



1    A P P E A R A N C E S:

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ILLINOIS POLLUTION CONTROL BOARD,  
3    James R. Thompson Center  
100 West Randolph Street  
4    Suite 11-500  
Chicago, Illinois 60601  
5    (312) 814-3956

BY: MR. JOHN KNITTLE, Hearing Officer  
6    MR. ANAND RAO, Board Member  
MS. ALISA LIU, P.E., Board Member

7

-AND-

8

ILLINOIS POLLUTION CONTROL BOARD,  
9    1021 North Grand Avenue East  
P.O. Box 19274  
10    Springfield, Illinois 62794  
(217) 524-8500

BY: MR. G. TANNER GIRARD, Ph.D., Board Member

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12

-AND-

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ILLINOIS POLLUTION CONTROL BOARD,  
2125 South First Street  
14    Champaign, Illinois 61820  
(217) 278-3109

BY: MR. THOMAS E. JOHNSON, Board Member

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16

-AND-

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ILLINOIS POLLUTION CONTROL BOARD,  
James R. Thompson Center  
18    100 West Randolph Street  
Suite 11-500  
19    Chicago, Illinois 60601  
(312) 814-3932

BY: MR. NICHOLAS J. MELAS, Board Member

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1    A P P E A R A N C E S:    (Continued)

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

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1021 North Grand Avenue East

P.O. Box 19276

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Springfield, Illinois 62794

(217) 782-5544

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BY: MR. SANJAY SOFAT

MR. TOBY FREVERT

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MR. ROBERT MOSHER

MR. PAUL TERRIO

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1 HEARING OFFICER KNITTLE: Hello. My  
2 name is John Knittle. I am an attorney  
3 assistant with the Illinois Pollution Control  
4 Board. I'm serving as hearing officer of  
5 this rulemaking proceeding. It is R04-26 in  
6 the matter of Interim Phosphorus Effluent  
7 Standard, Proposed 35 Ill. Adm. Code 304.123,  
8 Sections G through K.

9 If I'm not speaking up in the back  
10 row, feel free to give me a wave and I'll try  
11 to do better. And also, we want to ask you  
12 to turn off all the cell phones, if you can,  
13 appreciate that.

14 I'm joined at this rulemaking by  
15 Tom Johnson, who is the presiding Board  
16 member. We also have Board Member Tanner  
17 Girard and Board Member Nick Melas with us,  
18 as well as members of our technical staff,  
19 Anand Rao and Alisa Liu.

20 I'm going to give you a little  
21 background on the proposal and then we'll get  
22 started after we handle some preliminaries.  
23 I don't know if you've heard, but we're  
24 waiting on an Agency witness, who should be

1 here momentarily. We wanted to get started  
2 just to get things moving before he showed  
3 up.

4 In this rulemaking, the Agency  
5 asserts it's in the process of developing the  
6 State numeric nutrient standards pursuant to  
7 its triennial water quality standards review  
8 and expects to file a nutrient standards  
9 petition with the Board in early 2007.

10 The Agency is proposing this  
11 effluent standard for phosphorus to limit the  
12 higher concentrations of phosphorus that may  
13 result in detrimental plant levels and algae  
14 growth. The agency want the interim effluent  
15 standard to apply until the Board adopts a  
16 numeric water quality standard for  
17 phosphorus.

18 The proposed phosphorus effluent  
19 limit of one milligram per liter as a monthly  
20 average would apply to new or expanded  
21 discharges from treatment works with a  
22 designed average flow over one -- excuse me.  
23 Receiving municipal or domestic wastewater  
24 or a total phosphorus effluent load of 25

1 pounds per day or more.

2                   However, if the source can  
3 demonstrate that phosphorus is not limiting  
4 nutrient in the receiving water or that the  
5 alternative phosphorus effluent limits are  
6 warranted by the aquatic environment in the  
7 receiving water, the one milligram per liter  
8 limit would not apply.

9                   Also, in its petition, the agency  
10 noted there are currently 10 to 12 NPDES  
11 permit holders for new or expanded wastewater  
12 treatment facilities that are going to be  
13 affected by the phosphorus limit uncertainty  
14 therein. The Agency has provided us the  
15 names of these permit holders. I'm going to  
16 read them right now as provided by the  
17 Agency.

18                   Village of Hampshire, Lake in the  
19 Hills, Bloomingdale, the City of Plano,  
20 Village of Minooka, City of McHenry, the  
21 Village of Manhattan, City of Joliet,  
22 Stable Creek Basin, Village of Algonquin,  
23 Village of Lakemore, City of Peru, Coyne,  
24 Frankfort North, Wauconda, and East Dundee.

1 We've also heard from the City of Pana, the  
2 Northshore Sanitary District, and the  
3 Illinois Association of Wastewater Agencies.

4 We've taken steps to have all of  
5 these entities added to the notice list. I  
6 don't know -- we had people working on trying  
7 to notify them prior to this hearing. If not  
8 everybody was notified or if not everyone is  
9 able to attend, they will be on the notice  
10 list for the next hearing. It will be down  
11 in Springfield. We'll talk about that later.

12 The Agency also projected that  
13 approximately 20 permits will be impacted by  
14 this proposed rulemaking on an annual basis.

15 This hearing was properly noticed  
16 pursuant to the Act and the Board's  
17 procedural rules. Also, Section 27(b) of the  
18 Act requires the Board to request the  
19 Department of Commerce of Economic  
20 Opportunity to conduct an economic impact  
21 study on certain proposed rules prior to the  
22 adoption of those rules.

23 If the DCEO chooses to conduct the  
24 economic impact study, they have 30 to

1 45 days after the request to produce a study  
2 of the economic impact of the proposed rules  
3 and the Board must make this study open to  
4 the public so they can take a look at it. If  
5 they choose not to conduct the study, we have  
6 to make their explanation for not conducting  
7 the study available to the public at least  
8 20 days prior to the rulemaking hearing in  
9 question.

10 In this rulemaking, we've  
11 requested by a letter dated June 15th, 2004,  
12 that the DCEO conduct an economic impact  
13 study for the above-referenced rulemaking.  
14 The Board received a response from DCEO  
15 indicating that it will not perform an  
16 economic impact study on this rule.

17 This has been available to the  
18 public and the Board's Chicago office since  
19 August 2nd of 2004. I also have a copy of it  
20 sitting right there (indicating) if anyone  
21 wants to take a look at it.

22 This hearing, then, is also  
23 being held to fulfill the requirements of  
24 Section 27(b) of the Act. And at this point,



1 I want to ask if anybody has comments or  
2 testimony or questions regarding the decision  
3 not to conduct the study?

4 I see nobody indicating that they have  
5 any questions, so that fulfills a portion of  
6 the rulemaking here.

7 As far as today, I want to note  
8 that we do have sign-up sheets for the notice  
9 and service list over there (indicating), the  
10 side of the room. Those on the notice list  
11 will receive only Board opinions and orders  
12 and the hearing officer orders. Those on  
13 the service list will also receive these  
14 documents plus other filings, such as public  
15 comments. And I also placed the Agency's  
16 prefiled testimony there as well. If anybody  
17 needs a copy of that, they should go up there  
18 and grab one and take a look.

19 Besides the witness for the  
20 parties, if anyone wants to testify today,  
21 they would have to sign in on the appropriate  
22 sign-up sheet here at the front of the room  
23 or just wave your hand at me and identify  
24 yourself and I'll make sure you have a chance

1 to testify.

2 Please note that a written public  
3 comment period will be set. If anyone  
4 doesn't want to testify today, they can  
5 always provide public comments at a later  
6 point in time.

7 Part 102 of the Board's procedural  
8 rules govern this hearing. All information  
9 that is not relevant and not repetitious  
10 or privileged will be admitted. All  
11 witnesses will be sworn and subject to  
12 cross-questioning.

13 After all testimony is complete,  
14 we will allow the parties to provide any  
15 closing statements that they wish to make.  
16 It probably will not happen in this case as  
17 we have a second hearing that we're going to  
18 schedule for Springfield at a later point in  
19 time. But they will have that opportunity,  
20 if they so desire.

21 Again, anyone can ask a question.  
22 Just raise your hand and let me know. We ask  
23 that you speak one at a time. And if you  
24 speak over each other, the court reporter is

1 not going to be able to get what you're  
2 saying, so we want to do it that way.

3 Also, please note that questions  
4 asked by anyone with the Board are intended  
5 to help build a complete record for this  
6 Board's decision and not to express any  
7 preconceived notion or bias.

8 After all that is said, I want to  
9 introduce Board Member Johnson and see if he  
10 has any remarks he'd like to make at this  
11 time.

12 BOARD MEMBER JOHNSON: Thank you.

13 John's preliminary explanation,  
14 and I'm not sure there's any need to conduct  
15 this hearing, but as long as they're all  
16 here, we'll go ahead.

17 I want to welcome everyone and  
18 thank you for coming to this first hearing on  
19 Interim Phosphorus Effluent Standards and  
20 assure you that we take this and all the  
21 rules very seriously. We'll give this  
22 proceeding, this rulemaking, all the careful  
23 consideration it deserves and issue an order  
24 in a timely fashion. Thanks.

1 HEARING OFFICER KNITTLE: Thank you,  
2 Member Johnson.

3 I want to introduce the parties  
4 and have the attorneys introduce themselves  
5 starting with Mr. Sofat.

6 MR. SOFAT: I'm Sanjay Sofat. I'm an  
7 attorney with the Illinois EPA. And to my  
8 left is Toby Frevert. He's the manager of  
9 the division of the water pollution. And to  
10 my right is Paul Terrio, who is a hydrologist  
11 with the U.S. Geological Survey. And we are  
12 waiting on one person, Bob Mosher, who is the  
13 manager of the water quality standards here  
14 at the IEPA.

15 HEARING OFFICER KNITTLE: We have a  
16 couple of attorneys who have been involved  
17 with the proceedings to this point,  
18 Mr. Harsh?

19 MR. HARSH: I'm Roy Harsh with the law  
20 firm of Gartner, Carton & Douglas on behalf  
21 pf the Illinois Association of Wastewater  
22 Agencies.

23 HEARING OFFICER KNITTLE: And  
24 Mr. Ettinger?

1 MR. ETTINGER: I'm Albert Ettinger,  
2 Environmental Law and Policy Center on behalf  
3 of the Environmental Law and Policy Center  
4 here at Club and Prairie Rivers Network.

5 HEARING OFFICER KNITTLE: Thank you,  
6 sir. Mr. Sofat, if you want to make your  
7 opening statement and introduce any witnesses  
8 you have?

9 MR. SOFAT: Can we go off the record  
10 for a moment?

11 HEARING OFFICER KNITTLE: Sure.

12 (Whereupon, a discussion was had  
13 off the record.)

14 HEARING OFFICER KNITTLE: We're back  
15 on the record.

16 Mr. Sofat, you can make an opening  
17 statement or present any witnesses.

18 MR. SOFAT: Good morning. I'm Sanjay  
19 Sofat. I'm an assistant counsel with the  
20 Illinois Environmental Protection Agency.  
21 With me today are three agency witnesses.

22 To my left is Toby Frevert, who is  
23 the manager of the division of water  
24 pollution within the bureau of water of the

1 Illinois Environmental Protection Agency.  
2 Mr. Frevert is here to respond to the policy  
3 and later questioning.

4 To my immediate right is Paul  
5 Terrio, who is a hydrologist with the U.S.  
6 Geological Survey and has served as a water  
7 quality specialist for the Illinois district  
8 of U.S. Geological Survey. Mr. Terrio will  
9 testify regarding the rationale behind the  
10 proposed phosphorus effluent standard.

11 To Mr. Terrio's right is Bob  
12 Mosher, who is the manager of the water  
13 quality standards unit within the division of  
14 water pollution at the Illinois Environmental  
15 Protection Agency. Mr. Mosher will testify  
16 regarding the Agency's interpretation of the  
17 proposed language for the phosphorus effluent  
18 standard.

19 We are here today to testify in  
20 support of our proposal that amends Part 304  
21 of the Board regulations. The basic intent  
22 of the proposal is to propose an effluent  
23 standard for phosphorus until a numeric water  
24 quality standard is adopted by the Board.

1           The Agency believes that this  
2           interim standard for phosphorus would allow  
3           the Agency to effectively address the Board  
4           regulations regarding the offensive  
5           conditions at 35 Ill. Adm. Code 302.203.

6           This proposal is consistent with  
7           Title VII requirements of the Illinois  
8           Environmental Protection Act. We think this  
9           is a good proposal and one that deserves to  
10          be adopted without substantial changes.

11          With that, I think we are ready to  
12          present our proposal. And I think we are  
13          ready to swear in the witnesses.

