of MBT, yes.

23 **Q. What about the bioreactors that are**
24 **not being used?**

1 A. They could -- once they are up and
2 operational prior to MBT being taken -- being
3 removed, they would not be able to nitrify.
4 However, if they were I want to say re-piped so
5 after the secondary clarifier were to --

6 **Q. Let me back you up there.**

7 A. Sure.

8 **Q. You're looking at the secondary**
9 **clarifier, the circle -- furthest circle to the**
10 **right on the secondary treatment column second**
11 **from the top, right?**

12 A. Yes.

13 **Q. Okay. You said piping from the**
14 **secondary clarifier, right?**

15 A. Yes.

16 **Q. What would you do with that piping?**

17 A. We would simply reverse it. Instead
18 of going from the primary clarifier, to the
19 bioreactors, to the secondary clarifier, it would
20 go from the primary clarifier, to the -- in this
21 case, the north bioreactors, skip the rest of the
22 bioreactors, go to the secondary clarifier and
23 then go back to the east center and west clarifier
24 which, at that point, there would be -- past the

1 secondary clarifier there would be no more MBT and
2 those could nitrify.

3 They could also do it in a
4 second way. If they put a baffle system in each
5 one of these four and ran all four of them the
6 same, they would go from the primary clarifier to
7 the first half of each one. It could be in series
8 or parallel.

9 **Q. When you say each one --**

10 A. Each of the four bioreactors.

11 **Q. Okay.**

12 A. Then to the second clarifier and
13 then back to each one, but the --

14 **Q. When you say -- I'm sorry. Let me**
15 **back you up.**

16 A. Yeah, I keep saying --

17 **Q. You -- I've looked at this map. I**
18 **understand what you're saying, but folks may not.**

19 **You would -- would you have to**
20 **change the bioreactors in any way to achieve any**
21 **kind of nitrification?**

22 A. Well, they would -- they would
23 definitely have to be all working again for one
24 thing. In the first case I mentioned, there would

1 be very little change because they would still run
2 as they are and just using just the north one
3 prior to secondary clarifier and just the other
4 three post secondary clarifier.

5 In my second case, they would
6 have -- there would be an added amount because
7 they would have to do the baffle system in each
8 one of them. However, as we have been told in the
9 last two days, the other three are -- still need
10 to be worked on and the north one needs to -- will
11 in the future -- in the near future need to be
12 worked on. In that case, they could -- in order
13 to save possibly a substantial cost, they can add
14 these systems while they're refurbishing them.

15 **Q. And you would need -- how would you**
16 **have to refurbish -- I mean, to achieve**
17 **nitrification, you have to add some kind of fixed**
18 **fill media or bugs to these bioreactors, is that**
19 **fair?**

20 **A. Yes.**

21 **Q. I wanted to make sure. Let me take**
22 **you back to the first scenario that you mentioned.**
23 **We kind of have to go slow because we're trying to**
24 **make a record.**

1 A. Sure.

2 Q. The first option you've recommended
3 is to -- correct me if I'm wrong. Piping in the
4 secondary clarifier, bringing the waste stream
5 back through one of the currently unused
6 biotreaters that have now been refurbished with
7 some type of fixed fill media, is that what you
8 were saying?

9 A. Right. That would serve for the
10 bugs, per se, so that they would nitrify the
11 ammonia.

12 Q. Would that be -- would you consider
13 that a tertiary nitrification?

14 A. Yes, that is a form of tertiary
15 nitrification.

16 Q. Have you seen this before in other
17 facilities?

18 A. Yes, just about any industrial
19 facility as well as municipal facilities that have
20 BOD and ammonia in their discharge will use this
21 type of nitrification to lower their BOD and their
22 ammonia in the discharge. It is very common.

23 Q. Now, Mr. Liska, what if -- what if I
24 were to say, "Well, I'm planning on using these

1 **biotreaters for more capacity." You mentioned a**
2 **second opening, is that right?**

3 A. Yes.

4 **Q. And you mentioned a backfill system?**

5 A. Yes.

6 **Q. Tell us about that.**

7 A. If you baffled each section to make
8 it essentially two -- it would be essentially two
9 half circles in each one, one -- you would
10 have -- you would have one side on each one be
11 secondary -- work -- not secondary, but work as
12 they're -- as the north biotreater is working now.
13 So there would be no change in that.

14 Then after you go to the
15 secondary clarifier, you would then run it back
16 through, but run it on the other side which does
17 not have -- which would then not have MBT. That
18 would then nitrify the ammonia prior to -- prior
19 to -- well, prior to the sand filter and then
20 discharge.

21 The -- the -- in both cases --
22 in the first case, you would -- the permitter --
23 permittee mentioned that they would -- they would
24 have problems with not having enough treatment

1 while the north biotreater was being refurbished.

2 However, in this case, you would still --

3 MR. DIMOND: I'll object that does
4 not state any testimony. There is no testimony to
5 support of what Mr. Liska just said. We didn't
6 say it.

7 MR. GRADELESS: If it's your
8 understanding, Mr. Liska, that's fine. We don't
9 intend to misstate the testimony.

10 HEARING OFFICER WEBB: Go ahead.

11 BY THE WITNESS:

12 A. There would still -- by allowing all
13 four of them to be able to do both secondary and
14 tertiary nitrification at the same time taking any
15 one of those four out it will -- it will still
16 give enough capacity to both do secondary and
17 tertiary nitrification to completely nitrify the
18 ammonia in the discharge and discharge with little
19 to no ammonia in their discharge.

20 BY MR. GRADELESS:

21 **Q. How does the petitioner compared to**
22 **other industrial -- how does their waste stream**
23 **compare to other industrial facilities after the**
24 **secondary clarifier?**

1 A. After the secondary clarifier where
2 they have no more MBT, their discharge is
3 substantially similar to just about any other
4 industrial facility that has biological such as
5 food or other chemicals industries that does not
6 have nitrogen -- nitrifying inhibition. In fact,
7 it could also be similar to municipal wastewater
8 after -- that would not have any nitrifying
9 inhibition.

10 **Q. You mentioned this sort of baffling**
11 **system.**

12 A. Mm-hmm.

13 **Q. Have you ever seen this before?**

14 A. Yes.

15 MR. DIMOND: I'm -- I'm going to
16 agree it is a baffling system.

17 BY MR. GRADELESS:

18 **Q. But the system you've discussed,**
19 **Mr. Liska, tell me about it. Have you seen a**
20 **similar system?**

21 A. It's in a lot of systems throughout
22 Illinois and one in particular I can recall is for
23 ExxonMobil Joliet refinery. They're obviously in
24 Joliet, Illinois. They discharge to the Des

1 Plains River just prior to it mixing into the
2 Illinois River and they also -- their ammonia
3 limits fall under 304.122(b) limits that are the
4 same ammonia limits that this facility fall under.
5 They have the same -- they -- in the last 10 to 15
6 years added this system to their nitrification
7 system, overall treatment system, and specifically
8 the nitrifying part.

