BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED SITE SPECIFIC RULE	)	R14-24
FOR SANITARY DISTRICT OF	)	
DECATUR FROM 35 ILL. ADM.	)	(Site Specific
CODE SECTION 302.208(e)	)	Rule - Water)

REPORT OF PROCEEDINGS taken before HEARING OFFICER TIMOTHY FOX, by Lisa Hahn Peterman, CSR, RMR, a notary public within the County of Macon and State of Illinois, at the Decatur Civic Center, #1 Gary K. Anderson Plaza, Decatur, Illinois, on the 16th day of May, 2018, at 8:30 a.m.

BOARD MEMBERS PRESENT:

TIMOTHY FOX, Chairman

BRENDA CARTER, Board Member

CYNTHIA SANTOS, Board Member

ALISA LIU, Technical Unit

A P P E A R A N C E S:

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I N D E X

E X H I B I T S

HEARING OFFICER FOX: Good morning and welcome to the Illinois Pollution Control Board Hearing.

My name is Tim Fox, and I'm the Hearing Officer for this Rulemaking, which is entitled Proposed Site Specific Rule for Sanitary District of Decatur, from 35 Ill. Adm. Code Section 302.208(e), E as in Edward. The Board's docket number for this Rulemaking is R14-24.

Before we get under way, I do want to make some introductions of the folks that are here from the Board.

At my immediate right is our Board Member, Cynthia Santos, who is the lead Board Member for this docket, and at her right is Board Member, Brenda Carter. At my left, present from the Board's Technical Unit, is Alisa Liu.

This hearing today is governed by the Board's Procedural Rules. All information that is relevant and that is not repetitious or privileged will be admitted into the record.

Please bear in mind that any questions that are posed by the Board, the Board Members, or the Board Staff, are designed and intended solely

to complete a record and to clarify the record and don't reflect any decision on either the proposal or the testimony or any of the other questions that are raised today.

For the sake of our court reporter, I would ask you to do a couple of things, please. I think we'll be fine without relying on microphones, but if you could be conscious of your volume so that she can hear you easily and accurately, that would be great.

Also, if the first time you speak or pose a question, you would identify yourselves and provide her with a spelling of your surname, I know that would be helpful for her in preparing the record as well.

By way of background, briefly, I do want to review very fast that the Sanitary District of Decatur filed its Amended Rulemaking Proposal with the Board on November 30th of 2017. The Board published Notice of this hearing on March 2nd of 2018 in the Herald & Review of Decatur.

On February 28th, the Hearing Officer directed participants intending to testify at this hearing to prefile testimony by April 25th, and on

that date the Board received Prefiled Testimony on behalf of the Sanitary District of Decatur from six witnesses: Kent Newton, Timothy Kluge, Allison Cardwell, Robert Santore, Paul Bloom, and Robert Colombo, and no other participants or other witnesses have prefiled their testimony for this hearing today.

Although I had intended, as I reflected in my Hearing Officer Order, to begin today with the Prefiled Testimony, we do have one gentleman who has indicated that he would like to offer a public comment on the Sanitary District's Proposal. The gentleman's name is Ryan McCrady of the Economic Development Corporation, and in discussing briefly our order of hearing before we went on the record, we'll have Mr. McCrady step forward so that he -- in a moment -- step forward so that he can quickly offer a public comment. Then we will turn to the Sanitary District's Prefiled Testimony.

The Board's Procedural Rules again provide that the Prefiled Testimony is entered into the record as if it is read. However, if the Sanitary District wishes to offer an introduction or summary or other brief remarks, we can certainly

have them do that.

We will then turn to the questions for the Sanitary District's witnesses. The Board has prepared some questions for the Sanitary District's witnesses, put them in writing and shared them earlier this morning with the District's witnesses, and our intent was to at least begin by proceeding in numerical order through these as they're organized witness by witness.

After running through those questions and any others that any of the other participants may wish to ask, we can see whether anyone else wishes to offer a public comment, and I think in all likelihood at that point adjourn for the day.

Do we have any questions procedurally before we get under way?

Neither seeing nor hearing any, Mr. McCrady, I appreciate your willingness to step forward and offer a comment. If you would come down to the front and begin, we can have you offer that into the record right away.

MR. MCCRADY: Is this okay?

HEARING OFFICER FOX: I think the court reporter will hear you just great from there. That

should work.

MR. MCCRADY: Great.

My name is Ryan McCrady. It's R-Y-A-N, M-C-C-R-A-D-Y. I'm the President of the Economic Development Corporation of Decatur-Macon County, commonly called the EDC.

The EDC supports the Amended Petition for Site Specific Rule filed by the Sanitary District of Decatur with the Illinois Pollution Control Board on November 30th, 2017.

The EDC feels that the Sanitary District of Decatur has demonstrated that the site specific water quality standard it seeks will not adversely impact the Sangamon River and that aquatic life will be protected at least as well as protection offered by the existing general use chronic water quality standard for nickel.

Moreover, we aware of the Sanitary District's efforts to achieve compliance with the existing standard, as well as the efforts and studies undertaken by one of our largest industrial users, Archer-Daniels-Midland, and the potential costs associated with those alternatives. We note that ADM has already spent several millions of

dollars to reduce nickel concentrations in its discharge to the Sanitary District, that there are no other technically feasible and economically reasonable treatment options available to allow ADM to meet the nickel limit proposed by the Sanitary District for its effluent.

The EDC recognizes the valuable contribution both the Sanitary District and ADM provide to the local economy and the State of Illinois and strongly supports the District and ADM's efforts to continue operating their facilities in compliance with the Board regulations.

Furthermore, we know that ADM and the Sanitary District of Decatur have been good stewards of this community, they fill a significant social responsibility, and they've been good stewards of the environment during our time working with them here in the community.

Based on the foregoing, we recommend and request that the Board adopt the Sanitary District Site Specific Rule as proposed, and we appreciate the Board's consideration of our views and comments.

Thank you for allowing me time to speak this morning.

HEARING OFFICER FOX: Mr. McCrady, thank you for your comments, which, of course, have been transcribed into the record. We appreciate your time today.

MR. MCCRADY: Thank you.

HEARING OFFICER FOX: All right. Is there anyone else who wishes to offer a public comment before we move on to testimony and questions?

Neither seeing nor hearing anyone now, Ms. Hodge, Mr. Houser, I think we are prepared to move to any introduction or summary that you may wish to offer.

MR. HOUSER: Thank you, Mr. Hearing Officer, Board Member Santos, Board Member Carter, Ms. Liu. Good morning.

On behalf of the Sanitary District of Decatur, my name is Josh Houser of HeplerBroom, and we would like to begin by expressing our appreciation to the Board and its Staff for the time taken in reviewing our Proposal for a Site Specific Water Quality Standard and in scheduling

this hearing in Decatur.

We would also like to thank the Illinois EPA and its representatives for the considerable time spent during the development of this proposal and in coordinating discussions with the USEPA to get their input, so that should the Board adopt our site specific standard, we can all have comfort that USEPA should approve it expeditiously.

With me here today are a number of the District's representatives who have worked long and very diligently on this proposal. Those who are here to testify include, to my right, second to the right, Mr. Kent Newton, Executive Director and Chief Financial Officer of the Sanitary District, who will speak generally about the District and its efforts.

To his right is Mr. Tim Kluge, former Technical Director of the Sanitary District, who has graciously agreed to continue supporting the District's need for a site specific standard and will address the District's operations and efforts at mitigation.

Two more down at the very end is

Dr. Robert Colombo, Professor in the Department of Biological Studies at Eastern Illinois University, who has overseen extensive sampling of the Sangamon River for water quality and aquatic macro invertebrate, freshwater, and fish assemblages upstream and downstream of the District's main discharge point.

Mr. Robert Santore is third from the end there, partner with Windward Environmental, LLC, the environmental science and consulting company that has provided technical support in developing the District's site specific standard.

Let's see. To the right of Mr. Kluge is Ms. Allison Cardwell, Study Director from Oregon State University, who performed the detailed chronic toxicity studies on the Cladoceran Ceriodaphnia dubia that supported the work of Mr. Santore and Windward.

And, in addition, second from the end there, we have Dr. Paul Bloom, Vice President, Process and Chemical Research at Archer-Daniels-Midland Company here in Decatur, Illinois. He's here today and will provide testimony on ADM's diligent efforts in studying and

reducing nickel from its industrial wastewater discharge treatment process.

All of these individuals have prefiled their testimony and will be happy to discuss any of the topics addressed in their testimony or to answer any questions you may have.

Also, with me today representing the District, here to my right is Kathy Hodge; behind me here is Dan Siegfried; and behind me here is Melissa Brown of our firm.

Before we turn to the testimony, I would like to offer a very high level summary of why we're here today.

The Sanitary District of Decatur treats wastewater for the City of Decatur, nearby villages, and industrial and commercial users in the metropolitan area and discharges its treated wastewater into the Sangamon River. The District has an NPDES permit issued by the Illinois EPA that regulates and authorizes its discharges to the Sangamon River.