14                   (Witnesses sworn.)

15           HEARING OFFICER KNITTLE: We swore in  
16          the three witnesses. They're all agency  
17          witnesses Mr. Sanjay identified earlier.

18           MR. SOFAT: I think at this time we'll  
19          start with Paul Terrio. Mr. Terrio, I'm  
20          going to hand you this document. Please look  
21          it over for a few moments.

22                   (Document tendered  
23                   to Mr. Terrio.)

24           MR. SOFAT: Mr. Terrio, do you

1 recognize this document that I have handed to  
2 you?

3 MR. TERRIO: Yes, I do.

4 MR. SOFAT: Would you please tell us  
5 what this document is?

6 MR. TERRIO: This is the testimony  
7 that I have filed for today.

8 MR. SOFAT: Is that a true and  
9 accurate copy of your testimony that was  
10 filed before the Board?

11 MR. TERRIO: Yes.

12 MR. SOFAT: Would you please present  
13 your testimony to the Board.

14 MR. TERRIO: Again, my name is Paul  
15 Terrio. I'm a hydrologist at the U.S.  
16 Geological Survey in Urbana, Illinois. I've  
17 worked with the USGS for just over 20 years.  
18 The majority of that time has been here in  
19 Illinois.

20 For the past 12 years, I've served  
21 as the water quality specialist for the  
22 Illinois district of the USGS. I hold a  
23 degree in hydrology from the University of  
24 Arizona.



1 My testimony today will consist of  
2 brief statements regarding the rationale for  
3 the proposed interim phosphorus standards,  
4 including the role of phosphorus in the  
5 aquatic environment, the reasoning behind  
6 proposing for total phosphorus, and the basis  
7 for the proposed effluent standard of one  
8 milligram per liter.

9 Nitrogen and phosphorus are the  
10 primary nutrients required for virtually all  
11 plant life on Earth, both terrestrial and  
12 aquatic, references Hem 1982, American Public  
13 Health Association 1998, Terrio 1995.

14 These nutrients are each available  
15 to water bodies naturally, as well as through  
16 anthropogenic inputs to watersheds such as  
17 commercial fertilizer and wastewater  
18 effluent. Other elements, such as carbon and  
19 potassium, are also required for biological  
20 organisms, but are generally present in  
21 natural waters in amounts sufficient to  
22 support biological growth and are seldom  
23 limiting nutrients.

24 A limiting nutrients is a nutrient

1 present in shortest supply and that which  
2 will be exhausted first, limiting further  
3 potential growth. The reference there,  
4 O'Shaughnessy and McDonnell, 1973.

5 Nitrogen is also typically present  
6 in concentrations sufficient to support algal  
7 and plant growth, but might be the limiting  
8 nutrient in some locations or at some times,  
9 such as during low-flow periods when the  
10 supply of soluble nitrogen is exhausted from  
11 the water column. The reference is American  
12 Public Health Association 1998, Dodds and  
13 Welch 2000, Francoeur et al. 1999.

14 Because of its soluble nature and  
15 plentiful sources, nitrogen concentrations in  
16 Illinois water bodies are virtually  
17 sufficient for aquatic plant growth. The  
18 reference is Terrio 1995.

19 Concurrent non-limiting levels of  
20 nitrogen and phosphorus can result in  
21 excessive and problematic plant and algal  
22 growth, a condition known as eutrophication.  
23 In most fresh water environments, phosphorus  
24 is considered to be the limiting nutrient or

1 the nutrient in shortest supply. And  
2 references being American Public Health  
3 Association, Hem 1982, and U.S. Geological  
4 Survey 1999.

5 Because the available supply of  
6 phosphorus in water bodies is typically less  
7 than that of nitrogen, further reductions in  
8 the sources of phosphorus might prevent the  
9 occurrence of problematic or eutrophic  
10 conditions in water bodies receiving  
11 wastewater treatment effluents.

12 The presence and behavior of  
13 phosphorus in the aquatic environment is  
14 complex. Reference, Hem 1985, U.S.  
15 Geological Survey 1999. Phosphorus can be  
16 present in organic and inorganic form, in  
17 plant and animal matter, absorbed to  
18 particulate material, sequestered in benthic  
19 sediments, or in the water column in  
20 particulate and dissolved form.

21 Phosphorus is transformed and  
22 cycled between organically bound forms and  
23 oxidized inorganic forms and occurs in  
24 natural waters and wastewater primarily as

1 phosphate. References American Public Health  
2 Association 1998 and Hem 1982.

3 Orthophosphate, often referred to  
4 as soluble reactive phosphorus, is the form  
5 most readily available for incorporation by  
6 organic life forms. However, because of the  
7 continual cycling of phosphorus and the  
8 presence of organic, inorganic, soluble, and  
9 absorbed phosphorus forms in water bodies,  
10 the orthophosphate form alone does not  
11 provide an accurate and complete assessment  
12 of phosphorus in an aquatic environment.

13 Total phosphorus analysis provides  
14 a more comprehensive quantification because  
15 it incorporates phosphorus present  
16 undissolved, particulate and biological  
17 forms.

18 Several investigations regarding  
19 the practicality, feasibility, and economics  
20 of treating municipal wastewater to low  
21 levels of phosphorus have been or are being  
22 conducted, including studies by the Illinois  
23 Association of Wastewater Agencies (IAWA) and  
24 the Water Environment Research Foundation. A

1 report commissioned by the IAWA titled  
2 "Technical Feasibility and Cost to Meet  
3 Nutrient Standards in the State of Illinois"  
4 states that most existing treatment  
5 facilities in Illinois could be retrofitted  
6 or augmented with biological or biological  
7 and chemical processes to achieve monthly  
8 average effluent total phosphorus  
9 concentrations of 0.5 milligrams per liter  
10 on a reliable and consistent basis.

11 Most existing wastewater treatment  
12 facilities would need additional tankage to  
13 incorporate anaerobic and anoxic systems into  
14 the treatment process to increase phosphorus  
15 removal.

16 Many Midwestern states (Indiana,  
17 Wisconsin, Michigan, Kentucky, Ohio) have  
18 some form of a 1.0 milligram per liter total  
19 phosphorus effluent standard in place, while  
20 other states, preferably, Minnesota, have  
21 pending revisions to incorporate such a  
22 standard. Reference USEPA website,  
23 <http://www.epa.gov/waterscience/wqs>.

24 The costs of achieving an average

1 of 1.0 milligrams per liter total phosphorus  
2 in affected sewage treatment plant effluents  
3 may be estimated from recent examples.

4 Two principal methods for  
5 phosphorus removal, biological removal and  
6 chemical precipitation are available. While  
7 biological phosphorus removal may be a  
8 superior method in terms of lower final  
9 effluent concentrations and minimal  
10 operations and maintenance costs, this method  
11 would probably entail higher capital costs,  
12 would not be compatible with all existing  
13 plant configurations and will not be  
14 necessary to meet the proposed effluent  
15 standard.

16 Biological phosphorus removal may  
17 become the method of choice for new or  
18 extensively updated plants looking to future  
19 nutrient removal requirements beyond the  
20 proposed effluent standard. These facilities  
21 would be designed with additional tankage and  
22 related needs. Many existing plants would  
23 have to add tankage to achieve biological  
24 phosphorus removal, thus accounting for the

1 higher cost.

2 An estimate of costs of this  
3 method of phosphorus removal combined with  
4 nitrogen removal is available, reference  
5 Zenz, 2003, but this estimate is not  
6 specifically relevant to the instant proposed  
7 phosphorus effluent standard.

8 The chemical precipitation method  
9 will therefore usually be chosen for expanded  
10 treatment plants. The capital improvements  
11 for chemical precipitation equipment at  
12 recently designed treatment plants in the  
13 1 to 5 million gallon per day design average  
14 flow range would cost \$50,000 to \$60,000 if  
15 an existing building is available for  
16 chemical storage tank and equipment housing,  
17 and \$200,000 to \$300,000 if a new building  
18 must be added.

19 Additional wastewater treatment  
20 tankage is usually not required to install  
21 this equipment, which consists of chemical  
22 storage tank for the precipitation chemical,  
23 secondary tank containment and a chemical  
24 feed pump.

1                   Yearly chemical costs will vary  
2                   based on plant flow and phosphorus  
3                   concentration in the pre-phosphorus removal  
4                   final effluent. For an existing 5.9 million  
5                   gallon per day plant required to meet the 1.0  
6                   milligram per liter effluent standard, with  
7                   average operating flows at the design  
8                   capacity and using ferric chloride as the  
9                   precipitation chemical, the chemical cost is  
10                  approximately \$50,000 per year.

11                  Approximately 15 to 30 percent  
12                  more sludge by weight is generated when  
13                  chemical precipitation phosphorus removal is  
14                  applied. The increased amount and physical  
15                  characteristics of the sludge following  
16                  phosphorus removal may require an upgrade of  
17                  sludge handling facilities as well as  
18                  slightly increased sludge handling operations  
19                  and maintenance costs.

20                  MR. SOFAT: Thank you.

21                  Mr. Mosher, I'm going to hand you  
22                  this document. Please look at it for a few  
23                  moments.

24



1 (Document tendered  
2 to Mr. Mosher.)

3 MR. SOFAT: Mr. Mosher, do you  
4 recognize this document that I have handed to  
5 you?

6 MR. MOSHER: Yes, I do.

7 MR. SOFAT: Would you please tell us  
8 what this document is?

9 MR. MOSHER: The testimony I prepared  
10 for this hearing.

11 MR. SOFAT: Is it a true and accurate  
12 copy of your testimony that was filed before  
13 the Board?

14 MR. MOSHER: I believe it is.

15 MR. SOFAT: Would you please present  
16 your testimony to the Board?

17 MR. MOSHER: My name is Robert Mosher  
18 and I have been employed by Illinois EPA for  
19 almost 19 years. I have been assigned to the  
20 Water Quality Standards Unit for 18 of those  
21 years and have participated in the  
22 development and adoption of numerous water  
23 quality and effluent standards.

24 Prior to my employment by the

1 Agency, I worked for Montano Company in the  
2 development of laboratory toxicity tests  
3 using aquatic organisms and the determination  
4 of aquatic toxicity values for individual  
5 chemicals and industrial wastewater  
6 effluents.

7 I hold a Master of Science degree  
8 in zoology from Eastern Illinois University  
9 where I specialized in the effects of  
10 wastewater discharges on stream ecology.

11 My testimony today will describe  
12 the proposed changes to the phosphorus  
13 effluent standard. Underlying principles  
14 behind the rule brought forth in Subsection  
15 (g) are that certain wastewater discharges  
16 are significant sources of phosphorus and  
17 that facilities that are new or undergoing  
18 expansion are opportune venues for building  
19 in phosphorus removal capabilities.

20 Costs for the addition of  
21 phosphorus removal equipment will be most  
22 reasonable when they can be designed into the  
23 original construction. Therefore, only new  
24 or expanding municipal wastewater treatment

1 facilities with a design average flow of  
2 one million gallons per day are subject to  
3 the proposed phosphorus effluent limit of  
4 1.0 milligrams per liter total phosphorus on  
5 a monthly average basis.

6 Likewise, other types of new or  
7 expanded wastewater treatment facilities are  
8 subject to a limit if they would discharge  
9 phosphorus at the same pound loading as a  
10 one million gallon per day municipal sewage  
11 treatment plant. The value of 25 pounds per  
12 day was determined from the pound loading of  
13 a typical municipal wastewater effluent that  
14 contains, with no special phosphorus removal  
15 equipment in place, on average about 3.0  
16 milligrams per liter total phosphorus. Both  
17 the size of facilities covered and the  
18 concentration of phosphorus to be met in  
19 subject effluents have precedent in the  
20 existing phosphorus effluent standard.

21 Subsection (h) recognizes the fact  
22 that sometimes the generally prescribed  
23 phosphorus effluent limit will be either  
24 unnecessarily stringent or not protective

1           enough depending on the nature of the  
2           receiving water body. Phosphorus is  
3           generally believed to be the nutrient in  
4           shorter supply in freshwater ecosystems, that  
5           is, the limiting nutrient factor, and,  
6           therefore, its concentration may often limit  
7           plant growth. If it can be demonstrated that  
8           a water body receiving an effluent has algae  
9           or noxious aquatic plant growth that is not  
10          limited by phosphorus but rather another  
11          nutrient or water quality factor, then no  
12          phosphorus effluent limit must be imposed.

13                    On the other hand, if it is  
14                    demonstrated that one milligram per liter  
15                    total phosphorus will be inadequate to  
16                    control noxious plant growth in the receiving  
17                    water and further phosphorus control below a  
18                    monthly average of 1.0 milligram per liter is  
19                    feasible at a facility, the Agency may impose  
20                    a lower phosphorus limit to protect that  
21                    water body.