9 **Q. Sorry. When you say they, who are**
10 **you referring to?**

11 A. I'm sorry. ExxonMobil at their
12 Joliet refinery. They were able to add this
13 system and through it --

14 **Q. Let me stop you.**

15 A. Sure.

16 **Q. Let me back you up a little bit. We**
17 **will talk about that in a second. But getting**
18 **back to the tertiary nitrification scenarios, you**
19 **mentioned that -- let's take it back to scenario**
20 **one. It seemed much simpler to me.**

21 You would believe that after the
22 secondary clarifier, some form whether it be
23 recycling a bioreactor or separate and distinct
24 tertiary nitrification, those systems could

1 **achieve, in your opinion, the 3 and 6 ammonia**
2 **limits?**

3 A. Yes.

4 Q. **Have you described this to the**
5 **petitioner?**

6 A. Yes.

7 Q. **And what happened when you described**
8 **this to the petitioner?**

9 MR. DIMOND: Objection as to
10 foundation. There is no indication as to when he
11 did this.

12 BY MR. GRADELESS:

13 Q. **When did you describe this to the**
14 **petitioner?**

15 A. In a meeting with them. I believe
16 it was sometime in mid-2019.

17 Q. **And at the meeting when you**
18 **described this type of meeting to the petitioner,**
19 **what happened?**

20 A. They seemed to almost know that this
21 was possible and that they would possibly --
22 either known that this was possible or that maybe
23 that -- possible they would look into it.

24 Q. **Okay. Did they ever reach out to**

1 **you afterwards and say that they looked into it?**

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

3 **Q. You mentioned ExxonMobil?**

4 A. ExxonMobil.

5 **Q. Sorry. Are you familiar with the**
6 **adjusted standard case in R97-28?**

7 A. Yes.

8 **Q. You had mentioned that the**
9 **ExxonMobil facility -- can you describe that for**
10 **us?**

11 A. It is an oil refinery. They use --
12 they refine roughly 250,000 barrels of crude oil
13 per day. They have -- their discharge -- their
14 process wastewater discharge has -- is very high
15 in BOD and ammonia and they -- at times they have
16 had problems with nitrification.

17 **Q. Now, are you -- are you aware of**
18 **whether or not ExxonMobil had nitrification**
19 **inhibitors?**

20 A. It is believed that they do have at
21 times nitrification inhibitors. By refining
22 gasoline, gasoline isn't just one chemical that we
23 call gas. The gas that you put in your car is
24 probably easily a thousand different chemicals.

1 At times, ExxonMobil would have problems with
2 their nitrification where they -- it would work
3 for a little while and then suddenly due to a
4 possible refinery change as they change -- all
5 refineries will change the amount they're refining
6 of different types of chemicals be it gasoline,
7 diesel.

8 **Q. Let me slow you down.**

9 **A. Sure.**

10 **Q. I was just wondering if they had**
11 **other nitrification inhibitors?**

12 **A. Yes.**

13 **Q. Okay. Perfect.**

14 MR. DIMOND: I'm going to object on
15 foundation to that. There is no foundation that
16 he knows anything about the internal workings of
17 the ExxonMobil plant or what is in the wastewater.

18 HEARING OFFICER WEBB: It sounded
19 like he did. I would -- you can follow up in your
20 cross-examination, but --

21 BY MR. GRADELESS:

22 **Q. Yeah, I don't need to -- I have been**
23 **hearing that nitrification inhibitors are sort of**
24 **this, you know, magic dust that you can't achieve**

1 nitrification and I've heard that for two days
2 now.

3 Do you know whether or not
4 ExxonMobil had an adjusted standard?

5 A. ExxonMobil had several adjusted
6 standards throughout their -- throughout their
7 existence at the Joliet refinery.

8 Q. And what is the story now?

9 A. As of roughly 2010 after they
10 upgraded their treatment plant, they were able to
11 meet 3/6 limits. As of 2010, they have no longer
12 had an adjusted standard and they can meet the 3/6
13 limits put forth in 304.122(b).

14 Q. And that's the same limits that are
15 at issue today?

16 A. That is the same limits that are at
17 issue at the Henry plant.

18 Q. And you had talked about a
19 baffling -- a potential baffling system.

20 A. Yes.

21 Q. It may be baffling to some folks,
22 but at least you understand what -- what you were
23 referring to, is that right?

24 A. Yes.

1 Q. And is this the same type of system,
2 if you know, that was installed in ExxonMobil?

3 A. Yes.

4 Q. ExxonMobil understood the baffling
5 system?

6 A. Yes, they did. They must have.

7 Q. There is other cases. Are you
8 familiar with Citgo?

9 A. Yes.

10 Q. What is Citgo?

11 A. That is another refinery very
12 similar to ExxonMobil.

13 Q. Okay. Are you familiar with what
14 they did? Did they have nitrification inhibitors?

15 A. They also had problems with
16 nitrification leading to them getting adjusted
17 standards for the 304.122(b). They're also under
18 that because they discharge to the Sanitary and
19 Ship Canal which is defined under that waterway
20 that is -- that is -- falls under the 342 --
21 304.122(b) statutes.

22 Q. Are you familiar with -- I may have
23 missed it.

24 Did they add a new system? Are

1 you familiar with -- I'm sorry. Let me scratch
2 that.

3 What, if any, type of treatment
4 did Citgo use?

5 A. They use a system that is very
6 similar to ExxonMobil's.

7 Q. And are you aware of whether or not
8 they got within the statutory limits now?

9 A. They now no longer have an adjusted
10 standard for 304.122(b). They now meet the 3/6
11 limits.

12 Q. Mr. Liska, I want to show you what
13 has already been entered into evidence as
14 Petitioner's Exhibit 15. I don't know if you have
15 a copy.

16 A. This one?

17 Q. That's it.

18 A. Great.

19 Q. Can you please identify your
20 understanding of Petitioner's Exhibit 15?

21 A. This is data showing MBT levels it
22 looks like from May 1st, 2019, to May 31st, 2019.
23 MBT levels at the PC tank, primary clarifier and
24 secondary clarifier.

1 **Q. Okay. And is your understanding**
2 **that these -- the PC tank, the primary clarifier**
3 **and the secondary clarifier are also depicted in**
4 **State's Exhibit 4, the flow diagram?**

5 A. Yes.

6 **Q. Now, what is the numbers under the**
7 **secondary clarifier?**

8 A. All the numbers in the table on the
9 left list the secondary clarifier as zero.

10 **Q. What does that mean?**

11 A. That would mean that there is no MBT
12 after the secondary clarifier.

13 **Q. Okay. When did you receive this**
14 **information from the petitioner?**

15 A. I believe I received it from you.
16 Obviously, it was passed May 31st, 2019. I cannot
17 remember exactly, but it was pretty recent because
18 otherwise we wouldn't have this data.

19 **Q. When was the first time you were**
20 **made aware of there is no more MBT showing up in**
21 **the secondary clarifier?**

22 A. It would be through this data.

23 **Q. That you received just recently?**

24 A. Yes.

1 Q. Within the last year?

2 A. Yes.

3 Q. Let me -- I'm through with that.

4 You can set that down.

5 A. Okay.

6 Q. Mr. Liska, directing you back to
7 State's Exhibit 4. I want to direct you now to
8 the other -- the back page. The one that does not
9 have an exhibit sticker.

10 A. Okay.

11 Q. Do you know what this flow diagram
12 represents?

13 A. Yes, this would be -- well, as it
14 says, sources of their wastewater and what parts
15 of their plant uses each -- uses each stream.

