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ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

WATER QUALITY AMENDMENTS TO)  
35 Ill. Adm. Code 302.208 )  
(e)-(g), 302.504(a), )  
302.575(d), 303.444 ) R02-11  
309.141(h); and PROPOSED ) (Rulemaking-Water)  
35 Ill. Adm. Code 301.267, )  
301.313, 301.413, 304.120, )  
and 309.157 )

The following hearing was held before  
HEARING OFFICER MARIE TIPSORD, taken before  
Francine Buonavolanto, CSR, a notary public  
within and for the County of Cook and State of  
Illinois, at 100 West Randolph Drive, Suite  
9-040, Chicago, Illinois, on the 29th day of  
January 2002, A.D., scheduled to commence at  
the hour of 9:30 a.m.

1           A P P E A R A N C E S:

2           ILLINOIS POLLUTION CONTROL BOARD,  
3           100 West Randolph Street  
4           Suite 9-040  
5           Chicago, Illinois 60601  
6           (312) 814-8917  
7           BY: MS. MARIE TIPSORD, HEARING OFFICER

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1                   HEARING OFFICER TIPSORD: Good  
2 morning, my name is Marie Tipsord and I've been  
3 appointed by the Board to serve as a hearing  
4 officer in this proceeding entitled, In the  
5 Matter of Water Quality Triennial Review  
6 Amendments 235 Illinois Administrative Code  
7 302.208, 302.504, 302.575, 303.444, 309.141(h)  
8 and proposed 35 Illinois Administrative Code  
9 301.267, 301.313, 301.413, 304.120 and 309.157.  
10 This is Docket No. R02-11.

11                   To my right is Dr. Tanner Girard,  
12 he's the leading Board member assigned to the  
13 matter.

14                   Also present to my far right is Board  
15 member Michael Tristano, who is also assigned  
16 to this rule. Dr. Ronald Flemal will be  
17 joining us soon and he too is a board member  
18 assigned to the rule.

19                   To my immediate left is Anand Rao and  
20 to his left Alisa Liu. They are from our  
21 Technical Unit.

22                   Also in the audience is Cathy Glenn,  
23 she is Ronald Flemal's assistant.

24                   The purpose of today's hearing is to

1 hear pre-filed testimony of the Illinois  
2 Environmental Protection Agency and to allow  
3 questions to be asked of the Agency.

4 There are three persons who will be  
5 testifying on behalf of the Agency. As the  
6 pre-filed testimony is not lengthy, we will  
7 have the testimony read into the record.

8 We will allow all of the Agency  
9 witnesses to testify before questions are  
10 asked. Anyone may ask a question, however, I  
11 do ask that you raise your hand and wait for me  
12 to acknowledge you.

13 After I have acknowledged you,  
14 please, state your name and who you represent  
15 before you begin your questions.

16 Please speak one at a time. If you  
17 are speaking over each other, the court  
18 reporter will not be able to get your questions  
19 on the record.

20 Please note that any questions asked  
21 by a Board member or staff are intended to help  
22 build a complete record for the Board's  
23 decision and not to express any preconceived  
24 notions or bias.

1           As no other pre-filed testimony was  
2           received, we will allow anyone else who wishes  
3           to testify the opportunity to do so as time  
4           allows.

5           I have placed a list at the side of  
6           the room for persons who wish to testify today  
7           to sign up. At the back of the room, there are  
8           also sign-up sheets included on the notice and  
9           service list as well as copies of the current  
10          notice and service list.

11          If you wish to be on the service  
12          list, you will receive all pleadings and  
13          pre-filed testimony in this proceeding.

14          In addition, you must serve all of  
15          your files of the persons on the service list.  
16          If you wish to be on the notice list, you will  
17          receive all Board orders in the rulemaking.

18          If you have any questions about which  
19          list you wish to be placed on, please, see me  
20          at a break. Are there any questions about the  
21          procedures we are going to follow-up on today?  
22          I see none at this time I would ask Dr. Girard  
23          if he wishes to say anything.

24          DR. GIRARD: Yes, I would. Good

1 morning everyone. I would like to on behalf of  
2 the Board welcome everyone to the hearing this  
3 morning. We particularly welcome members of  
4 the public, who are contributing their time and  
5 energy to this effort to better protect human  
6 health and the environment of Illinois. We  
7 look forward to the Agency's testimony today  
8 and questions from other participants. Thank  
9 you.

10 HEARING OFFICER TIPSORD: Thank you,  
11 Dr. Girard. At this time, we will proceed  
12 with opening statements and we'll start with  
13 the Agency.

14 MR. SOFAT: Good morning, I am Sonjay  
15 Sofat and I'm an assistant counsel with the  
16 Illinois Environmental Protection Agency. I  
17 work with the Bureau of Water.

18 With me today are three agency  
19 witnesses; to my right is Robert Mosher, who is  
20 the manager of the Water Quality Standards  
21 Unit/Section within the Division of Water  
22 Pollution Control at the Illinois Environmental  
23 Protection Agency.