22                            Subsection (i) is intended to  
23                            clarify which wastewater treatment facilities  
24                            are not subject to the phosphorus effluent

1 limitation.

2 Subsection (j) stipulates that  
3 compliance with the effluent phosphorus  
4 standard fulfills the obligation of the  
5 discharger to meet water quality standards,  
6 specifically, the narrative standard  
7 prohibiting offensive conditions that  
8 includes a statement on unnatural plant or  
9 algal growth.

10 Subsection (k) recognizes that the  
11 phosphorus effluent standard will likely  
12 someday be supplemented by water quality  
13 standards for phosphorus that may dictate the  
14 removal of these proposed effluent limits or  
15 other effluent phosphorus limits or water  
16 quality based effluent limits. At such time,  
17 the phosphorus standard will probably be  
18 reworked to compliment the new water quality  
19 standards.

20 MR. SOFAT: Thank you, Mr. Mosher.  
21 That concludes the Agency's presentation.

22 HEARING OFFICER KNITTLE: Mr. Sofat,  
23 do you want to offer those into evidence,  
24 especially because of the references

1 contained?

2 MR. SOFAT: Sure.

3 HEARING OFFICER KNITTLE: Terrio will  
4 be Number 1.

5 (Documents marked as Terrio Exhibit  
6 No. 1 and Mosher Exhibit Number  
7 No. 2 for identification,  
8 8/30/04.)

9 HEARING OFFICER KNITTLE: Any  
10 objections to that?

11 Those will be admitted.

12 (Whereupon, Terrio Exhibit  
13 No. 1 and Mosher Exhibit No. 2  
14 were received in evidence by  
15 Hearing Officer Knittle.)

16 HEARING OFFICER KNITTLE: Mr. Sofat,  
17 you say you have no further testimony to  
18 present?

19 MR. SOFAT: Yes, that concludes the  
20 Agency's presentation. And we are ready for  
21 any questions.

22 HEARING OFFICER KNITTLE: Does anybody  
23 have any questions for these witnesses?

24 We can start with Board questions,

1           if you like? Mr. Harsh, would you like to  
2           start?

3                   MR. HARSH: Defer to the Board.

4                   HEARING OFFICER KNITTLE: I think we  
5           prefer that you ask questions now. The  
6           technical unit is still pondering.

7                   MR. HARSH: I think we all are still  
8           pondering.

9                   I'd like to note for the record  
10          that we received this testimony last week  
11          late, have really not had a chance to sit  
12          down and discuss it at any great length.  
13          It's very brief, surprisingly brief, and we  
14          probably will have additional questions for  
15          these witnesses and the Agency at the next  
16          hearing. You mentioned that we have to  
17          schedule a hearing in Springfield?

18                   HEARING OFFICER KNITTLE: Correct.

19                   MR. HARSH: Will the three Agency  
20          witnesses be available at the next hearing?

21                   MR. SOFAT: Yes.

22                   MR. HARSH: With that, we'll try to  
23          begin.

24                   MR. JOHNSON: I got one quick

1 question.

2 MR. HARSH: Sure.

3 MR. JOHNSON: And just for Mr. Mosher,  
4 the testimony indicating that if it can be  
5 demonstrated that this is not a limiting  
6 factor, that it's another nutrient and water  
7 quality factor, then the phosphorus effluent  
8 limit -- no phosphorus effluent limit will be  
9 imposed, how do you anticipate doing that, by  
10 way of an adjusted standard or -- what  
11 procedure have you contemplated making that  
12 demonstration?

13 BY MR. MOSHER:

14 A. Well, there is a scientific procedure  
15 that would demonstrate that phosphorus is or isn't a  
16 limiting nutrient, and that test has been around for  
17 a long time. It's a USEPA method that came out in  
18 the 1970s. And once the Agency saw the results of  
19 that kind of a test, we feel that this rule would  
20 allow us to make that decision just as an NPDES  
21 permit decision.

22 MR. FREVERT: I can even supplement  
23 that, if you don't mind.

24



1 BY MR. FREVERT:

2 A. I think it's important to have that  
3 provision as an escape valve to deal with a  
4 situation to where we truly understand the science  
5 and what's going on in that particular stream, what  
6 role that particular source played in that regard,  
7 whether it demonstrates that it's a significant  
8 source or insignificant source.

9 In actual practice, I don't  
10 anticipate there being many opportunities for that  
11 to take place, and indeed, if we had a wholesale way  
12 of doing that, we wouldn't be here today. It's more  
13 of an escape valve. But if somebody has the data  
14 that can demonstrate it definitively, then we need  
15 to make a different decision for that action, and we  
16 can extend that decision.

17 BY MR. JOHNSON:

18 Q. Well, that was my question. Is the  
19 demonstration going to be made to you during the  
20 permitting process, and the answer to that is yes.

21 BY MR. FREVERT:

22 A. We're the ones that have to defend  
23 that. If we're convinced that that's sound science  
24 and we can defend it, whatever the decision is,

1 we'll deviate from this generic approach.

2 MR. THOMPSON: Thank you.

3 BY MR. GIRARD:

4 Q. Can I just clarify though? But still  
5 it would be the applicants who would bring forward  
6 the information and make the demonstration to you?

7 BY MR. FREVERT:

8 A. Somebody has to persuade us.

9 Q. Right. You will not --

10 A. In most cases, motivation to persuade  
11 us to do something different is going to be the  
12 applicant that demonstrates that the phosphorus is  
13 not a parameter that shouldn't have money for  
14 additional approval to the extent that there's a  
15 special study suggesting that even more extreme  
16 control will be over one milligram per liter  
17 technology, and that may come from other sources.

18 But ultimately, when we draft  
19 public notice to permit, we then get technical  
20 information from both permit applicants and members  
21 of the public. So in this circumstance, I would see  
22 a case where if somebody truly understands the  
23 stream and understands the effect of the discharge  
24 on the stream wall enough to demonstrate either

1 something more is needed or something less is  
2 warranted, it can go either way. And that provision  
3 in the standard is intended to allow us to go either  
4 way when we feel that the science and knowledge of  
5 that particular restraint warrant something  
6 different. By practice, I don't see that happening  
7 very often.

8 Q. But primarily, in either case, it  
9 would be the responsibility of an outside group,  
10 either the applicant or some group challenging the  
11 NPDES permit, to bring that information before the  
12 Agency?

13 A. I think probably that's the case.

14 Q. So the Agency would not be making that  
15 determination on its own on every NPDES permit?

16 A. I would assume not, but as stated, to  
17 make that kind of a decision lapse, we would react  
18 to it.

19 MR. GIRARD: Thank you.

20 BY MR. RAO:

21 Q. Just as a follow-up, the language that  
22 you have proposed states that treatment works  
23 qualifying under Subsection G1 and G2 may  
24 demonstrate. So if some other group wants to bring

1 information to the Agency, does the language in any  
2 way limit them from doing so.

3 BY MR. FREVERT:

4 A. Again, my understanding of the real  
5 world and how we operate is we take an application  
6 and we take this information and we make our best  
7 judgment as to what that opinion should look like  
8 and the applicability of these provisions. That  
9 goes out to public notice. In that time, any  
10 citizen in the state can come in and say, well,  
11 here's some information to suggest your decision is  
12 incorrect.

13 So I would assume in most cases a  
14 permit applicant is going to be the party who  
15 utilized this provision. The provision is there for  
16 any citizen of the state that wants to tell us to  
17 consider another approach.

18 BY MS. LIU:

19 Q. Mr. Mosher, could you cite the USEPA  
20 measure that you were talking about or making that  
21 demonstration?

22 BY MR. MOSHER:

23 A. We can give you an exact citation  
24 later, but it's called the selinastrum kepercranutum

1 (phonetic) bottle test. It's been around a long  
2 time and has been used for several different things.  
3 One of which is toxicity testing of algae, and the  
4 other is a procedure to decide the limiting nutrient  
5 in a given water sample.

6 BY MR. RAO:

7 Q. Will the Agency be opposed to having  
8 the citation, you know, that uses the amended  
9 reference in the rules so that if any questions come  
10 up from the JCAR (phonetic) or somebody saying how  
11 to demonstrate is going to be made, would you  
12 reference with a citation?

13 BY MR. MOSHER:

14 A. Our thinking is that there might be  
15 more than one valid method to do that. That  
16 citation would be one way, but there could be  
17 others, so if we reference that in the rule, that  
18 might limit unnecessarily.

19 HEARING OFFICER KNITTLE: That might  
20 be something for you guys to think about and  
21 get back to us on.

22 MR. SOFAT: Will do.

23 HEARING OFFICER KNITTLE: Anything  
24 further?

1 MR. GIRARD: I do have a question.

2 BY MR. GIRARD:

3 Q. Let me go ahead and ask mine because  
4 I'm curious, and I don't see the information here on  
5 this, but you made reference to the fact that  
6 phosphorus compounds are used to treat drinking  
7 water, and what are the ranges of concentration  
8 in phosphorus, you know, total phosphorus principles  
9 that we see in drinking water systems throughout the  
10 state now, can we just have some ballpark figures?

11 BY MR. MOSHER:

12 A. I hesitate to go off the top of my  
13 head on that, but we do have some data that was  
14 provided to us by Dennis Stryker not too long ago.  
15 And Dennis is a member of IAWA, and he runs the  
16 Elmhurst Sanitary District, City of Elmhurst, and  
17 that was really interesting data, and we could just  
18 provide that to you as an exhibit.

19 Does that sound okay, Sanjay?

20 MR. SOFAT: Yes.

21 MR. GIRARD: Thank you. That's all.

22 HEARING OFFICER KNITTLE: Mr. Harsh?

23 MR. HARSH: We'll start with Mr.

24 Terrio, but if there's other -- if Mr. Mosher

1 or Frevert are better equipped to answer the  
2 questions, that's fine with me.

3 BY MR. HARSH:

4 Q. This is intended to be an interim  
5 standard, is it not, Mr. Terrio?

6 A. That's correct.

7 Q. With a final water quality standard to  
8 be proposed at some point in time in response to  
9 USEPA's draft criteria document; is that correct?

10 A. That's right. I'm working with the  
11 Illinois EPA on trying to determine what those final  
12 nutrient standards and certain water, what those  
13 numbers should -- what standard is applicable.

14 Q. What is the applicable draft water  
15 quality criteria number that would be applicable to  
16 the State of Illinois that the USEPA has come up  
17 with?

18 A. The phosphorus standard in surface  
19 waters, is that what you're asking?

20 Q. Yes.

21 A. The USEPA's criteria divides the  
22 nation into different eco regions. There are three  
23 eco regions -- the State of Illinois has portions of  
24 three eco regions so that those numbers vary

1 depending what eco region you're in.

2 For total phosphorus, the three  
3 eco regions are eco regions 6, 7 and 9. Eco region  
4 6, the USEPA's criteria is .076 milligrams per  
5 liter for total phosphorus, for ego region 7 it's  
6 .033, and for eco region 9, it's .037.

7 Q. Can you describe those regions  
8 generally?

9 A. If I get them straight.

10 I believe eco region 6 is the  
11 southern part of the state. The --

12 BY MR. MOSHER:

13 A. That's the corn belt eco region,  
14 northern two-thirds of the state. I guess I can  
15 testify.

16 To the best of my knowledge,  
17 region 6, eco region 6, is the northern two-thirds  
18 of Illinois, eco region 9 is the southern part, and  
19 eco region 7 is just a very small part -- very  
20 little identifying -- very northern, northwest.

21 BY MR. HARSH:

22 Q. You testified that you're working on  
23 that. Can you describe -- I withdraw that question.

24 Did the State of Illinois request



1 additional time from USEPA to develop and finalize  
2 water quality standards in response to this USEPA  
3 draft criteria?

4 BY MR. MOSHER:

5 A. In a way, we did.

6 States all across the country made  
7 that request, and then the EPA changed its policy to  
8 allow each state to come forth with a plan for  
9 nutrient standards adoption. And each state could  
10 name a time frame that they thought they would need,  
11 and so the end result was that instead of having to  
12 meet a federal deadline of 2004, Illinois said in  
13 our plan that we would meet the deadline in 2008.

14 Q. And was that approved by USEPA?

15 A. Yes, it was.

16 Q. Is Illinois one of the first states,  
17 in fact, to make such a submittal?

18 A. I believe our nutrient standards  
19 adoption plan was one of the first approved by the  
20 USEPA across the nation, yes.

21 Q. And Mr. Terrio or Mr. Mosher, can you  
22 describe what Illinois EPA has done to date in  
23 general terms in carrying out this program?

