ORIGINAL

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF

AMENDMENTS TO 35 ILL.	)	
ADM CODE 302.202, 302.212,	)	R94-1(B)
302.213, 304.122 AND 304.301	)	(Rulemaking)
(Ammonia Nitrogen)	)	

Report of proceedings had in the above-entitled cause, before Ms. Diane O'Neill, the Hearing Officer, on February 22, 1996 at the hour of 10:00 o'clock a.m. at the State of Illinois Building, 100 West Randolph, Chicago, IL 60601.

APPEARANCES:

MS. DIANE O'NEILL, The Hearing Officer
MR. J. THEODORE MEYER, Board Member
MR. EMMETT E. DUNHAM, Board Member
DR. RONALD FLEMAL, Board Member
MS. MARILI MC FAWN, Board Member
MS. AMY HOOGASIAN, Board Staff

APPEARANCES: (Continued)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Mr. Bruce L. Carlson

Ms. Margaret P. Howard

Mr. Joel Cross

Mr. Dean J. Studer

Mr. Robert G. Mosher

Mr. Steve Vance

THE HEARING OFFICER: Good morning. This is a public hearing held by the Pollution Control Board in Docket No. R94-1(B) in the matter of amendments to 35 Illinois Administrative Code 302.202, 302.212, 302.213 and 304.301 dealing with amendments to ammonia nitrogen rule.

My name is Diane O'Neill, I'm the Hearing Officer for this hearing. The attendant Board member is Emmett Dunham who is seated to my left.

We also have with us today Board member Dr. Ronald Flemal who is on my right.

Chairman Clara Manning had planned to be with us today, but for unforeseen circumstances she was unable to make it up from Springfield, but we do have her assistant with us today, Amy Hoogasian.

And we also have present from the Board our -- from our technical staff Hiten Soni.

Now, the Agency filed these proposed amendments with the Board on February 24th, 1994. This proposal was filed pursuant to Section 27 of the Environmental Protection Act.

The Agency has certified that the proposed rulemaking is needed to fulfill the requirements of the Federal Clean Water Act.

The Board has accepted the proposed rulemaking as a Federally required rule pursuant to Section 28.2 of the act.

The Board must adopt a rule that meets the applicable Federal standard and is consistent with Illinois statute.

On January 4th, 1996, the Board severed the proposed amendments into two dockets. Subdocket A contains a proposed amendments to the lead and mercury water quality standards.

The amendments in subdocket A were published for first notice January 26, 1996.

Subdocket B contains the proposed amendments to the ammonia nitrogen rule water quality standard, and this hearing is on subdocket B, the amendments to ammonia nitrogen.

The Hearing Officer orders scheduling this hearing, establishes scheduling for the presubmission of testimony and questions.

The Board received prefiled testimony from several parties. Like I said, I hope there's copies on the side there for anybody who has not already received them.

Testimony was submitted by the Illinois

Environmental Protection Agency, Sailesh Jantrania, on behalf of Borden Chemicals & Plastics, James Daugherty on behalf of the Illinois Association of Wastewater Agencies, Greg Buchner on behalf of the Fox Metro Water Reclamation District and by James Huff on behalf of the Ammonia Group.

In order to expedite this proceeding, I request that all prefiled testimony be entered as if read.

By entered as if read, I mean that the prepared testimony with any corrections is entered as an exhibit and will be made part of the transcript.

It will be treated the same as if it were actually read into the transcript.

And as this is a rulemaking and not a contested case, all relevant, not duplicative information will be allowed into the record.

We also have as the preliminary, we have a motion that is before the Board in this matter.

There was a motion filed by the Agency on February 13th, 1996 to strike the testimony of Sailesh Jantrania on behalf of Borden Chemicals and Plastics.

Borden Chemicals and Plastics filed a

response to the motion on February 14, 1996. A response to the motion was also filed by the Ammonia Group.

On February 16th, a Hearing Officer order was issued denying the motion to strike.

Yesterday the Agency filed its reply to the response. After reviewing the reply by the Agency, I find no reason to change the Hearing Officer order of February 16th allowing the testimony from Borden Chemicals and Plastics.

Therefore, we will allow the testimony to be entered into the record today. And the Agency's objection to the testimony will be entered into the record.

Are there any other preliminary matters or motions that need to be addressed that time?

MS. HOWARD: No.

THE HEARING OFFICER: I guess we can begin with the Agency's testimony.

MS. HOWARD: We have a revised cost estimate statement that we would like to make to revise the testimony of Dean Studer.

MR. DUNHAM: Is this a revision from the January 29th, pretrial testimony as well or is this the

revision in that testimony?

MS. HOWARD: I believe this is a revision of that. Yes, this revises that section.

MR. DUNHAM: Okay.

THE HEARING OFFICER: Do you know what exhibit that was entered as?

MR. DUNHAM: 2-S, I believe, wasn't it?

MS. HOWARD: It's actually a revision of Section D on pages 40 through 43. It would supplement that section.

THE HEARING OFFICER: It was previously entered as Exhibit 2 at the November 10th hearing.

MS. HOWARD: Right. We filed it on January 26, 1996.

THE HEARING OFFICER: So this testimony hasn't been entered?

MR. CARLSON: This is an update of those pages from the Agency's additional comments filed January 26th -- or dated January 26th.

MR. DUNHAM: You're talking about the economic impact if the proposed ammonia nitrogen standards are not adopted or are you talking about the proposed impact if they are adopted on page 39?

MS. HOWARD: On page 40, the economic impact if

the proposed ammonia nitrogen standards are not adopted.

THE HEARING OFFICER: Do you have replacement pages for that testimony?

MS. HOWARD: It's not a replacement, it's a supplement, what he would be testifying to right now.

MR. CUNNINGHAM: Can I see a copy?

MS. HOWARD: He's going to read a statement. It's not something we are entering.

MR. CUNNINGHAM: I have a question here.

THE HEARING OFFICER: I'm sorry, if you're going to make a statement, you need to identify yourself for the court reporter.

MR. CUNNINGHAM: I'm Lee Cunningham, Gardner, Carton & Douglas on behalf of the Ammonia Group.

The Agency's testimony was actually presented as additional comments, and we're now talking about modification of Dean Studer's testimony.

It would seem to me to be helpful if we could identify who's testimony this really is, who is responsible for what part of it.

MS. HOWARD: This is the economic statement that

was made and this was testimony that -- or it's information that Dean Studer put together.

MR. CUNNINGHAM: So that's -- you're talking about this, on pages forty through -- to the conclusion?

MS. HOWARD: Forty through forty-three.

MR. DUNHAM: Well, the economic starts before that, on page 30 or so?

MS. HOWARD: Right.

MR. DUNHAM: Or page what?

MS. HOWARD: This D section is the section that Dean researched and he's familiar with. The other economic section is what Bob did.

THE HEARING OFFICER: Okay. All right. We want to swear in the Agency's witnesses first off.

THE HEARING OFFICER: I ask the court reporter to swear in the witnesses for the Agency.

(Agency witnesses sworn.)

THE HEARING OFFICER: I just also want you to identify who you have with you today for the record.

MS. HOWARD: My name is Margaret Howard, and I represent the Illinois EPA.

Mr. Bruce Carlson is also an attorney with the Illinois EPA. Dean -- Mr. Dean Studer is with

the permit section. Mr. Steve Vance is with the planning section.

Mr. Joel Cross is the supervisor for the planning section, and Mr. Bob Mosher or Robert Mosher is also with the planning section.

THE HEARING OFFICER: Thank you.

MR. STUDER: In the prefiled Agency's additional comments, the Agency identified seven facilities as unable to comply with the existing water quality standards during the winter months due to the expiration of the 4.0 milligram per liter winter ammonia nitrogen effluent standard of 35 Illinois Administrative Code 304.301.

All seven of these facilities can and have complied with the winter monthly average ammonia nitrogen effluent limit of 4.0 milligrams per liter and a summer monthly average ammonia nitrogen effluent limit of 1.5 milligrams per liter.

In the prefiled comments, the Agency estimated that the cost to upgrade these facilities would be roughly equal to the cost of going from a secondary plant to a secondary plant designed to remove ammonia nitrogen.

Since the time of the filing of the prefiled

comments, the Agency has re-evaluated these estimated costs and has developed more accurate cost estimates from actual wastewater treatment plant performance in Illinois.

These revised cost estimates are based on several presumptions. First, it was presumed that a 2.0 milligram per liter total ammonia nitrogen concentration would be sufficient to comply with the current 0.04 milligram per liter un-ionized ammonia water quality standard.

The second presumption is that organic loading in the aeration tanks of 8 pounds BOD per 1,000 cubic feet and a hydraulic retention time of at least 24 hours will allow a 2.0 milligram per liter total ammonia effluent to be met.

Third, protection from excess flows and hydraulic surges must be provided.

Typically this is done by the use of sidestream excess flow treatment facilities.

The final presumption is that adequate pretreatment exists to protect the treatment process from toxics and to keep the influent wastewater within design strengths.

Means Building Construction Cost Data 1994

and adjusted to 1996 dollars was used to prepare the construction cost estimates. These estimates include overhead, profit and contingency.

The following are construction cost estimates based on design average flow for adding treatment to meet winter ammonia nitrogen effluent limits for activated sludge plants.

One milligram per liter would cost $2 million. That's one MGD would be $2 million. A 5 MGD plant would be 6,440,000. A 10 MGD plant would be $11,800,000. And a 20 MGD plant would be $22,800,000.

An exhibit showing these costs graphed as a function of plant size will be presented at the end of this statement.

The estimates for additional treatment for the seven identified municipal dischargers as derived from the graphs are given as follows.

One of the plants at one MGD would cost $2 million, one of the seven plants at 1.045 MGD would be $2,050,000.

One plant at 1.68 MGD is 2,755,000. One plant at 1.837 MGD would be $2,929,000. One plant at 3 MGD is $4,220,000.

One plant at 4.5 MGD is $5,885,000. And one plant at 41 MGD which would be $46,700,000.

A total of seven plants with a combined design average flow of 54.062 MGD and a total cost of $66,000,539.

The revised total capital cost estimate for these seven facilities is in excess of $66 million.

It is important to realize that these facilities have already borne the cost of constructing best degree of treatment for ammonia removal once, and now if the proposed ammonia nitrogen standards are not adopted with their EMW provisions before the end of these facilities' compliance schedules, these same facilities will be required to expend in excess of $66 million to comply with existing ammonia nitrogen requirements.

This is an enormous sum of money to be spent especially considering that the Agency has not found instances of ammonia degradation in the receiving waters below these facilities.

If this current trend continues, it is reasonable to assume that these numbers would double when the current five year NPDES cycle is complete and could reach a total of well of excess of $132

million.

The Agency believes that this will continue for the next two to three years and will stop only after all major municipal NPDES permits in the current NPDES cycle have been renewed.

MS. HOWARD: We can enter this as the next exhibit. You should have copies of it.

This is one of them. We would like to enter it as copies. We just have one exhibit.

THE HEARING OFFICER: You're entering the graph of the plant size versus the cost?

MS. HOWARD: Right.

THE HEARING OFFICER: It will be Exhibit No. 40. Can we have some extra copies for the Board members?

MS. HOWARD: Sure. I'm sorry.

THE HEARING OFFICER: I would also like to note for the record that Board member, J. Theodore Meyer has joined us at the hearing.

MR. CUNNINGHAM: Do we have an exhibit number on this?

THE HEARING OFFICER: Exhibit No. 40.

MR. DUNHAM: Is it the Agency's position that the effluent modified waters provision and the proposed language of this rule would take care of these

construction costs or obviate the need for additional construction?

MR. STUDER: That is correct.

MS. HOWARD: There's one clarification I would like to make. Mr. Studer when you read seven plants at 54.062 MGD, did you intend that the total cost would be $66,539,000?

MR. STUDER: That's correct.

MS. HOWARD: The Agency would request that the Agency's additional comments that were filed on January 26th, 1996 including Mr. Studer's revised statement be entered as an exhibit.

THE HEARING OFFICER: Okay.

MR. CUNNINGHAM: I have an objection to that. Still I think we need to identify who's testimony this actually is before we have it entered into the record as testimony. At this point it's just comments.

MS. HOWARD: The Agency was under the impression that when the Board met with us for the prehearing conference that we had to -- they wanted additional information, so we labeled the document additional comments.

Different Agency personnel were responsible

for researching to answer the different issues raised by the Board.

Do you guys want to -- I could go through each one.

THE HEARING OFFICER: I think it's acceptable to just enter this as an Agency comment, and then as we go through the questions, the Agency will direct it to the personnel that are most able to answer it, and then I think from there we can determine --

MR. CUNNINGHAM: I guess so long as it's made clear that these are just Agency comments, should not be given the same weight as sworn testimony, I don't have any problem with that.

THE HEARING OFFICER: Okay. We'll note that for the record. So we will enter the Agency comments.

MR. DUNHAM: The alternative I believe would be to -- could this be entered as a group effort and as the sworn testimony of these individuals here, was it worked on by other people?

MS. HOWARD: Oh, no.

MR. DUNHAM: This is the group that produced --

MS. HOWARD: This is the group that put the additional comments together.

MR. DUNHAM: Is there an objection to this being

the sworn testimony of this group?

MR. CUNNINGHAM: Well, I'll tell you all and all it's a little bit troublesome that this hasn't been divided out into any one's particular testimony, but I won't object to that.

MR. DUNHAM: I have some trouble with it myself because I don't know whose comments I was reading, but it appears to be within a narrow universe of persons.

THE HEARING OFFICER: I think we can note that it is an Agency's additional comment and it's not identified exactly to which members of the Agency prepared which parts of the document and leave it up to the Board to give it its proper weight, whether it needs to be considered as sworn testimony.

So we can enter the Agency's additional comments as Exhibit No. 41.

Does that conclude the Agency's presentation of testimony?

MR. MOSHER: No.

MS. HOWARD: I just wanted to reiterate the point that the Agency based on what was said at the prehearing conference was under the impression that the Board wanted additional comments from the Agency,

and that's why we did not specifically label anything testimony.

We had a combined effort of the four people that are sitting before the Board today, put together the information that went into the document entitled Agency Additional Comments, and it was not an intent to take away any weight from the information that's contained in the additional comments.

It's not the intent of the Agency, but that it was just a matter of we were under the impression it was just additional information that the Board needed from the Agency as a whole, and that's why the four people that are here are the ones that put those comments together.

I just wanted to make sure that that was clear. That's the end of our comments.

THE HEARING OFFICER: We can move on to the questions that were prefiled in this matter to the Agency.

I would like to start with the questions from the Sierra Club. Mary Ross, I would like you to identify yourself for the record and then just ask the questions.

MS. ROSS: Mary ross with the Illinois Chapter of

the Sierra Club. Should I read them into the record?

THE HEARING OFFICER: Yes, please.

MS. ROSS: Our first question is that the IEPA repeatedly asserts that ammonia discharge has not resulted in changes in aquatic ecosystems systems in Illinois.

Based on the evidence presented in the following studies to which -- to the questions we attached copies of summaries or abstract, how can the IEPA claim ammonia has not adversely affected the aquatic life in the Illinois waterways.

I'll just summarize for the record. We included a summary of the Illinois River Fingernail Clam Toxicity Study, a study by Neiderlehner and Cairns reguarding a study on periphyton communities in ammonia concentrations, and a study about adverse effects of ammonia of several species.

MR. MOSHER: Our answer to the first part of Mary's Question No. 1, the statement attributed to the Agency requires a bit of clarification.

We have stated that discharges meeting monthly average permit limits of 1.5 and 4.0 milligram per liter total ammonia nitrogen and

discharging into the small to medium size streams that are feasible to routinely study have caused no impacts to the stream biota that we are aware of.

This is not to say that ammonia discharges of the past have not changed ecosystems in Illinois, nor is it correct to say that no existing discharges have impacted ecosystems.

Our point is that dischargers displaying a certain amount of ammonia removal ability do not seem to be causing an impact.

Our answer to subpart A of your question, the Agency is aware of the condition of fingernail clam and other populations on the upper Illinois River.

We believe the causes of this adverse impact are complex and involve the entire history of discharges to this river system dating back over 100 years.

Present ammonia discharges cannot be considered to prevent the recovery of this resource, and the discovery of recolonization sites by fingernail clams speaks to the overall improvements in ammonia removal at the major discharges just -- dischargers to the river and other pollution control

now employed.

Our answer to B of question No. 1, the effects of ammonia on periphyton have not been included in the Agency's water quality derivation process.

The diverse group of species considered to constitute periphyton is unlike the other species used in our derivation as well as that of USEPA.

Periphyton are very small organisms and the test procedures used are out of the ordinary.

Many separate species of plants and animals are included in the term periphyton.

We concede that reported effects may be significant, but not enough is known about how this type of data should be interpreted for the Agency to change its recommendation for ammonia standards.

My answer to C, the paper you cite on the effects of ammonia to fish and invertebrates and outdoor experimental streams was known to us as we prepared our ammonia water quality standard derivation.

This study is variable because it confirms results obtained under more controlled conditions in the laboratory, that is the toxicity data used to

calculate the standards the Agency has proposed.

It is true that sometimes an experiment will show that a given species expresses adverse effects at concentrations at the same concentration or even lower than a standard.

The process of taking geometric means of the available data for a species implies that the lower concentration as well as the higher concentration adverse effects responses of a species will get average doubt.

A certain amount of variability is to be expected in these types of studies, and the derivation process factors this into the final standard.

The Agency regards the findings of the Hurmatic and others study as confirming the credibility of the standards we have proposed.

They are protective of aquatic life in Illinois without being overly protective.

MS. ROSS: Can I ask a follow-up question? You mentioned a 1.5 and four --

THE HEARING OFFICER: I think we're having trouble hearing you.

MS. ROSS: You refer to 1.5 before effluent

standards, isn't that the current effluent standard in the existing rules?

MR. MOSHER: No. There was an expired effluent standard that allowed the 4.0 in the winter, that expired five years ago.

The 1.5 part of that was in the existing water quality standard for ammonia as what we refer to as the floor.

It never got more stringent than that. Those just so happen to be the numbers we are proposing that facilities qualifying for effluent modified waters must meet as permit limits.

MS. ROSS: A quick question, why monthly, why a monthly average?

MR. STUDER: The 4.0 milligram per liter was contained in 35 Illinois Administrative Code 304.301, that section expired on July 1st of 1991.

As Board regulations are prescribed as monthly averages, that is the process on which it was used.

MS. ROSS: A question about the periphyton related species. Because you don't know all species, and little critters are probably very important to the ecosystem, wouldn't it be important to use the

most conservative standard since it is possible and, in fact, you know, it appears likely that adverse effects on the ecosystem occur at concentrations lower than what may affect some fish in bigger species?

MR. MOSHER: Well, I did state that it's data that we ought to pay attention to, but our problem with it was that all the other toxicity tests that we used to come up with this standard were of a very set pattern done under certain procedures, certain methodologies, and the periphyton test just wasn't anything like those, so we don't know how comparable it is.

We don't believe it can just be -- that data for the periphyton can just be inserted with all the rest of the data.

And for us to react to it like it was done under those same methodologies, it's a problem.

This is something relatively new on the scene, periphyton type studies. USEPA didn't have to deal with it. We don't have guidance from them on how we should deal with it.

It's just something that doesn't seem to fit in what we derived.

MS. ROSS: But in health based studies, it's common to use a margin of safety factor like a ten or something like that to accommodate effects that aren't necessarily -- effects on very susceptible species.

Your procedure takes the most sensitive species, but because you're not necessarily considering everything, wouldn't it be advisable to take -- to add some sort of margin of safety and use the lowest possible standard?

MR. MOSHER: I believe there already is a margin of safety in what we have derived.

The guidelines for deriving water quality criteria for protecting aquatic life never -- USEPA plainly states in their guidance document that it's not a method that seeks to protect absolutely every species, and that's the basis on how they do it.

So all I can say is that safety factors get added on in other ways, and we feel that we're protecting all the aquatic life that is found in general use waters of Illinois by what we proposed.

MS. ROSS: One final question about the 1.4 and 4.0, just a question, would it be possible for facilities to meet a less than monthly standard like

a daily standard or weekly average?

MR. MOSHER: Well, there will be a daily maximum limit in those permits that will be set equal to the proposed acute standards, so to protect toxicity that might occur within hours or a few days, we're saying that none of these facilities on the small streams could ever exceed that acute standard.

That's one of the conditions for effluent modified waters.

MR. ETTINGER: I'm also with the Sierra Club. I'm Albert Ettinger.

THE HEARING OFFICER: Spell your name for the record.

MR. ETTINGER: E-t-t-i-n-g-e-r.

What would be the daily maximum be if you had a 1.5 monthly average?

MR. MOSHER: The daily maximum would be contingent upon the pH and temperature values that we find in the receiving stream.

Currently we use 75th percentile of those values from a long term data base.

The range in terms of total ammonia, I can give you kind of an estimate, that those daily maximums would be somewhere around three parts per

million total ammonia on up to seven or eight parts, and that strictly, you know, depends on what pH and temperature we use for the specific discharge.

MR. ETTINGER: So a 1.5 monthly average would get you a three to five daily max probably.

MR. MOSHER: Three to eight I think I said, something like that.

MR. ETTINGER: Thank you.

DR. FLEMAL: To follow up on the studies that have been provided to us, my understanding of the natural history surveys of the Illinois River study was that the high ammonia concentrations were largely port water concentrations.

Do you make anything of the fact that it was port water concentrations were the toxic parts as opposed to water column concentrations?

MR. MOSHER: Yes. That's why I -- my answer involved the past hundred years of history and the fact that some of the sediments in our rivers, especially the upper Illinois River are and do have a high ammonia concentration.

And I don't know that anyone really knows exactly where it came from. But one theory is that the past sins of dischargers through the years has

caused that accumulation.

And what we are -- our point that we wanted to make that was present levels of ammonia in wastewater effluence can't account for the toxicity that they're seeing in these fingernail clams, so it must be we think something in the sediment.

DR. FLEMAL: Do we encounter sediment conditions with that high level of ammonia toxicity anywhere else on the Illinois River, or is it peculiar to there?

MR. MOSHER: The fingernail clams really are a very common species, and I don't know anywhere elsewhere where they've been depleted on the large scale that they have been in the Illinois river.

So if we use the presence of fingernail clams as our guide, I don't personally know of any other problem areas with this type of toxicity.

THE HEARING OFFICER: You have to identify yourself.

MR. LEJA: I'm also with the Sierra Club, my name is Bill Leja.

THE HEARING OFFICER: Could you just spell your name for the record?

MR. LEJA: L-e-j-a. Fingernail clam

disappearances have been reported in many large rivers, the upper Mississippi River and I believe the river downstream of Des Moines, Iowa and probably others, so it's not a phenomenon limited to the Illinois River.

THE HEARING OFFICER: Did you have one more question for the Agency?

MS. ROSS: The second question is: Why are the existing Board procedures that allow dischargers to request relief from a regulatory requirement so inadequate that an effluent modified water concentration must be created?

MR. MOSHER: Hundreds of treatment facilities exist in Illinois that discharge to small streams and are designed according to what most would regard as the best treatment technology available for ammonia removal.

Nonetheless, very few of these plants can meet the proposed chronic standards at all times.

Forcing each of these communities and industries to follow the Board's existing procedures to obtain adjusted standards for their particular needs would be extremely expensive and would provide no benefit to the environment.

The Agency believes that the effluent limits proposed that would in part allow the effluent modified water designation should be attained by all plants discharging under conditions of limited delusion and should be universally applied to these facilities.

Adherence to the effluent limits dictated by our proposal will ensure that receiving streams will support an unimpacted community of aquatic life with regard to ammonia.

The Agency sees the effluent modified water imperative as the only viable way that it can recognize the limits of the best reasonably available ammonia removal technology and keep its resources free to deal with other regulatory matters.

There is, of course, nothing inadequate about the way the Board adopts adjusted standards, however, we see no point in repeating an identical process hundreds of times.

Under or proposal, once a discharger has accepted permit limits reflective of the minimum requirements of treatment and no evidence exists that the receiving stream is impacted by ammonia, the Agency will be able to administer the relief needed

from the water quality standard.

THE HEARING OFFICER: Did you have any follow-up questions to that?

MS. ROSS: Sorry. How does the effluent modified waters classification relate to the non-degradation requirements of the Clean Water Act and the Illinois Environmental Protection Act?

MR. MOSHER: We're not allowing any additional ammonia loading by designating a stream effluent modified water and giving these dischargers 1.5 and 4 limits.

So I see no cause to invoke the non-degradation rule in those cases.

MS. ROSS: But as sewage treatment plants grow, are you saying that their ammonia discharge would be frozen at a certain limit?

MR. MOSHER: If they grow, then they are subject to the non-degradation rule because additional ammonia loading may result from that growth.

MS. ROSS: And you're saying that granting effluent modified through your administrative procedures would not cause increased ammonia discharge to the rivers?

MR. MOSHER: Not at this point in time. If we

take all these several hundred dischargers and renew their permits for the same design average flow that they now have, that doesn't represent an increase in loading of ammonia. So granting them effluent modified waters is not in violation of non-degradation.

If they later on come and say we're growing, we need more design treatment, have to build something, then we would put that facility through the non-degradation review that we currently use.

MS. ROSS: What is the current non-degradation review?

MR. MOSHER: The Board has a regulation at 302.105, I believe, that says that the -- essentially I guess I can paraphrase it, that water shall not be reduced in their quality by any increase and loading of pollutants.

And to implement that rule, the Agency has a procedure where when any permittee comes to us and says we need to expand our plant or we want to build a new plant for any kind of facility, we look at that as a potential to violate the non-degradation rule because more of some pollutant might be added to a receiving water.

We use our biological streams classification system to look at the present biological quality of the stream, and where there is an existing very high quality that we feel might be impacted by an increased loading, that sends this given discharger's request into a more complicated study where we want to answer the question is what you're planning to increase, does that have any potential to violate the Board's rule cause degradation to your receiving water.

So if it's a stream in Illinois that doesn't have this really high level of quality, it's then easier for us to make the decision that that won't be further degraded by the new discharge.

And as waters get more and more high quality, the decision becomes more involved and more data is needed possibly.

MS. ROSS: Okay. Thanks.