So as to comply with the Board's general use chronic water quality standard for nickel currently applicable to the Sangamon River,

the Illinois EPA established an effluent limit for nickel in the District's NPDES permit at 0.015 milligrams per liter measured as a monthly average. Unfortunately, for various reasons, the District has been and is unable to comply on a consistent basis with this discharge limit, and in an effort to maintain compliance with its permit and regulatory requirements, the District has explored numerous alternative compliance options.

In June 2009, the District petitioned the Board for a variance that would authorize continued discharges of nickel from the District's Main Plant into the Sangamon River while it explored these other options.

In January 2010, the Board granted the District's requested variance until July 12, 2014, subject to numerous conditions and a schedule for completing various tasks.

In February 2014, the District petitioned the Board for a one-year variance extension to allow it additional time to continue its investigation. In support of its request, the District noted that it had been actively collaborating with the Illinois EPA and USEPA in

the development of a site specific water quality standard for nickel, based on the Biotic Ligand Model, or BLM, adjustment to the nickel criterion.

In March 2014, the Board accepted the District's Petition for Extension and assigned a hearing officer to the proceeding.

Thereafter, based on continuing discussions with the Illinois EPA and USEPA, the District filed its original Petition for Site Specific Ruling in June 2014 and moved for a series of stays of the variance extension, which the Board granted, subject to the requirement to submit status reports.

On February 24, 2017, Public Act 99-937 was signed into law. This legislation created Section 38.5 of the Illinois Environmental Protection Act, which provides the Board with authority to adopt time-limited water quality standards. Pursuant to Section 38.5(c) of the Act, the District's pending variance petition in PCB No. 14-111 was converted by operation of law into a Petition for a Time-Limited Water Quality Standard. The current status of that proceeding is that the District has until December 31st, 2018, to file a

substantially compliant time-limited water quality standard petition, should it be needed, if this site specific rulemaking does not succeed.

In light of that procedural background and after several years of study and detailed scientific testing, the best option that brings us here today is the District's Proposal of a Site Specific Water Quality Standard for Nickel in the particular area near the District's discharge from its Main Plant.

It is important to note that with this site specific proposal, the District is not asking the Board for the ability to discharge nickel in amounts greater than the past discharges. Instead, the District is simply asking for a site specific rule that takes into account the factors set forth in Section 27(a) of the Illinois Environmental Protection Act, including the technical feasibility and economic reasonableness of future reductions of nickel in the District's discharges to the Sangamon River.

Prior to, and since the time of its original proposal for site specific rule in June 2014, the District has engaged in ongoing, detailed

discussions with the Illinois EPA, USEPA, and ADM, in particular, to refine the original proposal and answer Illinois EPA's and USEPA's technical and testing questions along the way.

The professors at Eastern Illinois University, including Dr. Colombo, have been engaged for approximately 20 years to conduct thorough biotic and ecological evaluations of the Sangamon River in the area of the Main Plant.

Mr. Santore of Windward and Ms. Cardwell of Oregon State, based on their particular expertise in these matters, were brought in to evaluate with fine precision what would be an environmentally acceptable revision to the chronic water quality standard for nickel based on the specific conditions of the Sangamon River at this location. Testing was performed to evaluate the toxicity on representative species, and protective levels of nickel discharge were identified based on the specifics of this area of the Sangamon River.

All of this testing and consultation with the Illinois EPA and USEPA culminated in the District's filing of its Amended Petition for Site Specific Rule on November 30, 2017. Consultation

with the agencies has continued, and the District made a number of updates to its calculations and supplemented the record on April 20, 2018, with the filing of its Motion to File Revised Exhibits 14 and 28, New Exhibits 45 and 46, Revised Exhibit List, and Minor Revision to Proposed Subsection 303.410. The Board granted this motion on April 25, 2018.

The end result of all of this analysis, study, and effort is a proposed site specific chronic water quality standard for this particular location that is slightly higher than the Board's general use standard, but is still very much below USEPA's national recommended standard for nickel and those of other nearby states.

Specifically on this point and to provide the Board with broader context, the District's current NPDES permit limit is 0.015 milligrams per liter. If the site specific proposal is granted, it would lead to an anticipated NPDES permit limit of 0.0382 milligrams per liter.

If we were to apply the USEPA's national recommended chronic water quality standard

for nickel, the result would be an anticipated NPDES permit limit of approximately 0.154 milligrams per liter when applying the Sangamon River's Hardness value of 359 milligrams per liter. That is roughly ten times higher than the District's current limit and four times higher than what the District is requesting here.

Iowa's chronic water quality standard for nickel, at a Hardness of 359 milligrams per liter, would also result in an anticipated NPDES permit limit of 0.154 milligrams per liter, and Indiana's chronic water quality standard for nickel, at a Hardness of 359 milligrams per liter, would result in an anticipated NPDES permit limit of 0.465 milligrams per liter.

The details of these calculations and comparisons are more fully discussed in Mr. Santore's testimony, but from these various levels, you get a sense of the national and regional playing field.

Again, in this proceeding, based on detailed site specific conditions and thorough assessment of protection to aquatic species, the District is seeking a revised standard that

translates to only 0.0382 milligrams per liter, which is well below the federal and other state standards.

And finally on the topic of USEPA's approval following a Board-issued site specific rule, USEPA's regulations at 40 CFR 131.11 state that when states adopt water quality standards, they must be, quote, based on sound, scientific rationale to protect the designated use, end quote.

In addition, 40 CFR 131.6 requires that, when requesting USEPA approval for a revised water quality standard, states must submit the, quote, methods used and analyses conducted to support water quality standard revisions, end quote.

Based on all of the detailed work of the District and its consultants in this proceeding, the Amended Petition, and the exhibits attached to the Amended Petition, the District is confident that USEPA will be able to approve this site specific nickel water quality standard.

The supporting documentation clearly establishes how the water quality standard was derived and clearly demonstrates that the standard

protects the designated use; that is, survival and propagation of aquatic organisms, consistent with the regulations previously noted.

With that background, Mr. Hearing Officer, we now move for admission of the Prefiled Testimony and the exhibits in this matter and request the Prefiled Testimony be entered as if read.

HEARING OFFICER FOX: Very good.

Mr. Houser, did you have copies of that to admit?

MR. HOUSER: I do.

HEARING OFFICER FOX: Mr. Houser, I appreciate your introduction, if only because I had mispronounced Mr. Santore's name. I will remember to be correct about that, so I apologize for my misstatement.

More importantly, let me turn to the motion -- Mr. Houser's motion. I'm going to take these one by one so that we can clarify by the record by giving each of these sets of testimony a unique exhibit number.

Did you have any preference in terms of the order assigned to those?

MR. HOUSER: I think just the order -- let me see here.

If we can start with Mr. Newton's testimony, Prefiled Testimony.

HEARING OFFICER FOX: Mr. Houser, on behalf of the Sanitary District of Decatur, has moved to admit the Prefiled Testimony of Mr. Newton as Hearing Exhibit Number 1.

I do want to clarify before I see if there's any objections, that when this was filed, it was placed on the Board's Clerk's Office Online and has been available there to view by the public since it was placed there, I believe on April 26th on the filing date.

The motion is to admit Mr. Newton's Testimony as Hearing Exhibit Number 1. Is there any objection to that?

Neither seeing nor hearing any, Mr. Houser, we'll admit that as Exhibit Number 1.

(Hearing Exhibit Number 1 was admitted into evidence.)

And do you have a preference on the Exhibit Number 2, the witness whose testimony would be Number 2?

MR. HOUSER: Yes, please. Mr. Kluge.

HEARING OFFICER FOX: The motion on behalf of the Sanitary District of Decatur is to admit Mr. Kluge's Prefiled Testimony as Hearing Exhibit Number 2. Is there any objection to the motion?

Neither seeing nor hearing any, the motion is granted, Mr. Houser, and that will be marked and admitted as Hearing Exhibit Number 2.

(Hearing Exhibit Number 2 was admitted into evidence.)

Does Exhibit Number 3 belong to anyone in particular in your mind?

MR. HOUSER: Yes. Dr. Colombo, please.

HEARING OFFICER FOX: Mr. Houser has moved to admit on behalf of the Sanitary District of Decatur the Prefiled Testimony of Dr. Robert Colombo as Hearing Exhibit Number 3. Is there any response or objection to the motion?

Neither seeing nor hearing any, Mr. Houser, it's admitted as Exhibit number 3.

(Hearing Exhibit Number 3 was admitted into evidence.)

Does Number 4 correspond to a particular witness for you?

MR. HOUSER: Yes, Mr. Robert Santore.

HEARING OFFICER FOX: Mr. Santore's testimony, Mr. Houser has moved to admit on behalf of the Sanitary District of Decatur as Hearing Exhibit Number 4. Any response or objection?