24

1 BY MR. TERRIO:

2 A. Well, I think there are a variety of  
3 activities that we're undergoing. Through a  
4 cooperative agreement with the Illinois EPA, I am  
5 now working on this issue almost full time. I'm  
6 down at the Illinois EPA office a couple days a  
7 week. We're trying to analyze existing data that's  
8 available for either Illinois EPA or other data  
9 sources.

10 There are four Council on Food and  
11 Agricultural Research projects that have been funded  
12 to look, specifically, phosphorus in the aquatic  
13 environment, phosphorus cycling, its sources,  
14 transformation and the role that it plays in aquatic  
15 environments. Those four projects are ongoing. We  
16 won't get the results of those until shortly before  
17 we hope to have our standard developed. But the  
18 results of those are going to be very important.

19 We've organized an Illinois  
20 Nutrient Work Group, which is a large work group  
21 comprised of government agencies, environmental  
22 advocacy groups, academia. We're looking at kind of  
23 the big picture of nutrient standards in the state  
24 and out of that we'd form a nutrient science

1 committee, which is a smaller subcommittee where  
2 we're trying to look at the cause and effect  
3 relationships of nutrients, algae growth, dissolved  
4 oxygen in the environment. That's a smaller  
5 group -- or it started as a smaller group but it's  
6 expanding as we go because of the interest. We hold  
7 approximately quarterly meetings of the group.

8 We're participating in the USEPA  
9 region 5 regional technical advisory group for  
10 nutrient standard development. They hold a couple  
11 meetings a year, as well as conference calls  
12 approximately on an monthly basis.

13 The Illinois EPA and USDS  
14 cooperated on a study to implement some continuous  
15 monitoring of dissolved oxygen, chlorophylls,  
16 humidity, pH, temperature of eight sites throughout  
17 the state from 2001 to 2003 that provided valuable  
18 information on the diurnal changes and fluctuations,  
19 as well as seasonal and year round concentrations.  
20 Monitoring like that had not been down to that  
21 extent in the state.

22 Prior to that, we tried to select  
23 sites that would give us a wide variety of stream  
24 types; land use conditions as far as, also, quality

1 of waters.

2 The Illinois EPA is doing some  
3 additional diurnal monitoring of oxygen, 72-hour  
4 studies, about 15 to 18 sites this summer so that we  
5 can try to get a better handle on diurnal variations  
6 during the warm, summer months which are often  
7 considered to be a critical period for their aquatic  
8 streams as far as dissolved oxygen levels go.

9 And we're also undergoing a couple  
10 studies in a couple treatment plants where  
11 phosphorus removal is going to be implemented trying  
12 to do some before and after studies to see what  
13 effects of that removal may be in the stream itself.

14 Q. Part of that effort looks at the  
15 existing water quality data for total and dissolved  
16 and biological phosphorus that existed across the  
17 state?

18 A. That data is available at the data  
19 sets that will be analyzed, that's correct.

20 Q. There's reference in both your  
21 testimonies to phosphorus being the limiting  
22 nutrient.

23 In general, what is the level of  
24 which phosphorus becomes limiting?

1           A.       I don't think we can give a number.  
2       Various numbers have been mentioned in the  
3       literature. It varies too much with the  
4       different -- the geographical location, the type of  
5       water body, the habitat that's present. I don't  
6       think that's -- we're working on trying to develop  
7       that. That's what we're trying to come up with for  
8       water bodies in Illinois. That's what our target is  
9       for our standards we're equality trying to develop.

10           Q.       So presently, IEPA cannot state what  
11       the limiting phosphorus value is for eco region 6,  
12       eco region 7 or eco region 9?

13       BY MR. MOSHER:

14           A.       No, we're not there yet. We can't say  
15       that.

16       BY MR. HARSH:

17           Q.       Have you reviewed, Mr. Mosher, the  
18       data that's being collected and publically available  
19       by the Fox River study group on water quality in Fox  
20       River?

21           A.       I personally have not.

22           Q.       Have you, Mr. Terrio?

23       BY MR. TERRIO:

24           A.       No, I haven't.

1 BY MR. HARSH:

2 Q. Would it surprise you, Mr. Mosher, if  
3 that data showed total phosphorus values at the  
4 uppermost sample location, which is just at the --  
5 Chain of Lakes as the values were always greater  
6 than 0.706?

7 A. That wouldn't surprise me.

8 Q. Would you expect to see similar levels  
9 in other streams?

10 A. Yes. You know, we do have extensive  
11 monitoring networks across the state, and, you know,  
12 I have seen that data, and, yes, often you see  
13 phosphorus values higher than the national criteria.

14 Q. Is that data summarized anywhere?

15 A. Well, that data is in a data storage  
16 network call Storette (phoentic). We periodically  
17 come out with reports and so on, and it's public  
18 data. You can get it through contact with the  
19 Agency, if nothing else.

20 Q. If I understand it correctly, the  
21 interim proposal is designed to prevent nuisance  
22 algae growth problems; is that correct?

23 A. Well, that's the basis anytime you  
24 regulate phosphorus or have a water quality standard

1 for phosphorus. Algae growth is the underlying bad  
2 thing that happens in the environment.

3 Q. Has the Agency determined the  
4 locations in Illinois where such levels of algae  
5 growth currently exist in rise to a nuisance?

6 A. Well, we have assessment programs at  
7 the Agency and often our biologists will make note  
8 of that condition of unnatural algae growth. I  
9 don't believe there's any central list of those  
10 waters. You'd have to go to different documents  
11 that pertain to water quality assessment, such as  
12 the 305(b) report, to find those incidences.

13 Q. So the Agency is not submitting in  
14 this record any evidence regarding where those  
15 conditions exist?

16 A. No, we haven't provided any of that  
17 water quality data, and we note that what we're  
18 proposing is an effluent standard and not a water  
19 quality standard at this time.

20 Q. An effluent limitation is designed to  
21 prevent that kind of problem from arising, is it  
22 not?

23 A. That's correct.

24 Q. Do you have a list of waters where you

1 expect this type of problem to occur in the future  
2 should the standard not be adopted by the Board?

3 A. No, we don't.

4 Q. How will the Agency determine that  
5 there is excessive algal growth?

6 MR. FREVERT: Maybe I can help by  
7 supplementing your answer to some of these  
8 questions.

9 BY MR. FREVERT:

10 A. And I want to start by making it clear  
11 that we are proposing the technology-based effluent  
12 standard because we don't have the wherewithal now  
13 to analyze a very specific water quality basis of  
14 the nutrient limitation or practically any discharge  
15 in the State of Illinois.

16 We know in the State of Illinois,  
17 as we do in most of the country, that nutrients are  
18 aquatic R and D elevated in places where we have  
19 measurable deterioration of other water in aquatic  
20 communities.

21 We have an obligation under  
22 existing NPDES regulations to establish permit  
23 discharge limitations sufficient to make sure water  
24 quality standards are nonexisting. And in this



1 case, the real crux of the problem is our standards  
2 addressing unification in regarding narrative  
3 standards. The science is not there either at the  
4 state level or the national level. So we're  
5 constantly encountering situations where there's a  
6 stream that may have an existing detrimental impact  
7 on the aquatic community based on -- while the  
8 stream may be in pristine shape, on the threshold it  
9 could possibly spill over into impact of the stream  
10 with the addition of a larger nutrient discharge  
11 that currently exists.

12 In that regard, it's very  
13 perplexing to make a permitting decision if you know  
14 the nutrients are a significant environmental  
15 factor, you don't know the end point. And you can't  
16 derive the water quality based standard. But you  
17 know there is readily available and reasonably  
18 affordable technology to limit the existence of  
19 nutrient discharge. That's the primary driving  
20 rationale. That's how it evolves behind this  
21 proposal.

22 If we could carry it everywhere in  
23 the State of Illinois where there was a nutrient  
24 problem and exactly what we had to solve that

1 nutrient problem or address it, we wouldn't be here  
2 with an interim standard. We're here with an  
3 interim standard because we cannot answer those  
4 questions. And those questions are the burden we  
5 fact every time we make a permitting decision.

6           We trying to establish an interim  
7 or incremental step that says in those places,  
8 there's going to be a significant loading increase  
9 or a large facility where technology is readily  
10 available. We're saying the potential to aggravate  
11 an existing problem or the potential to create a  
12 nutrient-based aquatic community. Based on that new  
13 loading is significant enough to warrant that  
14 relatively -- expenditures currently available --

15           We had no intent of saying we can  
16 definitively say this is an exact answer to  
17 everything. But it's a prudent policy decision on  
18 our part which lead to new and expanding facilities.  
19 They have the economics of being able to incorporate  
20 the additional treatment in the design of their  
21 expansion. We're specifically saying we're not  
22 ready to require that expenditure of money on people  
23 that have existing infrastructures adequate and --

24           There are a few places that are

1 increasing when we knew nutrients are a significant  
2 problem. We know there's a major international  
3 spotlighted focus on nutrients. And nutrient  
4 reduction is, I believe, being implemented  
5 throughout the Midwest.

6                   It is prudent and responsive,  
7 which would make this kind of a proposed -- gives us  
8 latitude in making the permitting program work  
9 rather than intentionally being in the state where  
10 we ask the next question and we can't answer it.

11                   I cannot tell you in any  
12 particular discharge that I have a numeric end point  
13 to phosphorus target in the stream. And I can't  
14 tell you exactly what that translates into. But I  
15 can tell you that it is prudent in the limited  
16 standard facility whether it's prudent technology  
17 and reasonably affordable. We should be doing that  
18 consistent with the basis of environmental  
19 perspective.

20                   In that regard, I appreciate what  
21 Roy is asking, and we're studying it as diligently  
22 as we can in understanding and quantifying exactly  
23 what's necessary in every place.

24                   In those places where there aren't

1 critical decisions being made, our proposal is to  
2 maintain the status quo. Don't make people spend  
3 money. You don't know if it's going to be a  
4 significant change or you don't know what it will  
5 do. In those places where there's significant  
6 interest, a new load, let's do what we can to manage  
7 that load.

8 In that regard, again, we're  
9 diligently trying to get to the point we can make a  
10 more definitive affirmative answer. Today we feel  
11 it's a serious interim policy where everybody --  
12 what people's expectations are to a --

13 Q. I appreciate the policy response to  
14 the question, but the -- and the quandary of the  
15 Agency is for additional permits, and IAWA members  
16 appreciate that as well, but we're here in a  
17 rulemaking where there are certain burdens that have  
18 to be met, so I'm going to continue with the list of  
19 questions.

20 Mr. Mosher, you testified that the  
21 Agency could impose more stringent interim  
22 limitations under this rule; is that correct?

23 A. Yes.

24 Q. How would the Agency make a

1 determination that a more stringent interim effluent  
2 limitation is required?

3 A. Well, I think we would use our  
4 existing anti-degradation standard to look at the  
5 receiving water body or one of these cases where  
6 there's a new or expanded loading increase and if  
7 that receiving water appears to be extremely  
8 sensitive, potentially extremely sensitive to  
9 phosphorus, and the facility were such that they  
10 were a new facility or a significantly redesigned  
11 facility where they could build in easily more  
12 phosphorus controls, such as the biological  
13 phosphorus removal method, in those cases then we  
14 would ask for that and possibly get a limit down to  
15 0.5 milligrams per year.

16 BY MR. HARSH:

17 Q. So I take it then that you expect all  
18 new and expanded plants to make that showing as part  
19 of their anti-degradation?

20 A. They have to now. That's part of the  
21 existing standard.

22 Q. So to that extent, this proposal  
23 doesn't add anything over the current available  
24 regulatory tool that the Agency has?

1           A.       Well, the proposal in numeric terms,  
2   in certain terms, does provide a guideline and --  
3   not a guideline, but a standard, and Toby said a  
4   little while ago that we didn't anticipate there  
5   would be too many instances where we would have to  
6   deviate from the 1.0 effluent standard that we're  
7   proposing. But if there is a special case, we have  
8   existing standards that can guide us.

9                   MR. RAO: May I ask a follow-up  
10                   question?

11           BY MR. RAO:

12           Q.       With regard to the anti-degradation  
13   evaluation, if there's an existing plan which is not  
14   expanding but it's going through a permit renewal or  
15   an anti-degradation analysis for some other reason  
16   and there is a problem in the receiving screen for  
17   phosphorus, could the Agency then ask the existing  
18   plan to address phosphorus?

19                   MR. FREVERT: I'd be happy to answer.

20           BY MR. FREVERT:

21           A.       If there's an existing water quality  
22   problem that is turning the nutrient factor into a  
23   safety factor, then we're obligated to look at it  
24   irrespective of that opinion.