THE HEARING OFFICER: The next set of prefiled questions that we have are from the Illinois Association of Wastewater Agencies.

MR. DAUGHERTY: Good morning. My name is Jim Daugherty, representing the Illinois Association of Wastewater Agencies.

My questions for the Agency on pages 17 through 21 of the Agency's additional comments, you presented a recalculation of proposed ammonia nitrogen water quality standards including additional toxicity study completed since the original derivation.

And the concluding paragraph of the original testimony in this proceeding, the Illinois Association of Wastewater Agency stated that: "It encourages the adoption of regulations which are based on scientific understanding."

Which standards, the original or the recalculated best reflect a rigorous scientific analysis of all the current data on toxicity of ammonia nitrogen?

MR. MOSHER: The recalculated standards reflect the latest toxicity data and, therefore, better represent water quality standards based on the toxicity of ammonia nitrogen.

MR. DAUGHERTY: Would you urge that the Board adopt revised calculated numbers?

MR. MOSHER: Yes. Let me read a statement. The Agency provide USEPA with copies of the papers from which the new data on ammonia toxicity was obtained.

Their approval of the resulting updated acute and chronic ammonia standards is expressed in a letter which we now provide for the R94-1 record.

MS. HOWARD: Here's the original and some extra copies that were sent over with it.

THE HEARING OFFICER: Question make some copies later.

We'll enter this as Exhibit 42. It's a letter from the USEPA to Joe Cross of the Illinois Environmental Protection Agency.

It's dated February 21st, 1996, and it's Exhibit No. 42.

MR. DAUGHERTY: It might be beneficial for you to read it so everyone understands what the letter says.

MR. MOSHER: Dear Mr. Cross, Region 5 received the Illinois Environmental Protection Agency's additional comments on the R94-1(B) rulemaking as submitted to the Illinois Pollution Control Board and dated January 26, 1996.

We also received the comments of the Illinois Association of Wastewater Agency's (IAWA) dated January 25, 1996.

As requested, these documents were reviews

reviewed for consistency with the Clean Water Act (CWA) and Federal regulations.

In particular, the section pertaining to the Agency's review of the current scientific information on ammonia toxicity and the subsequent revision of the criteria and the IAWA's proposed recording of Sections 302.213 and 304.122 are consistent with the CWA and Federal regulations.

If you have questions regarding this matter, please do not hesitate to contact Edward Hammer of my staff at (312) 886-3019.

Sincerely yours, Joan Karnauskas, chief standards and applied sciences branch.

And that letter is dated February 21st, 1996.

MR. DAUGHERTY: Thank you. My next question relates to the proposed rewording by the Illinois Association of Wastewater Agency.

Does the Agency oppose the opposed rewording proposed by the Illinois Association of Wastewater Agencies for Sections 302.213 and Section 304.12(D)?

MR. MOSHER: I'll read a statement I hope answers that.

Additionally, the Agency solicited USEPA's

concurrence regarding the proposed changes to 35 Illinois Administrative Code 304.122 as introduced into the record by the IAWA and since augmented by the Agency.

IAWA and the Agency are in agreement with the Agency's modification of IAWA's changes, and USEPA as I just read also agrees that these changes are appropriate.

A copy of the newly modified language of this section is provided. And again, I just read the USEPA concurrence letter.

MS. HOWARD: I think you should also have copies in the packet that I gave you.

MR. DAUGHERTY: Okay. No further questions. Thank you.

THE HEARING OFFICER: We need to enter this as an exhibit, the proposed IAWA modifications should be entered as Exhibit 43.

MS. ROSS: Madam Hearing Officer, can we follow up on that?

What is the existing proposal now then? Is it what's submitted in your amended testimony?

MR. MOSHER: They're passing out copies. There is a few words changed in parts -- in part 304.122.

THE HEARING OFFICER: I would like to note for the record that Board Member Marili McFawn has joined our hearing.

Are we ready to move on to the next set of questions? The next set of prefiled questions for the Agency were from the Ammonia Group, Mr. Lee Cunningham.

MR. CUNNINGHAM: Yes.

THE HEARING OFFICER: Do you want to ask the questions from there or do you want to come up to the table?

MR. CUNNINGHAM: Actually I would be happy to come up to the table.

It would be nice to be able to spread out a little bit.

MR. CUNNINGHAM: Could Mr. Huff come up as well?

THE HEARING OFFICER: Sure.

MR. CUNNINGHAM: Question 1: On page 2 of the Agency's comments, the Agency states that "based on this letter and other indications made by USEPA personnel, the Agency believes that USEPA would implement the ammonia nitrogen standards found," in the NCD if the Agency's proposal is not adopted.

(A) Could the Agency specify what these

other indications are?

MR. CROSS: During the development of the proposed ammonia nitrogen standards, the Agency spent several months in negotiations with USEPA seeking their approval.

The phrase "other indications" used in page 2 of the Agency's comments refers specifically to the discussions during these negotiations between USEPA and the Agency.

MR. CUNNINGHAM: (B) Why must the Agency's proposal in particular be adopted?

MR. CROSS: The Agency's proposal is the only proposal before the Illinois Pollution Control Board that has been approved by the USEPA.

MR. CUNNINGHAM: But that does not mean that there are not other proposed -- let's make this more positive.

Is it possible that there are alternative proposals that would be acceptable by USEPA?

MR. CROSS: I am stating that the proposals that are before the Board that have been reviewed by the USEPA, the only ones that they have reviewed and approved is the ones proposed by the Agency.

MR. CUNNINGHAM: I"m asking, isn't it possible

that there are other rules which could be adopted which would be acceptable by USEPA?

MS. HOWARD: I'm going to object to the question.

I don't know that we could answer -- I mean there's hundreds and thousands of rules that could possibly be drafted that could be posed before the Board, but whether we could say whether USEPA would be able to -- would approve them, we're not in the shoes of the USEPA.

MR. CUNNINGHAM: Has USEPA ever said to you that the only proposal that would be acceptable to us is the Agency's proposal?

MR. CROSS: No.

MR. CUNNINGHAM: Thank you.

Question 2: When was the last time the USEPA adopted a water quality standard applicable specifically to Illinois based upon the inadequacy of a Board-adopted water quality standard?

MR. CROSS: To the extent of my knowledge, the USEPA has not adopted a water quality standard applicable to Illinois specifically.

This has been due to the fact that up to this point in time, Illinois Pollution Control Board

proceedings have resulted in the adoption of water quality standards that have been consistent with the goals and intent of the Clean Water Act, or in other words, approval by USEPA.

I am aware of at least one example in Region 5 where USEPA initiated promulgation of water quality regulation.

That involved a situation where the state did not have a designated use established for a particular river.

Efforts made by that state up until that point had not been successful.

During the process, USEPA promulgated the regulation. The state did resolve the issue to USEPA satisfaction and the Federal promulgation process was discontinued.

MR. CUNNINGHAM: Thank you.

Three: If the USEPA proposed to implement ammonia water quality standards found in the -- let's add a T in there, implement the ammonia water quality standards found in the NCD, would the Agency support that proposal or oppose it?

MR. CROSS: The Agency will not speculate on such a position at this time without an evaluation and

review of such a proposal by the USEPA.

MR. CUNNINGHAM: If the USEPA were to propose to adopt a rule in Illinois more stringent than the Agency is currently proposing, would the Agency propose that -- oppose that or support it?

MR. CROSS: Again I'm not going to speculate without a thorough evaluation of what that would mean in Illinois.

MR. CUNNINGHAM: Okay.

Four: With the significant cutbacks in USEPA funding, does the Agency anticipate a reduction in USEPA oversight and review of state NPDES permits and water quality standards?

MR. CROSS: The USEPA still does not have an approve budget and, therefore, it is not known at this time what cutbacks USEPA may ultimately be faced with.

There is, however, a reduction in oversight and review of Federal NPDES permits issue by Illinois primarily because as a delegated state, Illinois has demonstrated to USEPA that it has been effective in the administration of that Federal program.

Unlike the NPDES permitting activity, the development of water quality standards is not a USEPA

delegated program activity to states.

USEPA's role is to review state water quality standards, to determine if they are consistent with the goals and the intent of the Clean Water Act and are obligated to develop state water quality standards if a state fails to do so.

To the best of my knowledge, USEPA has no intentions of reducing oversight or review of Illinois water quality standards.

MR. CUNNINGHAM: Has the USEPA reduced -- well, some of this you already answered, but I'll go ahead with the question as submitted, reduced such oversight and review and does it still routinely review NPDES permits for major dischargers?

MR. STUDER: USEPA Region 5 has recently changed the method by which oversight of Illinois' issuance of NPDES permits is accomplished.

This change is reflected in the performance partnership agreement that the Agency and USEPA have now entered into.

Part of the philosophy reflected in that agreement is that where the state conducts rigorous self assessment of its own permitting and other day to day activities -- I'm sorry.

Part of the philosophy reflected in that agreement is that where the state conducts rigorous self assessment of its own environmental programs and is doing a good job of performance, USEPA concurrent review of permitting and other day to day activities can be minimized.

Major municipal NPDES permit renewal applications and requests for modifications are sent to the region soon after the Agency receives them.

For modifications, the Agency and USEPA attempts to reach agreement prior to the permit being drafted.

For reissued permit, the Agency sends a copy of the public notice permit to the region.

Currently reissued NPDES permits are not finalized until the region sends a letter which generally indicates that the region has not reviewed the permit but the Agency may finalize the renewal process consistent with Federally approved procedures and methods at state and Federal regulations.

However, the region may elect to review the permit as part of a post issuance audit.

Since October 1st, 1995, I am not aware of one major municipal reissued permit that the region

has reviewed prior to reissuance.

MR. CUNNINGHAM: Would it be possible for the Agency to submit for this record the performance partnership agreement you referred to?

MS. HOWARD: We could submit it later. We don't have a copy with us.

MR. CUNNINGHAM: Fine.

Six: On page 2 of the Agency's comments, the Agency states that the USEPA's position "will not be modified in light of proposed amendments to the Clean Water Act."

However, isn't it true that, A, those amendments would require the USEPA to update it's criteria for ammonia within one year and indicate that such review is "a high priority"?

MR. CROSS: If I may, could I answer subparts A, B and C collectively?

MR. CUNNINGHAM: Should I read them all?

THE HEARING OFFICER: Yes.

MR. CUNNINGHAM: (b): Those amendments would preclude the USEPA from establishing water quality standards where the the cost is not "reasonably related" to the anticipated benefits and would specifically authorize states to consider costs and

benefits when -- when setting water quality standards (see pages 111 and 112 of the report attached.)

(c): The intent of the proposed amendments is to ensure that "sound science," that should be sound science, not service, is used in setting standards and requirements under the Clean Water Act (see page 97 of the report attached.)

MR. CROSS: Yes. This is true, however, as pointed out in the letter dated December 15th, 1995 from USEPA and entered as Agency Exhibit T with the Agency's additional comments, this bill was passed by the House but not the Senate.

USEPA anticipated that the Senate version would have major changes from the House version.

In addition, the President has threatened to veto the House version of the bill.

Based on these factors, the Agency stands by its statement made in the additional comments that USEPA's position will not be modified in light of the proposed amendments to the Clean Water Act.

However, considering the information contained in the portions of the report on HR 961 attached to the Ammonia Group's prefiled questions, the Agency believes those portions support exactly

what the Agency has done in developing its ammonia nitrogen proposal that is presently before the Board.

As stated in the Agency's proposal package filed with the Board on February 24th, 1994, the Agency's testimony filed with the Board on October 25th, 1994 and various statements made by Agency representatives throughout this proceeding, the Agency found that the ammonia values contained in the national criteria document for ammonia nitrogen to be overly protective for the native and resident species in Illinois' general use waters.

The Agency also took into consider consideration when developing the proposed ammonia nitrogen regulations the compliance abilities of wastewater treatment plants designed to remove ammonia from effluent using a nitrification stage of treatment.

The standards set forth in the Agency's proposal were based on the derivation procedures contained in the Board's regulations in 35 Illinois Administrative Code, Subpart F and utilizing up to date information.

Additional literature searches in the past

few months further updated that information which we discussed in detail in the Agency's additional comments.

So as to question 6(a) proposed by the Ammonia Group, the Agency has updated its criteria for ammonia within the past three months.

With respect to question 6(c), the Agency has already implemented this suggestion by developing these standards according to the most appropriate derivation procedures available and by protecting species that are native and resident to Illinois waters without being overly restrictive.

Illinois has also already implemented the suggestions of HR 961 expressed in question 6(b).

The Illinois General Assembly has required the Board to consider the economic reasonableness as well as the technical feasibility of any regulation proposed under Section 27 of the Environmental Protection Act.

The Agency has specifically provided information on the technical feasibility of this proposal throughout this proceeding over the last two years.

The economic reasonableness of this proposal

has also been continuously updated, even through today's hearing.

Therefore, not only does the Agency stand by its statement that USEPA's position will not be modified in light of the proposed amendments to the Clean Water Act,t he Agency believes that the State of Illinois steps ahead of the suggestions highlighted in HR 961 even if the bill were to be adopted by the Senate and signed by the President unchanged.

MS. HOWARD: Could I interject just for point of clarification?

When you stated that the standards set forth in the Agency's proposal were based on the derivation procedures contained in the Board regulation, did you mean to cite 35 Illinois Administrative Code part 302 subpart F?

MR. CROSS: That's correct.

MR. CUNNINGHAM: No. 7, and I'll give a little preface to this.

On pages two and three of the Agency comments, right at the bottom it states, the Ammonia Group's proposed amendments violated a minimum Section 303 (c)(2)(A) of the Clean Water Act, 40 CFR

122.41(e), 40 CFR 131.10(a) and 40 CFR 131.11(a)(1).

How does the Ammonia Group's proposal violate Section 303 (c)(2)(a) of the Clean Water Act?

MR. CROSS: Again, I will choose to answer all of those subparts collectively if I may.

MR. CUNNINGHAM: Okay. B, 40 CFR 122.41(e). C, 40 CFR 131.10(a). And, D, 40 CFR 131.11(a)(1).

MR. CROSS: On page three of the Agency's additional comments, the Agency stated that: "The Ammonia Group's proposed amendments violate at a minimum Section 303(c)(2)(a) of the Clean Water Act, 40 CFR 131.10(a), and 40 CFR 131.11(a)(1)."

This sentence should actually be amended to add 40 CFR 122.41(e).

This sentence was pertaining to comments made in a letter from USEPA to the Agency dated January 24th, 1995, submitted in this proceeding as Exhibit 37.

The first paragraph of that letter states that: "The proposed changes submitted to the Board by Mr. Lee Cunningham during the public comment period were reviewed by USEPA for consistency with the Clean Water Act (CWA) and Federal regulations."

The last paragraph of that letter states: "The above discussion is by no means an exhaustive recitation of our concerns, however, we tried to highlight the major concerns we have with the proposal.

Overall, USEPA considers Mr. Cunningham's proposed changes to be mostly speculative and without factual support and would if adopted result in disapproval of IEPA's ammonia standard."

The Agency interprets these statements to mean that USEPA has determined that the Ammonia Group represented by Mr. Cunningham proposed amendments to the Agency's proposal would be inconsistent with the Clean Water Act or Federal regulations.

In paragraph three, USEPA stated that Illinois is required under Section 303(c)(2)(a) and 40 CFR 131.11(a)(1) to develop criteria using available data to protect the state's designated uses.

In paragraph four, USEPA stated Clean Water Act and Federal regulations at 303(c)(2)(a) and 40 CFR 131.10(a) prohibit waste assimilation as a use.

In paragraph five, USEPA stated that both General Condition 5 of the National Pollutant

Discharge Elimination System permits issued in Illinois and provisions found at 40 CFR 122.41(e) require that -- require that permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of the permit.

USEPA even stated that they are -- USEPA even stated that they were "intrigued by the language of Mr. Cunningham's proposal as it requires an admission of ongoing permit violation by any permittee who chose to invoke it."

Each of these statements were in response to portions of the Ammonia Group's proposed amendments and in response to the Ammonia Group's criticism of the Agency's proposal.

MR. CUNNINGHAM: Okay. I understand that USEPA doesn't like my proposal and has said it is inconsistent with Federal Law.

My question was directed to what is there about our proposal that is violative of Federal Law, specifically in terms of a couple things I recall your mentioning, what does waste assimilation being prohibited as a use have to do -- how is the Ammonia

Group's proposal violating that?

MR. CROSS: And I believe in the response that I just provided, we indicated that we would amend that statement by saying that it inconsistent with those Federal acts and requirements of state.

MR. CUNNINGHAM: And how is it inconsistent?

MR. CROSS: I already contained that in my response and based on the letter from USEPA, and just went through that explanation.

MR. CUNNINGHAM: How does the Ammonia group's proposal result in waste assimilation as a use?

MS. HOWARD: I'm going to object to the question.

I believe what we are saying is we are citing what USEPA has stated in their letter in terms of specific sections of the Clean Water Act and the Federal regulations that they believe the proposal is inconsistent with that statement.

Now, exactly how they've derived at the conclusions of what they're inconsistent with I think we reviewed by stating exactly what provisions they thought were -- they were inconsistent with, and I think we've already answered the question.

MR. CUNNINGHAM: So, in other words, you're

totally relying on USEPA's stated view?

MS. HOWARD: We're relying on what USEPA put in their letter.

MR. CUNNINGHAM: And there's no independent thinking on the Agency on this issue whatsoever?

MS. HOWARD: We haven't made a review with that -- from that perspective, only USEPA has.

MR. CUNNINGHAM: Gosh, I was kind of hoping you would.

THE HEARING OFFICER: Move on to the next question.

MR. CUNNINGHAM: Yes.

Eight, on page 3 of its comments, the Agency states that "Illinois is the first state in Region 5 to develop and prepare new ammonia nitrogen water quality standards."

(a), how did it come about that Illinois is the first?

MR. MOSHER: Indiana has already adopted the national criteria for ammonia.

Iowa, Missouri and Ohio have adopted ammonia standards based on the national criteria document methodology and adjusted for conditions in those states.

Illinois is, therefore, not the first Region 5 state to review its ammonia standards in recent years, but it is the first state to develop and propose standards based on a methodology different from the national criteria document.

MR. CUNNINGHAM: When did these other states adopt these rules?

MR. MOSHER: I don't know myself.

MR. CARLSON: I believe for most of these it is stated in our comments as to the times.

MR. CUNNINGHAM: So is this just a mistake in saying what the Agency said on page three with respect to us being the first state?

MS. HOWARD: No. The difference is that we're the first to actually develop and proposed standards based on the methodology different from the NCD.

MR. CUNNINGHAM: Okay.

(b), and maybe you've already answered this, can you identify any states that have revised their ammonia water quality standards based on their most recent triennial review?

MR. MOSHER: The Agency has already given the Board the information it has with respect to other states in the Agency's additional comments, in direct

response to the question by the Board requesting information about other states in Region 5 and the remaining border states.

MR. CUNNINGHAM: (c), if so, what standards were adopted by those states?

MR. MOSHER: My answer would be the same again.

MR. CUNNINGHAM: Okay. Do you know what standards Indiana has adopted?

MR. MOSHER: They took a very exact rendition of the national criteria document recommended criteria.

MR. CUNNINGHAM: What criteria are those, what chronic standards?

MR. MOSHER: It's in the form of a formula. It's based on pH and temperature input, and --

MS. HOWARD: The Agency has submitted the national criteria document as an exhibit, and it was with our proposal package that we filed.

MR. CUNNINGHAM: And did they just adopt the whole thing?

MR. MOSHER: That's my understanding.

MR. CUNNINGHAM: Do they have a rule that says the NCD is a rule?

Isn't it possible to go through the NCD and come up with a number of different ways of

calculating limits?

MR. MOSHER: It's my understanding they took the formula provided in the national criteria document.

Once you have that as your standard, your options are very limited. That's it.

MR. CUNNINGHAM: I think I'm missing something here.

There are not -- standards have to somehow be calculated from the national criteria document, correct?

MR. MOSHER: Right.

MR. CUNNINGHAM: How did they go about calculating those standards?

MR. MOSHER: The document gives a formula. You plug in your pH and temperature from your site and outcomes an un-ionized ammonia concentration, that's the standard.

MR. CUNNINGHAM: It's solely pH and temperature?

MR. MOSHER: Yeah. We --

MS. HOWARD: We're going to have to defer to the national criteria document that we entered.

MR. CUNNINGHAM: Okay.

MS. MC FAWN: Is the Indiana rule on record?

MS. HOWARD: In the record?

MS. MC FAWN: Yes.

MS. HOWARD: No. We haven't submitted that.

MR. CUNNINGHAM: Question 9: What, if anything, is the USEPA doing to require any of the states surveyed by the Agency to change their ammonia standards.

MR. MOSHER: It is our understanding that an ammonia standards review will be required of all Region 5 states.

Indiana, Ohio, IAWA and Missouri have apparently completed this task, and we believe that Wisconsin is currently undergoing a review of their ammonia standards.

MR. CUNNINGHAM: You said certain states have completed that review?

MR. MOSHER: Well, again, that would be a good question for USEPA.

It's our understanding from talking to the states, seeing what they have, that it looks like they already have, yes, those certain states I mentioned.

MR. CUNNINGHAM: Do you know what the results of that review were -- those reviews?

MR. MOSHER: We provided the information we had

to the Board.

MR. CUNNINGHAM: So you have nothing beyond what you've already provided?

MR. MOSHER: No.

MR. CUNNINGHAM: Is that same answer true for 10, which, if any, of those states have pending rulemakings to change their ammonia water quality standards?

MR. MOSHER: Same answer.

MR. CUNNINGHAM: Eleven, how many times has the USEPA taken over an NPDES permit issued by the Agency because state action was unacceptable?

MR. STUDER: The Agency turns NPDES permits over to USEPA when the region objects to a proposed NPDES permit and the Agency, the discharger, and USEPA have failed to agree on how to resolve the objection.

The process starts when the Agency sends USEPA proposed NPDES permit, a permit which has gone through the public notice process and the Agency considers acceptable.

In accordance with Federal regulations, USEPA must either accept the proposed permit or issue a letter stating specific objections to the proposed permit within ninety days of its receipt.

If an objection letter is sent and the Agency and USEPA cannot find a solution, typically USEPA's first step is to threaten to hold a hearing on the proposed permit.

Although USEPA has threatened to hold a hearing, to my knowledge no hearings have ever taken place.

Generally that permit application process then remains on hold until USEPA asks the Agency to resolve the issue.

The most recent example of this is the attempted reissuance of the Metropolitan Water Reclamation District of Greater Chicago's Stickney plant's permit.

MR. CUNNINGHAM: Has USEPA adopted Federal ammonia standards in lieu of the state's standards in any of the states surveyed by the Agency? And if not, why not?

MR. MOSHER: Is that question 12?

MR. CUNNINGHAM: Yes.

MR. MOSHER: May answer would be the same as it was for question 10.

MR. CUNNINGHAM: Which is you have nothing to add.

MR. MOSHER: We provided the Board with the information we had.

MR. CUNNINGHAM: And does that information indicate that this has ever happened?

MS. HOWARD: It depends on which state you're talking about.

MR. CUNNINGHAM: Any of them.

MS. HOWARD: We submitted specific comments about what we knew about each individual state, and it's contained within our additional comments, the states that surround Illinois or are Region 5.

THE HEARING OFFICER: So the question has already been answered.

MR. CUNNINGHAM: Okay.

Thirteen, in monitoring stream temperature and pH for determining the 75th percentile values for the Agency's mass balance calculation procedure, what is the minimum number of samples and minimum monitoring duration acceptable to the Agency for the calculation of water qualify based effluent limits and how has this policy changed over the past five years?

MR. MOSHER: The Agency uses the most recent ten years of pH and temperature data available when

utilizing a downstream ambient water quality monitoring network sampling station as the source of this data.

This generally means that 90 individual samples are included.

Due to the uncertainties of weather patterns from one year to the next, review of data collected only over a one year period could yield misleading conclusions no matter how many samples were taken over that period.

On an ideal basis, three years of data collected once per week is probably adequate under most circumstances.

For streams that receive little flow, other than that from a single discharger, less data could be acceptable provided that several years are represented.

Over the last five years, the Agency has required monitoring periods of at least a year and on upwards.

MR. CUNNINGHAM: So are you saying that if someone wants to develop site specific pH and temperature data to support an effluent limit other than what would -- the Agency would base upon its

nearest monitoring station or whatever, that that process would take at least three years?

MR. MOSHER: In some situations, I think three years would be a good idea.

In others it could be less, but probably no fewer than two years.

MR. CUNNINGHAM: What types of situations would you look for -- what would make you want to look more or less?

MR. MOSHER: As I said, if it's a small receiving stream and there's only one discharger, the two years is probably adequate.

Other situations, I think three years would be good.

MR. CUNNINGHAM: Fourteen, in selecting a location to use for measuring stream temperature and pH, what criteria does the Agency use?

And I'll just read through all these. (a) Can this location be within the mixing zone? (b) Can this location be within the ZID? (c) Can the effluent temperature and pH ever be used? (d) Where are the monitoring locations for the FMWRD, Dixon, Springfield and Rock Falls located in relation to the outfall structures, the mixing zone and the ZID?

MR. MOSHER: There is presently no set formula for determining where the ideal location for sampling should be.

Where the Agency has suggested a particular location, several site-specific factors were relied upon.

These include the volume of flow of the discharge in relation to the size and volume of flow of the receiving stream and the efficiency of mixing known or thought to be present.

The goal in this endeavor is to identify the most critical area for ammonia concentration, pH and temperature to occur.

Protection of aquatic life is the reason for ammonia standards, and this must remain the guiding factor. It may be possible to standardize the selection process, and this, of course, is an issue that may be addressed in an Agency rules document.

Answer to subquestion (a): The ideal location for measuring pH and temperature in a receiving stream could exist in the far field portion of a mixing zone.

(b) Given the limited size, portion to ZIDs, that's zone of initial delusion, the ideal monitoring

area would never occur in a ZID.

This statement is based on the present implementation procedure, that is using a 75th percentile pH and temperature to set permit limits.

(c) Effluent pH and temperature would not likely be similar to that which would occur under conditions of effluent acclimation and/or mixing with the receiving stream so, therefore, effluent values would never be used to establish permit limits.