Neither seeing nor hearing any, Mr. Houser, the motion is granted, and Mr. Santore's testimony is admitted as Exhibit Number 4.

(Hearing Exhibit Number 4 was admitted into evidence.)

Is Number 5 Ms. Cardwell or Mr. Bloom?

MR. HOUSER: Ms. Cardwell.

HEARING OFFICER FOX: Mr. Houser has moved to admit Ms. Cardwell's Prefiled Testimony as Hearing Exhibit Number 5 for the Sanitary District of Decatur. Is there any response or objection to the motion?

Neither seeing nor hearing any, Mr. Houser, the motion is granted, and it is so admitted.

(Hearing Exhibit Number 5 was

admitted into evidence.)

And the Prefiled Testimony of Dr. Bloom I will presume you wish to admit as Hearing Exhibit Number 6. Is there any objection or response to the motion to do so?

Again, neither seeing nor hearing any, Mr. Houser, that is admitted as Hearing Number 6.

(Hearing Exhibit Number 6 was admitted into evidence.)

Did you have any other exhibits you wished to offer before you got under way?

MR. HOUSER: No.

HEARING OFFICER FOX: Very good.

The Board, however, does -- unusually, I recognize -- but earlier this morning, the Board had shared both with counsel for the Sanitary District of Decatur and the IEPA that is represented here a written list of questions for the District's witnesses, and I would move that -- and I supplied, I believe, a number of copies both to the District and at least one to the Agency. Is there anyone who didn't receive that that would wish to have one?

I would move to admit the document

entitled R14-24, Hearing Questions for Witnesses, Sanitary District of Decatur, as Hearing Exhibit Number 7. Is there any objection or response to admitting that as a hearing exhibit here today?

Neither seeing nor hearing any, it will be so marked and admitted as Hearing Exhibit Number 7.

(Hearing Exhibit Number 7 was admitted into evidence.)

I do want to clarify that when we return to Chicago, we will file that with our Clerk's Office so that it will appear in the electronic docket for this case and you will have access to the verbatim questions that the Board had prepared and shared with the Sanitary District and with IEPA, if you have any reason to wish to consult those, particularly before the hearing transcript is ready.

Mr. Houser, I think we've come to the point where we can swear in the District's witnesses. Did you have anything else you wish to bring up before we get under way?

MR. HOUSER: Would it be preferable if we provide another set of copies of the Prefiled

Testimony to the court reporter?

HEARING OFFICER FOX: I believe the court reporter would appreciate that, and if you have them ready, I think she'd happily accept those.

MR. HOUSER: With that, I agree we're ready to move on to questions.

HEARING OFFICER FOX: Very good.

If the court reporter's ready, we can, I suspect, Mr. Houser, swear them in all at once to take questions as a panel and do that with one swearing rather than six.

(Sanitary District's witnesses sworn by the court reporter.)

HEARING OFFICER FOX: Mr. Houser, thank you again, and on behalf of the Board for all of the District's witnesses, thank you for your appearance here today. I know that in many cases there was some significant travel and we appreciate your willingness to be here and respond to questions.

As I had mentioned earlier, we had prepared a list, organized witness-by-witness, and in discussing it with counsel for the District, we

roughly agreed, at least, that it made sense to proceed through them in numerical order.

That, Mr. Kluge, would have us begin with you, of course, and we can do that in a moment.

If there is anyone who would wish to follow up the Board's questions, please feel free to raise your hand and let me know that you do have a question. I would just ask, for the court reporter, especially the first time that you speak, if you would identify yourself and any organization you may represent and provide her with the spelling of your name, that would help us with the clearest possible transcript.

Board's Questions for Timothy Kluge

HEARING OFFICER FOX: Mr. Kluge, I'll just jump right into question number 1, and it began with a reference to your Prefiled Testimony regarding a translator study that had been performed pursuant to the Board's -- I'm sorry -- to the District's NPDES permit -- that's National Pollutant Discharge Elimination System permit -- and our first question simply was, if you could direct us in the record of testimony, exhibits, and

amended petition, to the location of the study or the study results in that record, please.

MR. KLUGE: Okay. My last name is spelled K-L-U-G-E, and I am retired now, but was formerly the Technical Director for the Sanitary District.

The translator study itself consists of results of analyses of samples that the District collected from the Sangamon River and submitted to the Illinois EPA, and to the best of my knowledge, that study itself is not currently in the record but can certainly be provided.

HEARING OFFICER FOX: And Mr. Kluge, I appreciate your willingness to do that. I know before we adjourn, we'll work out deadlines for the submission of any written information, so that through your counsel we can make sure that you have the amount of time that you need to prepare that. So thank you for your willingness to do that.

Ms. Liu, do you have any questions?

MS. LIU: No.

HEARING OFFICER FOX: Was there anyone else here today that had a question based on Mr. Kluge's comments on the translator study?

Mr. Kluge, I can move on to number 2. Would you provide us with an explanation, particularly a layperson's explanation, of what precisely a translator study is and how it can be used to calculate a new permit limit for nickel discharges?

MR. KLUGE: Yes. The Board's water quality standard for nickel is given in terms of dissolved nickel, and the District's NPDES permit limit is in terms of total nickel. The purpose of the translator study is to obtain site specific data on what portion of the nickel in the District's discharge is dissolved versus associated with suspended material, and the Illinois EPA reviews that sampling data from the District and determines the translator value.

HEARING OFFICER FOX: Very good. Thank you, Mr. Kluge.

Was there anyone who had any follow-up questions, based on Mr. Kluge's response to number 2?

Neither seeing nor hearing any, Mr. Kluge, our third question noted that Exhibit 46, recently filed by the District, included a

translator value of 0.966. Is that the same value that was used in the translator study that you've referred to?

MR. KLUGE: That value is the value of the translator that was determined by Illinois EPA, based on the translator study.

HEARING OFFICER FOX: Great.

Is there any follow-up question to that response?

Mr. Kluge, moving on to number 4, the Board had asked if you could explain the Hardness value that IEPA had used to derive the permit limits, both the original 0.011 milligrams per liter and subsequent 0.015 milligram per liter limits and whether those were for total or dissolved nickel.

MR. KLUGE: In conjunction with the translator study, the District also analyzed river samples for Hardness and submitted those to the Illinois EPA, and Illinois EPA determined what they call a critical Hardness that would be used for calculating the permit limit, and the permit limit is, as I said, total nickel.

MS. LIU: So Mr. Kluge, do you remember

what the critical Hardness level was? Was it 359 then as it is in the filings now?

MR. KLUGE: Yes.

MS. LIU: Thank you.

HEARING OFFICER FOX: Are there any other follow-ups to Mr. Kluge's response to number 4?

Thank you. Moving on, Mr. Kluge, to number 5, would you be able to show the calculation that was used to determine those permit limits?

MR. KLUGE: Those calculations are shown in a letter from the Illinois EPA to the District that is dated in 2009, and I believe that's included in the record as Exhibit 4.

MR. HOUSER: To the Amended Petition, Exhibit 4.

HEARING OFFICER FOX: Mr. Houser, I'm sorry. Can you say that again for me?

MR. HOUSER: Exhibit 4 to the Amended Petition.

HEARING OFFICER FOX: Very good.

Mr. Kluge and Mr. Houser, thank you for that clarification. That's a helpful citation, of course.

Mr. Kluge, that, of course, wraps up the five questions that we had raised for you based on your Prefiled Testimony.

Are there any follow-ups before we would move on to another witness?

Neither seeing nor hearing any in our audience -- oh, Ms. Liu, I apologize. I moved ahead too quickly.

MS. LIU: I apologize, too.

In Exhibit 4, I noticed that it does say a metals translator of 0.848 was used. Was that a different translator that was developed before the 0.966 number?

MR. KLUGE: Yes. The 0.848 value is specific for zinc and the 0.966 for nickel.

MS. LIU: Thank you.

HEARING OFFICER FOX: Any other follow-up questions for Mr. Kluge at this point?

Mr. Kluge, thank you very much for your responses, which were appreciated.

Ms. Cardwell, I believe we can move on to the questions that we had raised for you. I'll dive right in.

Board's Questions for Allison Cardwell

HEARING OFFICER FOX: The pronunciation of that species is Ceriodaphnia dubia?

MS. CARDWELL: Correct. Very good.

HEARING OFFICER FOX: There's my episode of good luck today.

Our first question was a clarification. Your testimony that protection of that sensitive species provided protection of others, is it correct that what your testimony indicates is that by protecting one of the most sensitive species in this reach of the Sangamon River, that other less sensitive species would enjoy similar protection?

MS. CARDWELL: Yes. Although I'm unfamiliar with the exact species that have been sampled and identified in the Sangamon, the Ceriodaphnia as a standard toxicity test organism, that they would be acclimated to specific water quality characteristics of the Sangamon.