24 Mr. Mosher will testify regarding the

1 concepts presented in the Agency's proposal  
2 before the Board.

3 To my immediate left is Clark Olsen,  
4 who is a toxicologist in the Water Quality  
5 Standards Unit/Section of the Division of Water  
6 Pollution Control.

7 Mr. Olsen will testify regarding the  
8 process used by the Agency to develop the  
9 proposal.

10 To Mr. Clark's left is Alan Keller,  
11 who is a supervisor of the Northern Municipal  
12 Unit of the Permit Section of Division of Water  
13 Pollution Control.

14 Mr. Keller will testify regarding the  
15 BOD/CBOD part of the proposal.

16 The agency has made last-minute  
17 changes its BOD/CBOD part of the proposal.  
18 Those changes are contained in the Agency's  
19 Errata Sheet marked as Agency Exhibit 1.

20 I move that the Agency's Exhibit 1 be  
21 admitted into the record if there are no  
22 objections.

23 HEARING OFFICER TIPSORD: Are there

24 any objections to the errata sheet being

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1 admitted? Seeing none, I will mark it as  
2 Exhibit 1.

3 MR. SOFAT: Thank you. The Agency  
4 has brought along some documents that we filed  
5 with the Board. They are available on that  
6 table next to the wall. Also, there is a  
7 sign-up sheet.

8 In case we run out of the documents  
9 that we brought along, if you'll just sign your  
10 name and address we can send those to you.

11 We are here today to testify in  
12 support of our proposal that amends Parts 302,  
13 303, and 309 of the Board regulations and  
14 proposes Parts 301, 304 and 309.

15 A significant portion of this  
16 proposal is a result of the Agency's attempt to  
17 review and refine the numeric water quality  
18 standards based on the best available current  
19 knowledge. This proposal also contains  
20 corrections to certain existing Board  
21 regulations.

22 We believe this proposal is  
23 consistent with Title VII requirements of the



24 Illinois Environmental Protection Act. We

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1 think this is a good proposal and one that  
2 deserves to be adopted without substantial  
3 changes.

4 We would like to thank the  
5 participants who reviewed the Agency draft  
6 proposal and provided their comments.

7 With that, I think we are ready to  
8 present our proposal. I think we are ready to  
9 swear in the witnesses.

10 HEARING OFFICER TIPSORD: Before you  
11 do that, is there anyone else who would like to  
12 make an opening statement at this time?

13 I'm Albert Ettinger, I work for the  
14 Environmental Law & Policy Center. With me is  
15 Cindy Scrubadude(phonetic) who is working with  
16 the Sierra Club on this matter. I also  
17 represent the Sierra Club. I just want to say  
18 we have some questions. We're not going to be  
19 objecting. The fact that I ask a question  
20 about something doesn't mean that I have a  
21 major problem with it, but I'm here to find out  
22 what the effect of the proposal is.

23 HEARING OFFICER TIPSORD: Thank you,  
24 Mr. Ettinger. Then let's have your witnesses

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1 sworn and we'll proceed.

2 (Whereupon, the witnesses  
3 were duly sworn.)

4 MR. SOFAT: I think at this time, I  
5 would like to start with Robert Mosher.

6 ROBERT MOSHER,  
7 called as a witness herein, having been first  
8 duly sworn, was examined and testified as  
9 follows:

10 EXAMINATION

11 BY MR. SOFAT:

12 Q. Mr. Mosher, I'm going to hand you  
13 this document. Please look over that for a few  
14 minutes while I hand out the copies.

15 Mr. Mosher, do you recognize this  
16 document that I have handed to you?

17 A. Yes, I do.

18 Q. Would you please tell us what this  
19 document is?

20 A. It's my pre-filed testimony on this  
21 matter.

22 Q. Is that a true and accurate copy of

23 your testimony that has been submitted to the  
24 Board?

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1 A. I believe it is.

2 Q. Could you present your testimony to  
3 the Board today?

4 A. Okay. My name is Robert Mosher and  
5 I'm the manager of the Water Equality Standards  
6 Section within the Division of Water Pollution  
7 Control at the Illinois Environmental  
8 Protection Agency.

9 I've been with the Illinois EPA in  
10 excess of 16 years. Almost all that time has  
11 been spent in my current capacity where my  
12 primary responsibility is the development and  
13 implementation of water quality standards.

14 I have a Master's Degree in Zoology  
15 from Eastern Illinois University where I  
16 specialized in stream ecology.

17 My testimony will cover three topics.  
18 First, I will discuss the background  
19 information concerning the development of the  
20 instant proposal before the Illinois Pollution  
21 Control Board.

22                   Second, I will provide a brief  
23                   discussion on the concepts contained in various  
24                   sections of the Illinois EPA's proposal.

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1                   Third, I will discuss the Illinois  
2                   EPA's plans for successful implementation of  
3                   this proposal.