(d) all of the monitoring areas the Agency identified in the respective receiving streams for these facilities are located downstream of the effluent outfalls.

None are in an area that could ever be located within a ZID should ZIDs ever be granted to these dischargers.

To the Agency's knowledge, only one of these dischargers, FMWRD has ever delineated the mixing zone for their effluent.

Permits now in effect for Springfield Sanitary Discharge, Spring Creek and FMWRD recognize a mixing zone for ammonia under existing standards.

I believe that the sampling locations are either at the edge of the mixing zone or in an area

that would be outside the mixing zone.

MR. CUNNINGHAM: What about Rock Falls?

MR. MOSHER: My last sentence included Rock Falls, included all the ones you mentioned in that question.

MR. CUNNINGHAM: Okay.

Fifteen, isn't it true that the chronic standards adopted by other states are generally established at the hundredth's place rather than the thousandth's place as proposed by the Agency?

MR. MOSHER: It is very common for water quality standards to be expressed to the nearest whole part per billion.

Several metals currently are expressed to this level in the Board's regulations, and the proposed mercury standard is expressed as parts per trillion.

Many other states have these identical standards. States which are operating under the national criteria document for ammonia values used as standards -- excuse me. Let me reread my last sentence.

States which are operating under the national criteria document values as standards for

ammonia are using, we presume, the tables of ammonia values provided by that document.

Tenths of parts per billion or the ten thousandths place in terms of parts per million are given.

There is certainly nothing unusual about the way in which the proposed ammonia standards for Illinois are expressed in our proposal.

MR. CUNNINGHAM: I guess I should have pointed out that I was talking about ammonia chronic standards here.

Isn't it true that the ammonia chronic standards adopted by the other states are generally established at the hundredth place rather than the thousandth's place as proposed by the Agency?

MR. MOSHER: Again, if you're using the national criteria document, criteria for ammonia as Indiana uses, they take it out to the ten thousandth's place.

MR. CUNNINGHAM: But that's one of the all the states you surveyed, correct?

MR. MOSHER: Correct.

MR. CUNNINGHAM: So isn't it true that generally the states that you surveyed have their standards in the hundredth's place?

MR. MOSHER: It's also true most of those states haven't reviewed their ammonia standards in recent years.

MR. CUNNINGHAM: But it is true that most of them are in the hundredth place?

MR. STUDER: When a formula is given in a standard, Lee, I don't think we can answer that.

It's a formula that's a standard for those that have -- for example, Iowa, Missouri and Ohio have developed a formula based on the national criteria document.

MR. CUNNINGHAM: Okay. We'll move on.

Sixteen, various states surveyed by the Agency use default temperature and pH values when sight specific data are not available for determining water qualify based effluent limits.

(a) how does the default values compare to the values the Agency utilizes for dischargers to the Rock and Fox Rivers?

(b) On a 7Q10 low flow stream of zero, what do these default temperature and pH values transfer into for effluent total ammonia limits under the Agency's proposal?

(c) when downstream pH and temperature are

used in other states in lieu of default values, are 75th percentile values used for calculating effluence or are some other values used?

MR. VANCE: For part (a), the values of 7.8 used in Indiana and 7.2 used in Kentucky when site-specific data are not available are typically much less than the 75th percentile pH values when computing effluent limits for discharges to the Rock and Fox Rivers.

These values may represent typical pH values found in those states but definitely do not typify those in Illinois.

Part (b), using a pH of 7.8, temperature of 25 degrees C would result in a thirty day average limit of 1.4, and a daily max of 8.2.

Using the same pH of 7.8, and 10 degree C would result in 1.6 thirty day average and 9.0 daily max.

Using a pH of 7.2 with 25 degrees C, a thirty day average of 5.3, a daily max of 31.8.

And using the same pH of 7.2 with 10 degrees C result in 6.4 thirty day average and 35.4 daily max.

Those are in milligrams per liter, those

concentrations.

MR. CUNNINGHAM: Thank you. And (c)?

MR. VANCE: (c) it is my understanding the states contacted use a 75th percentile with the exception of Michigan and Wisconsin.

And I would like to make a statement. The Agency contacted the Region 5 states along with the other states bordering Illinois to obtain information concerning the ammonia standards currently adopted by each of these states.

The Agency will attempt to clarify portions of our testimony, however, the Agency cannot elaborate on many of the details given.

This information was gathered in November and December of 1995 in response to the Board's request to provide information concerning the status of the remaining Region 5 states with regards to the current ammonia standards that each state has adopted.

MR. CUNNINGHAM: From your survey of the other states, do you know what portion of the stream volume these states used to determine their effluent limits?

MR. VANCE: I don't believe I could state that.

MR. CUNNINGHAM: Okay.

Seventeen, Ohio uses a term "limited aquatic research."

(a) What does this term mean?

(b) How many stream miles are so designated?

(c) Is this similar to 7Q10 low flows of zero?

(d) Is this similar to EMW?

(e) What ammonia effluent limits are applied to dischargers to limited aquatic resources?

MR. VANCE: Part (a), limited aquatic resource should be replaced by limited -- "limited resource water" in the Agency's testimony.

Limited resource water is one of the six aquatic life designations used in Ohio.

These waters -- these are waters that have been found -- that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any other aquatiac life habitat as determined by certain biological criteria.

The use attainability analysis must demonstrate that the extent extant fauna is

substantially degraded and that potential for recovery of the fauna to a level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human induced conditions.

All stream segments designated limited resource water are reviewed on a triennial basis or sooner to determine whether the use designation should be changed.

(b) The number of stream miles designated as limited resource water was not mentioned in my conversation with Ohio Environmental Protection Agency.

(c) No limited resource water -- no. Limited resource water is an aquatic life use designated nation in the state of Ohio.

MR. MOSHER: The answer to D is no. Ohio system uses a an additional category of use designation to account for waters that won't meet the usual water quality standards for ammonia and other parameters.

Decreased expectations for aquatic life are allowed.

Under the effluent modified water concept proposed by the Agency, only ammonia standards are

changed, and all other general use water quality standards are in force.

Expectations for aquatic life quality are not decreased in effluent modified waters proposed for Illinois.

The Agency's proposal requires ammonia removal to the best degree reasonably possible.

I don't think that requirement is in force in Ohio.

DR. FLEMAL: Lee, can I just jump in here and ask something?

MR. CUNNINGHAM: Sure.

DR. FLEMAL: It sounds to me like limited resource water is parallel to our secondary use water, is that fair?

MR. MOSHER: No, because just one parameter, the title of secondary use waters includes the term indigenous aquatic life which kind of implies that only the things that can live there are protected.

We are saying that effluent modified waters will have everything --

DR. FLEMAL: I'm not trying to draw a comparison between effluent modified waters. But limited resource water, the Ohio concept sounds rather --

MR. MOSHER: Oh, okay. The big difference is I believe in Ohio, all of these waters are more or less head water -- we would call them zero flow type streams instead of the canals as it occurs in Illinois.

MR. DUNHAM: The Cuyahoga River in Ohio may or may not be a limited resource water as it goes through close to the Cleveland industrial strip.

MR. MOSHER: I don't know if we can answer that.

MR. DUNHAM: I was thinking in those terms when you were speaking.

MR. CUNNINGHAM: Do you know how typical it would be for a discharger to discharge to a limited resource water in Ohio, whether that's an unusual situation or fairly typical?

MR. MOSHER: I believe it's fairly typical. It would be quite a few of those.

MR. CUNNINGHAM: Do you have any idea how long such a reach might be?

MR. MOSHER: No.

MR. VANCE: Part (e), I did not specifically ask this question when talking to representatives in Ohio, but I would assume effluent limits are pH and temperature dependent for dischargers to these

waters.

MR. CUNNINGHAM: Eighteen, does the 0.05 milligram per liter chronic standard for warm water streams in Michigan apply in both the summer and winter?

MR. VANCE: Yes. It's my understanding it does.

MR. CUNNINGHAM: Is it true generally that where we have warm water and cold water designations that they apply year round, that that has to do with the aquatic life rather than the season?

MR. VANCE: Yeah, I would assume so in most cases.

MR. CUNNINGHAM: Nineteen, on page six of it's comments, the Agency states that "Missouri's use of acute criteria for ammonia nitrogen" differentiates it from Ohio.

Please explain this in more detail and specify the acute criteria.

MR. VANCE: Is it my understanding that Missouri uses acute criteria for all aquatic life water body designations.

This is different from Ohio in that Ohio only implements an acute criteria for dischargers to limited resource water.

MR. CUNNINGHAM: What about what those acute criteria are?

MR. VANCE: I cannot specify the exact number.

MR. CUNNINGHAM: Do they also have a chronic standard or do they go simply by the acute standard?

MR. VANCE: It's in the Agency's additional comments.

MR. CUNNINGHAM: Well, let's go on to twenty.

On page 7 of its comments, the Agency states that Missouri's "NPDES permit limits (are) derived from chronic criteria for warm water receiving streams."

What are the chronic criteria applied to the various stream classifications? That was (a).

And (b) What pH and temperature values are utilized to calculate effluent limits?

MR. VANCE: Are you referring to the exact numerical criteria that Missouri uses to implement effluent limits?

MR. CUNNINGHAM: As best can you tell me.

MR. VANCE: I can't say the exact numerical criteria. I can only say that these criteria are based on recalculations done by USEPA Region 7 for Missouri's Department of National Resources.

(b) The pH temperature values is not discussed in my conversations with the representative from Missouri's Department of National Resources.

MR. CUNNINGHAM: Are we to presume from this then that Missouri uses both acute standards and chronic standards for their dischargers or do they sometimes use acute, sometimes use chronic or don't you know?

MR. VANCE: I don't know.

MR. CUNNINGHAM: Okay.

Twenty-one, on page seven, the Agency states that in Kentucky "municipal dischargers to receiving streams with 7Q10 low flow of zero can receive up to a maximum average concentration of 4.0 milligrams per liter for ammonia nitrogen but the majority of these dischargers are assigned limited of 2.0 milligrams per liter."

(a) Why do some dischargers receive 4.0 milligrams per liter while the majority receive 2.0 milligram per liter limit?

(b) What total ammonia levels does the Kentucky formula yield versus the formula utilized by Illinois for the same pH and temperature?

(c) The Agency states that "consideration is being given to the procedures outlined in the NCD."

Does this mean the procedures are under consideration rather than the specific water quality standards recommended in the NCD?

MR. VANCE: Part (a), I did not ask questions pertaining to permitting issues when I contacted the individual states.

I assume whether the 4.0 or 2.0 limits are dependent upon available dilution.

(b) Using a pH of 8.0 to represent both summer and winter conditions and a temperature of 25 degrees C in the summer and 5 degrees C in the winter, Kentucky's chronic standard would be 0.31 milligrams per liter in the summer and 1.35 milligrams per liter in the winter.

The proposed standard currently before the Board would result in chronic standards of 0.9 milligrams per liter in the summer and 1.5 milligrams per liter in the winter.

MR. CUNNINGHAM: C?

MR. VANCE: (c) I cannot find where you stated this on page 7 or 8 of the Kentucky's review of water quality standards.

MR. CUNNINGHAM: That's interesting. Well, I doubt I made it up, but I'm not sure where it comes

from right now. Okay. We'll skip that one.

Well, do you know the answer to the question regardless of where it might have come from?

MS. HOWARD: I'm going to object to the question.

MR. CUNNINGHAM: I guess it's a little hard to answer.

MS. HOWARD: Yes.

MR. CUNNINGHAM: Twenty-two, what are the chronic values adopted by Iowa?

MR. VANCE: I don't know. I don't know the exact values.

MR. CUNNINGHAM: Twenty-three, did any of the states which have adopted chronic values for more than two seasons express any problem in implementing such a program?

MR. VANCE: No. No such problems were mentioned during the conversation with various states.

MR. CUNNINGHAM: Twenty-four, the Agency states that in Iowa "municipal dischargers to zero flow receiving stream are given daily maximum limits equal to the water quality standard."

I'll read through it all.

(a) What does this mean?

Is the total ammonia limit computed for the permit or does the discharger measure pH temperature and total ammonia and compute effluent un-ionized ammonia?

(b) Could the Agency state the range of typical effluent values to low flow streams?

(c) The Agency states that "a mid-range LC50 value of 1.0 milligrams per liter as un-ionized ammonia is used when implementing effluent limits in Minnesota."

Does this mean that Minnesota's standard is fifty times more liberal than the Agency's proposed standard for the winter months? If not, what does this mean?

MR. VANCE: Part (a), this simply implies as a result of the 7Q10 flow equalizing zero, no dilution is available and, therefore, the mixing zone calculations based on the mass balancing equation cannot be done.

The water quality standard calculated as a function of pH and temperature is then applied as the permit limit.

Part (b), no effluent limits are pH and temperature dependent and therefore may very along

each stream.

And part (c), it is my understanding that a mid-range or median LC50 value of 1.0 milligrams per liter as un-ionized ammonia is used by Minnesota as an acute value.

Given this application, this does not mean that Minnesota standard is fifty times more liberal than the proposed standards.

The comparison must be done between acute standards.

The Minnesota value of 1.0 milligrams per liter is about three times the proposed summer standard value and nine times the winter acute standard proposed.

It should be noted that Minnesota's current standards released prior to the publication of the NCD do not reflected the updated ammonia toxicity information now available.

MR. CUNNINGHAM: Thank you.

Twenty-five, on page ten of its comments -- I hope it does, the Agency states that it "has not formulated a position with regard to specific facilities being granted adjusted standards, variances, or sites specific relief."

(a) Didn't the Agency inform Sterling and Rock Falls that it would support adjusted standards?

(b) If so, has the Agency position change and did the Agency inform these communities of that change?

That's it.

MR. MOSHER: (a) The Agency related that it would support adjusted standards at these facilities if it is proven that no other reasonable alternative for compliance exists.

This statement is based on ongoing investigations that indicate that Rock Falls has a very good chance to remove ammonia down to compliant levels with some improvements that are necessary regardless of R94-1.

In the case of Sterling, it is made based on the relatively less significant potential impact from this facility.

The Agency has gained a more in-depth understanding of the overall situation regarding ammonia at these two facilities through many meetings, phone conversations and visits.

We have not been afforded this opportunity at other facilities and, therefore, we have not

formulated a position regarding other facilities.

The Agency believes that in most instances, adjusted standards proceedings will not be generated as a result of this proposal either because of the eventual compliance by other means for many facilities or from a lack of justification that such relief is necessary in keeping with the basic provisions of adjusted standards.

(b) There has been no change in regard to the Agency's position at Sterling and Rock Falls.

MR. CUNNINGHAM: Okay. I want to make sure I understand you then.

So for Sterling and Rock Falls, if they cannot otherwise come into compliance, the Agency would -- has determined that it would be supportive of adjusted standards?

MR. MOSHER: Yeah, subject to the conditions I read.

MR. CUNNINGHAM: Twenty-six, also on page ten, the Agency states that it "believes that the relief allowed through EMW provisions is the extent that USEPA would approve relief unless extraordinary factors exist."

(a) Is this statement consistent with what

the Agency has represented to Sterling, Rock Falls and the FMWRD in the past year?

(b) What does the Agency mean by extraordinary factors?

(c) What sort of extraordinary factors might the USEPA accept as justifying ammonia nitrogen relief?

MR. MOSHER: (a) Sterling and Rock Falls would not be eligible for EMW relief.

The Agency believes that USEPA would agree that due to their ineligibility, relief for Sterling and Rock Falls similar to that which is proposed for facilities meeting the requirements for effluent modified waters would be unjustified under the proposed regulations.

Effluent modified water relief for FMWRD was discussed as a possibility at one time in this proceeding, but was later found to be unnecessary.

If it turns out that Rock Falls and Sterling apply for adjusted standards, USEPA will have to determine if they may give their approval.

The Agency does not foresee any need for relief for FMWRD beyond a mixing zone which will meet Board regulations.

(b) When the Agency used the term extraordinary factors, we were referring to forms of relief other than effluent modified water designation.

These are cases where the relief requested would not compromise the quality of aquatic life in any part of the receiving water and where the economic cost would, therefore, be unjustified.

The Board's adjusted standards process outlines these factors.

(c) While the USEPA could be anticipated to have concerns similar to those of the Agency, we cannot definitely assess all factors that you USEPA may ultimately apply when reviewing these situations.

THE HEARING OFFICER: I think this is a good time to take a break. Are we done with question 26?

MR. CUNNINGHAM: Actually could I ask one follow-up question?

THE HEARING OFFICER: Fine.

MR. CUNNINGHAM: I guess this is largely with respect to Section B, is it your belief that if an adequate justification can be made for an adjusted standard under the statutory and regulatory program

that we have in Illinois, that USEPA would accept that?

MR. MOSHER: Yeah. I thought I answered that in my answer to C.

MR. CUNNINGHAM: Okay. That's what I thought you said, too, I just wanted to make sure. Yes. That's nine. We can take a break.

THE HEARING OFFICER: We can go off the record.

(Discussion had off the record.)

(Lunch break.)

AFTERNOON SESSION

THE HEARING OFFICER: We're ready to get started again. You can continue with the questions for the Agency from the Ammonia Group. We're on question twenty-seven.

MR. CUNNINGHAM: Twenty-seven, is there any technical reason for the Board not to adopt the updated chronic and acute un-ionized ammonia values calculated by the Agency?

MR. MOSHER: Apparently not, since USEPA has now approved the updated standards.

MR. CUNNINGHAM: (a) What acute chronic ratio did the Agency use in calculating the chronic standards?

MR. MOSHER: 11.3.

MR. CUNNINGHAM: (b) How is that ratio determined?

MR. MOSHER: The Agency followed procedures in the Board's regulations which dictate how the derivation is to be made, that's at 35 Illinois Administrative Code, 302.627(c) which is contained in subpart F.

The species with the highest acute chronic ratio expressed as a geometric mean of all valid

individual literature acute chronic ratio values is to be used.

In this case, the species was the fathead minnow.

MR. CUNNINGHAM: Is that subpart F rule that you cited applicable specifically to water quality criteria in the absence of a water quality standard?

MR. MOSHER: It's guidance -- actually it's regulation supplied when derivations are to be made.

This is usually conducted as a way to produce water quality criteria values in accordance with the narrative standard at 302.210.

But it's the same formula that, for instance, was used for lead in the part A of this Rule 19.

MR. CUNNINGHAM: But does that rule require that any water quality standard adopted by the Board be based upon the use of that procedure?

MR. MOSHER: No.

MR. CUNNINGHAM: (c) Is it Federally acceptable to calculate an acute/chronic ratio using the geometric mean of all available species, acute/chronic ratios?

MR. MOSHER: The guidelines for determining

numerical national water quality criteria for the protection of aquatic organisms and their uses by Charles E. Stephen and others which is then given as Agency Exhibit D, submitted with the regulatory proposal package lists alternate No. 2 on page 41 which allows that, and I quote: "If no major trend is apparent and the acute/chronic ratios for a number of species are within a factor of ten, the final acute/chronic ratio should be calculated as the geometric mean of all species mean acute/chronic ratios available for both fresh water and saltwater species."

However, the national criteria document for ammonia did not use this method. They used a method which in their opinion I presume more closely fit the available data.

This method produced an acute/chronic ratio of sixteen. They were apparently following a method that approximates alternate No. 1 of the guidelines by Charles Stephen whereby acute/chronic ratios of several species may be taken as a geometric mean -- I'm sorry, several sensitive species may be taken as a geometric mean to arrive at a final acute/chronic ratio while several insensitive species,

acute/chronic ratios were not entered into the averaging.

I must conclude that in the case of ammonia, the Federal researchers chose not to use the acute/chronic ratios of all species.

Whether they would agree to such a usage at the present is a question I can't answer.

MR. CUNNINGHAM: (d) Based upon the data used by the Agency, what would the acute/chronic ratio be using that methodology?

MR. MOSHER: I don't know what you mean by that methodology.

MR. CUNNINGHAM: Of using the acute/chronic geometric mean of all available species, acute/chronic ratios?

MR. MOSHER: I don't know what that would be. I never have calculated that.

MR. CUNNINGHAM: Do you recall the -- I think it's attached to your -- well, do you recall the testimony of Dr. Sheehan in the Galesburg adjusted standard proceedings regarding the appropriateness of the ammonia water quality standard?

MS. HOWARD: I'm going to object unless we have something that's specifically been entered as an

exhibit here in this proceeding, I don't think it would be proper for us to refer back to --

MR. CUNNINGHAM: I believe it was attached to Mr. Huff's presubmitted testimony. It's appendix 5 of -- I of Mr. Huff's presubmitted testimony.

DR. FLEMAL: Excuse me, that's the filing of January 5?

MR. CUNNINGHAM: Actually it's the -- it was -- was it in both? It was in both.

Actually I should point out that the copies that I -- of the presubmitted testimony of Mr. Huff that were left at the back table are an updated version that combines the two for those of you who got them.

It's what the thing should look like in its final state. Have you found that?

MR. MOSHER: Yes.

MR. CUNNINGHAM: What does that indicate that he found the -- wait -- okay.

What does that indicate as the acute/chronic ratio that Dr. Sheehan calculated using that methodology?

MS. HOWARD: Could you be more specific?

I mean we've got -- what page are you

referring to?

MR. CUNNINGHAM: Page nine.

MR. MOSHER: So you'd like me to just find it and read it to you?

MR. CUNNINGHAM: Well, do you have any reason to believe that what Dr. Sheehan has done is inappropriate according to the methodology we've been discussing, the use of mean of all available species, acute/chronic ratios?

MR. MOSHER: I haven't done any analysis of if this is appropriate.

I read to you out of the national criteria document -- I'm sorry, the guidelines for determining criteria.

I've read out of the national criteria document for ammonia as to what I believe is what they found appropriate and what they did and, of course, you know what we did and found appropriate, but I didn't study Dr. Sheehan's work.

MR. CUNNINGHAM: Okay. Would that result in a lower acute/chronic ratio if this methodology were to be used in lieu of the methodology the Agency used?

MR. MOSHER: Again, I can't comment other than I can see the number that Dr. Sheehan came up with, and

it is a lower number, but whether that is valid or not, I have not made that determination.

MR. CUNNINGHAM: Is the acute/chronic ratio lower, is that what you're saying?

MR. MOSHER: If you mean the 7.13, then that is lower than 11.3, and it's lower than 16.

MR. CUNNINGHAM: Okay. Then (e) I take it -- well, what chronic standards would be calculated from the acute values calculated by the Agency if that acute/chronic ratio had been used? I take it you don't know?

MR. MOSHER: I don't know.

MR. DUNHAM: May I ask, why is the geometric mean used as opposed to the mean if the criterion is that you can only use acute/chronic ratios within a factor of ten?

Geometric means usually span several -- often span several orders of magnitude, and an arithmetic mean isn't as biased when you're within one order of magnitude.

Do you know why they use the geometric mean at all?

MR. MOSHER: No. In that instance I can't comment.

MR. DUNHAM: Okay.

MR. CUNNINGHAM: Twenty-eight, the Agency states at the bottom of page 21 of its comments that nine facilities "were thought to be in compliance."

Is that correct or is it noncompliance?

MR. MOSHER: The sentence is incorrect. These communities were believed to be not in compliance.

MR. CUNNINGHAM: Twenty-nine, has the Agency observed biological degradation downstream of the DuQuoin POTW?

MR. MOSHER: Yes.

MR. CUNNINGHAM: (a) If so, is the stream classified as ammonia impaired?

MR. MOSHER: Reese Creek was listed as ammonia impaired in the most resented 305(b) report.

The field work conducted to enable that conclusion was done at a time when a meat packing plant now closed discharged to the same location as the City of DuQuoin, sewage treatment plant.

Because of this fact, the relative contributions to stream ammonia impairment from the two facilities were virtually indistinguishable.

Because the meat packing plant is is considered to be an industrial facility, the 305(b)

report should have listed the industrial discharge as a source in addition to the municipal source.

New data has changed the ammonia impairment rating of Reese Creek.

A facility related stream survey was conducted in August of 1995 on the DuQuoin facility but it is not yet drafted in a written report.

The field staff who conducted the survey indicated that ammonia originating in the effluent was of concern because of a history of values that exceeded the daily maximum permit limits, but in their opinion, ammonia is not a major cause of the stream impairment they encountered.

MR. CUNNINGHAM: So you're saying currently it's the Agency's determination that there is not ammonia impairment; is that correct?

MR. MOSHER: Yes.

MR. CUNNINGHAM: Once again, I guess I'll read through the rest of these questions.

If ammonia impaired, what effluent limits would be imposed if R94-1 as proposed is adopted?

MR. MOSHER: Since I answered that it was not ammonia impaired, then it's not applicable. Can we go on to the next one?

MR. CUNNINGHAM: Yeah. (c) If not ammonia impaired and not achieving 1.5/4.0 milligram per liter limits, how does the Agency account for the lack of ammonia impairment?

MR. MOSHER: Every facility and receiving stream is unique.

In the case of DuQuoin, a large strip mine pond initially receives the effluent of the treatment plant.

Effluent monitoring for ammonia is conducted at the influent to the poind. The pond may allow additional ammonia reduction and definitely provides for equalization.

Other factors that must be taken into consideration are climate, volume of flow and water quality of the receiving stream including pH and overall effluent quality.

Since the stream impact is present due to the DuQuoin discharge, the Agency is obviously concerned and is working to cause a remediation of this situation.

Compliance with the existing 1.5 and 4.0 milligram per liter ammonia limits at the DuQuoin sewage treatment plant is just one of the goals the

Agency will pursue to ensure that stream conditions improve.

Given the existing quality of the receiving stream and the pending effluent modified water designation for Reese Creek, the Agency will plan follow up stream surveys to monitor for biological impacts including any related to ammonia.

MR. CUNNINGHAM: (d) Would the Agency please provide the last three biological stream surveys for DuQuoin for this record?

MR. MOSHER: One published facility related stream survey report exists for a study conducted in 1986, and we are going to give you a copy of that.

MR. CUNNINGHAM: Should we enter this into the record?

THE HEARING OFFICER: Okay.

MR. CUNNINGHAM: This is the only existing stream survey? I thought you had made reference to others.