16 Q. When you say plant, you mean the
17 Henry plant in Henry, Illinois?

18 A. The Henry plant totaled, both
19 Mexichem and Poly- -- Mexichem and Emerald.

20 Q. Okay. And it's a fair and accurate
21 representation of the flows as you understand
22 them?

23 A. Yes.

24 Q. Who -- when was the first time you

1 **saw State's Exhibit 4?**

2 A. All of it? That would be during the
3 very first time I -- that I reviewed their permit,
4 their NPDES permit.

5 MR. GRADELESS: At this time, the
6 State moves into evidence State's Exhibit 4.

7 MR. DIMOND: I don't have any
8 objection.

9 HEARING OFFICER WEBB: The Agency's
10 Exhibit 4 is admitted.

11 MR. GRADELESS: Okay.

12 BY MR. GRADELESS:

13 Q. **Mr. Liska, set State's Exhibit 4**
14 **down for just a moment.**

15 A. Mm-hmm.

16 Q. **Is it my understanding were you part**
17 **of a group that assisted in providing the Agency's**
18 **official recommendation in this case?**

19 A. Yes.

20 Q. **As a part of that group, it is my**
21 **understanding -- what did you do?**

22 A. We looked over the last adjusted
23 standard as well as worked with what we had
24 received since then and made recommendations

1 for -- for what we would do as a new adjusted
2 standard.

3 Q. Have you reviewed the April 17th,
4 2018, report from Emerald Performance Materials --
5 and I will submit to you that that is Petitioner's
6 Exhibit 11.

7 Let us know if you've seen that
8 document before, Mr. Liska.

9 A. Yes.

10 Q. And you had an opportunity and
11 chance to review that document?

12 A. Yes.

13 Q. I want to direct your attention to
14 the granulated active carbon alternative that was
15 reviewed.

16 What, if anything -- what was
17 the granulated active carbon alternative?

18 A. From -- from this, they reviewed
19 whether granulated activated carbon could be used
20 as treatments for helping with nitrification
21 inhibition and they tested it on the wastewater.
22 I believe that was the combination of the C-18
23 tank and the PC tank, but prior to the PVC tank.

24 Q. Now, how, if in any way, was that

1 **relevant to you?**

2 A. It had some relevance to it. We --
3 we did want to see what the results would be if
4 granulated activated carbon were -- were used as
5 treatment at that particular point. We also would
6 have liked to have seen it if that had been used
7 at other points throughout the treatment plant.

8 **Q. Why would you want to see whether or**
9 **not that would be of any use after the treatment**
10 **plant?**

11 A. At different points throughout the
12 treatment plant be it the clarifier, the
13 flocculation, either clarifier or anything there,
14 you would have a different constituent that is in
15 the wastewater and having different constituents
16 in the wastewater could greatly affect the
17 performance of the granulated activated carbon.

18 **Q. Were there any -- was there anything**
19 **else that you found relevant about the granulated**
20 **active carbon alternative?**

21 A. They -- let's see. They tested it
22 at one point for -- at 100% of the time. We would
23 have also liked to see it in combination with
24 other treatments such that maybe they would not

1 have to use the granulated carbon all the time.

2 Q. And was that analysis provided?

3 A. The one I just described?

4 Q. That's right.

5 A. It was not.

6 Q. Okay. Thank you, Mr. Liska. I want
7 to -- there is one thing I wanted to go back to.

8 We did talk about the ExxonMobil
9 adjusted standard case. Do you remember just
10 talking about that a second ago?

11 A. Yes.

12 Q. Do you remember -- I mean, do you
13 remember what exactly the permit numbers were?

14 A. Permit numbers?

15 MR. DIMOND: Objection. Vague.

16 MR. GRADELESS: I'm sorry. That's
17 fair.

18 MR. DIMOND: Vague as to numbers.

19 MR. GRADELESS: You're right.

20 BY MR. GRADELESS:

21 Q. Do you remember exactly what the
22 permit -- what the limits were in ExxonMobil, the
23 adjusted standard limits?

24 A. For ammonia?

1 Q. Yes.

2 A. I believe after that last one that
3 they had the limits were 8 milligrams average, 26
4 max mg/L.

5 Q. And sitting here today, is it fair
6 to say you now believe that they meet the 3/6
7 limitations?

8 A. Yes.

9 Q. And if you weren't sure -- if that
10 weren't true, what would you do to go verify that?

11 A. I would look at the DMR data.

12 Q. Okay. Same with the Citgo case, do
13 you remember what the adjusted standard was, the
14 specific numbers?

15 A. I want to say it was close to
16 ExxonMobil's, but I don't remember exactly.

17 Q. Now, Mr. Liska, there's been a lot
18 of talk about field application.

19 Are you familiar with field
20 application?

21 A. Yes, I'm -- I do lots -- many, many
22 permits, easily over 100, of spray irrigation and
23 land application of sludge, of industrial sludge
24 in Illinois.

1 Q. Over 100 -- I'm sorry. Over 100
2 what?

3 A. Over 100 operating permits, state
4 operating permits, for this.

5 Q. They allow field application in
6 Illinois?

7 A. Yes. Of industrial sludge, yes.

8 Q. And what about any municipals, if
9 you know?

10 A. We also allow -- we also permit.

11 MR. DIMOND: I'm going to object on
12 foundation. He is in the industrial waste
13 treatment -- the industrial permitting. He says
14 that he's not in the municipal waste permit
15 section. So I don't know how he would have
16 foundation for that.

17 MR. GRADELESS: If he knows.

18 HEARING OFFICER WEBB: Yeah, you
19 can -- overruled.

20 BY THE WITNESS:

21 A. The municipal section does allow for
22 the land application of municipal sludge in
23 Illinois.

24

1 BY MR. GRADELESS:

2 Q. Okay. And are you aware of any
3 specific municipalities?

4 A. Specific municipalities?

5 Q. That have field applications.

6 A. It would be most of the larger ones
7 because that's the most cost-effective way to get
8 rid of it. In particular around here, it would
9 definitely be the Peoria Sanitary District. I
10 made sure to look at their NPDES permit and, yes,
11 they do allow for it.

12 Q. So the Peoria Sanitary District,
13 they field apply their waste stream?

14 A. Yes.

15 Q. Do you remember seeing that
16 mentioned in Mr. Flippin's report?

17 A. No, I don't remember him saying
18 that.

19 Q. Okay. Do you know of any other
20 chemical companies in the State of Illinois that
21 field apply?

22 A. Yes, I know that AkzoNobel
23 Chemicals, they have a new name now but I can't
24 recall what it is, but AkzoNobel Chemicals in

1 Morris, Illinois they spray irrigate their
2 wastewater.

3 **Q. Okay. What is significant about**
4 **AkzoNobel Chemical?**

5 A. They -- they are under the federal
6 categorical standards 40 CFR 414, which is the
7 same as -- which is the same category that the
8 Henry plant waste water discharges under.

9 **Q. Did you have the opportunity to**
10 **reveal -- review the field application alternative**
11 **in this case?**

12 A. Yes.

13 **Q. Did you receive a study from the**
14 **petitioner in this case?**

15 A. The initial study they gave us told
16 us that it was not permissible by the industrial
17 unit to do that. They haven't mentioned it
18 today -- in these last two days. They gave a
19 second study that showed -- gave their reasons for
20 why they wouldn't -- why it would not be
21 cost-effective for them to do it.

22 **Q. Okay. When you say a study, what do**
23 **you mean by a study?**

24 A. They -- it's in one of these that

1 they gave at least a few paragraphs where they
2 said what they considered. I believe it was also
3 possibly Mr. Flippin or one of them that also went
4 over in their testimony yesterday of all they
5 considered when considering spray irrigation.