It is also the most sensitive species in the Illinois nickel water quality criteria, and therefore, we would expect less sensitive species to nickel to also be protected.

HEARING OFFICER FOX: Any follow-up

questions to that response?

Neither seeing nor hearing any, Ms. Cardwell, you referred to the process of acclimation, and our next four questions generally deal with that.

Number 7 asks whether that process of acclimation involves breeding multiple generations of that species to increasingly high levels of Hardness and pH. Is that -- can you describe for us how that process is undertaken?

MS. CARDWELL: So the methodology in acclimation of organisms, the Ceriodaphnia is cultured in a standard EPA laboratory water, which is an approximate Hardness of 100 milligrams per liter.

Over the course of generations, for months and months, that Hardness is increased, and so the organisms are slowly introduced into that water. The health and reproduction is monitored, and so over the course of the many months, and up to a year, Hardness increased until we were at the level of Hardness within the Sangamon, and the organisms were reproducing and were of great health.

HEARING OFFICER FOX: Any follow-ups to that response to question number 7?

Neither seeing nor hearing any, Ms. Cardwell, question 8 asks whether that process also acclimates the organisms to different levels of the Dissolved Organic Carbon. Could you respond to that, please?

MS. CARDWELL: We did not acclimate the test organisms to high DOC levels, although the standard water of the simulated effluent was approximately one milligrams per liter DOC.

HEARING OFFICER FOX: Any follow-ups to the response to question number 8?

Neither seeing nor hearing any, on number 9, Ms. Cardwell, the Board had asked what typically comprises the Natural Organic Matter, NOM, and the Dissolved Organic Carbon, DOC, that is present.

MS. CARDWELL: So, typically, in natural systems, Natural Organic Matter or DOC, a component of the water is made up from different organisms, such as algae and also decomposing vegetation, and that's the majority of the DOC within the water column.

HEARING OFFICER FOX: Any follow-ups to the response to question 9?

Neither seeing or hearing any, Ms. Cardwell, we can turn to number 10, which asks whether any of the pH of Hardness or any other factors in the stretch of the Sangamon River are unusual in any respect in your knowledge, and, if so, if you can attribute any of those unusual features to a particular cause or source.

MS. CARDWELL: So I do not know the specifics of waters within Illinois, but my colleague, Dr. Santore, may be able to answer that question more appropriately, if that's okay.

HEARING OFFICER FOX: Mr. Santore, if you'd be willing to, we'd appreciate knowing what you have to say.

MR. SANTORE: Sure, I'd be happy to.

And just to be clear -- first of all, Robert Santore, S-A-N-T-O-R-E, and I am not a doctor. I do not have a Ph.D.

Yeah. The pH Hardness in DOC characteristics of the Sangamon River are that it is a relatively hard water source. Hardness of 359 is what we consider hard water or even very hard

water, and from that standpoint, you know, that is a characteristic. I know that there's going to be follow-up questions that also get to these same types of issues.

It's not unusual. It is -- Hardness is something that is a mineral component of the water. It's calcium and magnesium. Those are contributed from the geology of the area, and in this area it is not unusual to see high Hardness waters.

HEARING OFFICER FOX: Very good.

Ms. Cardwell, did you have any elaboration or any other response.

MS. CARDWELL: No.

HEARING OFFICER FOX: Okay. Ms. Liu?

MS. LIU: Could you also comment on the Natural Organic Matter composition of the river as well?

MR. SANTORE: Absolutely.

Natural Organic Matter is commonly found in all natural waters. Its amount varies, for sure.

The Sangamon is -- has DOC concentrations of -- depending on, you know, the monitoring that we've seen, typically, from, you

know, 6 to 12 to 14, that type of a range, of milligrams per liter.

DOC is a way that we quantify Natural Organic Matter, so it's a chemical measurement. We don't actually measure NOM directly, we measure DOC, and we know from the molecular structure of NOM that that carbon represents about 50 percent of the NOM. So on a mass basis, we measure DOC. We know that it's about half the NOM, but they relate to each other in that way. DOC is the analytical way that we measure the presence of NOM, so that's how they're related.

The values here, they are elevated but they're not unusual. We've seen natural waters that go well into the 20s and 30s, for example, milligrams per liter, so these concentrations are not unusual.

HEARING OFFICER FOX: Were there any follow-ups to the responses to question number 10 regarding those issues?

Neither seeing nor hearing any, Ms. Cardwell, one last question for you, number 11.

Your testimony had referred to spiking nickel into the waters to determine an effective

concentration, and the question was why you had chosen a particular 20 percent level rather than alternatives.

MS. CARDWELL: So the 20 percent effect concentration is a standard end point for USEPA water quality criteria for chronic testing, and so the 20 percent is a standard EPA end point.

HEARING OFFICER FOX: Ms. Cardwell, thank you for your responses, which we appreciate, and we --

I can see, first of all, if there are any follow-ups to the responses she's offered, and Ms. Cardwell, I'm not seeing any.

Mr. Santore, we can turn with question number 12 to the series that begins with questions for you.

Board's Questions for Bob Santore

HEARING OFFICER FOX: You had, I think, touched upon the issue in number 12, which is the reasons for the Hardness levels in this stretch, this segment of the Sangamon River. Did you want to elaborate or have any further response to that question?

MR. SANTORE: I can just elaborate a

little bit to -- because, you know, we didn't mention pH, but as I mentioned, the Hardness, high Hardness, has to be a mineral component, and some of the geology that tends to contribute calcium and magnesium includes, for example, minerals like limestone, which also provide high alkalinity and tend to result in a higher pH.

So the three factors we've been talking about -- DOC, pH, and Hardness -- are all characteristic of the region and are affected by the geology and are not -- they're elevated in the Sangamon but they're not unusual for the region.

HEARING OFFICER FOX: Very good.

Any follow-ups to that response?

Mr. Santore, turning to number 13, we had asked, in effect, if you think those circumstances are likely at all to change. If so, what might cause that and whether it was foreseeable.

MR. SANTORE: Yes. That's a good question.

Because we've tied, for example, a Hardness to the geology, we don't expect that to change. We do see seasonal changes in water

quality. This part of the country has a snowy winter, for example, and so a lot of the hydrologic cycle is dependent on the climate and the weather.

We have looked at quite a bit of monitoring data for the Sangamon, looked at trends over time, as well as seasonal trends, and the -- the composition of the river appears to be pretty stable, and there is a relatively slight seasonal pattern to the water quality, but that has been considered and that was looked at in one of the exhibits that was submitted as the Critical Hardness -- the Critical Period Calculation Memo -- looked at that monitoring data and the seasonality of the water quality.

HEARING OFFICER FOX: Mr. Santore, moving on to question number 14.

I should clarify, first, were there any follow-ups based on Mr. Santore's most recent response?

Not seeing or hearing any, question number 14, Mr. Santore, asked whether, in your experience, the levels of DOC, NOM, and Hardness in this stretch of the Sangamon River are typical or atypical of Illinois rivers.

MR. SANTORE: I believe they're typical. They're not unusual.

HEARING OFFICER FOX: Any follow-up?

Mr. Santore, seeing none, question number 15 asked whether site specific water quality standards are reviewed during IEPA's triennial review and, if not, what kind of events or circumstances might prompt a review of the standards in a site specific permit -- I'm sorry -- a site specific -- underlying a site specific standard.

MR. SANTORE: I believe those types of reviews are common, but I don't honestly know if it's part of IEPA's regular practice to do that as part of a triennial review.

HEARING OFFICER FOX: Great.

Any follow-up questions?

Mr. Santore, we can move on to question number 16. It refers to the input data to the Biotic Ligan Model, the BLM, and it refers to the two downstream sampling locations, and we've simply asked if those are both within the stretch of the Sangamon River that would be subject to the site specific regulation as proposed.

MR. SANTORE: Yes, they are.

HEARING OFFICER FOX: Any follow-up on that answer?

Not seeing or hearing any, the next question, number 17, refers to calculation of nickel water quality standards and refers specifically to Exhibit Number 46, containing the results of those calculations, and our question was whether you can show the calculations that were made to generate Exhibit Number 46, including any parameter values.

MR. SANTORE: I can and it may be useful for me to go up to the chart here because these equations are on that Board.

HEARING OFFICER FOX: Please, go ahead.

Before you begin, could you give us, just for the sake of the record, a brief description of what you're referring to? What is the nature of this demonstrative exhibit?

MR. SANTORE: Yes.

There are -- Hardness equations have been used by USEPA for quite a few metals, water quality criteria, over quite a bit of time, and they all have the same format.

So what we're going to look at is the general form of this Hardness equation and the parameters that are used in that equation, and then we'll look at the parameters that were used to generate the Illinois State Standard and how they were used in that equation.

We have two visual aids. The first of this is an excerpt from one of the testimonies that lists the equation itself, and the equation is the form of a logarithm. We usual natural logarithms. This is something that EPA has been doing for a number of decades, and it's the same form that is used for all of the metals, water quality criteria, or standards as they've been adopted by states.