MR. MOSHER: It's not printed yet. It's -- it was conducted only in August of last year, and they haven't finalized the printing of that report.

MR. CUNNINGHAM: Might that be finalized in the near future?

MR. MOSHER: They didn't tell me when it would

be.

MR. CUNNINGHAM: Okay. So are we going to enter this then as exhibit?

THE HEARING OFFICER: We'll enter it as Exhibit 44, the staff report facility related stream survey, it's entitled biological and water quality survey of Reese Creek and tributaries in the vicinity of DuQuoin Municipal Wastewater Treatment Plant, DuQuoin, August and November 1986, and that's Exhibit 44.

MR. CUNNINGHAM: Thank you.

MS. MC FAWN: So there's only two studies then, the '86 and the '95?

MR. MOSHER: Right.

MR. CUNNINGHAM: Thirty, how many months over the past two years has Lindenhurst exceeded 1.5/4.0 milligram per liter ammonia levels?

MR. VANCE: Based on information provided in discharge monitoring reports, Lindenhurst has not exceeded the 1.5/4.0 milligrams per liter over the past two years.

MR. CUNNINGHAM: Thirty-one, if R94-1 is adopted, the Agency is on record that the Galesburg Sanitary District would have to meet a winter effluent limit

of 1.4 milligrams per liter total ammonia.

(a) Wouldn't the cost to meet such a limit be much higher than the cost to comply with current standards?

MR. MOSHER: That's question thirty-one?

MR. CUNNINGHAM: Right.

MR. MOSHER: Once a facility accepts NPDES permit limits of 1.5 and 4.0 milligrams per liter as summer and winter monthly averages and daily maximum permit limits equally the proposed acute ammonia standards, the Agency will consider that facility as meeting all but one of the requirements to quality for an effluent modified water designation for its receiving stream.

Based on data gathered in stream surveys below dozens of dischargers who have an extensive history of meeting such limits, the Agency has not found any biological impact due to ammonia nitrogen.

Improvements in stream quality to the point where ammonia impacts are no longer present should eventually follow where effluents have newly begun to achieve these limits.

The Agency foresees establishing a compliance schedule to allow the needed improvements

to be made at the small handful of facilities not now meeting the ammonia removal provisions for effluent modified waters and having receiving stream characterized as ammonia impaired.

This will be followed by requirements for additional biological stream monitoring given sufficient time for recovery of the stream once reduced ammonia concentrations in the effluent are achieved.

In this way, all the provisions for the granting of effluent modified waters will be addressed.

The specifics of this process including the point at which an effluent modified water is granted will be outlined in Agency rules following the adoption of our proposal.

MR. CUNNINGHAM: Could you answer the question?

MR. MOSHER: (a) The Agency has proposed a standards package that will not force facilities on small receiving streams to meet unattainable limits based on chronic standards.

Therefore, given the concept of effluent modified waters and the resulting 1.5 and 4.0 milligram per liter ammonia permit limits, the cost

of meeting the proposed standards is equal to that of meeting the existing standards.

The Agency has stated in this proceeding that any facility obtaining the relief provided by an effluent modified water designation must have the ability to provide the best degree of treatment for ammonia removal.

The test of best degree of treatment and the plainly stated requirement of the regulation is the ability to meet monthly average effluent ammonia concentrations of 1.5 milligram per liter summer and 4.0 milligram per liter winter.

(b) No.

(c) The Agency firmly believes that the costs resulting from the need to meet existing standards should not be counted as costs due to the R94-1 proposal.

MR. CUNNINGHAM: I still don't understand how you've answered (a).

Are you saying that the Galesburg Sanitary District would be given a 4.0 milligram per liter winter limit and would not have to meet a 1.4 milligram per liter total ammonia standard?

MR. MOSHER: You would be given a compliance

schedule to obtain the facilities that the Agency thought could meet 1.5 and 4.

MR. CUNNINGHAM: Okay. So it's your belief that if Galesburg were to accept limits of 1.5 and 4, that there would be no ammonia -- that they would qualify for effluent modified water status.

MR. MOSHER: Not right away, but we would allow for studies to be done because we believe that once you do meet the 1.5 and 4 limits, that that stream will recover from its existing impact and we will no longer then find that it is ammonia impacted.

And once all that is done, at some point effluent modified waters would be granted.

MR. CUNNINGHAM: And you believe that's true specifically of Cedar Creek, it should recover if Galesburg were to --

MR. MOSHER: Our experience in all waters that have facilities discharging and similar to that situation where there's really no upstream to loosen and no other point sources, we never see ammonia impacts if someone is meeting 1.5 and 4 limits.

MR. CUNNINGHAM: Okay. Let's say in some -- for some surprising reason there were to continue to be ammonia impairment in Cedar Creek, then Galesburg

would be required to meet a 1.4 milligram per liter total ammonia limit?

MR. MOSHER: I think the logical thing that would happen there is we would again look at the treatment, and Dean's in our permit section, he might want to take over here, but what else could be done would be the next thing to tackle, is there something else that could improve ammonia reduction even more, and get to the point where that stream is no longer ammonia impacted.

MR. CUNNINGHAM: Okay. So what you're saying is it's possible you would have a number perhaps somewhere between 1.4 and 4?

MR. MOSHER: No. Essentially what we're saying is our rule does not intend to paint someone into a corner.

We think that the treatment is out there, it's -- the reasonable treatment is available that's going to get a facility to the point where the stream is no longer ammonia impacted.

When you're asking the question, well, what if you meet 1.5 and 4 and it's still ammonia impacted, well, we don't know of a situation like that in all our experience at dozens of treatment

plants, so it's hard for me to imagine that situation.

MR. CUNNINGHAM: Okay. We'll move on to 32 at least for now.

Prior to repiping the City of Milan effluent to the Rock River was Mill Creek identified as ammonia impaired?

MR. VANCE: Agency biologists stated in a facility related stream survey dated September 24th, 1984 just prior to the relocation of the outfall, that "ammonia was not a factor contributing to the impacted conditions at this time."

The stream assessment survey did, however, reveal several miles of Mill Creek to be heavily impacted by this discharge.

MR. CUNNINGHAM: But not by ammonia?

MR. VANCE: That's what the quote was.

MR. CUNNINGHAM: All right. Thirty-three, what concentrations of ammonia are typically discharged by Milan?

MR. VANCE: Milan currently has no ammonia limit in its NPDES permit, therefore, discharge monitoring reports do not contain information concerning effluent concentrations of ammonia.

However, 55 Agency grab samples taken from January 1990 to April of 1995 indicate a maximum concentration of eighteen milligrams per liter in January of 1990 and an average concentration of 4.1 milligrams per liter for all grab samples.

MR. CUNNINGHAM: Thirty-four, on page 25 of its comments, the Agency states that "while at any given time some of the 122 major municipal facilities may be in some type of enforcement action stemming from noncompliance with ammonia nitrogen NPDES permit limits, appropriate water quality based limits exist in their permits which will assure compliance once the needed upgrade or corrective action is taken."

(a) What does the Agency mean by "appropriate water quality based limits"?

Does that phrase include EMW limits?

(b) If a discharger fails to meet 1.5/4.0 milligrams per liter, doesn't it lose EMW designation under the Agency's proposal?

If so, won't more restrictive limits be imposed?

(c) How will compliance with 1.5/4.0 milligram per liter be determined?

MR. STUDER: The answer to (a), in this case,

appropriate water quality based limits are dictated by the water quality standard for ammonia and the downstream 75th percentile pH and temperature, or are 1.5 milligram per liter and 4.0 milligram per liter, if that were the appropriate limits under the Board regulations.

It is inappropriate to refer to any of these limits as EMW limits since that concept has not yet been adopted and has never been applied in the past.

(b) No. This would result in noncompliance with the permit limits and resulting enforcement actions.

(c) As is the case now, dischargers monitor their effluent and report the results on a monthly basis in their discharge monitoring reports to the Agency.

If the permit limits aren't met, a violation of the permit exists.

MR. CUNNINGHAM: Thirty-five, what was the "involved Agency program to require the upgrading of treatment plants to meet water quality based NPDES permit limits" mentioned on page 25 of the Agency comments?

MR. STUDER: The 1987 amendments to the Clean

Water Act move the focus of point source controls from technology based effluent limits to water quality based effluent limits.

These amendments require that the Agency issue NPDES permits with limits protective of water quality standards.

For parameters with both water quality and effluent standards, the NPDES permit limits become whichever of the two results in the more restrictive permit limit.

For parameters where there is a water quality standard but no effluent standard, the Agency imposes permit limits when there is a reasonable potential to cause or contribute to the exceedance of a water quality standard as required by 40 CFR, Sections 122.44(d) and 123.25.

The conversion from a technology to a water quality based permitting approach required many dischargers to upgrade their treatment facilities.

This is the program referred to in the Agency comments.

MR. CUNNINGHAM: Thirty-six, what are the "preliminary indications" that the Agency has had that a high rate diffuser for Dixon is "a viable

option"?

MR. MOSHER: Sufficient flow and water depth exist in the Fox River at Dixon to allow the construction and effective operation of a high rate diffuser.

MR. CUNNINGHAM: You meant --

MR. MOSHER: I meant to say Rock River, I'm sorry.

MR. CUNNINGHAM: Can you elaborate on that at all?

MR. MOSHER: Well, if you're going to improve mixing, you've got to have enough upstream flow to provide the dilution.

You've got to have enough depth in the river to keep the high rate diffuser structure submerged at all times.

It can't be a hazard to boating or other uses of the river.

And I believe those conditions are present at Dixon that with would that.

MR. CUNNINGHAM: Okay. Thirty-seven, how many months of performance are required before the Agency can determine that a POTW can consistently meet a specified ammonia effluent level?

MR. STUDER: What do you mean by the term consistent?

MR. CUNNINGHAM: I believe that comes out of the comments -- well, let's try this.

In terms of the -- I haven't had a chance to look at the handout that the Agency gave, I should have done that I suppose, on the changes to the proposed rule, does that include IAWA's changes with respect to the necessity to demonstrate compliance with 1.5 and 4?

MR. STUDER: Right. The relevance of this question has changed based on the IAWA proposed regulations.

I can try and answer the question based on its limited relevance.

MR. CUNNINGHAM: It strikes me it's not particularly relevant now, so let's skip it and move on.

DR. FLEMAL: Lee, let me just call your attention to page 26, yes, down the 10th line, there's a line, understanding, the word consistently appears there, is that the reference?

MR. CUNNINGHAM: That's the reference I was looking at, but I agree with Dean, with the changes

to the Agency's proposal, it's no longer of much importance.

Okay. Thirty-eight, is it the Agency's understanding that Batavia, Colona, Kankakee and Rock Falls can consistently achieve 1.5 milligram per liter, 4.0 milligram per liter ammonia nitrogen concentrations under both existing and design plant flows and loads or has the Agency only determined that they can achieve those limits at existing flows and loads?

MR. STUDER: The Agency has not determined that Batavia, Colona, Kankakee and Rock Falls need to consistently achieve 1.5 and 4.0 milligram per liter ammonia nitrogen in their effluent.

This would only be required for facilities that discharge to effluent modified waters or in cases where the 1.5/4.0 milligram per liter ammonia nitrogen concentrations are necessary to comply with water quality standards.

Kankakee and Rock Falls both appear to be able to meet the Agency's proposed chronic ammonia nitrogen water quality standards with allowed mixing and, therefore, in all likelihood would not need effluent modified waters and it's associated 1.5 and

4.0 milligram per liter ammonia limits.

Batavia and Colona had been initially identified as potentially being unable to comply with the Agency's proposed chronic ammonia nitrogen water quality standards, however, it appears that sufficient dilution exists in each case to allow these facilities to comply with the proposed chronic water quality standards without meeting EMW and it's associated 1.5/4.0 milligram per liter limits.

MR. CUNNINGHAM: Okay. Again, though, is that a current loads and flows or is that also true at design loads and flows?

MR. STUDER: The Agency has not made a determination based on projected design loads and flows.

MR. CUNNINGHAM: Okay. Thirty-nine, aren't there facilities such as Batavia that can meet 1.5/4.0 milligram per liter EMW criteria at actual loads and flows that may be unable to meet those criteria at design loads and flows?

MR. MOSHER: Given the approximately one year period that Batavia has operated their treatment plant under a scheme that has allowed good removal of ammonia achieving very low effluent ammonia

concentrations with no exceptions, the Agency sees no reason that this cannot be continued, all things remaining more or less as they were over that period.

The Agency does not know what might happen to ammonia removal efficiency at any particular treatment plant if various conditions change.

MR. CUNNINGHAM: Wouldn't it generally be true that as loads and flows increase at a particular facility that you would tend to see a reduction in ammonia removal efficiency?

MR. STUDER: Effectivenss of the treatment scheme can be effected by both the organic and hydraulic loadings.

To say that ammonia would be the only impacted or affected parameter in their discharge would be premature.

MR. CUNNINGHAM: I'm not attempting to say it would be the only one, just that it is one that might well be.

MR. STUDER: Along with BOD and suspended solids, yes, you might see reduced ammonia nitrogen removal efficiency.

There may be other changes in treatment

scheme that become necessary in addition.

MR. CUNNINGHAM: I'd like to allow Jim Huff to ask a question here instead of having him whisper it in my ear. Is that okay?

THE HEARING OFFICER: Go ahead.

MR. HUFF: Dean, what's the acceptable organic loading on an activated sludge for BOD and for ammonia?

MR. STUDER: For ammonia nitrogen for a single stage activated sludge?

MR. HUFF: Yes.

MR. STUDER: The aeration tank is fifteen pounds BOD.

MR. HUFF: Now, if it's not designed for nitrification what is the acceptable BOD limits?

MR. STUDER: I believe it's fifty.

MR. HUFF: So if a plant is somewhere well above fifteen now and it increases its load and is still below fifty, you would anticipate it could still meet it's BOD limits?

The plant was designed to meet a certain effluent limit for BOD, and there would be no reason to anticipate it could not meet that so long as it stayed below it's designed loading.

MR. STUDER: We have plants that are loaded almost as high as thirty pounds per day BOD and are still achieving ammonia reduction.

The point is that until that actually occurs, there are other parameters and other loadings that become important in the treatment scheme, and it's premature to sit down and anticipate, you know, exactly what may or may not happen once a plant reaches close to its design loading limits.

MR. HUFF: Let me ask the question this way: Aren't those other factors already considered in the initial design of that design that was designed to remove BOD to a specified level?

MR. STUDER: Those aren't the only parameters involved in the treatment scheme.

For example, loadings on your clarifiers can affect what BOD and suspended solids are.

MR. HUFF: Same thing, though. I mean those were designed in the initial design aspect of the plant.

The one thing that wasn't designed in a facility like Batavia was the ability to provide nitrification, and that's the parameter, is it not, that you're going to see a loss in performance as loading goes up?

MR. STUDER: You will see a loss in performance of ammonia generally as your organic loading increases or as hydraulic loading increases.

MR. HUFF: Thank you.

MR. CUNNINGHAM: Forty, does Colona agree with the Agency's conclusion that if it returns to its earlier mode of operation that it will be able to meet the proposed standards?

(a) Is there a cost in doing so?

(b) What are the most recent ammonia effluent levels discharged by Colona?

(c) Is Colona designed to nitrify? Is it at design loads and flows?

MR. MOSHER: Colona has not responded to the various communication attempts that the Agency has made. We don't know what their position is.

(a) The Agency believes that by returning to the former treatment scheme, Colona would fulfill their responsibility to operate their treatment plant in the best possible way.

The Agency assumes that the costs associated with this change would be minimal, however, we do not know exactly what these costs will be.

MR. VANCE: For (b), rather than read through

these effluent concentrations, I've made a table that we can pass out. I've got copies.

MR. CUNNINGHAM: Okay.

MS. HOWARD: We can go ahead and enter them as the next exhibit.

THE HEARING OFFICER: So this is in response to question 40(b), and it's a chart of the ammonia effluent levels for Colona?

MR. CUNNINGHAM: Colona.

THE HEARING OFFICER: Okay. This would be Exhibit No. 45.

MR. CUNNINGHAM: Just in case people are interested, do you want to just quickly kind of summarize what this table shows? Don't take long, though, I'm sure they're not that interested.

MR. VANCE: What do you want me to summarize, just -- I wouldn't know how to summarize this without going through each --

MR. CUNNINGHAM: It is bouncy, isn't it? Let's just say Colona has a bouncy effluent, leave it at that.

MR. DUNHAM: We can also say that they're not consistently meeting 1.5 summer and 4.0 winter limits.

MR. CUNNINGHAM: That's true.

MS. HOWARD: I like that conclusion better than bouncy.

MR. CUNNINGHAM: Actually, I do, too, thank you very much.

MR. MOSHER: But we're not implying that Colona will have to meet those 1.5 and 4 limits because there is a mixing zone available for Colona.

MR. CUNNINGHAM: Do you know what they will be required to meet?

MR. MOSHER: Offhand, no.

MR. CUNNINGHAM: Okay. (c).

MR. STUDER: Based on the construction permit for the original sewage treatment plant, it appears that the plant was designed for an influent ammonia nitrogen concentration of 22 milligrams per liter.

Typically ammonia influent is only considered in plants where effluent ammonia concentrations are a concern.

However, without more information on specific individual treatment plant units, I cannot determine for sure if it is designed to nitrify.

Such information was not in the Agency's files for comparison and could not be obtained in

time between the filing of this question and this hearing.

Based on influent data for calendar year 1995, the maximum flow to the plant was 0.68 -- excuse me, 0.89 milligrams per liter, and averaged 0.524 MGD.

I'm going to have to read this over again. I messed up.

Dealing with loading, based on influent data from calendar year 1995, maximum flow to the plant was 0.689 MGD and averaged 0.254 MGD.

Based on the design average flow of 1.0 MGD and the 1995 average influent flow, this plant is operating at about 25 percent of design hydraulic loading.

The influent BOD five averaged 252 milligrams per liter in 1995. Combined with the average 1995 influent flow of 0.254 MGD and the design 1,666 pounds BOD five per day loading, the plant is operating at about 534 pounds BOD five per day or approximately 32 percent of design organic loading.

MR. CUNNINGHAM: Forty-one, is the Agency comfortable in concluding that Lawrenceville can

achieve consistent compliance on the basis of eight grab samples from 1994?

Is the same conclusion valid at design average flows?

MR. MOSHER: The Agency's conclusion that Lawrenceville can meet the proposed standards was based on my conversations with the operator of that plant as well as my knowledge of the Agency's effluent data from Lawrenceville.

And again, we don't make predictions about what might happen in the future loading situations.

MR. CUNNINGHAM: Forty-two, what have Libertyville's effluent ammonia levels been for the past twelve months?

MR. VANCE: Again, instead of reading through these I got a table.

MR. CUNNINGHAM: I thought we might have another one.

THE HEARING OFFICER: We can enter this as Exhibit 46. This is Libertyville ammonia effluent levels for 1995.

MR. CUNNINGHAM: Do you want to give a brief description of what this one shows? It does look easier.

MR. VANCE: I would describe this as fairly consistent.

MR. CUNNINGHAM: It was awfully easy. Monthly average probably about .5 milligrams per liter, daily max of 1.67, just kind of on average?

MR. CARLSON: I think the exhibit speaks for itself.

MR. CUNNINGHAM: Fine. I'm just trying to help them out there a little bit.

Okay. Forty-three, what response does the Agency have to the concerns raised by the FMWRD as to how much it can rely on the present agreement with the Agency noted on page 34 of the Agency's comments?

(a) Does the Agency know whether USEPA will accept that agreement?

(b) In light of the recently completed Fox River study, does the Agency believe that it would be appropriate for Fox Metro to install additional ammonia removal facilities if any of its concerns should occur?

(c) If so, why?

MR. MOSHER: From our analysis of the present performance of ammonia removal at FMWRD, we believe

that that facility can meet the proposed standards.

The agreements reached with the representatives of that facility are no different than any other type of negotiation.

The Agency stands by its comments on page 34.

MR. STUDER: The answer to (a) is the Agency has been accepting site-specific data collected by dischargers since the 1980s.

Prior to 1987, it was common to have ammonia nitrogen limits in an NPDES permit that applied only when ammonia nitrogen and the receiving stream exceeded the water quality standards.

With the amendments to the Clean Water Act in 1987, this approach was no longer consistent with the Clean Water Act.

USEPA indicated that ammonia nitrogen effluent limits must be calculated for all dischargers that have reasonable potential to cause or contribute to ammonia water quality standards violations.

In deriving these limits, receiving stream data collected by the discharger was used when available.

USEPA has never objected to the use of this data. Historically USEPA has encouraged the use of site-specific data when available.

Furthermore, some states like Ohio require dischargers to gather this data so that the data base may be used in calculating permit limits.

It would be extremely unlikely that USEPA would object to the use of this data in determining appropriate permit limits for FMWRD.

MR. MOSHER: (b) and (c) we would like to give our answer all at once, and Dean has part of the answer after I'm finished.

The Fox River study did not shed additional light on the particular compliance situation of FMWRD.

All wastewater treatment providers face future variables that may influence the type of treatment needed.

The Agency can only comment when and if such realities occur.

During the first hearing for R94-1, Joel cross was asked if the Agency's proposal would assure that the Fox River would meet water quality standards.

His reply found on page 55 of the transcript was as follows: "Yes." The Fox River will continue to meet water quality standards for ammonia as proposed."

Again at page 67 of the transcripts for the second hearing, I stated that: "We've gone on record to say that the Fox River, for example, is not violating the ammonia standards, and that statement was made in terms of the data we have available at our chemical sampling stations. Those sampling station are not located in mixing zones or even very near mixing zones in most cases."

Again at page 161, I state: "There are six Agency chemical monitoring stations on the Fox River, for example, and of the ammonia date that we collect at those stations, we have no known violations."

The water quality study conducted by Mr. Huff and the various participating communities which consisted of sampling the river from bridges confirms the Agency's statements.

No ammonia violations are likely in the Fox River at locations removed from treatment plants.

On pages 161 and 162 of the transcripts from the second hearing, I went on to describe the

potentially troublesome areas on the Fox River with regard to ammonia.

These areas were identified as localities in and near the mixing zones of dischargers that are not removing ammonia down to monthly average levels of 1.5 milligram per liter summer and 4.0 milligram per liter winter.

While I state here and at other times during the hearing process that the Agency has no instream biological data from these stations, inferences from several sources indicate that ammonia concentrations detrimental to the well being of aquatic life do exist in the river.

These include laboratory data on the toxicity of ammonia to many aquatic species, monitoring of effluent ammonia concentrations, and whole effluent toxicity testing conducted on several Fox River community sewage treatment plants.

Mr. Huff's Fox River study sheds no additional light on the degree of impact at these locations since he only collected chemical data at bridges far from effluent outfalls and did not collect any biological data whatsoever.

This study does not refute the Agency's

assertions of localized ammonia impacts in the Fox.

Mr. Huff does provide some testimony about what kind of fish are being caught at some locations on the Fox River, namely, at the point of effluent dischargers.

The Agency believes that Mr. Huff is placing far too much emphasis on observations and testimonials of fishermen.

We do not doubt at times fish will utilize the efflluent plumes of Mr. Huff's clients for feeding or other activities.

We believe, however, that this is a transient presence at the treatment plants he mentioned.

These plants are known to produce high effluent ammonia concentrations. On some days the ammonia effluent concentrations have been quite low, at times less than one milligram per liter total ammonia nitrogen.

On other days, the ammonia concentration is drastically higher. For example, the Agency measured total ammonia concentrations of 36.5 milligrams per liter in the City of Rock Falls wastewater treatment plant effluent on January 19th, 1993, 26.0 milligrams

per liter on November 14th, 1990, and 20.3 milligrams per liter on February 2nd, 1993.

Between July 1987 and July 1993, the Agency found total ammonia concentrations in excess of ten milligrams per liter in over 26 percent of the samples collected.

It is highly unlikely that reports of good fishing and the effluent plume could be obtained whenever effluent ammonia concentrations approach these levels.

Likewise, at the City of St. Charles Wastewater Treatment Plant, the Agency measured effluent ammonia concentrations of 17.0 milligrams per liter on July 24, 1990, 16.4 milligrams per liter on May 13, 1993, and 15.6 milligrams per liter on July 11th, 1990.

Effluent ammonia concentrations exceeding ten milligrams per liter were found in over thirty-two percent of the samples collected.

Fortunately adult fish are able to sense and avoid toxic concentrations of ammonia.

Sessile organisms such as muscles and some other types of invertebrates, however, cannot get out of the way when toxic ammonia concentrations are

present.

These organisms are not likely to be observed by fishermen, yet they remain a vital part of the aquatic ecosystem that the Agency's proposed ammonia standards are designed to protect.

Fish eggs and nonmotile fish larvae also would have no way of avoiding exposure to toxic ammonia concentrations from either of these or several other effluents.

The Agency has demonstrated the toxic nature of effluents due to ammonia from many of the represented communities.

Improved ammonia treatment or enhanced mixing at some wastewater treatment plants appears to be necessary to avoid the localized impacts we believe are present.

The proposed standards are necessary to fully protect the aquatic life resources of all Illinois rivers and streams.

While the Agency has stated many times that there is no present or predicted violation of ammonia standards in these rivers over their total area, there is no doubt that the effluent concentrations described above have impacted aquatic life and caused

localized exceedances of standards.

An analogy illustrating this impact may be useful. Think of a forest instead of a river and forest dwelling birds instead of fish.

In this example, a 100 acre plot of continuous forest habitat exists. It is populated by birds of various species which nest and feed in the trees.

A ten acre plot is cut down and planted to lawn grasses. This event has not impacted the remaining 90 acres of forest.

The same birds still feed and nest there. But in the grassy area, no testing occurs.

A few of the bird species can find food on the lawn, but this is intermittent since the grass is unavailable when it is covered with snow and while it is being mowed.

The overall production of birds is now reduced in the forest because less acreage of habitat is fully available to them.

A river would incur the same reduction in productivity as habitat is removed from full utilization, whether from physical changes or chemical impact such as ammonia toxicity.

MR. STUDER: I have a follow up with that, too.

MR. CUNNINGHAM: I'll wait until it's all over.

MR. STUDER: Okay. I bet you can hardly wait. On January 31st, 1986 representatives from the City of St. Charles met with the Agency to discuss a permitting issue.