6 **Q. Okay. And what, if anything, did**
7 **you find relevant with respect to what was**
8 **considered in this case?**

9 A. Well, I didn't really agree with
10 how -- with -- with the -- with how it was
11 conducted. For example, he considered spraying on
12 only 80 acres that the permittee owns. However,
13 in the vast, vast majority of cases of industrial
14 discharge -- industrial spray irrigation, the
15 permittee does not own the land. They go out to
16 local farmers and will have them spray irrigate.

17 He only had his calculations
18 based on 80 acres when in most cases when they
19 spray irrigate, it is over -- over hundreds and
20 hundreds and in some cases over several thousand
21 acres. By doing that, that solves some of the
22 other problems he mentioned. He mentioned that
23 there was high salt loads although he didn't
24 mention what type of salt. He mentioned high salt

1 loads in the waste -- in the spray irrigation
2 discharge. Had he calculated over hundreds or
3 thousands of acres, that would have mitigated the
4 loading and not caused a problem.

5 He also mentioned that there was
6 a substantial cost of diluting the water --
7 diluting the spray irrigation wastewater with
8 river water. However, if he had calculated over a
9 much larger area, that would not have -- would not
10 be necessary and the cost of that would not be
11 there.

12 **Q. How many adjusted standard cases are**
13 **you familiar with?**

14 A. How many?

15 **Q. Let me back up. How many have you**
16 **been involved with?**

17 A. Substantially, in three.

18 **Q. Okay. And when you say**
19 **substantially in three, what do you mean?**

20 A. Where I gave a large amount of time
21 doing them. There was one or two in the very
22 beginning of my working here that I was involved
23 in, but I didn't really work very much on them. I
24 just -- it was kind of more of a learning thing.

1 Q. Have you ever seen -- we talked a
2 little bit about the Mexichem waste stream feeding
3 into petitioner's waste stream, do you remember
4 that discussion?

5 A. Mm-hmm.

6 Q. Now, in your history at the Agency,
7 have you ever seen the scenario where one company
8 fed in their waste stream into a second company
9 that had an adjusted standard?

10 A. As far as both the three that I've
11 worked with, but also as far as all the adjusted
12 standards that were already applicable that I --
13 that I -- where I was renewing or modifying their
14 NPDES permit, of those, I've seen dozens and
15 dozens of them.

16 Of all of those, I have never
17 seen where a second company fed into -- fed a
18 wastewater that contained the parameter that they
19 needed an adjusted standard for where they fed
20 that parameter into -- into the permittee's waste
21 stream that had the adjusted standard.

22 Q. Mr. Liska, I want to talk to you a
23 little bit about the recommendation that the
24 Agency provided in this case and that you provided

1 **input in, are you comfortable with that?**

2 A. Yes.

3 **Q. You don't need a break?**

4 A. No.

5 MR. DIMOND: Your Honor, I think we
6 could use a brief break. We're having some
7 technical difficulties.

8 (Whereupon, a break was taken
9 after which the following
10 proceedings were had.)

11 HEARING OFFICER WEBB: We're back on
12 the record after a short break. Let's continue
13 with the direct examination.

14 BY MR. GRADELESS:

15 **Q. Mr. Liska, I'd like you to take a**
16 **look at what has been admitted into evidence as**
17 **Petitioner's Exhibit 14.**

18 A. Okay.

19 **Q. Can you identify generally your**
20 **understanding of Petitioner's Exhibit 14?**

21 A. We have low, average and maxes of
22 average and daily max ammonia as far as
23 concentration and load from 2013 through 2019.

24 **Q. A lot of talk was -- there is a lot**

1 of talk about Illinois EPA's recommendation No. 1
2 in calculating various numbers, do you remember
3 hearing that?

4 A. Yes.

5 Q. Were you involved in that process?

6 A. Yes.

7 Q. Okay. Tell us how the Illinois EPA
8 calculated -- let me back this up.

9 It's your understanding that the
10 Agency is recommending a complete denial of this
11 adjusted standard, is that right?

12 A. Yes.

13 Q. Now, what is your understanding then
14 of the recommendation 1 with respect to the limits
15 that the EPA --

16 MR. DIMOND: I'm going to object.
17 This is duplicative. Mr. Twait already testified
18 about this. We've actually established how all of
19 them were calculated with one exception and that's
20 load limit for the 30-day average. So if he wants
21 to have him testify about that, that's not
22 duplicative. Anything else is duplicative.

23 MS. ZEIVEL: The Agency stated at
24 the time that we intended to have Mr. Liska

1 testify as to the basis of the recommendations and
2 you chose to proceed with questioning Mr. Twait.
3 The Agency would like to present the witness that
4 we intended for the basis of the recommendation.

5 MR. DIMOND: Your interrogatory
6 answer said that Mr. Twait would support
7 recommendation No. 1 and we've already -- and this
8 is duplicative.

9 HEARING OFFICER WEBB: Well --

10 MR. GRADELESS: We already --

11 MR. DIMOND: We've established how
12 they were done.

13 HEARING OFFICER WEBB: I don't know.
14 So I'm going to allow it.

15 BY MR. GRADELESS:

16 Q. Mr. Liska, if you know, how did the
17 Board -- how did the Illinois EPA calculate its
18 ceiling recommendation of not-to-exceed a daily
19 maximum of 110 mg/L? Let's start there.

20 A. We used DMR data from the point that
21 I believe it was mid-2018 that they did -- when
22 the facility mentioned that they started changing
23 their process that we used data from that point
24 on, basically the maximum of what they had done at

1 that point.

2 **Q. Maximum concentration?**

3 A. For the concentration, yes.

4 **Q. Now, it also states, "And no more**
5 **than 553 pounds per day"?**

6 A. Yes.

7 **Q. Do you know how that number was**
8 **calculated by the Agency?**

9 A. What we did is we took all of the
10 load limit data going back as far as 2014. So
11 this would be 2014, '15, '16, '17, '18, '19 which
12 includes both periods of low flow and low
13 production as when this has previously said it
14 happened in 2019 as well as during full production
15 during 2018 and previously and for the maximum --
16 daily maximum we simply took the very highest
17 number over the last five years of data including
18 when they were at full production and held them to
19 that number.

20 **Q. Now, I thought September 2018 was**
21 **the highest production year?**

22 A. That -- that's what I thought I had
23 heard in the last two days, yes.

24 **Q. And you've seen no numbers higher --**

1 **since April 2014 higher than 553 pounds per day?**

2 A. I have seen no numbers higher than
3 that on the DMR's.

4 Q. We -- you also looked at
5 petitioner's 30-day average should not exceed 89.9
6 mg/L, do you remember how that number was
7 calculated?

8 A. Again, it was much like the maximum
9 concentration where we took it from mid -- from
10 when they had started in 2018 to make changes to
11 their process and we took the numbers from there
12 and took the maximum from there.

13 Q. Okay. Now, what about this
14 mysterious 475 pounds per day, this 30-day
15 average, how was that calculated?

16 A. The 30-day average load limit?

17 Q. That's right.

18 A. What we did there was, again, we
19 took from 2014 all of the data through both low
20 production times and through high production
21 times, we found the maximum pounds per day load in
22 our DMR data and from there we added an extra 10%
23 just to take into account if there was any other
24 loading problems, if there was any other -- if

1 there was any production problems, everything --
2 we added an extra 10% in our -- in my best
3 professional judgment as an engineer, we added an
4 extra 10% just in case they needed that, but we
5 took it from the last five years of data through
6 high and low production, the highest number they
7 had done in any of that DMR.