1           Our first chore is to protect the  
2 stream and the eco system. Anti-degradation in the  
3 federal model is sort of an older but a traditional  
4 model over and above what's necessary -- your  
5 example suggests a restraining of that problem.

6           Anti-degradation comes in where  
7 strength does not have a problem. It is better than  
8 what's necessary to support all the -- the concept  
9 here is you don't want to allow your various streams  
10 to deteriorate down to the point they just barely  
11 support. And in that regard, that's a blind new  
12 low. Prior to them re-permitting an existing low,  
13 we already authorized that, unless there's reason to  
14 believe that load is causing a problem, essentially,  
15 they should be entitled to retain that.

16 Anti-degradation plans were going beyond -- then  
17 you're trying to speculate if this is not going to  
18 deteriorate the condition of that system down to  
19 either below or near the minimum necessary  
20 projectives.

21           Q.       That brings me to Subsection (j) where  
22 the appropriate language that cites compliance with  
23 Section 304.123 meets applicable requirements of  
24 Section 304.105 and 302.203. So any existing

1 treatment plant which is exempt from the proposed  
2 sections, can they assume there is compliance with  
3 304.105 and --

4 A. I'll try to tell you in very common  
5 lay terms. It's our understanding to mean -- to  
6 interpret the narrative standard in an individual  
7 burden or responsibility under that narrative  
8 standard in a rational way during the interim period  
9 until the signs developed so we can have a more  
10 accurate, prudent standard. We're basically saying  
11 to you no expanding issue, one that is currently  
12 available for technology, and that seems to me to be  
13 the reasonable level of occurred toward complying  
14 with that narrative standard.

15 If you've got an existing facility  
16 that's functioning perfectly well and you don't have  
17 any major capital improvements new construction  
18 necessary, I don't want to have to speculate, but  
19 somewhere in that narrative standard is going to be  
20 some additional burdens incorporated this time. I  
21 think that's just a little premature.

22 Three or four years from now when  
23 not only what we're doing but -- virtually every  
24 other state in the union is doing to understand the



1 science a little bit better and we can quantify  
2 because, in fact, relationships are better now, I  
3 want to go back and re-interpret was an interim  
4 proposal reasonable or not. And I'm comfortable. I  
5 think I have a responsibility to apply that interim  
6 requirement. Some level of phosphorus reduction to  
7 meet that narrative standard for new and expanding  
8 sources. For existing sources, I think it's  
9 premature to speculate and make them spend a  
10 significant amount of money to put into something  
11 that I think would be inadequate or overkill.

12 So the fundamental concepts of  
13 this, I mean, probably, in my mind, maybe that's one  
14 of the more important paragraphs of the entire  
15 proposal in saying, under law, we cannot issue a  
16 permit which violates -- that we think will result  
17 in violations that aren't warranted. Our water  
18 quality standard here is the narrative standard that  
19 hasn't been given much quantification. We're,  
20 unfortunately, trying to speculate.

21 Maybe in some areas we can  
22 speculate on a narrative standard where we  
23 understand the science. In the case of nutrient, we  
24 don't understand the science well enough, our peers

1 in our neighboring states don't understand the  
2 science well enough. Federal people who are  
3 supposed to give us leadership don't under the  
4 science well enough to give us any more than -- so  
5 we're operating a little bizarre.

6 And we're saying, based on that,  
7 this is what we think makes sense to proceed now.  
8 The new sources are going to get to apply the  
9 technology. Existing sources are being given some  
10 assurance. We're not going to make them do  
11 anything. Keep your powder dry until we understand  
12 what, if any, needs you're going to have.

13 Q. Now, just for purposes of  
14 clarification, is it okay with the Agency if that  
15 particular language is limited to phosphorus at the  
16 start? Right now, is there something in compliance  
17 with 304.105?

18 A. Well, you say now is one of them to  
19 any -- yes, that's the intent that -- we thought it  
20 was covered in that this was a phosphorus sub unit  
21 it was incorporated in, but no problem making that a  
22 clear indication. That's an issue that ultimately  
23 will be evaluated to make sure we get the right line  
24 and the tweaking necessary. We would advise you

1 later. But I'm comfortable with it. I don't want  
2 anybody to misunderstand what I'm saying.

3 Q. Your explanation helps.

4 A. We're here because you don't  
5 understand the science. It's an unusual ruling.  
6 The interim effluent standard proposal in lieu of  
7 the water quality standards we will propose so you  
8 understand the science.

9 Q. And we are just trying to understand  
10 what you don't understand.

11 BY MR. JOHNSON:

12 Q. Well, it seems to me, Toby, like  
13 there's a real potential here for whatever you do  
14 when you're not working on solid science, then  
15 there's a potential that what you're requiring here  
16 is you're requiring the permittees to install more  
17 than they need to, and then there's also the  
18 potential that you're requiring them to install less  
19 than what they're ultimately going to need. And  
20 that might be more problematic for the treatment  
21 plants. If they go and they spend the money now and  
22 then when the science is available 18 months from  
23 now they find out that they've installed equipment  
24 that is not going to be able to get them up to what

1 the permanent -- not the interim, but the permanent  
2 standards are going to be. I'm sure you guys have  
3 contemplated that.

4 A. And that's the primary emphasis why  
5 our proposal is restricted to those people that are  
6 in the immediate expansion development stage,  
7 they're putting in new systems. There's a certain  
8 cost savings, economics incorporated into their  
9 designs. To the extent that it's determined later  
10 on they are necessary, I don't believe there's been  
11 any --

12 And probably the bulk of the  
13 municipal and industrial facilities in the state can  
14 have measurable phosphorus under this proposal are  
15 not being asked to do anything at this point in time  
16 other than follow the science and understand the  
17 requirements in the future.

18 HEARING OFFICER KNITTLE: Mr. Harsh,  
19 do you have any conclusion?

20 MR. HARSH: I'd like to follow up on  
21 that line of questions.

22 BY MR. HARSH:

23 Q. Is it the Agency's intent then that  
24 Subsection (j) means that a new and expanding plant

1 greater than a million gallons, POTW (phonetic) or  
2 industrial plant more than 25 pounds prior to  
3 putting in phosphorus control that that plant would  
4 also receive protection from 302.203 and be deemed  
5 to be in compliance?

6 BY MR. FREVERT:

7 A. That is my intention.

8 Q. For those plants that are not  
9 undergoing expansion, the existing facility, it's  
10 the Agency's intent for the adoption of this rule  
11 means that either the plant is in compliance with  
12 the numeric water quality standard or that doesn't  
13 apply somehow; is that correct?

14 A. Could you repeat that?

15 Q. How does this language provide the  
16 protection that an individual facility is not  
17 causing a violation of the narrative water quality  
18 standard?

19 A. I think I understand what you're  
20 saying.

21 The intent here is that in those  
22 cases where there may be violations of that  
23 narrative water quality standard it's an existing  
24 facility and applies to all other permit provisions.

1 There's no special study, no maximum daily load or  
2 any other basis to conclude definitively that that  
3 one source is a significant and causative agent to a  
4 violation. They are protected. And we believe  
5 until such time of a narrative standard or -- I'm  
6 sorry. A numeric standard or additional things are  
7 in place, they're not eligible for permit limit  
8 based on the narrative water quality standard.

9 Q. So if an environmental group comes in  
10 and comments on a draft NPDES permit renewal and  
11 says this facility needs to put nutrient control  
12 in, the Agency would cite this rule and say no  
13 additional nutrient control is needed at this time  
14 because of this provision because the plant is not  
15 expanding?

16 A. I think my answer to that question --  
17 my reaction to that would be I'm going to evaluate  
18 that environmental group search paragraph (h). And  
19 if I'm not persuaded under paragraph (h), their  
20 petition doesn't hold water, then I'm not going to  
21 put the phosphorus limit.

22 Q. So it's not a blanket pass from the  
23 interim standard, and the application of the  
24 narrative water quality standard, you're still going

1 to have to make permit decisions?

2 A. If you come to me with that position,  
3 my role is to determine whether or not there's a  
4 phosphorus limit necessary in your parameters.

5 Q. Does that mean --

6 A. If I have reviewed all the information  
7 and I've concluded that this does not warrant the  
8 limit because it complies with all other provisions,  
9 I'm going to issue that permit without that -- and  
10 I'm going to conclude that all my responsibilities  
11 to ensure any requirements other than narrative  
12 standard for your discharge had been met. But any  
13 other party to this agreement, I guess, would appeal  
14 that. That's the Board's decision. My decision is  
15 what's put in the permit and what I contend. But  
16 you understand my policy. Unless that study telling  
17 me definitively that that one source is significant  
18 enough to contribute to the need for the limit, I  
19 don't intend to give them a limit. I intend to say  
20 no. This is premature. They should not be changing  
21 or disrupting their process in the interim with  
22 additional needs until such time as this science  
23 gets worked out. If they come in the next week and  
24 say they need to expand, they're going to get an

1 entirely different answer.

2                   And we're essentially doing that  
3 now. We get a lot of back and forth and a lot of  
4 public comment and a lot of hearings based on this  
5 information. But ultimately, we decide whether or  
6 not to put a phosphorus limit in. And we're trying  
7 to give some direction and structure to that on a  
8 wholesale basis.

9           Q.       Has the Agency developed any guidance  
10 or internal rules, some rulemaking, for how an  
11 applicant should show or how the Agency would  
12 determine that a discharge is causing a violation of  
13 the narrative water quality standards?

14           A.       No, we have not. And I'll restate  
15 that I believe that that particular provision  
16 states -- should be open minded and receptive to  
17 information with respect to these people, but I  
18 don't anticipate that much, if at all, because I  
19 don't know how to do it.

20           Q.       Toby, since the original adoption of  
21 the narrative water quality standards, has the  
22 Agency adopted any?

23           A.       Not that I'm aware of, no.

24



1 BY MR. MOSHER:

2 A. I should add that developing a water  
3 quality standard for algae through a chlorophyll  
4 measurement is one of the goals that we are working  
5 on for nutrient standards. And, in fact, that's one  
6 of the parameters that USEPA would like states to  
7 have eventually in their compliment of standards  
8 dealing with nutrients. So again, we don't know  
9 what that algae or chlorophyll standard should be  
10 for Illinois right now. We're working on it.

11 Q. Probably out of order, but, I think,  
12 Toby, you're -- and maybe Mr. Mosher as well --  
13 talked about sensitive streams that might be in need  
14 of more protection or might be on an imminent crusp  
15 (phonetic) of needing more protection. Do you have  
16 a list of those sensitive streams?

17 BY MR. MOSHER:

18 A. No, we don't. Not at this time.

19 BY MR. FREVERT:

20 A. I wouldn't know how in terms of a  
21 phosphorus interim in general, I don't even know how  
22 to -- to get a guidance for that. I think that's  
23 why we're investing significant time and effort in  
24 some basic research in trying to develop the science

1 to support the standards.

2                   Unfortunately, the USEPA, who  
3 normally does a good job in developing science  
4 behind national criteria missed the mark a little  
5 bit in the case of nutrients, and sometimes it's a  
6 statistical approach not a science approach.

7                   So the states right now are kind  
8 of struggling developing science. There's a fairly  
9 good communication right now between the states that  
10 we're sharing information, we're all learning from  
11 one another. But as long as I've been in this  
12 business, everybody knew nutrients was a significant  
13 factor in aquatic eco systems but they didn't  
14 understand them well enough to quantify criteria  
15 like the substances that are toxic.

16                Q.       Doesn't the State of Illinois have a  
17 phosphorus limitation at one time, effluent  
18 limitation on the Fox River of one milligram per  
19 liter?

20                A.       That's correct.

21                Q.       What happened to that phosphorus  
22 limitation?

23                A.       Well, eventually, there was another  
24 rulemaking where that phosphorus limitation was

1 appealed.

2 Q. Was that R87-6 adopted on April 12th,  
3 1990?

4 A. My recollection is that whole thing  
5 took place somewhere in the '80s. It may have  
6 culminated in the 1990s.

7 Q. What was the reasoning or rationale  
8 behind the repeal of the existing phosphorus  
9 effluent limitation on the Fox River discharge?

10 A. It's itching me a little. I believe I  
11 was involved in that rulemaking, but I believe it's  
12 probably been 15 years or plus.

13 Certainly, the POTW, the treatment  
14 authority in the Fox Valley were not particularly  
15 receptive to spending money on phosphorus in that  
16 era from an economic perspective. I believe part of  
17 the argument was there's significant phosphorus  
18 loading from other sources which may be sufficient  
19 to cause existing conditions of events, any  
20 measurable improvement.

21 Q. I would suggest maybe we should review  
22 it. Wasn't the determination made that there was  
23 enough phosphorus present in the water from  
24 Fox River so that phosphorus would not be a limiting

1 nutrient even if all of the point sources were  
2 eliminated.