After this meeting representatives from the City of St. Charles were joined by Attorney Roy Harsh and consultant, Jim Huff, for a meeting to discuss a study entitled Ammonia Water Quality Study on the Fox River from Flint Creek near Barrington to Black Berry Creek Near Yorkville.

This study has been entered into the record in this proceeding. This study was planned in cooperation with the Agency.

The purpose of the study was to confirm or refute allegations by USEPA that ammonia was accumulating in the Fox River and that ammonia concentrations increased as you proceed toward the mouth of the river.

As concluded by Mr. Huff, the Agency agrees that the study refutes USEPA's argument along this line.

Furthermore, as indicated by Mr. Huff, the

Agency agrees that the data as presented in the report does not indicate substantial violations of ammonia nitrogen water quality standard on a river wide basis.

However, this does not mean that individual discharges are in compliance with the ammonia water quality standards.

The purpose of the study was to augment data from the Agency's ambient stations on the Fox River, to aid in the establishment of meaningful ammonia nitrogen permit levels for individual dischargers.

When establishing such ammonia nitrogen limits, the Agency must consider all Board regulations including allowed mixing.

To accurately measure the compliance of individual dischargers, the selection of sampling stations must be in close proximity to the discharge point.

To illustrate this point I have prepared a revised page 4.4 from the report. This revised figure uses the river miles from pages 4-2 and 4-3 of the report.

As you'll be able to see from the figure, many of the sampling points are not close enough to

point sources to accurately measure compliance.

Furthermore the Agency must continue to improve ammonia nitrogen effluent limits in NPDES permits for all point source dischargers that have the reasonable potential to cause or contribute to exceedences of ammonia nitrogen water quality standards.

This is a Federal requirement and is described in 40 CFR Section 122.44(d)(1)(i).

MR. CUNNINGHAM: Is that all?

MR. STUDER: That's it.

MS. HOWARD: Except for the exhibit.

THE HEARING OFFICER: Is that the revised river diagram?

MS. HOWARD: Right.

THE HEARING OFFICER: This will be Exhibit 47. Just for clarification, this is a revised river diagram, figure 4.1 that's from the --

MR. STUDER: It's on page 4-4.

THE HEARING OFFICER: 4-4 of the ammonia water --

MR. STUDER: If you actually go to pages 4-2 and 4-3, there are various river miles that are given in there.

This just sticks the river miles next to the

actual points of interest on the Fox River.

MR. CUNNINGHAM: Now, this is a lot of little things on here.

THE HEARING OFFICER: Maybe we should leave this to go over when we do Mr. Huff's testimony.

MR. CUNNINGHAM: Sure. Let's at least put it aside for now. It may well take a little looking at.

Let me start by asking this: In light of the recently completed Fox River study, does the Agency believe that it would be appropriate for Fox Metro to install additional ammonia removal facilities if any of its concerns should occur?

That's subsection B of 43, the question I just asked.

MR. MOSHER: Do you want me to read it again?

MR. CUNNINGHAM: No. I'd rather have you answer the question really.

Is the upshot of what you said that, yes, you believe it may be appropriate for Fox MEtro to add additional ammonia treatment?

MR. MOSHER: We previously stated that we think with the existing level of treatment at Fox Metro that they can meet the proposed standards.

MR. CUNNINGHAM: But isn't it true that Fox Metro has indicated concerns as to whether that, in fact, is true?

MR. MOSHER: From our information, and I believe a little later on here we'll be providing additional input on this, but from our information, we think they can meet the proposed standards that is in the here and now and does not mean that we make any comment about what the future may hold because we just can't predict things like that.

MR. CUNNINGHAM: But the Agency at this present time does not believe that additional ammonia treatment is necessary at Fox Metro?

MR. MOSHER: No.

MR. CUNNINGHAM: Okay. Now, I believe you stated something along lines of there being no doubt of localized toxicity based upon some effluent data that you had and effluent testing.

Rock Falls isn't on the Fox River, right?

MR. MOSHER: You're right, it's on the Rock River.

MR. CUNNINGHAM: Okay. What effluent level would you believe if it were exceeded would cause instream toxicity in the Fox River?

MR. MOSHER: Well, we've done a lot of work to arrive at toxicity based ammonia water quality standard package.

And that's one of the main reasons we have standards is they're thought to be protective, so we'll stand by our standards and say you should meet those standards to avoid toxicity.

MR. CUNNINGHAM: When you say those standards, are you talking about the effluent limits that would be derived using the Agency's --

MR. MOSHER: No. Water quality standards 302.

MR. CUNNINGHAM: But you aren't aware of any instream water quality violations in the Fox River, are you, monitored?

MR. MOSHER: No. We don't have any monitoring data in those locations.

MR. CUNNINGHAM: So how can you be sure that there's toxicity?

MR. MOSHER: By inferring the effluent concentration that you start out with with the dilution that may be occurring at different sites, that's one good way to do it.

And another good way to do it is to do whole effluent toxicity tests as we have done.

MR. CUNNINGHAM: But isn't the question of whether that -- well, are you saying that -- are you saying that there's no doubt that there would be localized toxicity outside of an appropriate mixing zone?

MR. MOSHER: Right. We've determined that the identified dischargers don't have large enough mixing zones to meet these proposed standards.

MR. CUNNINGHAM: Do you have any data or calculations to support that?

MR. MOSHER: The calculations done to produce the famous Exhibit S, that's the calculations we did.

MR. CUNNINGHAM: But that's based on a mass balance calculation procedure, correct?

MR. MOSHER: Right.

MR. CUNNINGHAM: I thought you just said that that wasn't what you were basing that on.

MR. MOSHER: That's one of the reasons I cited that you can take the concentrations of ammonia in the effluents, add in the available mixing and find that the water quality standard is still exceeded outside the allowable mixing zone.

MR. CUNNINGHAM: Under worst case conditions as determined through the mass balance calculation,

correct?

MR. MOSHER: Right.

MR. CUNNINGHAM: So that statement is dependent upon the use of the mass balance calculation procedure?

MR. MOSHER: Yes.

MR. CUNNINGHAM: Okay. Do you recall the last time any -- are you aware of any effluent toxicity testing that has been done at any of the dischargers to the Fox River which has demonstrated that there would be instream toxicity outside of an appropriate mixing zone?

MR. MOSHER: No. I have not equated the results of those toxicity tests, and the resultant LC50 values which indicate the amount of toxicity present with any dilution equations or mass balance equations, no.

MR. CUNNINGHAM: Okay. I'm going to move on.

Forty-four, what are Kankakee's present effluent levels? I bet we have another chart.

MR. VANCE: No.

The average effluent level of the 28 Agency grab samples analyzed from February 1990 to April of 1995 is 3.3 milligrams per liter for the maximum

concentration of these same samples being 22.1 milligrams per liter in April of 1992.

Ammonia data is not presented in Kankakee's discharge monitoring reports.

MR. CUNNINGHAM: (a) what would the effluent limits be based upon the proposed acute standards?

MR. VANCE: Daily maximum effluent limits based on proposed standards would be 4.1 milligrams per liter in the winter and 3.6 milligrams per liter in the summer.

These effluent limits are based on pH values of 8.2 in the summer and 8.3 in the winter and temperature values of 24.3 in the summer and 5.5 degrees C in the winter.

These calculations were done on November 21st -- 24th, 1993 as part of the initial compliance evaluation.

These effluent limits also take into consideration the Agency's mixing zone guidance document as it pertains to a zone of additional dilution.

MR. CUNNINGHAM: (b) Does Kankakee concur with the Agency's determination that Kankakee would not incur any compliance costs if the Agency's proposal

is adopted?

MR. MOSHER: The Agency estimates that Kankakee Metro Sanitary District will not incur the costs predicated in our original testimony.

This decision was based on the data available to the Agency concerning both the increased ammonia removal efficiency achieved at the plant and on the assumption that sight specific pH and temperature data collected in the Kankakee river in the vicinity of the outfall would prove more favorable than that which was used by the Agency in its original estimate collected many miles downstream.

I don't know if Kankakee concurs with this opinion.

MR. CUNNINGHAM: Forty-five, on page 37 of its comments, the Agency states that advanced supernatant return systems have proven successful in reducing ammonia nitrogen in the effluent at other plants.

Please identify these plants and provide performance data.

MR. MOSHER: I believe that the Fox Metro Water Reclamation District and the Peoria Sanitary District use such systems.

A profile of effluent ammonia concentrations at the Fox Metro shows an improvement and final effluent ammonia concentrations after the initiation of this process.

The process change was completed at Fox Metro on or about March 1992, and we have a data table to pass out that shows that there was a significant improvement around about that date.

THE HEARING OFFICER: This will be Exhibit 48.

MR. MOSHER: What we were given was March '92.

THE HEARING OFFICER: Mary, do you have a point --

MS. ROSS: Yes. We wanted to follow up on the whole series of questions that preceded this one, if possible, a general question, is that possible?

THE HEARING OFFICER: Okay. Go ahead.

MS. ROSS: We're confused about this monitoring. Your charts are based on the Agency's monitoring; is that correct?

MR. VANCE: By chart --

MS. ROSS: You have a whole series of charts regarding questions about Libertyville, Colona and other plants.

MR. VANCE: Those are from discharge monitoring

reports.

MS. ROSS: Those are discharge monitoring reports?

MR. VANCE: At Libertyville and Colona.

MS. ROSS: So this they are monitoring on a regular basis, submitting reports to you on a regular basis?

MR. VANCE: Right.

MR. PAULSON: My name is Jerry Paulson, I'm with the Sierra Club also and friends of the Fox River.

You don't have that monitoring data for any of these dischargers on the Fox River other than what you just handed out to make -- even though it sounds like you have a concern that they may be violating standards?

MR. STUDER: I think the answer to your question was we were not asked to provide those.

We were responding to specific questions by the Ammonia Group for specific facilities.

MR. PAULSON: You do have monitoring data for those facilities?

MR. STUDER: If they have an ammonia effluent limit in their NPDES permit, they are required to monitor ammonia in their discharge for compliance

with that limit.

MR. PAULSON: How many of those facilities would you estimate have those limits?

MR. STUDER: On Fox, I can't even give you an estimate.

MR. MOSHER: Probably more do not have ammonia limits than do.

And if we don't have ammonia limits in a permit, the Agency does have its own sampling data of the effluent in most cases.

And Steve read some ranges of data from Kankakee, I believe that was Agency data.

MR. VANCE: Kankakee was one of them. Basically if there was information from discharge monitoring reports, I think all these tables I passed out, they're from discharge monitoring reports.

The effluent levels that I've read are from the Agency's grab samples.

MR. PAULSON: Well, I'm wondering why you don't have monitoring requirements for these Fox River dischargers if you think there could be a problem.

MR. STUDER: If we think there's a problem they got an NPDES permit limit or they have a monitoring requirement of the permit.

If we've determined that the facility is extremely small, for example, and has an allowable mixing that will not have the reasonable potential to exceed the water quality standard, there's no point in putting a permit limit in their NPDES permit, therefore, those we don't not have data on because they would not be required to monitor their ammonia levels.

MR. PAULSON: So the data is, therefore, the problem ones, you just haven't presented it?

MR. STUDER: That would be correct.

THE HEARING OFFICER: Turn back to the prefiled questions from the Ammonia Group.

MR. CUNNINGHAM: Were you done on 45?

MR. MOSHER: Yes. We were done.

MR. CUNNINGHAM: So that's all the data you have on supernatant return systems?

MR. MOSHER: Yes.

MR. CUNNINGHAM: Okay. Forty-six, also on page 37, the Agency states that it appears that Rock Falls will be able to comply with the proposed acute standards with no additional expense incurred.

However, if new instream pH values do not demonstrate compliance, isn't the compliance cost

estimated at 2.5 million?

MR. MOSHER: The Agency is not aware of a cost of 2.5 million as being estimated at Rock Falls.

If ammonia concentrations can be brought down by the improvements mentioned, existing pH and temperature data from the Agency's ambient water quality monitoring network can continue to be used because in that case more favorable pH and temperature values will not be necessary to demonstrate compliance.

MR. CUNNINGHAM: Forty-seven, on page 38 of its comments, the Agency states that the Agency will consider alternatives to Sterling's current mixing zone characterization to resolve concerns regarding compliance with the acute standards.

(a) What alternatives will be considered?

(b) If mixing zone alternatives fail to resolve Sterling's ammonia concerns, would a new nitrification facility be required?

(c) Does the Agency agree that such a facility could cost $10 million?

MR. MOSHER: (a) The receiving stream at Sterling presented the Agency with a situation not previously encountered in our experience with mixing zones.

In order to improve mixing and meet the proposed standards under the present mixing zone implementation procedures, a high rate diffuser would be needed.

However, to install the diffuser, prime aquatic life habitat would have to be permanently destroyed.

It appears that more will be lost by installing a diffuser than will be gained by its operation.

This this particular case and in others like it, the Agency must weigh the balance of environmental benefit.

(b) If fixing zone procedures do not provide adequate relief, then the -- then given the lagoon system existing at Sterling, a very substantial change in treatment would be required to meet the proposed standards.

An adjusted standard has been mentioned in resolving this particular issue without resorting to the complete replacement of Sterling's existing treatment plant.

(c) The Agency has not researched the cost of completely replacing the existing facility at

Sterling.

MR. CUNNINGHAM: I'm still not sure what then these alternatives are.

Are you referring to an adjusted standard there or are you referring to -- you state -- it's stated alternatives to Sterling's current mixing zone characterization.

What alternatives are you talking about?

MR. MOSHER: We're looking at the implementation of Agency procedures to grant a zone of initial dilution.

We're saying we have to relook at that because here's a case where we don't want them to put in a high rate diffuser and do more harm than good, so never having encountered that before, our mixing zone procedures have to be re-evaluated.

And we think that we can just recognize this fact that we find at Sterling in that -- those procedures, therefore, we can give them a zone of initial dilution that will allow them to meet the proposed standards.

MR. CUNNINGHAM: Okay. So they may be able to come up with a ZID that's of a somewhat different size that the general Agency procedures right now

would allow for.

MR. MOSHER: Because of this unique case, we are at least thinking about that alternative.

MR. CUNNINGHAM: It is the Agency's belief that it should not be necessary to construct major new facilities?

MR. MOSHER: That's what I said.

MR. CUNNINGHAM: Okay. Forty-eight, do Charleston, Mattoon, Sandwich, Decatur, O'Fallen, Hillsboro and Clinton have reopener clauses in their permits with respect to R94-1?

(a) Does the Agency believe that their current ammonia effluent limits are appropriate?

(b) Can these permit limits be relaxed based on R94-1?

(c) Have or are any of the seven municipalities planning to appeal their NPDES permit limits?

MR. STUDER: Charleston, Mattoon, Sandwich and Clinton have NPDES permits issued in final form that contain reopener clauses with respect to R94-1.

NPDES permits, wth similar reopener language have been drafted for Decatur, O'Fallon and Hillsboro.

Hillsboro's NPDES permit has gone through the public notice process and should be finalized in the near future.

Additionally, this week the Agency has identified one more facility, Bellville, Area 1, whose NPDES permit will be drafted with a compliance schedule for ammonia nitrogen similar to the seven facilities mentioned above.

The answer to (a): The monthly average ammonia limits in these permits or draft permits as the case may be are 1.5 and 4.0 milligram per liter summer, winter.

However, the 4.0 milligrams per liter winter monthly average ammonia nitrogen limit has a reasonable potential to cause or contribute to an exceedance of the current 0.04 milligram per liter un-ionized ammonia nitrogen water quality standard.

As such, these permits or draft permits contain a thirty-six month compliance schedule to meet a more stringent winter monthly average ammonia nitrogen effluent limit.

In each of these permits or draft permits, the winter monthly average ammonia nitrogen effluent limits that become effective thirty-six months after

the effective day of the permit or draft permits is a limit that the Agency has determined will not cause or contribute to an exceedance of the current ammonia nitrogen water quality standard.

(b) The ammonia nitrogen limits in effect today in these permits or draft permits as the case may be would not be relaxed by any provisions contained in R94-1.

And the answer to (c), in the cases of Sandwich, Clinton, Mattoon and Charleston, the thirty-five day time frame for appeal has passed.

I am unaware of any -- I am unaware of an appeal having been filed for any of the four.

In the cases of Hillsboro, O'Fallon and Decatur, the final permit has not yet been issued, and I cannot state if any municipality is planning to appeal.

MR. CUNNINGHAM: Going back to the relaxation based upon R94-1, you said they could not be relaxed?

MR. STUDER: What I said they would not be relaxed by any provision of R94-1.

MR. CUNNINGHAM: But if R94-1 were adopted, wouldn't something be done with respect to their

compliance schedule, that they would no longer have to meet these more stringent limits?

MR. STUDER: The permit contains language that allows the Agency to reopen and modify that permit with public notice based on the outcome of R94-1.

MR. CUNNINGHAM: How is that different from relaxing the permit limits?

MR. STUDER: Because the permit limits right now are 1.5 and 4.

The more stringent winter limit does not go into effect until thirty-six months after the effective date of the permit.

MR. CUNNINGHAM: Because of that, then there would also be -- you would avoid any nondegradation problem?

MR. STUDER: What I'm saying is we have the right based on R94-1 to go back and re-open the permit contained within the language.

MR. CUNNINGHAM: Okay. Let's see, forty-nine, for states with warm water and cold water designations, are the designations generally based upon whether salmonids are native to those waters? That's (a).

And (b), do the values apply year round?

MR. VANCE: Yes. I believe that is one of the criteria for cold water designations in most of the state referenced in the Agency testimony.

However, Ohio uses both a cold water designation and a seasonal salmonid designation.

MR. CUNNINGHAM: Do the values apply year round?

MR. VANCE: To my understanding, chronic values used by the various states do apply year round.

MR. CUNNINGHAM: In Illinois, is it true that there are not any salmonid waters or what would be referred to as cold waters other than what is it -- Picasaw Creek, that the Agency is aware of.

MR. MOSHER: That's the only one we know of other than Lake Michigan. And, of course, Lake Michigan has its own ammonia standard.

MR. CUNNINGHAM: Fifty, isn't it true that the revised cost estimates of compliance set forth at page 39 of the Agency's comments do not include:

(a) cost imposed upon non-major dischargers?

(b) The incremental costs imposed upon facilities which the Agency has determined are in compliance with existing rules but which would require greater expenditures to meet the proposed

standards?

(c) Costs imposed upon facilities which can comply with the proposed standards at present loads and flows which may lose that ability prior to reaching design loads and flows?

(d) Costs imposed upon facilities which may not qualify for EMW relief for failure to meet the EMW criteria other than the 1.5/4.0 best degree of treatment criterion?

(e) Costs which would be imposed if the USEPA disagrees with the Agency's determinations of appropriate mixing zones or monitoring points for establishing 75th percentile pH and temperature values?

MR. MOSHER: (a) Yes.

(b) The Agency believes that the only costs to facilities that do not meet existing standards will be to meet 1.5 and 4.0 milligram per liter limits.

These costs are applicable weather new standards are adopted or not.

(c) We have never made predictions on what might be the future compliance situation of any plant.

We don't believe that such predictions are feasible given the vast assortment of potential variables the future may hold.

(d) Based on the Agency's answer to question 31, facilities that receive 1.5 and 4.0 milligram per liter limits in their NPDES permit will be required after a compliance period and a subsequent period of stream response to the new reduced ammonia discharges to demonstrate that their receiving stream is not adversely impacted by conducting biological stream surveys.

The cost of the surveys will be the only cost brought about by R94-1 at such facilities.

(e) There is nothing unique about these proposed standards that makes them any more or less subject to USEPA oversight.

The Agency can only assume based on past practices that the USEPA will approve what the Agency has done.

MR. CUNNINGHAM: Okay. So isn't it true that the revised cost estimates of compliance set forth at page 39 of the Agency's comments do not include any of these costs?

MR. MOSHER: Yeah. And the main reason is we

don't believe they are valid costs for R94-1.

MR. CUNNINGHAM: In terms of (d) you're talking about the only cost being the cost of the survey.

If the survey shows ammonia impairment, then there is going to be a cost imposed, is there not, beyond the cost of that survey?

MR. MOSHER: There may be, yes.

MR. CUNNINGHAM: Okay. Fifty-one, would a discharger to a stream which the Agency has determined is degraded based upon its MBI and which has some -- has had some instream un-ionized ammonia levels above the proposed chronic standards be precluded from designation as a discharger to EMW?

MR. MOSHER: In the Agency's experience, this is a rare event.

If Agency biologists have determined that the receiving stream is impacted due to ammonia, one of the provisions for effluent modified waters is not met and, therefore, this designation can't be applied.

If the discharger to that stream does not already have 1.5 and 4 permit limits, an opportunity for corrective action can be given according to the Agency's answer to question 31.

MR. CUNNINGHAM: What if he already has a 1.5 and 4?

MR. MOSHER: Again you're asking me to comment about something I've never seen after all these many surveys the Agency has taken.

And as I said before, you again look at what further ammonia removal can be done in that -- at that facility.

MR. CUNNINGHAM: Fifty-two, and I pointed out to Margaret there's a mistake here, and actually the mistake is probably bigger than I told her.

I'll read this the way it really should have been and see what that does to your answer.

Fifty-two, would a discharger to a stream which the Agency has determined is degraded due to dissolved oxygen depletion which discharges ammonia at above background levels be precluded from designation as a discharger to EMW?

MS. HOWARD: At above background levels?

MR. CUNNINGHAM: Yes.

MS. HOWARD: So you take out "in compliance with permit limits"?

MR. CUNNINGHAM: Yes, in compliance with permit limits, right. And BOD becomes ammonia as I did

point out.

MS. HOWARD: Right.

MR. STUDER: What's the background level?

MR. CUNNINGHAM: Whatever the background level is.

You determine a background level and you find out ammonia is being discharged at greater than that level.

MR. STUDER: That's going to depend on a lot of things in there.

One, if the discharger is discharging -- I assume at this point there's no permit limits for ammonia in there?

MR. CUNNINGHAM: I don't really care, either way.

Let's say there are none. Fine.

MR. STUDER: I think in hey case like that, if the Agency has made a determination that there is ammonia degradation and there's no permit limits, I think our first line of approach would be to provide permit limits of one and a half and four, allow that discharger a compliance period to obtain those limits and then we could come back and re-evaluate.

MR. CUNNINGHAM: I'm not saying that there has

already been a finding of ammonia impairment.

I'm saying that there has been a determination of degradation due to dissolved oxygen.

MR. STUDER: What size stream are we talking about?

MR. CUNNINGHAM: An intermittent stream, perennial stream.

MR. STUDER: Do you want to provide a name?

MR. CUNNINGHAM: Cedar Creek.

MR. STUDER: Under the Agency's proposal, any stream reach that has uses known to be adversely impacted by ammonia would be precluded from obtaining EMW status.

As discussed at earlier hearings, the Agency has committed to promulgating rulemaking implementing EMW procedures.

Because the details of these procedures are not yet completely worked out and because the Agency has no sure way of knowing exactly what conditions the Board would impose on EMW's, should the Board adopt R94-1, I cannot give a definitive answer.

However, in attempting to provide the Board with enough information to make an informed decision

on this matter, I'll offer the following.

If the dissolved oxygen depletion is being caused by ammonia and the dissolved oxygen depletion is causing use impairment in the receiving stream, then it would appear that ammonia is at least part of the cause of use impairment.

As long as ammonia is causing use impairment in the receiving stream, the designation of EMW cannot be given to that water body under the Agency's proposal.

Furthermore, if the ammonia limits in an NPDES permit are so high or in this case do not exist as to allow depletion of dissolved oxygen below the dissolved oxygen water quality standard, the Agency would probably tighten effluent limits contained in the permit.

In the case of dissolved oxygen water quality standards violation, the Agency may require a reduction in both ammonia limits and other oxygen depleting wastes such as BOD pursuant to the provisions of 35 Illinois Administrative Code 304.105.

It is the Agency's intention to afford the opportunity to each discharger that currently has

ammonia impairment in their receiving stream to construct hardware to remove the impairment in order to subsequently qualify for EMW designation.

MR. CUNNINGHAM: Okay. You talked there in terms of causing -- ammonia causing dissolved oxygen levels to be exceeded.

Do you mean causing or causing or contributing to?

MR. STUDER: Causing or contributing, either one.

MR. CUNNINGHAM: So that if a facility is discharging to a water which has been determined to be degraded due to dissolved oxygen depletion, then isn't it true that any -- ammonia discharged at any level above background would be causing or contributing to that dissolved oxygen depletion?

MR. STUDER: I think the answer to that question is ammonia does deplete dissolved oxygen in receiving water.

However, the rate at which ammonia removes oxygen would have to be calculated based on the individual characteristics of that stream and a host of other streams' specific factors.

And to come out and to give general answers to a question without knowing each one of those

specifics is really something that cannot be done.

MR. CUNNINGHAM: But the Agency does intend to factor into its ammonia effluent limits the impact that that may have on instream dissolved oxygen?

MR. STUDER: The bottom line is that there's a board regulation, 304.105 that allows the Agency to tighten effluent limits in cases where there is violations of water quality standards.

If you read 304.105, you wll see that does not give a parameter by parameter basis, and if ammonia is determined to be causing dissolved oxygen violation, I think it would be fair to assume that the Agency would clamp down on the ammonia level in that permit.

MR. CUNNINGHAM: Okay. Fifty-three, how many stream miles in Illinois have been reported to Congress as having major impairment due to ammonia?

MR. MOSHER: 31.1 miles.

MR. CUNNINGHAM: And how many -- how does Illinois rank in this regard regarding states surrounding Illinois?

MR. MOSHER: The Agency doesn't make comparisons of that kind.

MR. CUNNINGHAM: I believe the Agency made a

comparison to say that Ohio had the greatest number of stream miles.

Why can't you make a determination with respect to Illinois?

MR. MOSHER: I don't believe we made any such comment about Ohio.

We said we thought there were many miles designated as a certain use designation in Ohio.

MR. CUNNINGHAM: Well, maybe my memory is worse than yours.

MR. VANCE: That came from Ohio's review. And that came from an ammonia work group worksheet that I had found at the Agency.

MR. CUNNINGHAM: And from that same sheet, can't you determine where Illinois stands?