So the Hardness equations all have the same form. They include a parameter shown here as an A and a B, and the B is the slope of the response. That's multiplied times the natural log of the Hardness.

So we've talked about Hardness for this water and we've talked about a critical Hardness value. That critical Hardness value would go into this equation in place of the symbol H here. That would be multiplied -- so the natural log of that

value would be multiplied by the slope parameter B. Then we would add the intercept parameter A, and the result there would then be used as an exponent to the -- E is a constant. It's a -- if you are familiar with logarithms and natural logarithms, natural logarithms are in the base of E, so that "exp" in this case is -- refers to an Excel function that provides this exponentiation to the symbol E, which is a constant that's used in natural logarithms. So this is the form of the equation.

If you turn now to Exhibit 46, you can see how the equation is used in Illinois, as well as neighboring states and at EPA nationally, to produce these various nickel standards.

So for each of these standards, we have listed the state -- Illinois, Indiana, Iowa, USEPA. Within each of those, we are showing the acute and the chronic version of the standard.

The slope parameter is shown on this line. The intercept parameter is shown on that line.

And remember, from this equation, we're using -- the slope is the symbol B, the intercept

is the symbol A here. So those are going to be substituted into this equation to make each of these calculations.

So we make those substitutions in each of these cases. The slope, the intercept, we use the critical Hardness value shown here, 359, and the results are shown in these darker green boxes. So the same equation, but these different slope and intercept parameters generate each of these values for acute and chronic standards for each of the states that we have listed here.

Does that adequately explain the equation and how it's used?

MS. LIU: In your exhibit, the box on the lower left side, the proposed Decatur site specific dissolved standard, there is a slope and an intercept there that is different from the slope and intercept that's part of the proposed site specific ruling. Can you point me to where in the record that part is discussed?

MR. SANTORE: So I want to first clarify that in this box -- is this the box that you're asking me about?

In this case, we have the slope and the

intercept for the DOC equation, and then up here, this upper box, we're talking about the slope and the intercept for the Hardness portion of the equation.

Is that -- is there confusion about this slope and this intercept are for DOC, as opposed to what's up here for Hardness?

MS. LIU: I guess I'm still a little confused.

MR. SANTORE: Okay. Thank you. Well, let's keep at it and we'll make sure we clear that up.

Would you like to follow up with a more specific question or how would you like me to proceed?

MS. LIU: Would the DOC equation follow the same format, A and B, for the natural log?

MR. SANTORE: It has a slightly different form. We didn't use natural logs, for example.

MS. LIU: Okay.

MR. SANTORE: The Hardness equation, as I mentioned, there's been a long history of its use by EPA and by states in developing metal standards,

and we adopted -- we used the same form because we weren't trying to change anything about how the Hardness component was done.

When we added DOC consideration to the site specific standard, although we do have a slope and an intercept associated with that, it has a slightly different mathematical form, and if you're interested in the form of that, I could turn to -- I believe -- I know it's in the exhibits. It's just a question of finding where we could point to it, and I might need to just look through the exhibits and tell you exactly where the form of that equation is shown.

This is in Exhibit 28, and on page 3 you should see this equation, and the slope and the intercept shown there are the same values that are in this table shown here.

MS. LIU: From there, how do you calculate the value of 36.9 micrograms per liter?

MR. SANTORE: Okay. So the 36.9 is the result of first taking the critical Hardness value through the Illinois State Criterion to account for the Hardness of the river. Now we're going to add to that consideration of the DOC of the river,

which is done using the DOC equation.

The way we have utilized this information is to consider the effect of DOC as the multiplier that is consistent with the water factor ratio guidance times that Illinois state standard.

So the state standard is considering the effect of Hardness; that we use the DOC equation to consider the additional effects of DOC, and so you need to -- we need to walk through both parts of the calculation.

Just considering Hardness alone gives the 14.75 chronic standard, which is consistent with the Illinois state standard.

And then the way we work this DOC additional multiplier is we have the slope and the intercept in the equation that we just reviewed. If we put in a reference DOC, which is based on the reference waters that was used in the OSU testing, we get a EC 20 for nickel of 6.66 here.

If we use the DOC, the average DOC in the Sangamon River, that's the 8.33. We put that in that same equation and now we get 16.6, okay?

The ratio tells us how the bioavailability of nickel in the Sangamon is

altered by DOC, so that ratio is the 2.5. The 2.5 multiplied by the 14.75 gives us the 36.9.

MS. LIU: I gotcha.

MR. SANTORE: Excellent.

MS. LIU: Thank you.

MR. SANTORE: You're welcome.

MS. LIU: Just for the sake of the record, your explanation was excellent. Could you translate that into writing, the full equation that you would have used to calculate through the spreadsheet, just so that we have it all?

MR. SANTORE: Yes.

MS. LIU: The full equation.

MR. SANTORE: And would you like me to do that right now?

MS. LIU: No, you don't have to do it right now.

HEARING OFFICER FOX: That's another one of issues with counsel. We can take up a deadline or a date by which to submit that. I see Mr. Houser acknowledging we can take that all up.

MS. LIU: I just want to take it one more step. So to go from the number that you described here, multiply it by the translator to

get the dissolved -- so this would be the total 36. -- or dissolved would be 36.9 times the translator would convert it to the --

MR. SANTORE: That's right. And that's in that next box on this Exhibit 46 in the lower right, yes.

MS. LIU: Thank you very much for walking me through that. I appreciate it.

HEARING OFFICER FOX: Mr. Santore, thank you for that tutorial and the derivation of the standards, which is appreciated.

Does anyone else have any follow-up questions on his response to question number 17?

Neither seeing nor hearing any, Mr. Santore, that's been -- we have question 18.

After resuming some of the -- after examining some of the other standards, we had asked for your comment on whether Exhibit 46 could reflect total and dissolved concentrations of nickel. Your response to that?

MR. SANTORE: Yes. I think it already does, though, in a way, because in the box on the lower left, we have the dissolved calculation, and then in the lower right, we have the translator

total, and so the information is there. If there's something I can do to clarify that in the exhibit, I'd be happy to do that.

MS. LIU: Maybe when you get a chance to sit down, could you look at it a little bit closer?

MR. SANTORE: I'd be happy to.

MS. LIU: I think some of the states had translators worked into the equations and -- but not necessarily applied, so I would appreciate that.

MR. SANTORE: No problem.

HEARING OFFICER FOX: Mr. Santore, moving on to question number 19, you had offered some comparisons of the Illinois standard, of course. Are you aware of when the current Illinois general use water quality standard for nickel had been adopted?

MR. SANTORE: I believe it was around 1993.

HEARING OFFICER FOX: And jumping right ahead to number 20, closely related, do you have an explanation of why that standard is lower than the criterion now recommended by USEPA in the other

states that you've cited? Any assessment of the reason for that?

MR. SANTORE: Yes. The standards are based on published toxicity data, and as new data becomes available, standards can be reviewed and revised as necessary.

EPA has produced several different versions of a nickel standard. One -- for example, I think the first one was back around 1980 but then it was revised in 1986. The 1986 standard is actually -- on this chart is what is shown as adopted by the state of Iowa. So those values are consistent with, and based on, the 1986 EPA recommended water quality criteria.

Then EPA continued to revise the nickel standard, and it was revised again in '95 -- it was actually published in '96 -- and that version of the EPA recommended standard is what was adopted here by Indiana, so that the box here on this exhibit that shows the Indiana standard, those values are from that 1996 EPA document.

And then when Illinois adopted their standard, they chose to look to the literature and see if there were additional data, and, indeed,

there were. There was a 1993 paper by Schubauer-Berigan that included a chronic limit on -- a chronic toxicity test to Ceriodaphnia dubia, and those data indicated that Ceriodaphnia was the most sensitive species that had been known, had been discovered. So when the Illinois standard was developed, it included the Cerio data, but those data were not cited by any of the EPA water quality documents.

HEARING OFFICER FOX: Any follow-up questions to that response?

Mr. Santore, neither seeing nor hearing any, we can move on to the next batch, beginning with question number 21.

MS. LIU: I think we could probably -- I believe he's answered some of these already.

HEARING OFFICER FOX: I was just going to say that it looked like the response to question 21 effectively had come up in a response to one of the earlier questions.

Did you have anything to had in response to that?

MR. SANTORE: No. I think Mr. Kluge covered that quite well.

HEARING OFFICER FOX: Very good.

And question number 22, the Board had asked how the translator value 0.966 fit into the equation for determining the Water Effect Ratio, WER, the acronym. Do you have a response to that question?

MR. SANTORE: Yeah. The way we have laid this out, the translator is used after the Water Effect Ratios. The Water Effect Ratio is actually based on the DOC equation, and then the additional step, which follows that, is to take the translator into account, so it's not actually used in the WER step, but it's used to translate from Dissolved.

HEARING OFFICER FOX: Mr. Santore, thank you.