8 **Q. Are you familiar with how the**
9 **petitioner has calculated its -- the load limits**
10 **that it's petitioning for in this case?**

11 A. Well, from what they said --

12 **Q. When you say they, who do you mean?**

13 A. From what Mr. Dimond said
14 previously, they took what was the previous load
15 limits and just took 25 percent off of them. They
16 took no -- no DMR's into account. They took no
17 production numbers into account. They just took
18 what they had last time and arbitrarily used the
19 25 percent. He didn't say exactly why 25 percent
20 was the number, but they -- nevertheless, they
21 lowered it by 25 percent.

22 **Q. How would the load limits, if any,**
23 **affect the concentration level?**

24 A. The load limits are -- the load

1 limits could -- you could using the load limits
2 back calculate based on what the limit -- what the
3 load you had at that time and the flow of the
4 wastewater at the time. You could back calculate
5 the concentration using the same formula that
6 Mr. Dimond had mentioned earlier. So low limit
7 does have -- of course is at any one point load --
8 the load limit and the concentration are linked
9 through that formula.

10 **Q. If they're linked, then why was**
11 **the -- if you know, why was it still proposed to**
12 **be 140 mg/L in this case by the petitioner?**

13 A. I don't know. Since they have shown
14 the load limits -- since DMR data shows the load
15 limits lower and they calculated on their own
16 lower limits, I cannot find a reason why the
17 concentration limit could not be lowered as well.

18 **Q. Is concentration limits necessarily**
19 **related to production?**

20 A. Not necessarily.

21 **Q. Why do you say that?**

22 A. It depends on how they run their
23 production. If they are simply -- they have
24 mentioned high rates of production and low rates

1 of production. If they are simply running their
2 system the same way, but running either batch
3 processes -- they can run either as batch
4 processes or continuous processes.

5 If they are simply running less
6 batch processes or less -- or they're shutting off
7 their continuous process more often, then there
8 would be no difference between that because they
9 would still be doing the same process. They would
10 just have -- they would just be producing less,
11 but the same concentrations per batch or per
12 process length would still be the same.

13 MR. DIMOND: Could I ask that answer
14 be read back?

15 (Whereupon, the record was read
16 as requested.)

17 MR. GRADELESS: Are we just reading
18 this back to discuss and comment on the testimony?

19 MR. DIMOND: I'm trying to
20 understand.

21 HEARING OFFICER WEBB: Are you
22 requesting a clarification of the answer?

23 MR. DIMOND: I'm trying to
24 understand what the witness said. I can't make

1 heads or tails of it.

2 HEARING OFFICER WEBB: Can we try it
3 one more time?

4 THE WITNESS: Sure.

5 MR. GRADELESS: Go ahead, Mark.

6 BY THE WITNESS:

7 A. The question was about how --

8 BY MR. GRADELESS:

9 **Q. Production limits.**

10 A. -- production limits and
11 concentration could possibly be linked to each
12 other and whether concentration limits would
13 change with production.

14 My answer is that it is not
15 necessary -- not necessarily that a lower
16 production or raise in production would affect the
17 concentration of their ammonia.

18 **Q. Why?**

19 A. The reason for that is it depends on
20 how they're running their batch in continuous
21 processes. I will start for a particular batch
22 process. They -- they run it as a batch for a
23 certain amount of time and then they discharge it
24 and the discharge will have a certain

1 concentration of ammonia in it after it's been
2 through the system.

3 If they were -- if by low
4 production they are just simply running less
5 batches per day or per month, then there is no
6 difference in the actual reactions for them to
7 make their product.

8 They are simply running less of
9 them. So they would have -- each time they empty
10 their batch process, they would still have the
11 same concentrations of everything, but their load
12 limit would be less because they would -- each
13 slug of wastewater coming from each batch process
14 would still have the same concentrations. There
15 would just be less of them.

16 When you add them all up for the
17 day or for the month, you would get a lower
18 loading because there would be less overall
19 wastewater and we established previously that
20 wastewater flow is part of -- wastewater times
21 load limit is part of concentration. There would
22 be less loading, but since it's the same process
23 each time, the concentration of each individual
24 batch would be the same.

1 It would be the same for
2 continuous process except rather than running it
3 continuously for most of the month or however they
4 do it, it would be for less of the month. So you
5 would have less overall flow, but the same
6 concentration. That would lead to a lower load
7 limit, but the same concentration.

8 **Q. Okay.**

9 MR. DIMOND: Hearing Officer Webb,
10 I -- I took your overruling of our prior
11 objections and I did not object to Mr. Twait's
12 technical testimony. I didn't object to
13 Mr. Liska's technical testimony. None of this was
14 disclosed. None of this was disclosed as expert
15 testimony. None of this was pre-filed as
16 technical testimony as I think it should have been
17 pursuant to your adjusted -- pursuant to your
18 order and now we're hearing about this for the
19 first time at hearing.

20 Mr. Liska didn't testify to any
21 of this in his deposition. This is trial by
22 surprise and the Agency has failed to play fairly
23 in this proceeding. We put all of our cards on
24 the table. We put all of our testimony on the

1 table upfront. They come in here with a witness
2 who is testifying about things that have never
3 been disclosed in ways that I still don't
4 understand what Mr. Liska is saying.

5 We will do the best we can, but
6 I think this is very unfair to the Board. I think
7 it's very unfair to Emerald to admit this
8 testimony that was not disclosed as it should have
9 been on December 30th.

10 HEARING OFFICER WEBB: It was my --
11 I mean, the witness was disclosed and deposed?

12 MS. ZEIVEL: Yes.

13 MR. GRADELESS: Yes, they were
14 deposed by the petitioner. It's not our fault
15 they didn't ask the right questions.

16 MR. DIMOND: We didn't know --

17 MR. GRADELESS: That's how discovery
18 works.

19 MR. DIMOND: No. The Agency had an
20 obligation to pre-file technical testimony on
21 December 30th. They didn't do it. The Agency had
22 an obligation to have their witnesses prepared for
23 deposition.

24 MR. GRADELESS: No, we did not.

1 MR. DIMOND: Mr. Liska -- we had no
2 idea what he was going to testify on. He couldn't
3 even tell us what he was going to testify on. So
4 we are left getting testimony and supposed
5 evidence for the first time at hearing and the
6 whole process, I think, is very --

7 HEARING OFFICER WEBB: Would you
8 want to continue to re-depose him, continue the
9 hearing?

10 MR. DIMOND: We will muddle through
11 the best we can.

12 HEARING OFFICER WEBB: Okay. I
13 mean, as I've said before, the pre-filed testimony
14 is really for the Board to develop questions. I
15 mean, I'm comfortable with his testimony. He is
16 at a high level at the EPA and it sounds to me
17 like he knows what he is talking about. So I
18 think his testimony is helpful to the Board which
19 is what I'm considering. So I'm going to allow
20 you to continue.

21 BY MR. GRADELESS:

22 Q. There's been a lot of testimony in
23 the last day or two about cost per pound, are you
24 familiar with that metric?

1 A. Yes.

2 Q. **And tell me about that metric.**

3 A. It's simply defined as the cost per
4 pound of treating for any particular parameter
5 that you want. In this case, obviously, we've
6 been talking about the cost per pound to treat for
7 ammonia.