MR. VANCE: No. It wasn't mentioned anywhere.

MR. STUDER: The rankings were not given, Lee.

MR. CUNNINGHAM: Okay.

(b) How many major dischargers are there in Illinois which discharge to streams the Agency has determined are ammonia impaired?

MR. MOSHER: The Agency has not made any all inclusive counts of these types of impact situations.

MR. CUNNINGHAM: Would that be difficult to do?

MR. MOSHER: It's not information that gets summarized.

It would more or less require a survey of all our field biologists and looking at their past reports and trying to pull together from a very large amount of data.

MR. CUNNINGHAM: Isn't there a 305(b) report which identifies the specific stream segments in Illinois which have major impairment due to ammonia from which you came up with this 31.1 mile figure?

MR. MOSHER: Yes. But the information in the 305(b) report does not allow the linkage between certain dischargers and certain stream impairments.

It simply lists all the causes of impairment for a certain region, all the sources with no linkage between source and cause.

MR. CUNNINGHAM: Sure. But you have identified stream segments in that report that are ammonia impaired, and the Agency certainly has the information where major dischargers discharge, so wouldn't it be relatively simple to figure out how many major dischargers discharge within those impaired stream segments?

MR. MOSHER: Not real relatively simple at all.

It would require as I said going back and talking talking to all the biologists who made those decisions and all their reports where those decisions that are recorded.

MR. CUNNINGHAM: Why? I don't understand.

THE HEARING OFFICER: You can move on. He is saying the information is not readily available.

MR. CUNNINGHAM: But I don't understand how it can't be readily available.

MS. HOWARD: First of all, that information, if it is contained in the 305(b) report, I think Mr. Cunningham can go through the 305(b) report and put that data together.

MR. CUNNINGHAM: I don't have where all major dischargers discharge -- well, may be I do.

MS. HOWARD: I think you do.

MR. CUNNINGHAM: Is that included in the municipal data base?

MS. HOWARD: That's the municipal data base, and then you have the copy of the 305 --

MR. CUNNINGHAM: It may not be too hard for us to do.

MS. MC FAWN: Are you saying that it's hard

because the dischargers might not be within the stretch?

MR. MOSHER: No. What I'm saying is there will be a reach of stream, and there will be possibly several, possibly a half a dozen different causes for impairment, metals, non-point sources of different types, agricultural construction, urban, all of those kinds of causes will be listed for a certain reach, and then all of the kinds of sources will be listed for that reach, livestock operation, eroding crop land, municipal dischargers, industrial dischargers and others, and there is no direct linkage to say that a certain industrial discharge, for example, caused a certain metals impact, they are not linked together.

MR. CUNNINGHAM: I'm not asking you to do that linkage.

I'm just saying, are there major dischargers to those stream segments that have been identified as being subject to major ammonia impairment?

MR. CARLSON: If you don't make that linkage, then you're then having all types of facilities causing all types of impairments.

How is that relevant to this proceeding at

all?

MR. CUNNINGHAM: Well, actually I kind of guessed that there's a pretty good shot that we do not have any major dischargers discharging to the stream segments.

MS. HOWARD: Well then maybe you would like us to present that data.

MR. CUNNINGHAM: Well, I'll take a look at it. I thought it might be something the Agency had done or could do.

MS. MC FAWN: I had one more question. You said sources are listed that impact these reaches, are those listed in the 305(b)?

MR. MOSHER: Yes.

MS. MC FAWN: Thanks.

DR. FLEMAL: Help me on this one, can you describe a little bit for us where and what nature these 31.1 miles are?

MR. MOSHER: Somewhere around eight miles of that 31.1 miles we believe is Cedar Creek below Galesburg.

But beyond that, we don't have anything available to say.

DR. FLEMAL: 31.1 consists of what, a half a

dozen reaches collectively or is it more than that?

MR. MOSHER: Probably more than that. We could look that much up.

DR. FLEMAL: I'm trying to get some sense of where these are.

It doesn't include the upper Illinois River I take it?

MR. CROSS: We could easily provide that information the to you.

MS. HOWARD: Break down the 31.1?

MR. CROSS: Right.

DR. FLEMAL: I think it would help us to put this number into contexts of what streams we're actually talking about in the state.

MR. CUNNINGHAM: Okay.

MS. MC FAWN: That will help.

DR. FLEMAL: Actually let me interrupt once more.

Since we're on this issue of ammonia impairment, we're talking about numbers that have been specifically passed on to the Congress I take it as the result of some requirement that we so report.

We're not, however -- I take it you're not saying that these are the sole waters in Illinois

where you might apply a classification of ammonia impairment at some part of the time?

MR. CROSS: That would be correct. It's only based on those waters that we have actually monitored through our Agency's monitoring programs which may not cover all the waters of the state.

DR. FLEMAL: Thank you.

MR. CUNNINGHAM: Fifty-four, please explain how the Agency will determine the length of an EMW and whether a stream is ammonia impaired presuming that the Agency's proposal is adopted?

MR. STUDER: Again, I stress that the IEPA has made a comitment to spell this out through an Agency rulemaking process for implementing EMW.

Because the details of these proceedings are not yet completely worked out and because the Agency does not at this time know what conditions the Board would impose on EMW's should the Board even adopt our R94-1, I cannot provide a definitive answer. However, I can give you the basic concept.

When the Agency grants a disinfection exemption pursuant to 35 Illinois Administrative Code 304.121(b), the Agency calculates the distance downstream that it will take a given discharger to

comply with the bacterial water quality standards for protected waters.

This is based on a first-order die-off equation. The Agency at this time is planning to calculate the stream reach for EMW's based on a similar first-order die-off method with an appropriate die-off coefficient.

MR. CUNNINGHAM: What about with respect to determining ammonia impairment?

MR. STUDER: I can't answer that one. That's done typically through our facility related stream surveys.

MR. CUNNINGHAM: Fifty-five, would the $50 million, and I'll now amend that to $132 million, the Agency anticipates would be incurred unless the Agency's proposal is adopted have to be incurred if the Board adopted the amendments to that proposal offered by the IAWA and the Ammonia Group?

MR. STUDER: It could now run as high as $132 million based on my revised cost estimates given at the start of the hearing.

If the amendments to this proposal suggested by IAWA and later further amended by the Agency and as agreed to by the language submitted earlier, if

these are adopted within a reasonable period of time, these costs could be saved.

Such cost savings would require that the Board adopt the proposed regulation prior to any of the affected facilities having constructed hardware.

However, the longer it takes the Board to adopt a proposal -- excuse me, let me start over.

However, the longer it takes the Board to adopt a proposal containing effluent modified waters the more it is g oing to cost these facilities.

Since facilities cannot be constructed overnight and since the planning of these construction projects cost money, it is likely that these facilities may have to spend money on the planning of the construction.

This money for planning purposes could be lost if the Board fails to adopt revisions to ammonia water quality standards in the near future.

If the Board adopts the revisions by the Ammonia Group, the compliance cost will likely be higher than 132 million.

Since USEPA has already indicated that they will not approve the Ammonia Group's proposed amendments, it is possible that if the Board adopts

the Ammonia Group's amendments, USEPA could promulgate the criteria of the National Criteria Document in Illinois.

Should that happen, my best guess of the statewide compliance cost will be well in excess of $1 billion.

MR. CUNNINGHAM: Isn't it true if the Board were to simply re-adopt its expired rule setting a 4.0 milligram per liter winter effluent limit that these costs would be saved?

MR. STUDER: If the Board re-adopts the 4.0 milligram per liter effluent, I assume you're talking about 304.301, USEPA has objected to that particular water quality standard.

So if that was adopted by the Board, it would not have received Federal approval.

It could ultimately again result in USEPA promulgating the National Criteria Document.

MR. CUNNINGHAM: A nasty bunch. Okay.

Fifty-six, would the Agency identify all dischargers in Illinois which it believes are in compliance with existing standards which are causing ammonia impairment and which would be required under the Agency proposal to provide additional treatment

which would be anticipated to remove that impairment?

If there are none, would the Agency explain how any additional treatment costs can be justified?

MR. MOSHER: For purposes of estimating the largest portion of costs due to the proposed ammonia standards, the Agency has provided the Board with the most accurate costs available for major municipal facilities given the limitations of the data presently in our possession.

The complete cost of the proposal sought in this question is answerable in absolute cost figures only when the NPDES permit process has progressed through every discharger in the state, a five year process.

It is our belief that we have given the Board an insight to the costs that far exceeds the scope and accuracy provided in past rulemakings.

Our recent update of costs reflects additional information provided by potentially affected dischargers.

As stated in our additional comments, we believe that still other estimated costs will be proven to be unnecessary given increasing --

increasingly better understandings of facility capabilities and receiving stream characteristics.

MR. CUNNINGHAM: Okay. This question asks you to identify dischargers.

What specific dischargers can you identify that are presently causing ammonia impairment that would not after improvements are put in place pursuant to the Agency's proposal?

MR. MOSHER: You're saying everyone comes in compliance with the standards we're proposing?

MR. CUNNINGHAM: Who is out there right now that's in compliance with the existing Board rules that's causing ammonia impairment that when you adopt your proposal they will have to be -- they will be required to put in additional controls which you then expect will remove that ammonia impairment?

MR. MOSHER: We've mentioned some facilities on the Rock and the Fox River that have in the past shown olefin toxicity due to ammonia.

The mass balance equation show that toxic ammonia concentrations can exist in the river.

I haven't added all those up. I don't know how many it might be.

MR. CUNNINGHAM: Do any of the dischargers that

you have listed in Appendix S discharge to waters which have been determined to be ammonia impaired?

MS. HOWARD: I believe that question has been asked in these proceedings before.

MR. CUNNINGHAM: I don't recall that.

THE HEARING OFFICER: Can you answer the question?

MR. MOSHER: In terms of a 305(d) ammonia impairment determination, no.

In determines of the localized impacts that we believe exist, yes.

MR. CUNNINGHAM: And those are localized impacts that you believe exist based upon use of the mass balance calculation procedure?

MR. MOSHER: And whole effluent toxicity data and the levels of the ammonia standards we have proposed, all of those are very valuable ways of knowing that.

MR. CUNNINGHAM: I'll leave it at that.

THE HEARING OFFICER: That concludes your questions?

MR. CUNNINGHAM: Yes, it does.

MR. DUNHAM: One comment was made by Mr. Mosher that I would like to expand on.

The Board members have discussed the

additional candor in this particular rulemaking on the part of the Agency in providing data, and we really appreciate the additional inputs that we've received at this time and we hope that they continue.

THE HEARING OFFICER: Any other questions or comments from the Board members?

I want to move to a -- some testimony that wasn't prefiled, but it should only take a few minutes, and then we'll -- so I would like to -- Mr. Bill Forcade and Joe Finch, if you'll come forward.

MR. FORCADE: My name is Bill Forcade from Jenner & Block, I'm representing today American Western Refining Limited Partnership.

We would like to offer some brief testimony by Mr. Joe Finch which pertains to a refinery in Lawrenceville, Illinois which was previously known as Indian Refining Limited Partnership.

If I could at this time request that Mr. Finch be sworn.

THE HEARING OFFICER: I ask the court reporter to swear in the witness.

(Witness sworn.)

JOSEPH FINCH,

called as a witness herein, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. FORCADE:

Q. Could you please state your name and address for the record?

A. Joseph A. Finch. My address is Rural Route 3, Box 11 in Vincennes, Indiana, F-i-n-c-h.

Q. And who is your employer, please?

A. My employer is American Western Refining Limited Partnership.

Q. And what is your job title and description?

A. I am the NPDES and RICRA (phonetic) specialist.

Q. Is this a refinery located in Lawrenceville, Illinois?

A. It is.

Q. Is this refinery that was previously owned and operated by the Indian Refining Limited Partnership?

A. It is.

Q. Did you work for Indian Refining Limited

Partnership, when and if so, what was your function?

A. I worked for Indian as of February 1st, 1991 to present, and my function has always been as I stated.

Q. Okay. Could you describe briefly what happened from late 1994 to the present regarding the ownership of the Indian Refining Limited Partnership refinery?

A. The refinery's financial partner through no fault of our own got caught up in financial problems and pulled out from backing us.

In the previous months through several efforts to collect financing and everything, all attempts to get financing failed, and on September 30th it was announced the refinery was closing.

As of December 12th of 1995, a new firm came in, purchased the refinery and renamed it American Western Refining, and from that point to this day, we're in the process of establishing capital to get the refinery up and running which as of yet happened.

We have a plant startup day of approximately June 1st.

Q. The refinery did close down sometime around

the end of November --

A. The plant actually laid off all of its personnel except for an in-house maintenance group as of November 30th, 1995.

Q. Now, I would like to switch to the particular regulatory proceeding.

After the approximately April final comments that were filed in this proceeding, did either Indian or American Western have any additional communication and reach agreements to resolve conflicts concerning this proceeding?

A. No. Due to the financial problems we had, we were not able to maintain legal contracts or anything, and so trying to find a new buyer, no work was done with the Agency as far as this issue.

Q. And would it be your intention to re-initiate contacts with the Agency in the future in an attempt to work out any possible solutions to resolve the conflicts in this proceeding?

A. Now that we have a new owner, we attempt to as soon as possible reestablish contact with the Agency to alleviate the problems that we have with this issue.

MR. FORCADE: Okay. That would be the end of our

testimony.

I would intent within the next few weeks to submit a motion to substitute party names and to enter a new appearance on behalf of the new client.

I thought it would be appropriate to mention this in testimony. And if there are any questions, we would be happy at this time to answer those questions.

THE HEARING OFFICER: Do you have any?

MR. CARLSON: Just briefly.

EXAMINATION

BY MR. CARLSON:

Q. Mr. Finch, you indicated was it from September of 1995 was when the operations of Indian Refining ceased?

A. They basically slowed -- they didn't come to an abrupt halt.

Units shut down as resources -- as raw products dwindled in the plant, and so units shut down as supplies drew down.

On November 30th, the warrant notice was issued giving all employees 60 days notice of the plant closing.

Q. So there was a tapering off of production

over a period of several months?

A. Yes.

Q. And you also indicated that they were anticipating restarting refining operations around June 1st of 96?

A. That is our best guess at this time, even though all the financing has not been finished yet.

Q. Okay. Is the reason for waiting until June primarily financial?

A. Yes.

Q. Okay. And have there been any projections about what level of production they would start at when they re-open?

A. We believe for a short period of time, maybe a month and a half we would be at somewhat reduced capacity.

But after that period of time, we expect to reach Indian production limits which is full capacity.

Q. And Indian was at full capacity --

A. Yes. From approximately the middle of 1991 up to January, February of '95.

MR. CARLSON: Okay. I don't have anything further.

THE HEARING OFFICER: Okay. I think that completes the testimony. Thank you.

MR. FORCADE: I appreciate the courtesy of allowing us to interrupt here. Thank you.

THE HEARING OFFICER: I think we can take a little short break, maybe five, ten minute break and then come back and have the testimony from Borden Chemicals & Plastics.

(Short break.)

THE HEARING OFFICER: We're going to proceed with the testimony of Borden Chemicals & Plastics Company.

I would like you to identify yourself for the record, please.

MS. DOYLE: I'm Carol Doyle of Sidley & Austin representing Borden Chemicals & Plastics Limited Operating Partnership.

And I have with me Salish Jantrania who is from the Borden Chemicals plant which is located in Illiopolis, Illinois which is not too far from Springfield.

He is a technical manager at that plant, and he is going to give testimony today.

We submitted testimony back in January,

written testimony, and I've already submitted to you today a revised version of that testimony.

It just takes out a few things that was in our original testimony, and it also presented some revised charts. And Mr. Jantrania will explain those.

One of the charts will be in responses to one of the Agency questions.

THE HEARING OFFICER: I ask that the witness be sworn.

(Sailesh Jantrania sworn.)

MR. JANTRANIA: My name is Sailesh Jantrania. I'm the technical manager for Borden Chemical & Plastics Operating Limited Partnership in Illiopolis, Illinois.

MR. DUNHAM: Please speak up.

MR. JANTRANIA: My testimony will point out that, one, exceedances of the proposed standards by dischargers to zero or low flow streams will not be rare and infrequent as stated by the Agency.

Two, that the Agency's own record in this proceeding demonstrates that the proposed standards are not necessary to protect Illinois waters.

Three, that the effluent modified waters

provision needs to be modified to provide the relief that the Agency apparently intends to.

Four, that the effluent limitations of Section 304.122 for dischargers to effluent modified waters should make clear that daily variability around the monthly average limitations is not precluded by the regulation.

And, five, that the proposed regulation may impose additional and unnecessary monitoring costs.

MS. DOYLE: If I may interrupt for a moment, what I meant to say upfront also is that Mr. Jantrania is not going to read his entire testimony.

We took to heart your suggestion this morning, so he's just going to highlight the major points that Borden wants to make.

MR. JANTRANIA: Continuing on, BCP operates a chemical plant in a rural area approximately one mile west of Illiopolis, Illinois.

The plant produces PVC suspension and dispersion resin for the vinyl film, fabric, flooring, plastic pipe and wire insulation industries.

The plant has been in operation since about 1960.

The plant discharges treated process wastewater pursuant to an NPDES permit into a 7Q10 zero-flow stream commonly referred to as the unnamed ditch.

The unnamed ditch drains into Long Point Slough which in turn flows into the Sangamon River five miles downstream from BCP's outfall.

The primary uses of both the ditch and the slough are as conduits for agricultural run off and wastewater treatment plant discharges.

Although a variety of acquiring species inhabit the ditch and the slough, these waters are of little use for recreational or other purposes due to their lack of suitable habitat and low and variable flows.

IEPA's response to BCP's testimony stated that exceedances of the proposed standards by dischargers to zero or low flow streams will be quite rare and infrequent because exceedances will occur only if pH temperature and effluent flow were very high and river flow was very low.

BCP has reviewed its discharge monitoring reports or MDR's for the past six years and has determined that discharges at the monthly average and

daily maximum levels achievable by BAT would have exceeded the proposed ammonia WQS during thirty-three months during this period.

Attachment A to this testimony summarizes the data from BCP's DMR's showing cases in which a BAT discharge would have exceeded the proposed WQS.

It is clearly not the case that while violations of the proposed standard by a BAT discharger to a small stream would be quite rare and infrequent and -- and infrequent as the Agency has asserted.

The effluent modified waters provision is intended by the Agency to provide relief from the proposed ammonia nitrogen WQS facilities, like BCP's, that discharge to small streams because such facilities cannot attain the proposed WQS end-of-pipe even using BAT.

However, the provision does not appear to provide the relief claimed by the Agency since the water cannot be classified an effluent modified water if the water exceeds the proposed acute standard and BAT facilities discharging to small streams will, on occasion, cause exceedances off that standard.

In collusion, I would like to remind the

Agency that its technical staff is well aware of the difficulty of treating for ammonia nitrogen.

Biological treatment with nitrification is extremely sensitive.

Minor changes in influent quality, nitrifying bacteria populations, temperature and treatment chemical use can have a major impact on the performance of the nitrifying plant.

IEPA's wastewater treatment experts are extremely knowledgeable regarding these problems as well as large amount of effort, time and money BCP has expended to comply with the existing ammonia nitrogen limits.

Due to its efforts, BCP has an excellent overall record in attaining it's existing ammonia nitrogen limits.

Nevertheless, due to the nature of the biological treatment nitrification process, variability is inevitable at the very low concentrations that would be necessary to attain the standards that would apply under the Agency's proposal.

BCP urges the Board to consider attainability of the proposed standards for

dischargers to low flow streams and to assure that the effluent modified waters provision is drafted in such a way that unattainable standards are not imposed on plants that have done and continue doing the best they can to consistently comply with existing standards.

That concludes my testimony, and I'll be happy to answer any questions.

THE HEARING OFFICER: Okay. Before I move on to the questions, I would like to enter the revised testimony as an exhibit.

This will be Exhibit 49. And this is the testimony dated February 22nd, 1996.

And then we do have some prefiled questions. We'll start with those -- start with the questions from the Sierra Club.

MS. ROSS: I have two questions, I think they still apply to the amended -- I haven't fully read the testimony.

But the first question, you challenge the need for new ammonia standard but offer no evidence to indicate that Borden Chemicals' effluent is not affecting aquatic life.

Have you studied the effect of ammonia on

aquatic life?

MR. JANTRANIA: We have not studied the current effect of ammonia discharge on aquatic life.

However we did do a study twelve years ago of the overall effect of effluent on the unnamed ditch and Long Point Slough.

The study in essence concluded that there was no significant effect on aquatic life.

Since that time, BCP has substantially reduced the level of its ammonia nitrogen discharges.

MS. ROSS: In general, have you looked at the literature on ammonia and aquatic life for general use waters outside of your own river and stream?

MR. JANTRANIA: I personally haven't looked at that, no.

MS. ROSS: And at least in your previous testimony, you recommended 3.0 and 8.0 milligrams per liter maximum ammonia effluent limitations, how did you determine those numbers?

MR. JANTRANIA: The 3.0 and 8.0 levels are employed in the NPDES permit.

MS. ROSS: So because they're in your NPDES permit you recommend that they be put in the rules as

maximum limitations?

MR. JANTRANIA: Yes. And it's also been -- you know, it's general knowledge that those are levels attainable by BAT, and we recommend we follow those levels.

MS. ROSS: And how would that improve the existing proposal -- the existing proposal does not have these maximum daily limitations, is that correct? The IEPA proposal does not contain those?

MR. JANTRANIA: Correct.

MS. ROSS: Are you recommending that you substitute the daily maximum for their proposed standards?

MR. JANTRANIA: What we are saying is do not change our current limits in the NPDES permit.

MS. ROSS: You're directing that to the Board?

MR. JANTRANIA: I was directing that answer to you.

MS. ROSS: Oh, okay. But you're asking the Board not to change your permit limitations?

MR. JANTRANIA: Right. Exactly.

MS. ROSS: Okay.

THE HEARING OFFICER: We also have prefiled questions by the Agency.

MS. HOWARD: As an introduction to the questions that we have, we have some comments that we think need to be considered that Mr. Studer has before the questions are answered by the witness.

THE HEARING OFFICER: Go ahead with the comment.

MR. STUDER: I reviewed the Agency files concerning Borden, particularly regarding their ammonia nitrogen discharge levels.

Borden's current NPDES permit contains monthly average ammonia nitrogen limits of 1.5 milligrams per liter April through October and 4.0 milligrams per liter November through March.

The associated daily maxima in this permit are double these values.

However, as the ammonia nitrogen limits and conditions in the previous permit had been under appeal, Borden had been reporting the daily maxima on their discharge monitoring reports or DMR's.

The DMR's list the permit limits as 1.5 milligrams per liter and 4.0 milligrams per liter both as daily maxima, applicable only when the ammonia nitrogen water quality standard in the receiving stream was being exceeded.

Since 1992, Borden has reported values on

their DMR's above these maxima on the following dates:

December 1994, maximum ammonia level of 54 milligrams per liter;.

November 1994, 6.4 milligrams per liter;

May 1994, 10.0 milligrams per liter;

April 1994, 9.9 milligrams per liter;

October 1993, 2.8 milligrams per liter;

August 1993, 1.8 milligrams per liter;

July, 1993, 1.6 milligrams per liter;

June 1993, 1.9 milligrams per liter;

April 1993, 1.7 milligrams per liter;

August 1992, 3.8 milligrams per liter;

June 1992, 4.3 milligram per liter;

May 1992, 3.9 milligrams per liter;

April 1992, 7.9 milligrams per liter.

Borden has upgraded their treatment system for ammonia nitrogen. This upgrade was reflected in Borden's latest NPDES permit, modified and effective on January 18th, 1996.

The NPDES permit modification was made with the understanding that Borden would dismiss their pending permit appeal after the permit was modified.

The NPDES permit modification, among other

things, removed a special condition containing a compliance schedule for ammonia nitrogen effluent limits.

This recent treatment plant upgrade became operational in June of 1994.

Borden has had periods of time where effluent ammonia nitrogen concentrations have exceeded summer and winter monthly averages of 1.5 milligram per liter and 4.0 milligram per liter respectively.

These times of elevated ammonia concentrations may have resulted from internal -- from internal waste streams that interfered with the treatment plant's ability to remove ammonia nitrogen.

One such occurrence of this problem appeared in late 1994 and resulted in high effluent levels of suspended solids and BOD.

This event is documented in Borden's provisional variance request granted in PCB 94-300 and later extended in PCB 94-368.

SAILESH JANTRANIA,

called as a witness herein, having been previously sworn, was further examined and testified as follows:

EXAMINATION

BY MS. HOWARD:

Q. How long have you been employed by Borden?

A. I have been with Borden for six years and ten months.

Q. Have you always been employed as the technical manager, and if not, what are the other positions you have held at Borden?

A. The answer to the first part is no, other positions held at Borden Chemicals & Plastics, production superintendent and process engineer.

Q. How long were you at Illiopolis?

A. All my employment with Borden chemicals has been at Illiopolis.

Q. Then how long have you been the the technical manager?

A. I've been the technical manager for the last eight months?

A. What other positions have you held other than those at Borden?

A. Previously, I worked for Keysor Century

Corporation for ten years. Keysor Century corporation is another PVC manufacturer.

Q. What were your responsibilities in that position?

A. I worked as -- during the ten years I worked as R & D engineer, process engineer and senior process engineer.

Q. What are your responsibilities in your current position at Borden?

A. In my current position, I manage and direct their technical support for the entire facility which includes four PVC production plants.

I manage and direct product quality control with coordination from divisional quality assurance, site total quality management, EPA compliance activities for the solid waste, provide technical support for plant cooling water system, waste treatment and municipal water system.

And in a sense, I provide technical direction and quality control guidance for the entire facility.

Q. What is your educational background?

A. I have a BS and MS in chemical engineering.

Q. How did you calculate the effluent levels in

the two columns on the right side of Attachment A to your testimony?

A. The effluent levels calculated in the two columns on the right side of Attachment A were calculated on a Lotus spreadsheet using the equation provided in Section 302.212 of the proposed amendments to 35 IAC 302.

Q. You testified that "discharges at monthly average and daily maximum levels achievable by BAT would have exceeded the proposed ammonia water quality standards during fourteen months" for the last six years.