3 A. Again, I thought my earlier comments  
4 indicated that POTW perception and perhaps even the  
5 Agency's at that time perception there was  
6 significant phosphorus coming out of the Chain of  
7 Lakes and other sources such that there really was  
8 no limitation. There was always fertilizer that the  
9 system could support and whatever the level of plant  
10 and algae growth is going to be produced, I believe  
11 that the case is ongoing.

12 As a matter of fact, my Agency has  
13 put substantial money into the Fox River study to  
14 address that today. USEPA's made available, I  
15 think, in excess of \$1 million, and I would say the  
16 Fox River is a special case, probably the single  
17 most important thing we're looking at on Fox is  
18 going to be nutrients.

19 Q. At the present time, does the Agency  
20 have any information to counter the previous  
21 Pollution Control Board determination that the  
22 phosphorus limitation of 1 milligram per liter  
23 should not apply to the Fox River?

24 A. That's a question to me I'd be happy

1 to comment on.

2 This proposes we're treating them  
3 like the rest of the state, the existing sources.  
4 We're not asking for phosphorus at this time, new  
5 and expanding sources we will possible.

6 Q. For new and expanding sources, what  
7 evidence is the Agency presenting in this rulemaking  
8 to counter the prior Pollution Control Board  
9 determination based on the rulemaking record that  
10 lifted that limitation?

11 A. Well, again, the yardstick we're up  
12 again -- the rules have said we cannot authorize  
13 discharge of contaminants contribute toward the  
14 water quality violation.

15 In the case of the recent facility  
16 we dealt with in the Fox River Valley, the discharge  
17 to the tributary to the Fox River, so we're looking  
18 at the potential not just for everybody's  
19 contributaries as well.

20 Q. If I recall language, in looking at  
21 it, the existing phosphorus limitation, effluent  
22 limitation in 304.123, Subparagraph (f),  
23 Subparagraph (7), a natural plant or algae growth  
24 means the occurrence of the violation of the natural

1 sludge standard applicable to a lake or -- is that  
2 type -- when you talk about nuisance algae growth,  
3 are you pleading that to the same type of growth  
4 that's referenced by this existing word rule?

5 BY MR. MOSHER:

6 A. I think that passage is not yet  
7 updated in the narrative standards at 302.203 were  
8 updated a few years ago. And that's why the  
9 language is a little different. I'm making a note  
10 right now that we should modernize that language in  
11 paragraph (7).

12 BY MR. FREVERT:

13 A. I'll just add to that.

14 If I'm reading this correctly,  
15 that plant or algae growth may be violation of the  
16 sludge standard, even if it's restricted to the lake  
17 already where there are multiple detrimental  
18 affects, including from plant and algae --

19 Q. When the Pollution Control Board  
20 rejected the Agency's request in R87-6 and the  
21 Board's language deregulate phosphorus discharges  
22 upstream of the lakes and reservoirs and continued  
23 to impose the rule of sources over 25 miles away,  
24 the Board noted that there would be relief

1 potentially available in the form of an adjusted  
2 standard or regulatory relief, are you aware of any  
3 municipality that's come in and asked for such  
4 relief?

5 A. No, I'm not. I know there's some down  
6 state communities that -- phosphorus reduction and  
7 that they may be in excess of 25 miles from the  
8 reservoir.

9 In the 1980s, quite frankly while  
10 the science may have been understood the role in the  
11 potential impact of nutrients in streams, all the  
12 attention was given to lakes and reservoirs and it's  
13 not what it -- either regulatory or scientific focus  
14 on the effect of the stream situation.

15 My recollection is back in that  
16 era we made our recommendations evaluating  
17 phosphorus purely from the impact we were looking  
18 for.

19 Q. You're not aware of any municipality  
20 that availed itself the relief mechanism that the --

21 A. No, I know Champaign, Urbana,  
22 Southwest Tributary, Lake Shelbyville and many more  
23 25 miles away, they are practicing phosphorus  
24 removal. Mt. Vernon tributary, they're practicing

1 phosphorus removal, and I don't remember the  
2 distance. Chamber (phonetic) is another down state  
3 community that's practicing phosphorus removal. I  
4 believe their tributary to Lake Shelbyville. There  
5 may be others. Those are the three that come to  
6 mind.

7 Q. I've asked the question do you have  
8 a -- I guess in response to the hearing officer's  
9 request to identify the communities that you would  
10 anticipate that would be growing in the future, the  
11 Agency provided that information and that was read  
12 into the record. Do you have a list of industrial  
13 dischargers that may be impacted by this rule?

14 A. I don't believe we do. Typically,  
15 industrial facilities don't go to the classic  
16 facility planning process to identify their growth  
17 or development needs early on and share that  
18 information with the Agency. Almost to the  
19 contrary, industries sometimes like to keep it  
20 fairly confidential in terms of expansions of  
21 facilities.

22 Q. Does the Agency know or have a list of  
23 industrial dischargers that are greater than 25  
24 pounds per day loading?



1 A. Existing sources?

2 Q. Yes.

3 A. I don't. I'll leave that question to  
4 Bob. He can tell you that.

5 BY MR. MOSHER:

6 A. There are some power plants or similar  
7 industries that have an extensive piping for cooling  
8 purposes that use phosphorus as a way to prevent  
9 corrosion of those pipes. And the concentration of  
10 the phosphorus that's maintained in those systems  
11 about a -- in my experience, one particular power  
12 plant recently permitted -- it was something like  
13 three and a half million gallons a day of cooling  
14 water in the discharge would have an equivalent  
15 phosphorus concentration to a 1 million gallon a day  
16 sewage treatment plant. So that's one example of an  
17 industry. And that issue was of concern for us from  
18 an anti-degradation viewpoint. And the industries  
19 were asked to look for alternatives to using  
20 phosphorus for that purpose. And I think that  
21 industry at least is aware of this situation  
22 developing, and I believe they will be seriously  
23 looking at replacement chemicals for that purpose.

24 Q. Mr. Terrio, in your direct testimony,

1 you seem to be inferring that the choice of  
2 treatment to meet the interim rule would be chemical  
3 addition, not biological treatment; is that correct?

4 BY MR. TERRIO:

5 A. For some plants, right, but there's  
6 stages in the construction code.

7 Q. How did you determine that that would  
8 be the case?

9 A. My statement there was placed largely  
10 on talking with design engineers at the Agency.

11 BY MR. MOSHER:

12 A. We interviewed some design engineers  
13 for consulting engineering firms that are doing work  
14 of this nature right now, and it seems to be the  
15 trend that they will go with biological phosphorus  
16 removal when designing a new facilities or extensive  
17 expansion.

18 For other reasons also, but  
19 certainly, to anticipate standards that may come  
20 down the road in the next three or four years. And  
21 they seem to have some good reasons to go with the  
22 biological phosphorus removal at those plants.

23 Q. There was reference in the -- towards  
24 the end of your testimony, I think, on Page 7 to the

1 cost estimate from the Zenz study. What was that  
2 cost estimate, the Zenz study?

3 BY MR. TERRIO:

4 A. Oh, boy. Going from memory, I want to  
5 say that the numbers were, I think, about 5 billion  
6 for capital and construction costs and 500 million  
7 per year for operation and maintenance for the  
8 800-plus given statewide. And again, that's -- I  
9 have the numbers before me.

10 BY MR. MOSHER:

11 A. And we need to point out that those  
12 estimates were for many, many treatment plants that  
13 aren't covered by our phosphorus effluent standard  
14 proposal. In other words, existing, non-expanding  
15 treatment plants, and also, that those figures were  
16 for nitrogen removal also. Nitrogen and phosphorus  
17 removal.

18 Q. A little later in your testimony you  
19 talk about the additional generation of 15 to 30  
20 percent more sludge with chemical precipitation and  
21 that that increase in amount and physical  
22 characteristics might require an upgrade of  
23 sludge-handling facilities, but yet you don't  
24 provide any cost associated with that. What portion

1 of the communities that you believe would have to  
2 comply with this interim proposal would be faced  
3 with upgrading their sludge-handling facility?

4 BY MR. MOSHER:

5 A. Well, we don't have any breakdown of  
6 number of facilities. We were just pointing out  
7 that depending on what kind of sludge-handling that  
8 facility currently has or might have designed into  
9 the new plant in the absence of phosphorus removal  
10 that there could be some changes at some plants that  
11 would result in additional costs. But we have no  
12 further breakdown. I think we're going to find that  
13 everything is very plant specific.

14 Q. You don't have the list of any  
15 specific facilities or the costs associated with  
16 those facilities?

17 A. No. Again, this was information  
18 gleaned from interviewing design engineers and them  
19 telling us about their experiences with recent  
20 projects that they have had. And so as far as the  
21 sludge, they're telling us some facilities they're  
22 working with existing facilities have adequate  
23 sludge-handling facilities, so there isn't any  
24 additional costs for capital improvements.

1 Q. There would still be additional  
2 operating costs, correct?

3 A. Yes. Again, that could vary from a  
4 very little bit of extra cost to somewhat more  
5 depending on what they have already.

6 Q. But the Agency doesn't have that  
7 figure?

8 A. No attempt was made to try to add all  
9 the costs up for all the facilities that we know are  
10 undergoing plans or current expansions, no.

11 Q. How many facilities are currently  
12 upgraded or expanding and constructing with  
13 phosphorus control?

14 (Brief pause.)

15 BY MR. MOSHER:

16 A. I think we'd like you to repeat that  
17 question.

18 Q. How many plants are currently  
19 undergoing construction to -- either they're  
20 expanding, new facilities, or existing facilities  
21 are putting in phosphorus control at the present  
22 time?

23 A. I believe we talked with our permit  
24 section and came up with a number of seven or eight,

1 and that really is kind of a rolling figure. As  
2 facilities get completed and permitted, they drop  
3 off that list, of course, and new facilities are  
4 constantly being proposed, so I would make a safe  
5 guess that in a given year recently, we may have ten  
6 to 12 facilities like that.

7 Q. Would those ten to 12 facilities be  
8 facilities that would be greater than one million  
9 gallons per day and less subject to this interim  
10 rule, or were some of them smaller facilities?

11 A. We believe those would be greater than  
12 one million gallons a day.

13 HEARING OFFICER KNITTLE: Let's go off  
14 the record a second.

15 (Whereupon, a break was taken,  
16 after which the following  
17 proceedings were had:)

18 HEARING OFFICER KNITTLE: Is there  
19 anyone out there in the audience that has any  
20 desire to ask any questions aside from  
21 Mr. Harsh and Mr. Ettinger?

22 I'm not seeing that anyone else  
23 has any questions, so it looks like it's just  
24 Mr. Harsh. Mr. Ettinger, you said you're not

1 going to have any at this point?

2 MR. ETTINGER: I don't think so.

3 HEARING OFFICER KNITTLE: The Board  
4 has some questions but they're fairly limited  
5 in nature so we're just going to push forward  
6 and finish this off and not take a lunch  
7 break.

8 That being said, Mr. Harsh? I'll  
9 remind you three that you are under oath and  
10 still, and you may proceed.

11 BY MR. HARSH:

12 Q. I don't know who the appropriate  
13 person is. Page 15 of the proposal under the  
14 stakeholder public participation section, I note  
15 that you stated that you provided -- the Agency  
16 provided this to the Illinois Association of  
17 Wastewater Agencies. The IAWA, as well as the  
18 Illinois Municipal League request a stakeholder  
19 meeting with the Agency prior to the filing of this  
20 rulemaking proposal formally in writing?

21 BY MR. FREVERT:

22 A. I remember you asked for a delay in  
23 the filing. I don't remember you asking for a  
24 letter at the meeting.

1 Q. Was such a meeting held?

2 A. We had a meeting with the IAWA  
3 sometime subsequent to the filing, I believe, not  
4 prior to.

5 Q. Nor did you have a meeting with the  
6 municipal league?

7 A. I have yet to hear back from the  
8 municipal league.

9 Q. If a sore subject to this interim rule  
10 installs chemical addition and then it proves that  
11 biological treatment will be the treatment necessary  
12 to meet whatever the final is, what will be the  
13 savings or impact on that community?

14 A. I don't think I can answer that, and I  
15 doubt that any design engineer could answer that  
16 without more specifics of the individual situation  
17 you're talking about.

18 Q. If chemical is not adequate to meet  
19 the final nutrient regulation that comes out of our  
20 ongoing effort and is necessary to install  
21 biological treatment, doesn't that mean that the  
22 POTW will have installed chemical addition, capital  
23 costs that will have to be replaced?