8 Q. **And what is your view with respect**
9 **to cost per pound?**

10 A. I'm not sure why we're talking about
11 the cost per pound of ammonia.

12 Q. **Why?**

13 A. Especially in an industrial setting,
14 it may be useful for normal -- for a municipal
15 discharge, but for an industrial discharge what we
16 should really be looking at is simply the cost to
17 treat the wastewater to its required limits. In
18 this case, the 3/6. If I were to give an example
19 of why costs per pound wouldn't work, let's
20 imagine Chemical X that any facility produces and
21 it produces one pound of that chemical.

22 Now, in order to treat for
23 that -- say one pound per day of that chemical.
24 In order to treat for that one pound per day

1 chemical, it would cost them \$50 on that day.
2 Now, under what I've mentioned something that
3 costs \$50 per day to treat to meet a limit would
4 not seem unreasonable at all.

5 Under the testimony given where
6 we're talking about costs per pound, the costs now
7 instead of what has been mentioned before as
8 \$1- -- higher than \$1.50 per pound is too much.
9 In this count -- in this case, it's now \$50 per
10 pound because it's one pound of it and it's 50
11 pounds -- and \$50 to do it.

12 So in that -- it's a more
13 extreme case, but in that case under a cost per
14 pound basis, it would not be -- it would not be
15 feasible to do because it would cost \$50 per
16 pound, which is 50 divided 1.50, a very high
17 multiple times more than the cost of one pound per
18 day -- \$1.50 per day. It would cost 50 pounds per
19 day -- \$50 per day for that one pound.

20 However, the total cost of
21 \$50 -- or it could be \$50 per month, the total
22 cost would obviously be very affordable. So when
23 we're talking about affordability and whether
24 something is both technically feasible and

1 economically reasonable, the economically
2 reasonable part we should be talking about total
3 cost and not costs per pound.

4 Q. I'm going to now discuss with you,
5 Mr. Liska, State's recommendation letter C.

6 A. Where is that at?

7 Q. I don't think you have a copy in
8 front of you.

9 A. I might not.

10 Q. But I can read it to you. Would
11 that help --

12 A. Sure.

13 Q. -- or do you need to see it?

14 A. Does anyone have a copy of it?

15 HEARING OFFICER WEBB: Is this an
16 exhibit number?

17 MR. GRADELESS: No, it's in the
18 recommendation.

19 HEARING OFFICER WEBB: Okay.

20 MR. GRADELESS: I can just show
21 him -- let me get it.

22 MS. ZEIVEL: Is this it? C, D?

23 MR. GRADELESS: Yeah.
24

1 BY MR. GRADELESS:

2 Q. I'm sorry. 3C. It's Page 7,
3 Mr. Liska. Just kidding.

4 A. 26 and 27?

5 Q. 3C.

6 A. Let me read through it real quick.

7 Q. Okay. It starts with "Within 90
8 days."

9 A. Okay.

10 Q. That recommendation states, "Within
11 90 days of the Board's order, given the effluent
12 from petitioner's second clarifiers contained
13 essentially no MBT and can be nitrified" -- and
14 actually this was a recommendation prepared --

15 A. In September of 2019.

16 Q. No. It was filed shortly after
17 petitioner's adjusted standard petition.
18 Petitioner must investigate and provide to the
19 Agency how much treatment capacity it needs prior
20 to and following secondary clarifiers to complete
21 nitrification.

22 Further, petitioner must
23 reconfigure its current treatment system.
24 Example, with low cost, economically reasonable

1 piping and bioreactor tanks to treat the effluent
2 after the secondary clarifier to achieve
3 nitrification?"

4 Were you involved with that
5 recommendation?

6 A. Yes.

7 Q. Can you describe why that was
8 recommended?

9 A. Since we know that tertiary
10 nitrification is possible now, we would need to
11 know how much capacity is required for that in
12 order to make any kind of determination for using
13 it. We would also -- we would want to know how
14 much capacity they have currently and if they get
15 these biotreaters all running again -- and we
16 would want them to reconfigure the treatment
17 system.

18 Since they have these extra
19 biotreaters that are not being used, they could
20 possibly in some way either through the two ways I
21 mentioned earlier or if someone else can figure
22 out a different way that could possibly work some
23 way to use that capacity and does that -- is the
24 total capacity enough to achieve the secondary and

1 tertiary nitrification that is needed or if, say,
2 a further tank needs to be used, we'd also like to
3 see if they have any extra spare tankage that they
4 could possibly use.

5 If they do that, that could
6 further lower costs for them as they wouldn't have
7 to build a new tank. They could just start from
8 there. As far as these tanks, since they're
9 already there, chances are very good that it will
10 cost far less --

11 MR. DIMOND: Objection. That's
12 speculation.

13 THE WITNESS: I'm using my judgment
14 from --

15 HEARING OFFICER WEBB: You can give
16 your opinion.

17 THE WITNESS: Okay.

18 BY THE WITNESS:

19 A. What I have found is that through
20 lots of construction permits that reconfiguring
21 old -- older equipment can quite often be far less
22 cost than adding new tanks and new nitrification
23 equipment.

24 BY MR. GRADELESS:

1 Q. So we're not proposing that the
2 petitioner add any new tanks at this point?

3 A. Right. But we need to know that
4 information how much capacity do they need before
5 we can make any further judgment on that.

6 Q. Okay. Going onto letter D. "Within
7 180 days of the Board's order, petitioner must
8 investigate and quantify the amount of ammonia and
9 MBT coming into the PVC tank, C-18 tank and the PC
10 tank and submit that data to the Agency.

11 Petitioner must propose methods to minimize these
12 parameters from each of these places within one
13 year along with a schedule to implement the
14 proposed changes."

15 Were you involved in assisting
16 with that recommendation from the Agency?

17 A. Yes.

18 Q. Why was that -- if you know, why was
19 that recommended by the Agency?

20 A. Well, throughout this -- these last
21 two days we have been talking about MBT, there is
22 no way to solve this problem without knowing where
23 it's all coming from and at what concentrations.
24 So that's why the first half of it is there.

1 Proposing methods to minimize these at each of
2 these places this would be -- since these are all
3 prior to the entire treatment system, minimizing
4 it prior to the -- before it even gets into the
5 treatment system, as has been mentioned in the
6 previous two days -- today and yesterday as far as
7 running reactions as far as they can and any other
8 process changes they can make, they have already
9 mentioned that they're proposing methods, they're
10 doing studies.

11 So we would like to hold them to
12 that that they try to minimize MBT before it even
13 gets to the treatment plant. That can have
14 substantial cost savings. They may be able to
15 minimize the amount of capacity they need in their
16 bioreactors or produce some other -- or some other
17 type of treatment such as granulated activated
18 carbon that wasn't feasible before may now
19 suddenly become feasible because it's treating far
20 less MBT.

21 **Q. Okay. I'm going to direct your**
22 **attention to Paragraph G. This one is with**
23 **respect to the spray irrigation study recommending**
24 **that when the petitioner can spray irrigate, the**

1 **suitability of their effluent on vegetation, cost**
2 **of implementing spray irrigation to the quantity**
3 **of land available to accept spray irrigation and**
4 **the ergonomic benefits of the spray irrigation --**

5 A. Agronomic.

6 **Q. Agronomic. Sorry. Why was that**
7 **recommended?**

8 A. As I mentioned earlier, many, many
9 places that have biological components to their
10 discharge, they will spray irrigate including
11 other chemicals -- at least one other chemical
12 plant that's under 40 CFR 414. So we have seen
13 that this can definitely work for other
14 industries. For each -- as for each section for
15 No. 1, we would need to know the basic weather
16 data and everything when they can expect to spray
17 irrigate. We need to know the suitability, what
18 is in their final effluent as far as parameters
19 that would be necessary for us to look at
20 specifically for spray irrigation, the costs of
21 implementing spray irrigation, of course, because
22 we have to make sure that the costs are
23 appropriate, quantity of land available. Again,
24 we -- we have all probably seen the Henry plant on

1 Google Maps. There is lots of lots of farmland
2 for them available and, of course, the agronomic
3 benefits of spray irrigation.