Question number 23 had asked about the equation for determining if the anticipated NPDES permit limit had been obtained. Is that an equation you have provided that you can refer to or that you can provide to the Board?

MR. SANTORE: Yes. It's actually exactly what we just walked through that's that value that comes out.

HEARING OFFICER FOX: As expected, I predicted something, Mr. Santore.

And in question number 24, the Board had asked how -- if you would explain the difference between how the dissolved and total nickel concentrations are accounted for in the expected NPDES permit limits.

MR. SANTORE: Yes.

So the standard itself is to determine what is protective of aquatic life, and to make that determination, we try to, as accurately as possible, characterize not just how much metal is there, but what the effect of that metal is, and over time, EPA has revised and refined its assessment of the most important factors that determine metal toxicity and bioavailability, and dissolved metal is the -- has been determined to be, for metal like nickel, a better, more accurate representation of the standard and its effects on aquatic life. So the standard itself is more accurate if it is determined on a dissolved metal basis.

When we look at a permit limit, we are looking at the amount that's being discharged, and

that is most accurately characterized on the basis of total metal.

So we need to get from a dissolved standard to a total effluent limit, and that's where the translator is used to allow us to develop our standards on a dissolved basis and still use that information to come up with a discharge limit based on total metal.

HEARING OFFICER FOX: Mr. Santore, looking ahead to question number 25, it seems as if you had approached, if not actually responded more or less to our question about why a permit limit would be stated in terms of total concentrations since the site specific water quality standard is stated in dissolved terms. Did you want to elaborate on that at all?

MR. SANTORE: Unless my answer was, you felt, was incomplete or confusing, I think it's the same information.

Excellent, thank you.

HEARING OFFICER FOX: Great.

Any follow-ups or any other questions based on those most recent couple of responses of Mr. Santore?

Not seeing or hearing any, question number 26 is -- pardon me -- whether the anticipated NPDES permit limit of 0.0382 milligrams per liter would be equal to the water quality standard, and whether it is, in effect, a water quality based effluent limit.

MR. SANTORE: The definition of a water quality based effluent limit, there is some actual local -- I'm not actually sure in terms of Illinois EPA if this would fit into their definition of a water quality based effluent limit. I believe it would.

MS. LIU: So would the 0.0382 milligrams per liter be the water quality standard, the site specific water quality standard?

MR. SANTORE: That would be the -- the standard is actually the dissolved value, and that's the total value that would be the permit limit but not the standard.

MS. LIU: So the standard would be 0.369?

MR. SANTORE: Correct.

MS. LIU: Okay.

HEARING OFFICER FOX: Moving on,

Mr. Santore, to question number 27. The calculation of 0.0382 milligrams per liter limit, does that account at all for either the eligibility for a mixing zone or the availability -- the availability -- let me start over again.

Does that account for either the potential availability of or eligibility for a mixing zone?

MR. SANTORE: It does not factor in any dilution. It is essentially -- we have not taken that value and then also considered dilution from upstream flow, which would be essentially what -- the phrase mixing zone is implying that there's an upstream source of water that is considered and that you want the standard to be met at the edge of that mixing zone. In this case, we are not considering upstream flow in dilution from that.

MR. KLUGE: Could I add a clarification?

HEARING OFFICER FOX: Mr. Kluge, please go ahead.

MR. KLUGE: The permit limits are based on a value called the seven-day, ten-year, low flow, and the upstream flow from the District's

discharge is zero, as determined by the Illinois State Water Survey, and I believe the map that supports that is from one of the exhibits.

So in determining the permit limits, there is no allowance for upstream dilution.

HEARING OFFICER FOX: Mr. Kluge, thank you.

Mr. Santore, did you wish to elaborate on Mr. Kluge's response at all?

MR. SANTORE: No. I agree with what was said.

HEARING OFFICER FOX: Very good.

And turning to question number 28, the Board had asked whether IEPA has indicated concurrence with the expected NPDES permit limit or commented on how they might determine a limit based on this proposed site specific water quality standard.

MR. SANTORE: There has been a lot of back and forth with Illinois EPA throughout this work as it's progressed. I don't know specifically, because you're asking a very specific question. I can't speak for Illinois EPA, but I know that everything has been reviewed and I have

not heard of a -- any objection that we have not addressed or already tried to.

HEARING OFFICER FOX: Very good.

Any follow-up questions to Mr. Santore's response? Neither seeing nor hearing any.

MS. LIU: I believe he's addressed 29 and 30 already.

HEARING OFFICER FOX: Very good. I had the same sense.

Looking ahead, Mr. Santore, it appears that your previous responses have addressed questions number 29 and 30. However, if you have any elaboration, any expansion that you'd like to offer, we're happy to hear that.

MR. SANTORE: I have no further comments.

HEARING OFFICER FOX: Very good.

Any follow-up questions based on the Board's questions 29 or 30?

Not seeing or hearing any, our next questions both deal with Exhibit Number 45, recently submitted by the Sanitary District, and it noted that there were comments and responses built

in effectively to an e-mail chain of communication, and question number 31 asked whether your most recent comments in March of 2018 had been viewed by -- had been shared with USEPA and whether they had responded with any comments to you.

MR. SANTORE: Yes, they had -- those comments have been shared. This has been a very dynamic process with a lot of back and forth, so I'm sure that they have seen our most recent responses to their comments and questions. I have not seen a final set of comments or questions from EPA.

HEARING OFFICER FOX: And in question number 32, the Board had asked whether either USEPA or IEPA has provided a comment on the revised proposal with a Water Effects Ration of 2.50.

THE WITNESS: Yes. There's been significant comments and opportunities for discussions and back and forth with both EPA and IEPA throughout the process.

HEARING OFFICER FOX: And would you have the same responses to the previous question, that you're not aware of any objections or technical concerns with the Water Effects Ratio of

2.50?

MR. SANTORE: Correct. There's been comments and requests on both the part of EPA and IEPA throughout this for us to clarify and refine the work product and we have addressed all of the comments that we've received, and I have not seen any additional comments that we have not yet responded to.

HEARING OFFICER FOX: Very good. Thank you, Mr. Santore.

MS. LIU: Just to clarify, the revision to using the WER of 2.50 is in April of 20 -- or April 20th, and previously it was 2.33, and in the interim, you have had conversations with USEPA back and forth.

MR. SANTORE: That's right.

MS. LIU: I was wondering if you had any documentation, since you had proposed the 2.5, a reply from USEPA, or IEPA, if they were cool with that number.

MR. SANTORE: I believe we have seen responses since the 2.5 number was developed, and there was no specific objections to 2.5.

MS. LIU: I don't know that it's in the

record. Would that be something that you'd be able to provide in the record, something -- a record of your phone conversation or an e-mail or a scribble?

MR. SANTORE: Yes. We've had quite a few conference calls. We can certainly lay out the timeline for those calls and who participated because we did have a participation log from EPA.

MS. LIU: That would be very helpful, thank you, just to close it a little. Thank you.

HEARING OFFICER FOX: Mr. Santore, that, of course, comes with your response to question number 32, the end of those that the Board had directed specifically to you.

Does anyone have any follow-up questions or additional questions?

Mr. Santore, I'm not seeing any, and we appreciate the responses that you've offered us here today. Thank you very much for those.

We can move on to Dr. Bloom to your right and dive right in.

Board's Questions for Paul Bloom

HEARING OFFICER FOX: Dr. Bloom, in your Prefiled Testimony, I'll begin, of course, with question number 33.

Your Prefiled Testimony stated that one of the primary sources of nickel in the discharges to the District are contained into the processed soybeans and corn that are coming into ADM's operations. Can you estimate -- do you have any estimate of what the percentage of nickel in that stream is accounted for by the incoming soybeans and corn?

MR. BLOOM: Yes. Thank you. Again, Paul Bloom, B-L-O-O-M.

That's a great question and it would be difficult for me to assign a definitive percentage from the incoming corn and soybeans. Our estimates were really based on total nickel balance that was completed from waste streams that were derived from a comprehensive Decatur site specific nickel balance study. So those waste streams we quantify going to our wastewater treatment plant.

The major sources that were identified from this study were, of course, the nickel contained in the incoming soybeans and corn. For soybeans, it was approximately 49.2 pounds per day. For corn, it was up to 19.1 pounds per day. And then the non-grain sources that were identified

were from nickel from catalysts, and also metallurgy from processed -- you know, from operating the polyose plant.

So the nickel from the catalysts was largely mitigated from IX or ion exchange technology that was installed, and so we can say what nickel was removed from sources that we think were derived from our process inputs, and that was up to 1.3 pounds per day.

And the metallurgy from process operations in the polyose plant -- of course, now shut down -- was 1.9 pounds per day.

So the rest of that material, including the nickel from the soy molasses stream, which was also removed at 2.7 pounds per day, that was assumed to be from the incoming grain.