24



1 BY MR. MOSHER:

2 A. I think I can give a little insight on  
3 that.

4 The design engineers that we  
5 talked to were telling me that even with biological  
6 phosphorus removal designed into a plan that they  
7 like to have the ability to also add chemical to  
8 polish that process, and so it may turn out -- and I  
9 don't know that those statements were covering  
10 100 percent of facilities, but it may turn out at  
11 least in some cases that the chemical addition will  
12 still be desired in addition to biological  
13 phosphorus removal.

14 Q. Mr. Mosher, based on those  
15 discussions, would it be the same size chemical  
16 addition facilities?

17 A. They have told me that the amount of  
18 chemical added would be less if done in tandem with  
19 biological phosphorus removal. But I don't think  
20 that means that the larger size equipment couldn't  
21 still be used.

22 Q. If a stream has phosphorus levels that  
23 are currently above the limiting value, then what is  
24 the environmental benefit to be derived if POTW that

1 discharges to that stream is required to put in  
2 interim phosphorus control under this rulemaking?

3 A. Well, I think we testified that we  
4 don't know everything yet. We're working on it.  
5 But we do have an example that's been with us for  
6 many, many years, and that is limiting phosphorus at  
7 Great Lakes tributary dischargers. And the idea  
8 there was that you were protecting a water body  
9 downstream by removing phosphorus in that basin.  
10 And so even though we may not be able to say whether  
11 or not we'll get improvement in the receiving stream  
12 directly discharged into, there may be bodies of  
13 water further downstream that may benefit and would  
14 fall under that success story that we had for the  
15 Great Lakes in phosphorus control.

16 Q. Mr. Mosher, are there any POTWs in  
17 Illinois that discharge directly to Lake Michigan  
18 other tributaries to Lake Michigan?

19 A. Ordinarily, no.

20 Q. This is designed to be an interim  
21 proposal until such time as Illinois adopts -- or  
22 the results of the nutrient task force that's been  
23 testified to is finalized and comes up with a water  
24 quality standard proposal and adopted by the Board;

1 is that correct?

2 BY MR. FREVERT:

3 A. That's correct.

4 Q. What is the Agency's current time  
5 frame for completing this work and being in a  
6 position to propose a water quality standard to the  
7 Board?

8 BY MR. MOSHER:

9 A. Well, I mentioned our nutrient  
10 standards plan that we prepared for USEPA and that  
11 the time frame was that by 2008 we would have water  
12 quality standards in Illinois for nutrients.

13 Q. That would be ready to propose or  
14 through the process?

15 A. We think the 2008 date is for adopted  
16 standards. At least that was our prediction.

17 BY MR. FREVERT:

18 A. Let me just comment here that we  
19 have a nutrient standard development plan that we  
20 submitted to USEPA and got approval for that one,  
21 and that has those dates in there. We will make  
22 that available so Bob doesn't have to speculate on  
23 those dates.

24 Q. Thank you.

1                   Has the Agency given any  
2                   consideration or would it consider putting a sunset  
3                   provision in this interim rule then?

4                   A.           I think I'm receptive to discussions  
5                   or something of that nature.  Certainly, it's -- I  
6                   mean, the impetus for this is we're partway through  
7                   a very important study and we don't want to prejudge  
8                   too much.  But we need some guiding line to get us  
9                   through the next few years of a lot of permitting  
10                  complexities and possible situations where we simply  
11                  are not issuing any kind of proposal.

12                  So in the spirit and the nature of  
13                  an interim proposal, we will entertain concepts on  
14                  how to make that interim thing clearer and more  
15                  comfortable to everyone.

16                  Q.           That might be helpful because you are  
17                  proposing an interim standard based in large part on  
18                  a justification that is available technology.  Other  
19                  states have a similar limitation.  You're currently  
20                  requiring, through the permitting process, a  
21                  number of POTWs to impose or install phosphorus  
22                  limitations.

23                  How do you avoid this rulemaking,  
24                  essentially, coming up with an establishing best

1 available technology for the POTW industry if it  
2 doesn't have a sunset provision in it, I guess, is  
3 our question?

4 A. Well, I'll be happy to answer that  
5 question, if I fully understood what you --

6 Q. Aren't you by the fact, though,  
7 running a risk of establishing if the Board enacts  
8 this interim rule a best available control  
9 technology level for phosphorus treatment in  
10 Illinois?

11 A. Let me give you what I see as the big  
12 picture response. I hope it will give you an answer  
13 that you're looking for. It's the best answer that  
14 I can give you.

15 On this interim basis, there's an  
16 obvious issue with Illinois streams. It's not quite  
17 so obviously exactly why and how to deal with the  
18 POTWs and industrial wastewaters in mass.

19 It's clear there's technology  
20 available, and I would say relatively affordable  
21 technology available to move forward. There is some  
22 salvage benefit to that, and it does enhance other  
23 performance capabilities to the POTW and industrial  
24 wastewater facilities over and above phosphorus

1 removal, and recognizing there may be some potential  
2 that is not necessary everywhere we've posed an  
3 interim standard that only requires this technology  
4 for large, new expansions.

5           So we've tried to restrict the  
6 potential downside of this while moving forward with  
7 the program. And I think perhaps what's as  
8 important as anything, you know, is the Agency's  
9 ongoing effort to understand the science of  
10 nutrients better coupled with our commitment to do  
11 some before and after study of these facilities to  
12 demonstrate what, if any, measurable impact it has  
13 on the stream. So five years from now, we will all  
14 be able to issue more knowledge, and in the  
15 meantime, a vast majority of public and industrial  
16 facilities are not being required to expend money  
17 that perhaps isn't 100 percent guaranteed with the  
18 outcome of the interim and take a major step, learn  
19 from that, and that's a broader policy based on that  
20 knowledge.

21           Q.       This concept of interim limitation was  
22 not in the Illinois EPA request for additional time  
23 when it submitted it's nutrient work plan to the  
24 USEPA, was it?

1           A.       This particular proposal is separately  
2     from and in no way in the nutrient standards  
3     development proposal.  The proposal is here to  
4     address a real world problem we have today with  
5     existing standards, the obligation of the Agency to  
6     assure NPDES standards and protect against those  
7     standards not knowing how to interpret those  
8     standards.  The purpose of the interim standard so  
9     to allow the NPDES program to continue to function.

10          Q.       To repeat my question, it's not  
11     contained in the Illinois EPA response to the USEPA?

12          A.       That's correct.

13          Q.       Has anyone on the IEPA nutrient  
14     science work group suggested an interim standard was  
15     needed and should be proposed to the Board?

16          A.       I don't know about that, but I know  
17     the interim standard was the collective decision of  
18     the Agency itself.

19          Q.       Did USEPA indicate in their approval  
20     of the Illinois submittal that an interim standard  
21     was necessary?

22          A.       Again, I don't know that I can comment  
23     directly on that, but I can assure you the USEPA  
24     staff will reinforce with me their belief that is a

1 positive step forward and they're supportive of it.

2 Q. What apart from the environmental law  
3 and policy letter dated February 2nd, 2004 to the  
4 director of Illinois EPA has prompted this  
5 rulemaking?

6 A. Probably hours and hours of scratching  
7 our heads trying to address the narrative standards  
8 and probably five to ten critical permits which will  
9 last two to three years. Just the recognition of  
10 the internal conflict we have with the existing  
11 regulations and the ever increasing data that shows  
12 phosphorus limits are elevated in many streams in  
13 Illinois where the aquatic indexes are believed to  
14 be less than it should be.

15 MR. HARSH: We'd like to make the  
16 environmental law and policy letter I've  
17 referenced an exhibit.

18 HEARING OFFICER KNITTLE: Any  
19 objection from anybody?

20 MR. ETTINGER: I would like to comment  
21 it's an excellent letter.

22 HEARING OFFICER KNITTLE: Duly noted,  
23 Mr. Ettinger.

24 What do you want to call it, Mr.



1 Harsh?

2 MR. HARSH: The next exhibit number is  
3 fine.

4 HEARING OFFICER KNITTLE: I will call  
5 it Exhibit 3. It's admitted.

6 MR. ETTINGER: If he's done, I do have  
7 a question now, I'm sorry, to follow up on  
8 Mr. Harsh's -- are you done, Mr. Harsh?

9 MR. HARSH: I am subject to being able  
10 to ask additional questions of these  
11 witnesses, if necessary.

12 MR. ETTINGER: I'm just trying not  
13 to -- you're done today is all I'm saying?

14 MR. HARSH: Yes.

15 BY MR. ETTINGER:

16 Q. Mr. Frevert, Mr. Harsh asked you  
17 questions about a sunseting provision which  
18 confused me in that the question implied that there  
19 isn't one in the rule currently. Reading the  
20 language in front of me in (k) it says the  
21 provisions of Subsection (g), (h), (i) and (j) of  
22 this section applied until such time as the Board  
23 adopts a numeric water quality standard for  
24 phosphorus. Is that a sunseting provision?

1           A.       It certainly is. And, you know, that  
2 was there from day one. To the extent people want  
3 to work on that and give it more definition, we're  
4 open to working with other people.

5                   That was our intent from day one  
6 when we proposed this interim standard, not a  
7 permanent standard. So that being said, we continue  
8 to take any input or recommendations on how better  
9 to word that.

10           Q.       So when you said that you wanted to  
11 perhaps improve this language, you weren't trying to  
12 imply that there isn't a sunset provision now,  
13 you're just saying that you're open to improvements  
14 in the wording of this sunset provision?

15           A.       Thank you. My lawyer told me the same  
16 thing you just told me off the record.

17                   HEARING OFFICER KNITTLE: Thank you.  
18                   Mr. Harsh, do you have a copy of this  
19 letter that you want us to see?

20                   MR. HARSH: Yes, I do.

21                   HEARING OFFICER KNITTLE: Just for the  
22 record, I think we had originally called the  
23 prefiled testimony Agency Exhibit 1 and 2.  
24 We're just going to call it -- Exhibit 1 is

1 Terrio's testimony, Exhibit 2 is Mosher's  
2 testimony and Exhibit 3 is now this letter.

3 MR. HARSH: Okay.

4 HEARING OFFICER KNITTLE: Anything  
5 further, Mr. Harsh?

6 MR. HARSH: No, sir,

7 MR. GIRARD: I have a question.

8 BY MR. GIRARD:

9 Q. And this is for the panel, although it  
10 will be probably be Toby that answers it.

11 Page 16 of the proposal, we were  
12 talking about adopting the 1.0 milligram per liter  
13 phosphorus concentration standard, but then you also  
14 talk about how the Agency fully expects actual  
15 performance levels to be incrementally better than  
16 1.0 milligrams per liter, and even in the 0.5  
17 milligram per liter range for extended periods.

18 How would that expectation be  
19 carried out in the permitting process?

20 BY MR. FREVERT:

21 A. I'm surprised this didn't come up  
22 earlier because I noticed Paul had it in his  
23 testimony too.

24 In reality, these systems probably

1 would routinely perform most of the time much better  
2 than the 1 milligram per liter as the ultimate  
3 ceiling measurement performance. I would assume  
4 over the long period of time you're going to have  
5 some blips here and there, but by and large,  
6 long-term averages, you're going to be significantly  
7 lower than the one point. You look like that wasn't  
8 an answer so maybe I didn't understand your  
9 question.

10 Q. Well, I can understand, you know,  
11 you're looking at a monthly average, but I was just  
12 wondering how that expectation would be carried out?  
13 I mean, I understand the variability, but it almost  
14 sounds like a standard within a standard.

15 A. What you would see was routine forms  
16 from those facilities. And I think from my  
17 understanding and experience with my counterparts  
18 around the Midwest, I'm not aware of any state,  
19 Michigan, Ohio, Wisconsin, any of them, that give  
20 limits other than 1 milligram per liter. Most of  
21 those people say their facilities are indeed  
22 performing within that 1 milligram per liter and  
23 significantly lower than 1 milligram per liter.

24 So the technology, while it will

1 have blips and you may brush up against the  
2 1 milligram per liter, over the long haul, you're  
3 going to be well under that effluent limitation.

4 Q. But in terms of enforcement, there  
5 would be no difference between someone that had a  
6 monthly average consistently 0.9 milligrams per  
7 liter and someone else who had a monthly average  
8 consistently of 0.4 milligrams per liter?

9 A. That's correct. And indeed, when  
10 we're at inspections and any of our technology and  
11 systems programs, there's somebody that's got a  
12 system that's operating in compliance with the  
13 limit, but he has a potential to do even better when  
14 we work with them to reach the better attainment.  
15 You wouldn't establish it an enforcement  
16 requirement.

17 My experience over the years has  
18 been treatment plant operators take pride in what  
19 they're doing. Number one, they've got to stay in  
20 compliance and they have to keep their job, number  
21 two, probably they're able to do the best they can  
22 for you. So most of these facilities that have  
23 phosphorus removal we're probably going to see DMRs  
24 routinely come in with numbers measurably lower.