4 We need to -- part of the spray
5 irrigation program is that there is an agronomic
6 benefit. Through my experience of doing many,
7 many spray irrigation permits, the ammonia
8 nitrogen in their discharge would be of agronomic
9 benefit. So that is why we thought this would be
10 a good candidate for this.

11 **Q. And you're not -- are you suggesting**
12 **that the petitioner only spray irrigate?**

13 A. Not at all. Even all the other
14 facilities that it gets to be cold everywhere in
15 Illinois. Almost all of the facilities cannot
16 spray irrigate year around. So we realized that
17 it may not be an all-the-time solution. It could
18 be just during sometimes. In fact, a good time to
19 also possibly use it is while they're refurbishing
20 their bioreactors, especially if the big one is
21 down.

22 During the few months that
23 they're refurbishing that reactors, bioreactor,
24 they could spray irrigate. If they plan it right,

1 they can refurbish it during the summer, but
2 usually construction doesn't happen during winter
3 anyway. But they will refurbish it during warm
4 months and they can spray irrigate so that they
5 don't need the extra tankage that they have
6 claimed before that they would need during that
7 time that they're refurbishing.

8 **Q. Okay. Let's move onto Paragraph H,**
9 **Mr. Liska. This is talking about the bioreactors**
10 **and this sort of outlines a schedule for repairing**
11 **and maintaining and operating and investing in the**
12 **bioreactors at the Henry plant in the State of**
13 **Illinois, is that right?**

14 **A. Yes.**

15 **Q. Why are we -- why are -- I don't**
16 **mean we.**

17 **Why is the Agency recommending**
18 **this type of schedule?**

19 **A. Well, we know they have four**
20 **bioreactors. We know that at the previous**
21 **adjusted standard they had two running. Now, they**
22 **only have one running. So they have been kind of**
23 **going backwards on this. We know that through**
24 **tertiary nitrification they can treat for this and**

1 it is a very good possibility that they can use
2 their current ones for that. They have also
3 mentioned that they already have a plan going
4 forward to rehabilitate all four of them. So we'd
5 like them to stick to that plan that they have
6 already told us. We want --

7 **Q. I'm sorry. Have you seen that plan?**

8 A. They -- it was mentioned in their
9 2019 meeting with us.

10 **Q. You haven't seen it?**

11 A. I have not seen that plan. So we
12 would like to see the plan and we would also like
13 to -- we'd like it in the petition because we want
14 to make sure that we pointed out that we have to
15 be getting better than we were last time. Before,
16 we went from 2 down to 1. We need to get better
17 than 1 to get all of this working.

18 **Q. I want to direct your attention to**
19 **M, Mr. Liska.**

20 A. M?

21 **Q. Yes, M as in M&Ms. That was dumb.**

22 **"Petitioner must annually**
23 **investigate new production methods and**
24 **technologies that generate less ammonia and**

1 nitrification inhibitors in petitioner's
2 discharge. Where practicable, petitioner must
3 substitute current production methods or
4 technologies with new ones. So long as the
5 substitution generates less ammonia in the
6 petitioner's discharge."

7 What, if any, reasons were given
8 or discussed with respect to this recommendation?

9 A. Okay. Well, for the last 20 or so
10 years, we've been told there is no way to do it
11 differently and get -- not have MBT in their
12 discharge prior to entering the treatment plant.
13 In the last year and a half or so, we have found
14 out that isn't true. They can run the reactions
15 differently. So we would -- and they have also
16 mentioned that they are already conducting a
17 study. We would like to hold them to that study.
18 Furthermore, we would like to see them generate --
19 look at other technologies that will help them.

20 Now, that doesn't have to mean
21 in this case completely new ways to make the
22 chemical. It could be something as simply as
23 we're going to recycle some of the heat or some
24 other thing that is necessary to run the reaction.

1 That will save money or some kind of cost or
2 something so that now we can run it further with
3 no loss of economic reasonability.

4 So -- and that, in turn, will
5 lower the MBT and which -- to allow -- possibly to
6 a level that the MBT will -- less MBT will
7 generate less ammonia. So we would like to see
8 something like that, some type of optimization of
9 the plant so that they can run their reactions
10 better so that they can generate ultimately less
11 ammonia through generating less MBT in their
12 process.

13 **Q. Now, were you here when the hydrogen**
14 **peroxide was discussed?**

15 A. Yes.

16 **Q. Do you have any knowledge of**
17 **treating MBT with hydrogen peroxide?**

18 A. I do not. I had not heard of it
19 until here and reading it in Mr. Winters'
20 testimony. So we would definitely want to see the
21 possibility of that either around their process or
22 maybe in one -- it might be more appropriate in
23 one of these others where we're setting other
24 treatment methods.

1 Q. Okay. Looking at recommendation R
2 as in Rex.

3 A. Okay.

4 Q. "Petitioner must operate in full
5 compliance with the Clean Water Act, its National
6 Pollutant Discharge Elimination System permit, the
7 Board's water pollution regulations and any other
8 applicable permit."

9 Do you see that recommendation
10 there?

11 A. Yes.

12 Q. Is that just duplicative?

13 A. I don't think so.

14 Q. Okay. Now, tell us why that is just
15 not duplicative.

16 A. Well, the NPDES permit usually as --
17 it could possibly have more requirements which
18 would be -- could be very helpful to the Board or
19 possibly another Board partition and for us to
20 have more information the next time this goes
21 around -- I'd like to read an example from the
22 permit itself. I wrote this special condition,
23 but it has very specific language in it.

24 Q. Mr. Liska, if I were to show you a

1 copy of the petitioner's NPDES permit, would you
2 be able to recognize it?

3 A. Yes.

4 Q. And I don't intend to offer it into
5 evidence. I'm just going to have you identify it
6 and just refresh your memory if that's okay.

7 A. Okay.

8 MR. GRADELESS: I'm handing
9 Mr. Liska what I will propose to you as the NPDES
10 permit that Mr. Liska authored and is also the
11 NPDES permit for the petitioner if I cannot fall
12 down.

13 BY MR. GRADELESS:

14 Q. Mr. Liska, is that a fair and
15 accurate copy of the petitioner's NPDES permit
16 that you wrote?

17 A. Yes.

18 Q. And you were mentioning special
19 conditions?

20 A. Yes.

21 Q. What special conditions do you
22 believe are relevant that relate to the Agency's
23 recommendation R?

24 A. Specifically, it would be special

1 condition 15 which is titled Investigation of New
2 Treatment Technologies to Prevent Nitrification
3 Inhibition and Allow for Ammonia Reduction.

4 Q. And why would that be relevant to
5 State's recommendation R?

6 A. Well, we found it very relevant
7 throughout this last one. For example --

8 Q. Let me back you up.

9 A. Sure.

10 Q. When you say throughout this last
11 one, what are you talking about?

12 A. Throughout this last adjusted
13 standard and throughout the last permit cycle.

14 Q. Okay. For example, 15(a)(1) asks
15 that the permittee sample for MBT on a weekly
16 basis at the secondary clarifier. Without this
17 information, we would not have any data about
18 whether the -- whether there was MBT after the
19 secondary clarifier. That was something that was
20 not in the previous adjusted standard, but was
21 very -- very instrumental in what we've been doing
22 the last two days.