HEARING OFFICER FOX: Moving on to question number 34, Dr. Bloom, do you know whether the nickel that is effectively arriving at ADM's facilities in the corn and soybeans is uptake from the soil? Does it result from the application of fertilizers or pesticides, or is there another potential source that you can refer to?

MR. BLOOM: I do not have an answer for

this question. One, it's not my area of expertise, and our grain does arrive from various locations.

HEARING OFFICER FOX: And on to 35, and question number 35, if you know, are you aware of whether that issue specifically with the corn and soybeans is specific to Illinois because of soil types or other local conditions, or is that something that ADM may experience in other regions of the country?

MR. BLOOM: Again, I don't have an answer for this question, as grain does arrive from various locations at the facility.

HEARING OFFICER FOX: Any follow-up to those questions, number 33, 4 and 5?

Not seeing or hearing any, Dr. Bloom, your testimony had indicated other sources which you have referred to. As part of its evaluation, did ADM evaluate ways to reduce or substitute nickel as raw materials in the catalyst or the metallurgy? I think you may have begun to touch on that, but if you have any elaboration or expansion, please go ahead.

MR. BLOOM: Sure. It's a great question.

As part of this specific evaluation, I don't know of any studies that seek to substitute the catalysts or look at alternate metallurgy.

Separately, ADM does evaluate alternate catalysts on a routine basis. Typically, those catalysts for these operations are nickel-based that are offered and they're offered from the industry, and from the metallurgy standpoint, there were several explorations of alternate metallurgy for the polyose plant; however, those efforts have ceased since that operation was shut down in 2015.

HEARING OFFICER FOX: The next three or four questions, Dr. Bloom, deal with some of your testimony, particularly with Exhibit Number 42, on some of the investigations that ADM had done for reducing its discharge of nickel to the District's wastewater treatment plant, and it referred to some of the costs that had been incurred, of course, by ADM in doing so.

In question number 37, you had indicated that the removal of the soy molasses stream, which I think you at least quickly mentioned, accounts for at least 35 percent removal of soluble nickel and that the shutdown of the

polyose plant, which you, of course, have referred to, accounted for an 11 percent reduction.

In combination, would those allow you to assert that those two steps alone reduce the nickel output by the sum by 46 percent or is there a different calculation that you would use in making that determination?

MR. BLOOM: I would agree with that assessment.

HEARING OFFICER FOX: Very good.

Any follow-ups on that question?

In number 38, you had pointed out in your Prefiled Testimony that the excess sludge removal allowed the removal of more than 10 point million dry pounds per year in the most recent two complete years and that some improved housekeeping had also resulted in reductions also.

Can you offer an estimate of what additional percentage sludge removal and housekeeping efforts have contributed to the reduction in the nickel discharge to the District's wastewater treatment?

MR. BLOOM: That's a great question, and again, I don't have a good estimate for the

additional reduction at this time, but I can say it will only help as the level of nickel in our sludge continues to decrease as we continue to proceed with sludge removal from the anaerobic digesters.

HEARING OFFICER FOX: And in our question number 39, we had noted your testimony about the decline in the concentration of nickel in the effluent to the District's wastewater treatment plant from approximately 0.120 milligrams per liter to about 0.060 milligrams per liter since calendar year 2010.

Would you estimate that the reductions that you've identified at about 50 percent, do those compare -- how do those compare to the way that the facilities were operating in 2007 before the District's permit limit really brought this issue to your attention.

MR. BLOOM: So I would also agree with the statement that the assessment that approximately -- the efforts that ADM's taken since 2007, and combined with the soy molasses removal, the catalyst ion exchange remove nickel from the sorbitol and the corn plant streams, and the polyose shutdown, reducing that metallurgy, would

account for that approximately 50 percent reduction.

HEARING OFFICER FOX: Again, since the benchmark year of 2007?

MR. BLOOM: Correct.

HEARING OFFICER FOX: Okay.

Dr. Bloom, our final question directed specifically to you, number 40, referred in Exhibit Number 43 to a Table Number 4 with some additional details about some of the technologies that ADM had considered.

The first column appears to be Solid, and our question, basically, was whether that had blocked out information or whether it should list nickel remediation chemistries for each of the corresponding rows, and if you have any elaboration or explanation to offer, please go ahead.

MR. BLOOM: Sure. Again, great question, and what I can say is that the blacked-out portion contained vendor names specifically to the related chemistries that were there. So as a follow-up, we'd be happy to provide the type of chemistry, without the vendor name, associated with Exhibit 43.

MS. LIU: Thank you.

HEARING OFFICER FOX: That brings us to the end of the questions that we specifically had from the Board for Dr. Bloom.

Is there anyone else who had any follow-ups based on his responses here today?

Dr. Bloom, I'm certainly not seeing nor hearing any, and we appreciate your responses here today on our follow-up questions on your testimony.

Dr. Colombo, that leads us to you. We have a single question, designated number 41, for you.

Board Questions for Robert Colombo

HEARING OFFICER FOX: You had -- and our question first, very, very generally, I recognize that some of the conclusions that were drawn from some of your observations, your analysis, the Sangamon River, and the question was whether the observations you had made highlight for you any differences in the stretch of the Sangamon River from other Midwestern streams related to Hardness levels, dissolved organic -- or Dissolved Organic Carbon concentrations.

Do you have any elaboration on that

that you can offer?

MR. COLOMBO: Sure. Robert Colombo, C-O-L-O-M-B-O.

So we conduct long-term electrofishing samples on many -- especially Illinois rivers and streams -- and the fish community assemblage is a cookie-cutter of most other fish community assemblages in the tributaries of the Illinois rivers and the tributaries of the Wabash River and the tributaries of the Mississippi River.

Additionally, if you look at the other tributaries of the Illinois River, the Sangamon has one of the more robust fish community assemblages than the others.

In terms of as that's related to Hardness and Dissolved Organic Carbon, it really is that fishes in Illinois tributaries have -- are all generally able to handle that level.

HEARING OFFICER FOX: Just for my own clarification, when you used the phrase cookie-cutter, am I understanding correctly to say that there's a high degree of similarity?

MR. COLOMBO: A high degree of similarity between with the fish assemblages here

that you would find in the tributaries of the Wabash or the Embarras River, and it's a very similar fish assemblage in terms of abundance and communities.

HEARING OFFICER FOX: Dr. Colombo, that exhausts the single question we had for you, unless anyone has any follow-up or clarifications they would like on the basis of that answer.

I am not seeing or hearing any.

The Board, with its final two questions, had questions regarding the proposed rule language, and Mr. Houser and Ms. Hodge, I am happy to leave it up to you whether this is something you would like to consider and respond to in a written response to the Board, since I suspect is something your witnesses may not be prepared to answer.

Do you have any comment on that, Mr. Houser?

MR. HOUSER: Could we just go off the record for a few minutes just to confer?

HEARING OFFICER FOX: In fact, I think we've reached the point in which it's wise to do that, just to wrap up some deadlines and other

issues.

So if the court reporter would take us off the record briefly, we'll go ahead with that.

(A brief recess was taken.)

If the court reporter's ready, we can continue. Thank you very much.

We have gone off the record to discuss some procedural issues relating to deadlines and similar matters. The Sanitary District of Decatur indicated that it wished to pose questions to the IEPA, whose witness, Mr. Brian Koch, is here.

If the court reporter would swear in Mr. Koch when she has a moment, we'll turn, Mr. Houser, right to your questions.

(Witness sworn.)

Mr. Houser, please go ahead.

MR. HOUSER: Thank you.

BRIAN KOCH

called as a witness on behalf of the Sanitary District of Decatur, being first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. HOUSER:

Q. Mr. Koch, can you please describe your job title and responsibilities with the Illinois EPA?

A. Sure. I'm an Environmental Protection Specialist III. I work in the Water Quality Standards Section within the Division of Water Pollution Control and the Bureau of Water.

My main job duty is to develop toxic space water quality standards and criteria, using Illinois EPA methodology, as well as USEPA methodology.

Q. Can you please describe your educational background?

A. I have a Bachelor of Arts degree and a Master of Science degree in Zoology.

Q. Can you please describe your history and experience working with the Sanitary District of Decatur's Proposal for Site Specific Rule for Nickel?

A. I became involved, I believe, in 2010. This is back when Decatur initially began experimenting with the Biotic Ligand Model, and I've been involved ever since.

Q. Is it true that you have been involved

on behalf of the Illinois EPA on many of the conference calls, e-mail exchanges, and other discussions between the District, USEPA, and Illinois EPA, that have helped develop the District's proposal?

A. That's correct.

Q. In your opinion, is the District's Proposed Site Specific Water Quality Standard for Nickel protective of the Sangamon River?

A. Yes. I believe the Water Effect Ratio of 2.5, as proposed by the District, would be protective of the Sangamon River. I believe it's a good representation of the actual toxicity of nickel in that environment.