Can you explain why all but one of these fourteen times occurred prior to June of 1991?

A. The reason that all but one of the fourteen examples on Attachment A occurred prior to June of 1991 is because not all monthly DMR results were used. Only the data that was readily available at that time was used.

Since then, we have calculated un-ionized ammonia for every month since 1989.

In actuality, there are 33 examples since January of 1989 where levels achievable by BAT would have exceeded the proposed water quality standards.

Several months in every winter since 1989 would require better than BAT performance to meet the proposed standards.

Of the 33 months, twelve were prior to June of 1991, and 22 fall after June of 1991. See attached revised Attachment A of, you know, my revised testimony.

Q. How was that calculated?

A. That was calculated again using the same spreadsheet and with an equation provided in Section 302.212 of the proposed amendments to 35 IAC 302.

MS. HOWARD: I would like to have Mr. Studer ask a question.

BY MR. STUDER:

Q. You calculated in I believe columns columns 10 and 11 on the Attachment A of your testimony various acute standards and various chronic standards.

What pH levels and what stream levels did you use to calculate those two columns?

A. On Attachment, column ten and column eleven use the pH and temperature used in that data itself.

Q. Okay. Where was that data derived?

A. Those are measured values.

Q. Were those gathered from a data base?

A. Yes, from our DMR's. They those were taken straight from our DMR's.

Q. Is that an effluent pH then?

A. That is measured in the receiving stream, downstream of the effluent.

Q. So you did not go through an analysis where that data base was analyzed and the instream pH of the 75th percentile and a temperature at the 75th percentile was used, you used something different?

A. We used the data that is contained in our DMR's.

MR. STUDER: Okay.

BY MS. HOWARD:

Q. Were there any changes in the wastewater treatment scheme operations or treatment plant unit constructions since 1991, if so, please describe them?

A. We have modified and improved our wastewater treatment process over the years.

And the major improvements have been, No. 1, 1993, installed fine bubble diffusors and increased air flow in August, and we installed an equalization tank in November.

No. 2, in 1994, we installed a nitrification and selector tank.

And in 1995, we have modified a settling tank to accommodate a sludge stripping operation.

Q. Has Borden always complied with the ammonia nitrogen monthly average and daily maximum effluent limits in their NPDES permit?

If not, provide the dates and the ammonia nitrogen concentrations for each apparent exceedance of these NPDES permit limits both on a daily maximum and a monthly average basis.

A. BCP has had an excellent record of compliance with its NPDES permits.

It's occasional exceedances have been reported in its DMR's.

Q. Could you state what those exceedances are?

A. Those are in our DMR's.

Q. Are you familiar with the Board's water quality standards for temperature contained in 35 Illinois Administrative Code 302.211?

A. We are familiar with 35 Illinois Administrative Code 302.211.

Q. Are you aware that the maximum stream temperatures in at least eight of the fourteen months

listed in Attachment A to your testimony which might be different now since Attachment A, we have to look and make sure there's no difference in that, but as Attachment A to your original testimony, appeared to exceed these standards?

MS. DOYLE: I think his answer may address the subpart in the next one, so you might want to read both of those.

BY MS. HOWARD:

Q. If the stream temperatures were lower, could Borden discharge a concentration of total ammonia nitrogen higher than now permissible and still not exceed the proposed un-ionized ammonia nitrogen water quality standard?

A. We are familiar with 35 Illinois Code 302.211.

Our NPDES permit does not require Borden to collect the data that Section 302.211 may require, so BCP is unable to answer this question at this time.

However, for those dates on which the temperatures recorded by BCP exceeded sixteen degrees Celsius in winter and thirty-two degrees Celsius in summer, we substituted sixteen or thirty-two degrees as appropriate in the proposed ammonia nitrogen

formula for the temperature BCP had recorded.

Our analysis is in attachment B of my revised testimony submitted today.

In only two instances out of thirty-three, January 1990 and December 1995 did the BCP temperatures higher than the limits in Section 302.211 result in an inability to comply with the proposed acute standard using BAT performance levels.

For the chronic standard use of the temperature limits in Section 302.211 did not change the number of occurrences on which BAT performance would result in noncompliance with the proposed standard.

Therefore, the higher temperature levels referred to by IEPA do not significantly affect BCP's conclusion that it will not be able to comply with the proposed standard, even when achieving BAT performance.

BY MR. STUDER:

Q. Are you familiar with the other temperature requirements?

You indicated there's a maximum of 16 C in the winter and 32 C in the summer.

Are you familiar with the other requirements of that provision of Board regulations?

A. Our NPDES permit does not have any requirements, and the other requirements which I mentioned are the only ones that I'm aware of.

Q. So you're not familiar with the additional requirements of Board regulations?

MS. DOYLE: Well, he's read the regulations, but I don't know what exactly you're asking about.

MR. STUDER: But it's not provided in the NPDES permit.

MS. DOYLE: Correct.

BY MR. CARLSON:

Q. When you use the term best availability treatment technology, I believe you're referring to the biological treatment with nitrification that you have at Borden Chemical, in other words, their treatment facilities, rather than talking in terms of actual performance; is that correct?

A. Yes.

Q. In terms of that biological treatment with nitrification, have there been periods of time within the last few years when that biological treatment has not been operable or significantly impaired?

A. We just put the latest modification in June of 1994.

It has always been in operation since then. And what was the other question?

Q. Well, my question was: As far as the performance of that biological treatment with nitrification, isn't it true that there have been periods of time at Borden when that nitrification process has not been operating as it should operate because of biological die-off?

A. We applied for a variance in I believe it was November and December of 1994, and that was because of the presence of foreign bacteria in the system, and the system was impaired at that time.

Q. And what was the extent of that impairment?

A. There was float out of total suspended solids, and we were out of compliance for total suspended solids.

Q. Were there other parameters as well that were out of compliance?

A. Not that I'm aware of.

Q. Do you know what the ammonia level was at that time?

A. November of '94, I don't have my DMR's with

me here, so I can't tell you what they were, but they were -- they were higher than our NPDES permit.

Q. What was done to restore the biological treatment system?

A. At that time, I believe what we did was we slowed the plant down for sometime and we purchased bacteria organisms that were commercially available and kept introducing them in the nitrification part of the plant in order to, you know, get our performance back in line.

Q. And what was your success in bringing back those organisms over the period of time when they died off until they were restored?

A. I believe it took a couple of months for, you know, the system to come back, performance.

MR. CARLSON: Okay.

FURTHER EXAMINATION

BY MS. HOWARD:

Q. In your testimony you discuss the installation of a temperature probe at the out fall.

Are you under the impression that the Agency's proposing that this be required in this rulemaking?

A. We think our point was clear. If the

proposed standard requires daily monitoring, the practical effect would be to require temperature probe.

That is an issue -- that is an issue BCP would like the Agency to clear up.

Is it sufficient to meet the requirements of the chronic standard under 302.208 to take samples of floor, different locations in a month so long as those samples are taken at least four days during the month or does the Agency contend that more frequent sampling is required.

FURTHER EXAMINATION

BY MR. CARLSON:

Q. I have a question from Mr. Studer's testimony.

It was mentioned that the daily maximum -- daily maximum DMR value for ammonia nitrogen in December '94 got as high as 54 milligrams per liter meant.

Was there any contemporaneous monitoring of water quality for ammonia at that time by Borden?

A. What now?

Q. Was there any contemporaneous monitoring of ammonia nitrogen water quality by Borden in December

of '94 when you had those very high levels of effluent ammonia?

A. I'm not sure what your question is. We had an exceedance, I understand that.

Q. And that was of your effluent?

A. Right.

Q. Was Borden also doing water quality monitoring at that time at that -- around that time period in the stream?

A. In the receiving stream?

Q. For ammonia nitrogen, yes.

A. Those samples were taken in the stream, so those numbers --

Q. No. I'm referring to the testimony of Mr. Studer where he was reporting your effluent values.

A. Those were our -- I believe those were our stream values, not the effluent values.

Q. Fifty-four milligrams per liter was your stream value?

A. That's where we measured. That's where we measured.

MR. STUDER: Was that the number you report on your DMR, your instream numbers?

MR. JANTRANIA: What we report on our DMR is our

instream numbers, yes.

MR. STUDER: Are you sure you report the instream number on your DMR's and not your effluent value?

MR. JANTRANIA: Our DMR's show the stream numbers, not the effluent numbers.

MS. HOWARD: We don't have any further questions.

THE HEARING OFFICER: Do any of the Board members have questions for Mr. Jantrania?

MS. MC FAWN: I wondered if the Agency has a response to his question.

THE HEARING OFFICER: About the temperature?

MR. STUDER: As far as?

MR. DUNHAM: Number of samples to be taken in a month I believe it was, wasn't it?

MR. STUDER: The Agency as part of this rulemaking is not necessarily requiring temperature probes to be installed at outflows.

Right now we currently have water quality standard that is in part based on un-ionized numbers. We don't anticipate major revisions based on that.

In the case of Borden, there may be temperature probes required to implement other Board

regulations not associated necessarily with this rulemaking.

MR. DUNHAM: There was another question, though, that I thought he asked regarding the number of samples to be taken to get a monthly average, was that not correct?

Is there any modification of that plan?

MR. MOSHER: The chronic standard will be implemented like all of our other chronic standards.

The monthly average permit limit will reflect that standard.

In this case we're talking about 1.5 and 4 because the effluent modified water character of this receiving stream.

The other point that may have been made or asked is that when you're actually divorcing yourself from the treatment plant and looking at the stream itself, how do you know if a chronic standard is being met or not.

And the rule is proposed to say that it will be the average of at least four samples taken over a period of not less than four days.

So if someone were to go out to any receiving stream and take four samples in a month and

those samples were spaced out roughly once per week, then we could average those four samples and decide if the standard was being met or not.

MR. DUNHAM: I guess my question is: Are those sampling requirements equivalent to the sampling requirements for any other chronic parameter in the water quality standards?

MR. STUDER: I need to clarify a point here.

Borden's NPDES permit has been under appeal for several years now.

The monitoring requirements associated with pH and temperature were routinely included in past NPDES permits with ammonia nitrogen.

That was a carryover prior to the 1987 amendments to the Clean Water Act.

At that particular time, the Agency wrote effluent limits in NPDES permits that were only applicable when the water quality stream -- receiving stream had violations of the particular water quality standard.

Since the 1987 amendments to the Clean Water Act, the Agency has included in NPDES permits effluent limits that are applicable at all times to protect the water quality standard.

But because of the pending permit appeal in the case of Borden, the particular amendments to their NPDES permit or revisions to their NPDES permit had not been applicable.

So the answer to your question as far as the monitoring requirements is that it's something that is not routinely included in permits now.

If it is necessary for some given reason, the Agency may include those in an NPDES permit. Did I confuse you more?

MR. DUNHAM: I was under the impression that the monitoring requirements in an NPDES permit related to the flow of effluent compared to the flow of the stream and the size of the treatment plant and so on and so forth.

I thought you routinely put in sampling requirements in the NPDES permits.

MR. STUDER: We put in sampling requirements for the effluent but not necessarily for the receiving water.

MR. DUNHAM: But those requirements are based on the effluent flow, on the size of the treatment plant.

MR. STUDER: The frequency of monitoring.

MR. DUNHAM: Frequency of monitoring is what we're talking about I thought.

MR. STUDER: That's typically based on the amount of flow at a given facility.

MR. DUNHAM: And these proposed standards make no change in the frequency of monitoring that is currently required in Illinois?

MR. STUDER: That is correct.

MR. DUNHAM: Okay.

MS. DOYLE: Could I just make sure, Mr. Mosher, that the unnamed ditch in your view is going to qualify as an effluent modified water?

MR. MOSHER: Well, we have to make the determination, we have to put the appropriate permit limits in Borden's permit, and I have -- do we know if there's ammonia impairment in that ditch?

I don't believe there's ammonia impairment, so it could qualify for effluent modified water.

MS. DOYLE: Well, that was sort of our whole issue, if we can't meet the acute standard, then how could we qualify for that.

MR. MOSHER: Well, you can't. You'll get a permit that has daily maximum limits set at the proposed acute standards, and that will be based on

the pH and temperature at some downstream monitoring point.

And I said earlier, those are going to range from somewhere between three and eight, depending on the pH and temperature, and so instead of daily max limits of what do you got now, three and eight?

MS. DOYLE: Right.

MR. MOSHER: It's going to be whatever our new acute standard dictates.

MS. DOYLE: Right.

MR. MOSHER: You'll have that, you'll have monthly averages of 1.5 and 4, and the verdict in the receiving stream that there's no ammonia impairment, you meet those three things, you got the effluent modified water.

MS. DOYLE: But I guess our analysis was showing we're not likely to meet the acute standard all the time, so how could we qualify?

MR. MOSHER: Well, if you can't meet those permit limits, you can't qualify.

MS. DOYLE: Okay.

MR. DUNHAM: I have a question of methodology.

It appears when you write the permit, you take, I'm not going to say arbitrary, but a

reasonable figure that you presume to be the temperature of the stream and pH of the stream based on whatever -- some average of pH of the stream -- the 75th percentile of the temperature, and what is the pH again?

MR. STUDER: 75th percentile of the pH.

MR. DUNHAM: And you use those numbers to calculate the acute standard.

What you seem to be doing is taking the daily pH, daily temperature, daily ammonia number and calculating what the -- calculating using the algorithm for the acute standard and coming up with a number, the daily number.

MR. JANTRANIA: Right.

MR. DUNHAM: You're not using a 75th percentile single figure -- I use a single -- the Agency uses a single figure in calculating -- for pH and for temperature for summer and winter to arrive at the acute standard for a permit.

MR. STUDER: I don't know if you can say -- part of what you're saying is correct and part of it is not.

No. 1, there's no acute standard currently in place. But the NPDES permit is derived based on

the 75th percentile, and --

MR. DUNHAM: But you derived a single 75th percentile number.

MR. STUDER: For winter and for summer.

MR. DUNHAM: And from that you calculate what will be the acute standard in the permit?

MR. STUDER: That's right.

MR. DUNHAM: So you're not using daily temperature, you're not using daily pH.

MR. STUDER: That is correct.

THE HEARING OFFICER: I think that completes their testimony then.

The next testimony we have is from Greg Buchner of the Fox Metro Water Reclamation District. I want to have you identify yourself for the record and have you sworn in as a witness.

MR. BUCHNER: My name is Gregory J. Buchner. I'm the special projects coordinator for the Fox Metro Water Reclamation district.

THE HEARING OFFICER: I would ask the court reporter to swear you in.

(Mr. Buchner sworn.)

THE HEARING OFFICER: Now, you have some prefiled testimony, but you have some revisions you want to

make to that?

MR. BUCHNER: Yes. Can I sort of summarize the revision.

Essentially back on November 8, 1995 at the hearing that was held, Board members requested more information regarding monitoring being performed by communities on the Fox River and the number of community wastewater treatment plants which might need to seek adjusted effluent standards or other forms of relief if R94-1 was adopted as proposed.

In response to the Board request, the Fox Metro Water Reclamation District, and I'll use Fox Metro, formerly known as the Aurora Sanitary District, indicated that it would submit some information regarding these matters at a future Board hearing on a date that was to be announced.

Fox Metro submitted a report containing such information to the Board on January 26, 1996, the presubmitted testimony deadline for the January 22nd, 1996 Board hearing on R94-1(B).

The report was entitled impact of the proposed R94-1(B) ammonia nitrogen water quality limits upon the Fox Metro Water Reclamation District publicly owned wastewater treatment works which I

will call Fox Metro report.

On page four of the Fox Metro report it was indicated that data from the last four scheduled sampling events of the one year study could not be included in the report because of the January 26th, 1996 presubmitted testimony deadline.

What I have here today I'm calling Addendum A, and it is meant to be added to the original report, and it contains updated tables including the data from the last four sampling events from the study, and updated calculations of water quality based ammonia nitrogen effluent limits for Fox Metro outfall 001 reflecting the additional data obtained from these last four sampling events.

Illinois Environmental Protection Agency, or the Agency, on the first page of its questions for myself indicated that it used the long-term average for upstream concentrations -- excuse me, a long term ammonia nitrogen concentration average for upstream when determining permit limits.

Also as part of my recalculations here I'm using used the long term average which the Agency indicated in a November 7th, 1994 fax that it had sent to me.

On the basis of all the new data and the Agency value for upstream ammonia nitrogen concentrations, I didn't find it to affect the summary contained in the original report.

And I do have copies that I can provide to anyone that would like them.

THE HEARING OFFICER: I think we would like a couple copies up here. Give one to the Agency, too.

Go ahead and enter the prefiled testimony along with the supplement as an exhibit. That would be Exhibit No. 50.

Do you have any other additional comments that you would like to make?

MR. BUCHNER: No.

THE HEARING OFFICER: We do have some questions on your testimony.

We have questions from the Sierra Club.

MS. ROSS: First if I understood your supplement correctly, you have more data but it didn't essentially change the nature of your testimony?

MR. BUCHNER: No.

MS. ROSS: Then the second question is on page 10, you describe an area of concern regarding the use of monitoring data.

I guess I didn't understand how this would affect the establishment of the standard, the aquatic life standard, the ambient water quality.

MR. BUCHNER: In response to your question, the use of sound monitoring data should be basic in the establishment of a standard for the protection of aquatic life.

If sound monitoring data is not used, erroneous standards may be set that either not protect the aquatic life or will not result in any benefit to aquatic life, but in either instance may result in a wasteful expenditure of taxpayer dollars on building facilities or creating programs in an attempt to achieve compliance with the erroneous standards.

However, the second area of concern expressed on page ten of the Fox Metro report is not about the use of monitoring data in the establishment of a stream standard as the question asked seems to imply.

The second area of concern is about two agencies with separate enforcement powers agreeing over appropriate monitoring locations to determine compliance with the proposed standards and how

compliance is to be determined for an area where two streams mix when the standard to be complied with has eight interacting variables associated with it.

These variables being the flow, pH, temperature and ammonia nitrogen concentration for each of the two streams.

MS. ROSS: The two agencies are IEPA and the USEPA?

MR. BUCHNER: That the correct.

MS. ROSS: Is it common for them to disagree on the data?

MR. BUCHNER: I do not know. I heard testimony earlier today which suggested that that was not the case.

MS. ROSS: What would you suggest?

MR. BUCHNER: We have met with the Agency, and this will come up I believe in the discussion of the Agency's question, we have worked with the Agency to obtain what we believe to be a suitable sampling location.

But as expressed on page 10, that's our area of concern is that even though we may have reached an agreement with the Agency which involved a lot of hard work on both parties' part, USEPA can review

that permit and say, well, we don't agree with you.

MS. ROSS: My confusion I guess is that I don't see what the Board can do about that because that's in the Clean Water Act, this USEPA oversight.

Is there something that the Agency can do in the rule?

MR. BUCHNER: I think that's the question that could be addressed to the Agency. I don't know.

MS. ROSS: Okay. My second question had to do with your clause, your recommended clause except for natural causes.

And my question is: When you say natural, what do you mean by natural? Is it something just upstream from you or does it really pertain to the historic conditions of the Fox River?

MR. BUCHNER: During the course of the proceedings here, I think that's one of the basic question, what is truly causing the high pH of the Fox River.

And to date, I don't believe that any testimony other than that offered by the Agency suggesting either the limestone bottom of the river might be contributing to that high pH or the possibility of algal blooms.

To date that's the only thing I've heard that's been entered into the record as far as causing that high pH value. Both of those seem to be naturally occurring to me.

MS. ROSS: But if -- regardless of what the cause is, if something upstream is causing it, shouldn't the water quality standards still be met?

MR. BUCHNER: If it's a natural cause that is creating the violation of a standard -- I guess I'm missing the point here.

I don't see how legislating a standard can change what's out in the environment.

MS. ROSS: I guess my question was more to the point that it was --

MR. BUCHNER: What is your definition of a natural -- I saw in your prefiled question, a natural cause of pollution, I was confused by what you meant by natural cause of pollution.

MS. ROSS: Natural versus other sources of pollution, such as run off upstream that causes algal blooms or other changes in the waterway.

No. I didn't mean natural pollution, I meant between a natural event or some other source of pollution, and I think we've probably beaten that

question to death.

But my issue is more shouldn't we still have ammonia standards that are protective of aquatic life?

And if there's an upstream cause, that shouldn't cause the Agency to waive standards at a downstream site, the Agency should take action at the upstream site, if that's the case.

But my question is: Shouldn't we set standards that are protective of aquatic life?

MR. BUCHNER: I think that's the whole purpose of the rulemaking.

I think our concern, in answer to the question as it was posed to me, this current hearing is a rulemaking process, and that we are not asking for any standards to be waived, therefore.

I mean we're in the process of making a rule, but we are concern that any standards that may be set as a result of this rulemaking process will be based upon sound science, real world Illinois stream field data presented during these hearings and a recognition of the temperature influence limits of biologically based wastewater treatment processes, that's all we're asking for.

MS. ROSS: Okay. I'll quit.

THE HEARING OFFICER: Now does the Agency have some questions for Mr. Buchner?

MR. CARLSON: Yes. Before we start those particular questions, we had some comments to introduce that led into our questions, Mr. Vance will present here.

THE HEARING OFFICER: I think we're losing you, too, so speak up.

MR. CARLSON: Sorry.

MR. VANCE: The testimony of Greg Buchner offers "suggested solutions" to the problems he perceives in regard to the Agency's proposed ammonia nitrogen water quality standards.

Mr. Buchner emphasizes in his first argument the term "naturally occurring pH" and the preservation of the current 1.5 milligram per liter floor for ammonia nitrogen permit limits.

It is the Agency's understanding that Mr. Buchner feels that the 1.5 milligram per liter limit should be implemented in cases where the naturally occurring pH value of a stream exceeds the average pH value of all Illinois streams.

As the Agency has stated from the date this

regulatory proposal was filed with the Board two years ago, the 1.5 milligram per liter water quality standard found in Illinois Administrative Code 302.212(c) was based on an outdated understanding of the toxicity of ammonia to aquatic life.

Since the adoption of this standard, studies have shown that the un-ionized portions of ammonia nitrogen is far more toxicologically significant than total ammonia nitrogen.

The 1.5 milligram per liter floor value is, therefore, no longer scientifically defensible as a general use standard.

Mr. Buchner also suggests what he terms as "a simpler solution."

His second solution involves amending the now expired 35 Illinois Administrative Code 304.301 standard.

Specifically he suggests reimplementing the 4.0 milligram per liter effluent standard for discharges during the months of November through March.

In addition he feels a 1.5 milligram per liter effluent standard for discharges during the months of April through October should be included

and the contents of 35 of Illinois Administrative Code 304.301(b) and (c) can be eliminated.

In response, the Agency would again like to reiterate USEPA's views concerning the 4.0 milligram per liter effluent standard.

In 1988 the original 4.0 milligram per liter standard expired. At this time, the Agency requested that the 4.0 milligram per liter standard be included permanently in Section 304.301 of the effluent standards.

USEPA denied this request based on the fact that given the updated information that revealed un-ionized ammonia as the primary toxic component of ammonia nitrogen.

4.0 milligram liter may not be protective of the aquatic life of higher pH and/or temperature values.

They did allow an extension of the 4.0 milligram per liter floor until July 1st, 1991 and suggested that new standards should be calculated based on the latest toxicity information available.

The extension was given with the understanding that the Agency would revise the state's ammonia water quality standards which would

be implemented prior to July 1st, 1991.

The Agency feels that the proposed standards address USEPA's concerns for the implementation of a water quality standards that are not in conflict with Federal regulations requiring water quality standards to be protected of designated uses.

The new concept of the effluent modified waters reinstates 1.5 and 4.0 milligrams per liter as summer and winter monthly average permit limits for many discharges with provisions that some receiving waters will have these values as standard.

It is the provisions associated with the designation of the effluent modified waters that separate this concept from a simple renewal of the 4.0 milligram per liter standard, and thereby gaining the approval of the USEPA.

The Agency views Mr. Buchner's compliance situation at Fox Metro as being somewhat removed from the issues.

When the Agency calculates potential permit limits from this discharge, the resulting values are not as stringent as postulated in his January 24th, 1996 testimony.

Incorporating his recently collected pH and

temperature data from 3,000 feet downstream of the Fox Metro outfall, monthly averages of 1.4 milligrams per liter in the summer and 1.9 milligrams per liter winter, the daily maxima of 4.1 milligrams per liter summer and 5.3 milligrams per liter winter are obtained using the Agency's proposed standards.

A mixing zone for the chronic standards is recognized in these calculations. Acute standards are directly applied as daily maxima.

No effluent modified water is necessary. Recent effluent monitoring data indicates that these limits can consistently be met by Fox Metro.

MR. BUCHNER: May I respond to those comments or just a couple of them?

THE HEARING OFFICER: Okay.

MR. BUCHNER: There seems to be a problem here with data bases being used.

In the past there has been some communication between the Agency and Fox Metro in an attempt to resolve some of these issues.

So these numbers that are being presented today, I have no idea how they were derived because I don't have any idea what the data bases were.

And we'll be -- in the course of the

Agency's discussions, I'll be explaining what our numbers were, and I would appreciate finding out what numbers or what data bases the Agency used in coming up with the numbers that they just surprised me with now.

MS. HOWARD: Could we ask our questions first?

Can you describe how had you calculated the summer and winter daily maximum and monthly average limits shown on pages 8 and 9 of your testimony?

Please indicate the percentile pH, percentile temperature and percentile ammonia concentration and stream flow used in these calculations.

MR. BUCHNER: The summer and winter daily maximum and monthly average limits shown on pages 8 and 9 of the Fox Metro report were calculated using procedures shown in a single page document that was faxed to Fox Metro by the Agency on November 7th, 1994.

This document was entitled Aurora S.D. - Ammonia analysis (for ammonia standards review purposes) which I will refer to as the Agency fax.

Regarding the calculation of summer and winter daily maximum limits, the Agency fax indicated near the end of that page that the acute water

quality standard will be directly applied as a daily maximum.

In the bottom of the page, acute water quality standards shown were indicated to have been calculated using the proposed revisions to 35 Illinois Administrative Code 302.212.

In other words, daily maximum effluent limits were to be set equal to the acute water quality standards calculated using the proposed revisions to 35 Illinois Administrative Code 302.212.