23 Another example would be Part B
24 and I'm going to read some of that just because

1 **it's very specific.**

2 MR. DIMOND: Is this 15B?

3 THE WITNESS: 15B and I will
4 actually read from B1.

5 BY THE WITNESS:

6 A. "The permittee shall evaluate the
7 effectiveness of the treatment equipment that is
8 already installed and investigate the optimization
9 of these units. The permittee shall also
10 investigate the mode of operation of the aeration
11 basins," which in this case are the bioreactors.
12 An aeration basin is just another way of saying
13 that. "But the mode of operation of the aeration
14 basins and consider the optimization of these
15 basins with respect to nitrification."

16 Now, to go through -- there is
17 kind of two halves of that. Evaluate the
18 effectiveness of treatment equipment that is
19 already installed, that would be a treatment such
20 as the bioreactors and the secondary clarifier.
21 We have gotten a wealth of information through
22 that and, in particular, investigate the mode of
23 operation of the aeration basins and consider the
24 optimization of these basins with respect to

1 nitrification.

2 This is where the permittee were
3 to have come up with a way of reconfiguring --
4 reconfiguring these bioreactors, for example, in
5 the two ways that I mentioned earlier through --
6 running it through the second three again or
7 through the baffle system in all four of them or
8 in another way that they can come up with, but as
9 far as I know none of that was done and we would
10 like that reflected through the adjusted standard
11 as well as through the NPDES permit.

12 BY MR. GRADELESS:

13 **Q. And is that to hold the petitioner**
14 **to what is found in their permit?**

15 A. Yes.

16 **Q. And, if you know, would that prevent**
17 **the petitioner, for example, if they were granted**
18 **an adjusted standard from now into eternity, would**
19 **that have impact if this condition were not in the**
20 **adjusted --**

21 A. It definitely would. We also have
22 to remember that whatever happens if an adjusted
23 standard is given to the permittee in the next few
24 months -- this permit ends in September of 2021.

1 So we need that in place, this 3R in place, so
2 that the next permit, the next one that replaces
3 this one and renews this permit any special
4 condition that I put in this permit, and kind of a
5 spoiler alert something similar to this will be in
6 it, but in a different way with our new -- now
7 that we have new data. So that anything we do in
8 the future to this permit can also be held with
9 the adjusted standard.

10 Q. I'm sorry. I misheard you. Did you
11 just mention a sunset provision? I literally just
12 didn't hear it.

13 MR. GRADELESS: Can I get a
14 clarification on the answer, if that term was
15 mentioned?

16 BY MR. GRADELESS:

17 Q. I don't have a paragraph for you,
18 but nonetheless the petitioner in this case, if
19 you're aware, has requested certain aspects of the
20 sunset provision, are you familiar with those
21 aspects?

22 A. Yes.

23 Q. What is your understanding, at least
24 as we sit here today, what has been requested by

1 **the petitioner?**

2 A. As far as I've seen, the petitioner
3 has requested that there be no -- no sunset
4 provision, that they are -- they -- any ammonia
5 relief they would get they would basically get
6 forever.

7 Q. And it's my understanding the Agency
8 has recommended that be denied, is that your
9 understanding?

10 A. Yes.

11 Q. And you were part of the group that
12 made that recommendation?

13 A. Yes.

14 Q. And the Agency said that it should
15 not be longer than five years, is that your
16 understanding of the recommendation?

17 A. Yes.

18 Q. Why should this sunset provision not
19 go away?

20 A. Okay. Well --

21 Q. It's in Paragraph's 2 and 3 of that
22 recommendation.

23 A. Okay. Throughout the last several
24 adjusted standards, despite everything we have

1 said, we have been seeing progress. Currently,
2 they have limits -- you know, the 110, 140, 841
3 pounds 1,633 pounds as a daily max. The one --
4 the adjusted standard prior to this those numbers
5 were higher in all -- in all those cases. Prior
6 to that, it was even higher than that.

7 So the petitioner has been
8 making progress and this one in particular, they
9 may make enough progress to not need it at all and
10 that is the goal. We would definitely want to
11 hold them to further progress over the years. We
12 want to hold them to have that progress so we can
13 revisit it each time with the wealth of new
14 information that we seem to get every five years
15 to make further recommendations. If we give them
16 no limit -- I'm sorry. Not no limit, but no
17 sunset clause and a limit in perp- -- forever.

18 **Q. Perpetuity.**

19 A. Yes. If we gave them a higher limit
20 forever, there would be no drive for them to make
21 any changes and -- and to improve the condition of
22 their wastewater.

23 **Q. Are you familiar with the**
24 **alternatives that were proposed in this case?**

1 A. Yes.

2 Q. Are these uncommon ways of treating
3 effluent wastewater?

4 A. No. In particular, the
5 nitrification -- tertiary nitrification and also
6 granulated activated carbon, they're extremely
7 common among chemical plants.

8 Q. Are you familiar with any design
9 standards at 35 Ill. Adm. Code 370?

10 A. I am familiar with them, yes.

11 Q. And what are those?

12 A. Those are standards for sewer works.

13 Q. And they're the same, similar,
14 standards that have been proposed as alternatives
15 in this case, is that right?

16 A. Yes.

17 MR. GRADELESS: One moment to confer
18 with Mr. LeCrone.

19 At this time, I do not believe I
20 have any other questions for Mr. Liska. I would
21 not mind a break.

22 HEARING OFFICER WEBB: I was -- you
23 read my mind. Okay. Let's take a five to
24 ten-minute break.

1 (Whereupon, a break was taken
2 after which the following
3 proceedings were had.)

4 HEARING OFFICER WEBB: Okay. Let's
5 go back on the record. We have just had a
6 conversation off the record. It does not appear
7 likely that we will be able to finish this hearing
8 today. So it has been decided and agreed to by
9 the parties that this hearing will continue in
10 Springfield on February 3rd and possibly
11 continuing into February 4th, if needed.

12 We will have subsequent
13 conversations about extending the public comment
14 deadline and extending the briefing deadline. So
15 I will ask on the record, does anybody have
16 anything they would like to say on the record
17 before we continue this hearing? We'll end for
18 today. We will pick up the hearing, I should
19 specify, on February 3rd with the
20 cross-examination of Mr. Liska.

21 Does anyone have anything they
22 would like to add before we go off the record for
23 the day? Seeing nothing, okay, this hearing is
24 continued until February 3rd in Springfield.

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Thank you, all.

1 BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

2
3 I, Steven Brickey, Certified Shorthand
4 Reporter, do hereby certify that I reported in
5 shorthand the proceedings had at the trial
6 aforesaid, and that the foregoing is a true,
7 complete and correct transcript of the proceedings
8 of said trial as appears from my stenographic
9 notes so taken and transcribed under my personal
10 direction.

11 Witness my official signature in and for
12 Cook County, Illinois, on this _____ day of
13 _____, A.D., 2020.

14
15
16
17
18 _____
19 STEVEN BRICKEY, CSR
20 8 West Monroe Street
21 Suite 2007
22 Chicago, Illinois 60603
23 Phone: (312) 419-9292
24 CSR No. 084-004675

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