Q. Okay. Thank you.

MR. HOUSER: Then, if I could, I would like to follow up with Mr. Koch on some of the Board's questions that were asked of other witnesses to see if there are any other further comments that could be provided.

HEARING OFFICER FOX: Mr. Houser, please go ahead.

MR. HOUSER: And I'll just ask the question over again from the Board's questions.

BY MR. HOUSER:

Q. Earlier, Mr. Santore testified in response to Board Questions Number 19 and 20, which were, Could you state when the current Illinois nickel chronic water quality standards for general use water was adopted and under which rulemaking?

And number 20, Could you explain why the standard is so much lower than the criterion recommended by USEPA and standards set by the other states mentioned?

Did you agree with Mr. Santore's testimony in response to those two questions?

A. For the most part. For number 19, in regards to when the Illinois EPA general use chronic nickel standard was adopted or proposed, I believe you said 1993. Actually, we proposed that Rulemaking in 1999 and it was approved in 2003.

And then in regards to number 20, why our standard is so much lower than USEPA and other states, I do agree with Mr. Santore the reason for the discrepancy is that Illinois EPA used Ceriodaphnia dubia data, which, many of these studies, the acute and chronic studies that we used in our acute and chronic standards, were actually

published at the end of 1992 and early 1993.

EPA had adopted their national criterion in 1995, but their literature review ended in December of 1992, so it appears that they just missed that window of when those papers were released.

I should also state that the USEPA national criterion uses an acute-to-chronic ratio for development of the chronic standard, whereas the Illinois EPA used a Tier 1 methodology.

Q. Okay. Thank you.

This was Board question number 28 asked, Has IEPA concurred with the anticipated NPDES permit limit or commented on how the Agency would determine the NPDES permit limit based on the proposed site specific water quality standard?

A. We have not provided anything in writing, but it's my understanding that we would use this site specific standard, the dissolved standard, back calculate to the total concentration of nickel, and apply that as an NPDES permit limit. So it would, in fact, serve as a water quality based effluent limit.

Q. And then this was Board question number

32. Has either USEPA or IEPA provided comment on Decatur's revised proposal with a WER of 2.50?

A. Neither agency has provided written confirmation. However, I believe one of the exhibits -- and I can't recall which exhibit that was -- but it did show the back and forth discussions that Mr. Santore, EPA and IEPA personnel had in regards to development of the Water Effect Ratio, and it's my understanding that that conversation has essentially concluded our discussion on the Water Effect Ratio.

MR. HOUSER: And for the record, that would be -- I believe he's referring to Exhibit 45 that shows that exchange, and those are all the questions I have for Mr. Koch.

HEARING OFFICER FOX: Thank you, Mr. Houser.

The Board has no follow-up questions for Mr. Koch. Is there anyone else or any other participant who has any follow-up questions based on his testimony?

Mr. Koch, neither seeing nor hearing any, I think we've concluded your testimony and we appreciate that.

Mr. Houser, anything else that the Sanitary District wishes to present at this point?

MR. HOUSER: Other than answering the final two Board questions, that's it.

HEARING OFFICER FOX: Very good. And I think you had indicated you were prepared to take those up right now?

MR. HOUSER: Yes.

HEARING OFFICER FOX: If you'd go ahead, that would be great. Thank you.

District's Answers to Board's Final Questions

MR. HOUSER: So in response to -- Mr. Kluge will answer the question, but the question 42 says, Please clarify whether the sample collection protocols to demonstrate attainment of chronic standards specified in Section 302.208(b) still apply to proposed site specific chronic nickel water quality standard.

HEARING OFFICER FOX: And Mr. Kluge, you're still sworn in. Please feel free to go ahead with your response.

MR. KLUGE: The District has not proposed any change in the current Board Rules of how those -- of how compliance with water quality

standards is demonstrated.

HEARING OFFICER FOX: Any follow-up questions for Mr. Kluge?

Not seeing or hearing any, Mr. Houser, I would suspect you're going to turn to 43.

MR. HOUSER: I am going to turn to 43.

Asked to please comment on the following changes to proposed site specific rule language, and those changes are designated in the question.

The District does not -- the District agrees to the Board's proposed changes.

HEARING OFFICER FOX: Any questions either from Mr. Kluge or otherwise on the basis of the District's position?

Neither seeing nor hearing any, I appreciate your diligence in addressing those, Mr. Houser. That's helpful, of course, in terms of any Order the Board may adopt.

Anything else you wanted to bring up at this point, Mr. Houser?

MR. HOUSER: No. Thank you.

HEARING OFFICER FOX: Very good.

I had, in going off the record in

speaking about procedures, referred to our requirement to request an Economic Impact Study. I'll take a moment to address that before we turn to a couple of deadlines and other procedural issues.

Section 27(b) of the Environmental Protection Act provides that the Board must request that the Department of Commerce and Economic Opportunity, DCEO, conduct an Economic Impact Study of proposed rules before the Board adopts them. The Board then must make either the study or DCEO's response and decision not to conduct one available to the public at least 20 days before a public hearing.

On January 28th, in a letter, the Board's Chairman, Katie Papadimitriu, requested the DCEO conduct this Economic Impact Study and requested a Response no later than February 26th of 2018. The Board has received no response from DCEO to this request.

Is there anyone present who wishes to comment or testify, either on the Board's request or the DCEO's response?

Unsurprisingly, I see no response and

don't hear a response to that, so we can move on, before we adjourn, to a couple of scheduling issues and deadlines.

In going off the record, the District and the Board had identified the following issues on which the District was helpfully committing to provide some additional information.

In response to question number 1, Mr. Kluge has indicated that he would submit a translator study into the record.

In response to question number 23, Mr. Santore had agreed to provide an equation into the record and provide some explanation for it.

In response to number 32, Mr. Santore, again, had offered to provide into the record additional communications between the District and the IEPA and USEPA.

And in response to question number 40, Dr. Bloom had been willing to submit some additional information into what had been submitted to the Board as Exhibit Number 43.

Have I misstated or misunderstood any of that?

Not seeing a negative response, I have,

in addition to discussing the nature of those responses, understand from the Sanitary District that a 30-day deadline of Friday, June 16th --

MR. HOUSER: 15th.

HEARING OFFICER FOX: 15th. I'm sorry. I stand corrected. A 30-day deadline of Friday, June 15th, to submit that to the Board online through its Clerk's Office Online was adequate time to prepare that.

I also had let the IEPA know that we had -- the Board would wish to hear IEPA's position in response to what had been listed as Board question number 15. It was originally directed to Dr. -- or to Mr. Santore, and that was a question specifically about IEPA's review of site specific standards, specifically under their triennial review.

And I understand, Mr. Gradeless or Ms. Terranova, that the same 30-day deadline of Friday, June 16th, to submit a response --

MS. TERRANOVA: 15th.

HEARING OFFICER FOX: 15th.

MS. TERRANOVA: You've got 16 on your mind.

HEARING OFFICER FOX: I hear that. I apparently do.

That same 30-day deadline would be adequate for the Agency to submit a Response in writing to the Board.

Ms. Terranova is indicating, am I correct, that that's acceptable?

MS. TERRANOVA: Yes.

HEARING OFFICER FOX: Ms. Terranova, we appreciate that very much and understand that you may not have precisely the correct witnesses today to address any questions about that issue, so we will look forward to seeing that on the same deadline.

We had indicated to the Sanitary District's counsel that the Board, on the basis of the additional information that we receive from them by that deadline, may trigger a few questions, a few follow-up questions on the part of the Board, and they had indicated that a seven-day deadline to the 22nd of June would be acceptable, at which point we can either submit those into the record or indicate that we don't have any, so that we can put that issue to rest.

Have I left anything uncovered or left any confusion on the part of any of the participants at this point? Very good.

I believe our transcript will be ready in five business days, which would bring us to next Wednesday, the 23rd.

I want to assure the participants that once we receive that, we will post it to our Clerk's Office Online where it can, of course, be viewed in its entirety, downloaded, printed and fully accessible to you.

I think we have reached the point at which we can adjourn.

Have I left any other matters unaddressed or any other questions left unanswered?

Seeing no responses and hearing none, we can adjourn.

I certainly want to thank all of the witnesses -- including you, Mr. Koch, from the IEPA, of course -- for your testimony and your participation today. It was very helpful to us in developing a record on the Amended Proposal and we appreciate it.

With that, we can adjourn. Thank you

very much.

(Whereupon, the above-entitled proceedings were concluded 10:43 a.m.)

STATE OF ILLINOIS)
) SS
COUNTY OF MACON)

I, LISA HAHN PETERMAN, do hereby state that I am a court reporter doing business in the State of Illinois, County of Macon; that I reported by means of machine shorthand the proceedings held in the foregoing cause, and that the foregoing is a true and correct transcript of my shorthand notes so taken as aforesaid.

_____
Lisa Hahn Peterman, CSR, RMR
Notary Public, Macon County, Illinois
Illinois CSR No. 084-2149

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