The formula for the determination of un-ionized ammonia concentrations found at 35 Illinois Administrative Code 302.212 was albegraically rearranged to solve for total ammonia nitrogen.

The rearranged formula was then incorporated into a Lotus 1-2-3 computer software spreadsheet.

The validity of the rearranged formula was confirmed by inserting the parameter values from the Agency fax into the spreadsheet which subsequently yielded the same calculated acute and chronic water quality standards as shown on the Agency fax.

Fox Metro report tables 15, 16, and 17 are

copies of that spread sheet, each table reflecting calculations resulting from the data bases indicated.

The acute and chronic total ammonia nitrogen water quality standards calculated for each data base are found in the top sections of tables 15, 16 and 17.

The summer and winter daily maximum limits shown on pages 8 and 9 of the Fox Metro report are taken from tables 15, 16 and 17 and are equal to the acute water quality standards calculated using the proposed revisions to 35 Illinois Administrative Code 302.212.

With regard to the calculation of summer and winter monthly average limits, the Agency fax indicated near the middle of the page that the total ammonia concentration in the effluent to meet the chronic water quality standard shall be the result of a mass balance equation that takes into account the chronic water quality standard in terms of total ammonia to be met outside a mixing zone, the seven day ten year low flow of the Fox River directly upstream of the outfall, the average Fox River ammonia nitrogen concentration from a point upstream

of the outfall, and the average three consecutive month low flow for the outfall for the last two calendar years.

In other words, the monthly average effluent limits were to be calculated using a mass balance formula that allows for mixing of the effluent with the receiving stream so that the chronic water quality standards calculated using the proposed revisions to 35 Illinois Administrative Code 302.212, would not be exceeded outside of the mixing zone.

The mass balance equation from the Agency fax was shown on page 7 of the Fox Metro report.

This mass balance equation was entered into the same Lotus 1-2-3 computer software spreadsheet that was mentioned earlier.

The validity of the entered mass balance formula was confirmed by inserting the parameter values from the Agency fax into the spreadsheet which subsequently yielded the same calculated effluent limits as shown on the Agency fax.

As indicated earlier, Fox Metro report tables 15, 16 and 17 are copies of that spreadsheet, each table reflecting the calculations resulting from the data bases indicated.

The monthly average final effluent ammonia nitrogen limits calculated for each data base are found in the bottom sections of tables 15, 16 and 17.

The monthly average effluent limits in tables 15, 16 and 17 were labeled as chronic to reflect the fact that the proposed chronic water quality standards for ammonia nitrogen had been used in their calculation.

The summer and winter monthly average limits shown on pages 8 and 9 of the Fox Metro report are the monthly average final effluent ammonia concentration limits found in the bottom section of Fox Metro report tables 15, 16 and 17.

Regarding the parameter values used in the calculations, tables 15, 16 and 17 of the Fox Metro report indicate that the 75th percentile pH, the 75th percentile temperature and the 75th percentile ammonia concentrations of the stated data bases were used in the mass balance calculations.

The stream flow used in the calculations was 176 cubic feet per second and was obtained from the Agency fax.

MS. HOWARD: You indicated that upstream

concentrations for ammonia nitrogen are determined by using the 75th percentile concentration of the upstream data when applying the mass balance equation.

The Agency uses a long term average for upstream concentrations when determining permit limits.

Were your calculations based on a long term average concentration or on the 75th percentile data for upstream ammonia calculations?

MR. BUCHNER: The calculations in the Fox Metro report were made using 75th percentile for upstream ammonia nitrogen concentration data gathered during the course of the study.

Upon receiving the Agency's questions concerning the upstream ammonia nitrogen values used to calculate the effluent limits in the Fox Metro report, Fox Metro reviewed the Agency fax.

The review found the Agency fax did indicate that average upstream ammonia nitrogen values had been used in Agency effluent limit calculations and that the averages had been determined from a stated January 1983 through November 1992 data base.

The Agency fax indicated averages for

ammonia nitrogen concentrations upstream of the Fox Metro outfall to be 0.1.2 milligrams per liter for the summer and 0.26 milligrams per liter for the winter.

Fox Metro has subsequently used the long term average upstream ammonia nitrogen values found in the Agency fax to recalculate the daily maximum and monthly average limits which could be derived for the Fox Metro outfall under the different scenarios described in the Fox Metro report.

The recalculated limits also took into account data from four final sampling events which as explained in the Fox Metro report could not be included in it at the time of its preparation.

The recalculated effluent limits were not significantly different than those originally calculated in the Fox Metro report.

MS. HOWARD: The Agency calculated potential effluent limits based on data collected by Fox River Water Reclamation District from June 5th, 1985 to December 26th, 1990.

Why were the effluent limits in your testimony based on one year worth of data rather than the entire data base?

MR. BUCHNER: The Fox Metro report was prepared in response to a board request made at the November 8, 1995 prehearing conference on R94-1 for any information regarding monitoring being performed by communities on the Fox River and the number of community wastewater treatment plants which might need to second adjusted effluent standards or other forms of relief if R94-1 was adopted as proposed.

The data in the Fox Metro report was collected as a result of an informal agreement with the Agency that was referenced during Agency testimony at the November 11th, 1994 Board hearing on R94-1.

During testimony regarding the calculation of effluent limits for the Fox Metro outfall, then being referred to as Aurora, the Agency indicated that -- and I'll quote:

> "Data from a close by downstream sampling point is preferred, something that is not available in this case.
>
> "In discussing this dilemma with Aurora, it

has been agreed that pH and temperature data will be directly Aurora at a point" -- excuse me, let me reread that.

"In discussing this dilemma with Aurora, it has been agreed that pH and temperature data will be collected by Aurora at a downstream site representative of the mixing characteristics at Aurora.

"At the time of permit renewal, this data will be used to set permit limits."

Fox Metro took the term "would be collected" in the testimony to mean that such data was to be collected at a point in time after November 11th, 1994, the date on which the testimony was entered into the record.

On December 8th, 1994, Agency and Fox Metro representatives met at Fox Metro at the the Fox Metro

wastewater treatment works.

A joint field inspection was made and a mutually agreed upon monitoring station downstream from the wastewater treatment works outfall was selected where Fox River samples could be collected for the purposes stated at the November 11th, 1994 Board hearing.

At the December 8th, 1994 meeting, Fox Metro also gave the Agency the June 5th, 1985 through December 26, 1990 data which the Agency has referred to in its question No. 3.

At no time during the December 8th, 1994 meeting does Fox Metro recall a suggestion being made that the provision of the June 5th, 1985 through December 26, 1990 data would negate the need for future -- excuse me, would negate the need for the collection of future downstream data to be used for the purposes stated at the November 11th, 1994 board hearing.

In summary, the Fox Metro report was prepared in response to a board request regarding monitoring currently being more formed by communities on the Fox River and included data collected only after the November 11th, 1994 Board hearing and a

December 8th, 1994 determination of a suitable downstream sampling location agreed upon by Fox Metro and Agency representatives.

MS. HOWARD: That's all the questions we have.

MR. VANCE: Mr. Buchner already mentioned that the difference is, the potential limits I calculated are based on 1985 to '90, in addition to the 1995 data, and his limits were calculated based on the 1995 data.

THE HEARING OFFICER: Is this a follow up or clarification?

MR. CUNNINGHAM: A couple questions.

Could you describe briefly where your outfall is in relation to -- where this agreed upon monitoring point is in relation to your outfall, your ZID and mixing zone?

MR. BUCHNER: We do not have a ZID established for our outfall, and I don't believe that we have a formal mixing zone that has been determined.

Although I did give the Agency copies of work that we had done that attempted to indicate what I think we called a mixing pattern.

I definitely want to stay away from the term mixing zone at that point.

Sampling point that we agreed upon was at a point, I believe it was about 3,000 feet downstream from our outfall, and wading out and collecting the sample as far as we can without putting the well being of our sample collector in jeopardy.

MR. CUNNINGHAM: If the districts were to receive the limits that you have set forth in the bottom of page three, I guess that would be 1.28 summer monthly average and a -- or if the answer is different, the 1.4 and 1.9 that the Agency has just referred to, are those limits that the district would find acceptable or would the district consider filing for an adjusted standard or appealing those permit conditions?

MR. BUCHNER: The limits that were just offered -- I shouldn't say that were offered, but that were read into the record by the Agency representative, I believe that we would have no problems with those.

MR. CUNNINGHAM: And do you believe that would be true at design loads of --

MR. BUCHNER: I'm not an engineer, so I wouldn't want to speculate on that. I would refer to our engineering consultant.

MR. CUNNINGHAM: That's all.

THE HEARING OFFICER: Okay. Are there any other comments, questions?

MS. MC FAWN: I don't know if we need this or not, maybe you can help me out here.

The facts that support your calculations, is that all that material contained within your testimony or would it help the Board to have that particular fax from November of '94?

MR. BUCHNER: I guess that -- I do have copies of the fax if the Board would like it, but it's essentially the procedure which has been described by the Agency.

MS. MC FAWN: Okay. I'm just going to -- I'm looking at their technical expert.

MR. DUNHAM: You said that you're not an engineer, I don't remember seeing in the record anywhere your technical qualifications.

MR. BUCHNER: I graduated from North Central College in Naperville, Illinois in 1974, I graduated magna cum laude with a bachelor of arts degree, major in biology, minor in chemistry.

I'm presently a class one wastewater treatment works operator in the State of Illinois.

I joined the Fox -- well, it's the Aurora

sanitary district, I believe, in 1982, it might be '83 as their laboratory supervisor, and I was in that position till late 1987.

At that time I became the special projects coordinator where I became involved in special projects such as this.

MR. DUNHAM: Thank you.

THE HEARING OFFICER: Thank you. I think we got time for testimony from one more person.

I ask Jim Daugherty from the Illinois Association of Wastewater Agency to come forward.

MR. DAUGHERTY: I do plan to expand upon my -- I would be happy to wait till tomorrow if you want to. It might take a few minutes. It's up to you.

MR. DUNHAM: It might be easier to do it tomorrow.

THE HEARING OFFICER: Okay. Off the record for a minute.

(Discussion had off the record.)

THE HEARING OFFICER: Okay. Since we are nearing the end of the date, we're going to proceed with the questions from the Sierra Club of Mr. James Huff for today, and then we will reconvene tomorrow for the testimony of Mr. Huff and for the testimony from Mr.

James Daugherty.

So right now, I would ask the Sierra Club to go ahead and proceed with their questions of Mr. Huff.

MR. CUNNINGHAM: I think we should swear him in since he hasn't been sworn in yet.

(Mr. Huff sworn.)

MS. ROSS: On page 11 and 12, you make a number of references to the fact that everything is fine and there aren't any water quality problems for ammonia in Illinois, and you refer to people finshing in outfalls.

That appears at least to me, and I haven't read the full report to be mostly anecdotal information.

Have you actually conducted a study of the cost effect of annomina toxicity --

MR. HUFF: No, I have not. I relied on the Agency's review of the ammonia toxicity data.

In addition, as noted in a previous hearing in response to an Agency question, see Exhibit 18, question No. 5, laboratory reared fish are more susceptible to toxicants than wild populations.

This factor is not considered when deriving

water quality standards.

Wild species may be 50 percent more tolerant than laboratory species, and the reference 11EQ document 7703 at page 255 and 256.

MS. ROSS: That's in this report here?

MR. CUNNINGHAM: No.

MS. ROSS: You're just giving that information. Okay.

And that's one report that was conducted by the Illinos EPA; is that right?

MR. HUFF: Illinois Institute of Environmental Quality.

MS. ROSS: And they compare laboratory with -- did they do a series of laboratory studies and a series of outdoor experimental?

MR. HUFF: No. The question -- that report has responses from five biologists that were brought in as expert witnesses, and in a proceeding before the Board, a question was posed to them with respect to the differences between wild species and laboratory reared species.

MS. ROSS: Okay. So that was expert opinion offered at previous testimony?

MR. HUFF: That's correct.

MS. ROSS: And question 14 and 15, I just really didn't understand your comment on the implementation of the ammonia standard. I didn't understand what you intend to do.

MR. CUNNINGHAM: Are we skipping 1(b)?

MS. ROSS: Is there a 1(b)?

THE WITNESS: Maybe I just broke it down.

MS. HOWARD: The portion of the question regarding the outfalls.

MS. ROSS: Oh, yeah.

MS. ROSS: Isn't it true that there are quite a few reasons why you could be able to fish in a mixing zone, and it doesn't necessarily mean that the quality of the water is particularly good?

MR. HUFF: Well, the presence of fish in a mixing zone may not necessarily be indicative of high ecosystem quality.

It does suggest that the ammonia levels in the outfalls are not sufficiently high, i.e., chronic levels to cause the natural avoidance mechanisms of fish to my migrate out of the area.

Evidence of excellent fishing in my testimony was far more extensive than the "sighting of a fisherman in a mixing zone."

The Fox River study included a summary of a report by the Department of Conservation on the fish qualify on the Fox.

On the Rock River, the attachments to the testimony provide firsthand information from local outdoor writers, bait shops and professional guides on the overall health of fish on the Rock.

These individuals have decades of experience and represent for more than the sighting of one fisherman in a mixing zone.

For example, Mr. Merlin Howe is a retired conservation police sergeant with years of experience on the Rock River.

Improved fishing is not limited to the Fox and the Rock Rivers.

The 1994 report, "The Changing Illinois Environment: Critical Tends," prepared jointly by the Illinois Department of Energy and Natural Resources and the Nature of Illinois Foundation reported that since 1977 angling days statewide have increased by 21 percent.

MS. ROSS: But isn't it true that at an outfall, there can be such things as increased temperature, increased turbulence or changes in -- I mean the fact

that there are fish in a mixing zone, doesn't necessarily mean that there is no toxicity there?

MR. HUFF: I don't think I could answer that beyond what I just said.

If they -- fish have, especially as Mr. Mosher pointed out, the adult specie, a natural avoidance mechanism, so if there is a stress placed on them in the form of some toxicant, their natural tendency should be to avoid that area.

Now, if there are things that are attracting them, maybe those are overbalancing the toxic effects, I suppose that's possible.

MS. ROSS: The second question was: Could you just explain what it is you intend the Agency to do with your comment? It begins on page fourteen.

MR. HUFF: Could you read that comment? I had trouble understanding exactly what question you were referring to.

MS. ROSS: You say that the Agency's proposal lowers un-ionized from .05 to .02.

But you suggest that allowing dischargers to monitor stream temperature at their option when the temperature is above twelve degrees Celsius, the applicable un-ionized standard --

MR. HUFF: One of the proposal of the Ammonia Group is that at a discharger's option, they go out and measure stream temperature, and if the stream temperature is above twelve degrees Celsius, then the applicable un-ionized ammonia standard should be 0.05 as opposed to 0.02 during the months of November through March.

THE HEARING OFFICER: We have a question.

MR. SONI: My name is Hiten Soni, I'm with the Board's technical staff.

Are you proposing where exactly would you measure the temperature, in the river?

MR. HUFF: Certainly in the river. In order to establish an un-ionized ammonia, you have to collect a temperature, a pH and a total ammonia, so my answer would be wherever you're collecting a total ammonia sample and the pH is where you would collect the temperature sample.

MR. SONI: Would you also recommend the time of the day that you would do this?

MR. HUFF: Same answer. If that's specified in permits today, the Agency certainly has done that on parameters such as dissolved oxygen.

They certainly can do the same thing on

ammonia nitrogen. If they didn't specify the time of day, then, no, but if one wanted to go out there, whether it was an EPA field inspector or the discharger, they would have some discretion as what time of day they would be collecting those samples.

MR. CUNNINGHAM: If I might, I think there may be a misunderstanding as to the scope of what we're talking about here.

We're really talking about a situation where a discharger is required to do instream monitoring, and we don't believe that somebody who is required to do instream monitoring and who is doing that instream mon-monitoring at some particular point in the stream should be held to a standard that's applicable to under twelve degrees when it's actually being done at above twelve degrees.

It would not be a defense to an effluent limit violation, for example, it's a defense against violation of an instream water quality standard where that would have to be measured, and it would be measured at whatever monitoring point would be determined pursuant to the permit and at whatever times were specified.

MS. ROSS: Well, then, it does appear -- maybe

I'm still confused.

You're sort of proposing a two level standard then for below twelve and above twelve degrees; is that right?

MR. HUFF: Yes. Because toxicity data was divided at the twelve degrees centigrade in order to derive the 0.02 and the 0.05 standards.

MS. ROSS: Okay. All right. I understand that.

MR. DUNHAM: Can I interject?

You are proposing then that those people who are willing to install perhaps continuous or at least fixed monitoring stations for temperature be allowed to do this, this is something that they -- the discharger would make an agreement with the EPA to actually install additional equipment in order to be able to make -- take this option?

MR. HUFF: I think it would be at least in the initial part up to the discharger, whether they felt it was necessary.

If you had a discharger such as Fox Metro who is right now consistently discharging below one milligram per liter, there would be no reason for them to go out in the stream and monitor the temperature and pH because they can meet a more

rigorous limit.

If you have somebody on the other hand that's on the low flow stream that effective November 1st that un-ionized standard just went from 0.05 to 0.02, he may be discharging at a level that the stream is going to be over .02, but because it's a warmer day, he could go out there, measure the temperature and say, well, it's not toxic to the fish because in order to be toxic to the fish it has to be below twelve degrees centigrade to be -- the applicable standard to be the .02, so it would be at the discharger's option if they wanted to go out there in the stream that day to take those samples.

If he's already taken those samples, now, if he goes out there say on November 1st, and he back calculates a standard -- or an un-ionized ammonia of .03, that's a water quality violation, whereas if the temperature on that day was fourteen degrees centigrade based on the technical literature, that's not chronically toxic to a biota.

MR. CUNNINGHAM: It may well be that the most important aspect of this part of the proposal is in the analysis, the data collection that would be done and the analysis of worse case conditions in order to

make a determination of whether projected under worse case conditions there would be an instream violation that's a part of -- you know, the data gathering aspect of the Ammonia Group's proposal.

MR. STUDER: Can I ask a question here? How would you apply that then as a four day average?

MR. HUFF: I think you could either separate the four days in a row that are less than twelve degrees versus the four days in a row that are above twelve degrees.

MR. STUDER: But weren't you indicating that you would go out and have instream temperature, instream pH and instream ammonia gathered, and that that would be there, and then you go back and do the same thing the next time?

MR. HUFF: The next day.

MR. STUDER: So you've got an averaging that's occurred, then what's the standard, 02 or 05?

MR. HUFF: I think high I separate the data into less than twelve degrees and above twelve degrees.

MR. STUDER: Even though there may be days in between there where the temperature may --

MS. HOWARD: She can't take down both of you talking at the same time.

MR. HUFF: You may have days where you're above twelve degrees centigrade on the 1st, 5th, 7th and 9th, so you could average those four and compare those to the .05, and on the days it's less than twelve degrees centigrade, average those.

THE HEARING OFFICER: Let's go back to the Sierra Club's question.

MS. ROSS: Well, my question was -- I didn't understand what you were saying. I think I better understand it.

I guess I have a hard time seeing how it would be implemented, but you have answered the question, so we'll move to page 16 and 18.

I guess once again -- for a while there, I thought you were agreeing with me, but then it didn't appear that you were.

And I wasn't clear on what you were recommending that the Agency do about effluent modified waters.

Why should the Board simply raise the standard to .02 -- from .02 to .03, just so they didn't have to worry about so many effluent modified waters?

MR. HUFF: I think there's a lot more reasons

just so you would have fewer effluent modified waters.

The 0.03 milligrams per liter un-ionized ammonia standard is not more lenient than the existing 1.5 total ammonia and the 0.04 milligram per liter un-ionized water quality standard.

The 0.03 milligram per liter limit can be derived from the same data base as utilized by IEPA following USEPA protocols.

The evidence supporting the 0.03 milligrams per liter is the same "evidence" used to support the 0.02 milligram per liter standard.

The only difference is the methodology used to calculate the acute/chronic ratio.

If the Board adopts the Agency's proposal as written, I believe the Board will be inundated with adjusted standards, permit appeals, variances, et cetera.

Many of the other dischargers will be to receiving streams where there won't be even a chronic water quality standard, the ones with the effluent modified waters, so what good is a standard when the Agency is going to grant waivers of an un-ionized standard to 94 out of 120 of the major nitrifying

facilities.

A waiver is considerably more lenient than either the 0.02 milligram per liter or the 0.03 milligram per liter standard.

The intent of our proposal is not to accommodate the dischargers, rather our proposal is structured to set an ammonia water quality standard protective of native species while at the same time protect citizens, taxpayers, and rate payers from being forced to finance wastewater treatment plant "improvements" that will not benefit the receiving waters.

MS. ROSS: So you're just saying that they don't need to change the ammonia standard, that it's not necessary.

MR. HUFF: I don't think that's what I said at all.

MS. ROSS: Well, additional changes aren't going to have any benefit for the environment.

MR. HUFF: The question is what benefits will be derived from a standard of 0.02 milligrams per liter if you turn around then and grant this effluent modified waters designation up to 94 out of 120 major dischargers.

It's like you have this very restrictive standard, but then you don't apply it on the streams where it's going to be exceeded.

MS. ROSS: And we have opposed the granting of widespread waivers to a water quality standard, so the Sierra Club has opposed effluent modified waters category just on that basis, that it's a waiver of water quality standard.

So in a sense you're agree with that, that it's senseless to set a standard and then waive it for most districts?

MR. HUFF: I guess the question is is there a better way of doing it, and I think the answer to No. 1 is, well, maybe the 0.02 is too restrictive, we've heard today, the Agency I think now is supporting a 0.025, I think going back to Dr. Sheehan's analysis with the same data, you could easily support a 0.03 even without the more recent data in there.

Then there's the question of the 1.5 milligram per liter floor, maybe on intermittent streams we should keep that in there which would eliminate the need for granting waivers altogether.

MS. ROSS: How would that eliminate the need for granting waivers?

MR. HUFF: Well, the 1.5 milligram per liter millimeter total ammonia water quality standard remained in effect, then all these intermittent streams or the lower flow streams would be compliant with that.

MS. ROSS: So the floor would be put in place -- it would supersede the chronic standard? I don't understand.

MR. HUFF: Just exactly like what you have now where you have an un-ionized ammonia standard today, .04, but it only is applicable when the total ammonia is above 1.5.

MS. ROSS: I thought I heard testimony previously that that 1.5 standard is not based on what people call good science. Have you evaluated?

MR. HUFF: I guess I go back to the Agency's repeated assertions that they've never seen any ammonia impairment in streams where the -- that standard basically has been applicable where they've had 1.5 as the effluent limit, and they haven't seen any ammonia impairment on those streams.

MS. ROSS: Well, I would challenge the assertion that the ammonia hasn't impaired streams, but this is no place for a debate.

So let me move on to the last I think question in regards page seventeen, it's about effluent modified waters again.

You recommend that the Board tie the effluent modified water status to existing stream conditions; is that right?

Are you, in fact, saying that effluent modified water status should be based on some instream conditions, some sampling or how would you know whether there's stream degradation? How is that different from the effluent modified waters now?

MR. HUFF: Can you repeat the question?

MS. ROSS: You say here if winter -- let's see.

You say allowing EMW designations for one season another based on the effluent limit of the season -- why use this designation when not required during one season or the other? I don't understand how you're tying effluent waters to season.

MR. HUFF: Under the Agency's proposal, the effluent modified waters designation is applied both summer and winter, it's an all or nothing proposition, and my comment was if a discharger only needs the effluent modified waters designation for one season, why impose it on both seasons because

that way you would at least have a chronic water quality standard several months of the year.

For example, if they would grant an EMW for just the winter month, so why throw out both chronic water quality standards when you only need to grant a waiver for one season or the other.

MS. ROSS: So you would base the effluent modified waters waiver or whatever you're going to call it on which season they need relief, winter or summer?

MR. HUFF: That would be one factor, yes, or both.

MS. ROSS: I'm just not clear on how you're distinguishing when you get -- I mean it seems pretty clear that effluent modified waters is based on ammonia impairment in the streams.

MR. HUFF: No. No. That's not correct. In order to be granted an effluent modified waters, there can be no ammonia impairment in the stream.

MS. ROSS: So what is your concern here, and what are you suggesting when you ask how the Agency will determine ammonia impairment.

MR. HUFF: The way the Agency determines it now, they go out, they do biological eco invertebrate

collections, and they determine whether a downstream sampling site is degraded relative to upstream sites and perhaps other downstream sites.

If they find degradation, then they go back and attempt to find the cause of that, and cause is generally correlated with an exceedence of a water quality standard.

So if you found degradation downstream of a discharger and they go back and they look at the ammonia levels, and the un-ionized ammonia levels were .04 in the winter, they would classify that as ammonia impairment.

If they classify a .04 milligram per liter level in the winter as ammonia impairment, that discharger would be excluded from being granted an EMW.

MS. ROSS: You're saying it could be something else that's causing impairment?

MR. HUFF: Yes.

MS. ROSS: But if there's also ammonia standard exceedence --

MR. HUFF: Where it gets trickier now is if you adopt a .02 standard for the winter, what do you determine to be an ammonia water quality exceedence,

is it .02 and now you say anything above .02 is ammonia impairment or do you set that level at .04, or .05 or some even higher number.

MS. ROSS: Well, I didn't understand that. But if you have a standard -- you said if you set a standard of .02, then wouldn't anything over .02 be an exceedence?

MR. HUFF: And if that's the case and there's stream degradation downstream, that discharger is not entitled to an EMW.

MS. ROSS: And that's bad?

MR. HUFF: Well,, I think the 94 people that have been earmarked for EMW designations, some of those aren't going to be granted EMW's, and then the economic impact would be significantly greater.

MS. ROSS: Okay. I think I understand what you're saying.

THE HEARING OFFICER: That completes the questions from the Sierra Club. Off the record for a minute.

(Discussion had off the record.)

THE HEARING OFFICER: That completes the hearing for today. We will reconvene the hearing tomorrow at

9:00 o'clock in room 225 in the James R. Thompson Center. Thank you.

(Whereupon, the hearing in the above-entitled cause was continued to February 23, 1996 at 9:00 o'clock a.m.)