1 Not always, but most of the time measured lower.

2 MR. GIRARD: Thank you.

3 HEARING OFFICER KNITTLE: Mr. Rao,

4 Ms. Liu, do you have anything?

5 BY MS. LIU:

6 Q. I have some clarifying questions just  
7 on the language that you've proposed. The new  
8 Subsection (g) refers to newer expanded discharges  
9 not covered by Subsections (e) through (f), and I  
10 notice that Subsection (c) through (f) contained  
11 definitions in compliance states and adjustment  
12 standards procedure and I was wondering if you would  
13 clarify whether any of the provisions of (c) through  
14 (f) would be applicable to these treatment works?

15 BY MR. FREVERT:

16 A. It's been some time since I've  
17 reviewed this draft and it's been my recollection  
18 that what the perception was all those other  
19 subsections apply to facilities discharging  
20 tributary or lake or river, and we're not proposing  
21 any change. What we're doing is adding in addition  
22 to that another list of requirements that protect  
23 the stream itself.

24 So if somebody has a requirement

1 to remove phosphorus to protect the river, they have  
2 to meet that irrespective of whether or not there's  
3 a secondary requirement to meet.

4 Q. Wouldn't some of those definitions --  
5 when you refer to federal compliance and adjusting  
6 standards kind of cross over into this new section?

7 A. If somebody is looking for an adjusted  
8 standard from this, I would think they'd go to the  
9 Board's procedural rules. I don't know why we would  
10 instructions for the adjusted standard regarding the  
11 actual standard itself.

12 The other thing is, quite frankly,  
13 right or wrong, we tend not to fuss around with --  
14 regarding the regulation. So we don't want to touch  
15 it even though -- some of these things is probably  
16 old language. We're just -- we're not trying to bog  
17 down the hearing re-visiting what we're doing at  
18 length. We're just trying to add a new policy.

19 BY MR. RAO:

20 Q. One specific term that you have --  
21 there's a definition for under (f)(6) is the  
22 limiting nutrient. And that term has been used in  
23 Subsection (g) also. Would it be all right for the  
24 Agency if a similar definition is put down in

1 Subsection (g)?

2 BY MR. FREVERT:

3 A. Quite frankly, I think scientists  
4 around pretty well gel around the notion that a  
5 fresh water aquatic systems, phosphorus is almost  
6 always the limiting nutrient. You're dealing with a  
7 little bit of archaic language. Maybe in the mid  
8 '90s or early 1980s we thought possibly there was a  
9 system in Illinois where nitrogen was the limiting  
10 nutrient. In reality, they're all -- so to the best  
11 of our knowledge, it's all going to be phosphorus.  
12 And that's unnecessary language as to the statement.

13 Q. An another question relating to  
14 Subsection (g), and already you have made some  
15 references as to how Subsection (g) would apply --  
16 that Subsection (g)(1) would apply to municipal and  
17 our wastewater treatment works, and Subsection  
18 (g)(2) to industry of this progress.

19 That's not very clear from the  
20 rule itself. Is that something that the Agency  
21 wants to take a look at to see if anybody can make  
22 the rules clearer?

23 A. What do you mean?

24 Q. The way I was looking at it --



1 A. You mean this language isn't clear?

2 Q. Yes.

3 A. What are you recommending?

4 Q. I'm not recommending anything. I'm  
5 just asking you that supposedly the municipal  
6 treatment plants, which doesn't, you know, trigger  
7 the 1 million gallon per day flow under (g)(1), but  
8 it's still discharging more than 25 pounds per day.  
9 Would that be subject to Subsection (g), if they're  
10 expanding?

11 A. I know of -- well, that wouldn't be  
12 domestic wastewater, I guess, is the answer.  
13 There's no way to plan that 1 million gallons per  
14 day can have that much phosphorus dominated by some  
15 industrious source. Towns that small usually don't  
16 have -- we can go back and look --

17 Q. We have submitted language in our  
18 ammonia nitrogen rules because phosphorus -- it  
19 depends on how you put those rules because the  
20 language is not clear?

21 A. Well, you think something like --  
22 roughly the 25 pounds per day is our rule of thumb  
23 equivalent to a million gallons per day. If you  
24 want us to say a treatment -- you want us to

1 consider proposing a treatment works with the design  
2 average flow of 1 million gallons per day or more,  
3 or from the treatment works less than a million  
4 gallons per day in excess of 25 pounds of  
5 phosphorus. We'll take that back and think about  
6 it.

7 Q. Just take a look at that language.

8 BY MS. LIU:

9 Q. Along those earlier lines, another  
10 possible scenario, if you do have a municipal  
11 treatment works discharging a million gallons a day  
12 and you return 1 million gallon per liter, when you  
13 do the calculations, I ended up with about 8.3  
14 pounds of phosphorus, does that sound right to you?

15 BY MR. FREVERT:

16 A. Yes.

17 Q. But under Subsection (g)(2), you have  
18 25 pounds per day limit, and I was wondering --

19 A. It's 25 pounds per day untreated.  
20 Your 8 milligrams per liter, I believe, equates  
21 to -- your 8 pounds equates to 1 milligram. Without  
22 the phosphorus treatment, the discharge would be  
23 close to 3 milligrams.

24 Q. So is it true that 25 pounds refers to

1 untreated?

2 A. It refers to the untreated waste.  
3 Without phosphorus removal, it would be 25 pounds.  
4 If it progresses to the threshold of 25 pounds per  
5 day or more without treatment, then you have to  
6 provide treatment to bring them down. So if you  
7 provide that treatment, you're going to bring it  
8 down to the 8-pound range.

9 Q. Maybe we should make some sort of  
10 clarification?

11 A. Yeah, we'll look at that language.

12 I think the important thing at  
13 this stage is to understand. If our words didn't  
14 communicate it properly, we'll absolutely work  
15 through that.

16 Q. Another situation were how the  
17 treatment works municipal -- but one that is very  
18 low, just under the 25-pound per day limit, going to  
19 a -- is that something that would be permitted?

20 A. Well, you know, paragraph 2, we're  
21 implying that those are industrial sources. I  
22 suppose they could be non-industrial,  
23 non-municipal, some miscellaneous-type source, but I  
24 believe the language -- a significant source of

1 phosphorus.

2 Q. Significant being 25 pounds?

3 A. Significant being 25 pounds if you're  
4 non-domestic waste. If you're domestic waste, you  
5 add 25 pounds. So 25 pounds will be the threshold  
6 for everybody.

7 And just to supplement while  
8 you're looking for more questions, part of our logic  
9 by the 1 million gallons per day, that's significant  
10 enough waste -- you're going to have -- you're going  
11 to need fairly sophisticated technology for  
12 phosphorus removal.

13 BY MR. RAO:

14 Q. And regarding the threshold language,  
15 the way we're now -- only expanding facilities would  
16 be -- newer expanding would be subject to the rule,  
17 but, you know, if there's a facility that is not  
18 increasing its design flow but making a wholesale,  
19 you know, greater than a treatment plant?

20 A. Major rehab?

21 Q. Yes. That would be covered by this  
22 rule or --

23 A. Well, it extends to the point that a  
24 significant capital investment is required. It

1 would be compatible with our logic of spend a lot of  
2 money now. Now is the time to do it. If you don't  
3 have significant needs, we don't want you to invest  
4 the money because you won't have the time to do a  
5 better job of analyzing the situation. I don't know  
6 if you're getting any major rebuilding or not, but  
7 we'll take that under advisement, if you want.

8 BY MS. LIU:

9 Q. In the sunset provision under  
10 Subsection (k), it refers to a future time when the  
11 Board might adopt a numeric water quality standard  
12 for phosphorus. There are actually already  
13 numerical water quality standards for phosphorus  
14 under 302.205 and 203.504 for certain water bodies.

15 A. Lake Michigan.

16 Q. Lake Michigan and --

17 A. I don't get it --

18 Q. I was just wondering under Subsection  
19 (k) here it doesn't mention that there are others --  
20 but you just added in the water quality standards  
21 for phosphorus for general use waters?

22 A. Keep in mind that sunset is only for  
23 the provision we're adding. It doesn't cover the  
24 phosphorus requirement for the lake. It's already

1 in place, so...

2 Q. Right. That's what I was mentioning,  
3 maybe we should just add --

4 A. Well, I guess what I'm saying is the  
5 existing phosphorus control requirement for a lake  
6 and the water quality standard for lakes I don't  
7 believe are affected by paragraphs (g), (h), (i),  
8 (j) and (k).

9 Q. While we're on the subject, I was  
10 wondering if you could identify the body, besides  
11 Lake Michigan, that would fall under the criteria of  
12 greater than 20 acres of water, whatever that is?

13 A. Well, Shelbyville -- well, there's  
14 hundreds of lakes.

15 Q. Maybe this is a historical question,  
16 but I was wondering if you could explain the  
17 different water quality standards for reservoirs  
18 and for Lake Michigan with more than 5 milligrams  
19 per liter and Lake Michigan is 7 micrograms per  
20 liter?

21 BY MR. MOSHER:

22 A. Yeah, I think I can answer that one.

23 Lake Michigan standards were  
24 adopted long ago at the background level, and the

1 intent was let's not make it any worse. And that's  
2 how we got that seven microgram value for Lake  
3 Michigan. And other standards are similar. You'll  
4 see like the chloride and sulfate and some others.  
5 They're set really low. And that's just under what  
6 the lake was and is for those substances.

7                   The .05 milligram per liter  
8 phosphorus for down state lakes greater than 20,  
9 that was a stab many years ago at what a protective  
10 value would be. In other words, if we keep  
11 phosphorus at or below that level, then we probably  
12 won't have algae booms and other noxious conditions  
13 from algae plants.

14           Q.       Mr. Mosher mentioned the power plant  
15 industry perhaps being involved in this. I was  
16 wondering if you had an industry contact that we  
17 might include on our notice so that we're aware of  
18 this?

19           A.       Alec Messina,  
20                   MS. LIU: Thank you.

21                   HEARING OFFICER KNITTLE: Are there  
22 any questions from anybody else out in the  
23 greater audience?

24                   Seeing none, let's go off the

1 record a second.

2 (Whereupon, a discussion was had  
3 off the record.)

4 HEARING OFFICER KNITTLE: We are back  
5 on the record after a short recess. After  
6 talking to the court reporter, we found out  
7 that the transcript will be ready on  
8 September 10th. We're going to have a status  
9 conference on September 9th at 9:30 a.m. to  
10 discuss the time for the second hearing and  
11 we'll pick a date and time thereafter.

12 I did get a question from somebody  
13 out in the audience earlier about the notice  
14 and service list of who's on there. I don't  
15 have a printed copy of that right now, but I  
16 would note that on the Board's website, you  
17 can access the notice and service list and  
18 check for yourselves.

19 If you have any trouble, give me a  
20 call. I'd be happy to talk with you any  
21 time. My number is (217) 278-3111. That's  
22 all I have.

23 Mr. Johnson, anything further?

24 MR. JOHNSON: Nothing.



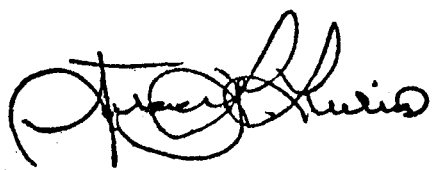
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HEARING OFFICER KNITTLE: Thank you  
all very much for your time.

(Which were all the proceedings  
had in the above-entitled cause  
on this date.)

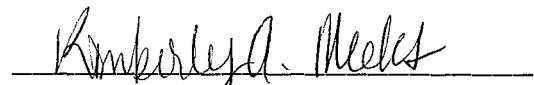
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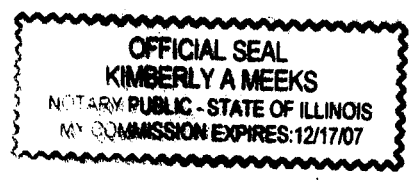
4 I, STACY L. LULIAS, CSR, do hereby  
5 state that I am a court reporter doing business in  
6 the City of Chicago, County of DuPage, and State of  
7 Illinois; that I reported by means of machine  
8 shorthand the proceedings held in the foregoing  
9 cause, and that the foregoing is a true and correct  
10 transcript of my shorthand notes so taken as  
11 aforesaid.

12   
13  
14

\_\_\_\_\_  
15 Stacy L. Lulias, CSR  
Notary Public,  
16 DuPage County, Illinois

17 SUBSCRIBED AND SWORN TO  
18 before me this 17<sup>th</sup> day  
19 of September, A.D., 2004.

20   
Notary Public



A				
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