4                   The Federal Water Pollution Control  
5                   Act Amendments of 1972, 33 USC Code Sections  
6                   1251 through 1387, is commonly known as the  
7                   Clean Water Act.

8                   Pursuant to the Clean Water Act  
9                   states are required to revise and update their  
10                  water quality standards to ensure that they are  
11                  protective of public health and welfare,  
12                  enhance the quality of water and promote the  
13                  purposes of the CWA, 33 U.S.C. 1313(c)(2)(A) is  
14                  the reference.

15                  The process of reviewing the state's  
16                  standards is called the triennial water quality  
17                  standards review. The changes to the water  
18                  quality and effluent standards in the instant  
19                  proposal are one element of Illinois EPA's  
20                  current triennial review of water quality  
21                  standards.

22                   In September 2000, the Agency shared  
23                   a packet of information concerning this  
24                   rulemaking with a number of stakeholders

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1                   involved in water quality standards affairs.

2                   These entities included municipal and  
3                   industrial dischargers, environmentalists and  
4                   other governmental agencies. A few helpful  
5                   comments were received and were employed to  
6                   clarify the intent of this proposal.

7                   There were no adverse comments, and  
8                   generally speaking, the changes to the Board  
9                   regulations that encompass this proposal should  
10                  not be controversial since they represent the  
11                  current state-of-the-art in water quality  
12                  standards.

13                  The GLI rulemaking(R97-25) introduced  
14                  Illinois stakeholders to several of the  
15                  concepts leading to the new and revised  
16                  standards for the General Use waters proposed  
17                  here.

18                  The instant rulemaking is the result  
19                  of careful consideration regarding the  
20                  appropriateness of selected aspects of the GLI

21 for General Use waters of the state.

22 This proposal is divided into five  
23 parts. Part I proposes adoption of new aquatic  
24 life acute and chronic water quality standards

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1 for benzene, ethylbenzene, toluene, and  
2 xylene(s) (BETX) for both General Use waters  
3 and the Lake Michigan Basin.

4 Part II contains revised acute and  
5 chronic water quality standards for Zinc,  
6 Nickel, and weak acid dissociable cyanide.

7 Part III proposes that most General  
8 Use metals water quality standards be specified  
9 in terms of dissolved concentration rather than  
10 the total concentration used in the existing  
11 standards.

12 Part IV contains corrections to the  
13 GLI regulations at 35 Illinois Administrative  
14 Code 302.504(a), 302.575(d), and 309.141.

15 Part V proposes to update the Board  
16 regulations at 304.120 to reflect that the  
17 carbonaceous component of BOD5 be regulated in  
18 treated domestic waste effluents.

19 I will cover the first four Parts of  
20 the Illinois EPA's proposal and Al Keller,

21 manager of the Agency's Northern Municipal  
22 Permit Unit will testify to Part V of the  
23 proposal.

24 Part I: We intend for all the newly

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1 derived standards to either replace existing  
2 General Use Standards or to be added as newly  
3 listed substances under 35 Illinois  
4 Administrative Code 302.208(e) and (f).

5 Each substance addressed has both an  
6 acute and a chronic value proposed. The  
7 regulatory constructs in 302.208(a) through (d)  
8 will apply to newly added or revised standards.

9 Several new STORET numbers are  
10 necessary because many metals standards are now  
11 proposed to be in the dissolved rather than the  
12 total form.

13 Standards to protect aquatic life for  
14 BETX substances will also be inserted in the  
15 Lake Michigan Basin water quality standards  
16 where none now exist.

17 For the Lake Michigan basin these  
18 standards will be based on sensitive species  
19 from both cold and warm water.

20                    Additionally, benzene will have a  
21                    General Use human health standard inserted at  
22                    302.208(f) identical to the Lake Michigan Basin  
23                    human health standards that already exists.

24                    Part II: A goal of the triennial

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1                    review of standards that led to this proposed  
2                    rulemaking before the Board was to update  
3                    General Use water quality standards for toxic  
4                    metals found at 35 Illinois Administrative Code  
5                    302.208(g).

6                    These metals have quote, one number  
7                    unquote, standards adopted in the 1970s as  
8                    opposed to quote two number, unquote, acute and  
9                    chronic standards that have been the preferred  
10                    method of adopting standards for the last 15  
11                    years or so.

12                    Nickel and Zinc fall into this  
13                    category. Selenium and silver are also  
14                    considered to be significantly toxic metals and  
15                    still exist as one number standards in  
16                    302.208(g).

17                    New standards for selenium and silver  
18                    are not proposed at this time because debate is  
19                    still ongoing about just how standards for



20 these metals should be derived.

21 USEPA is pursuing these issues and  
22 when a consensus is reached at the national  
23 level, Illinois EPA will propose updated  
24 standards for these metals.

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1 National consensus had not been  
2 achieved at the time the Agency filed its  
3 petition with the Illinois Pollution Control  
4 Board.

5 Part III: The national consensus  
6 indicates that the dissolved form of metals is  
7 the toxic component to aquatic organisms.

8 It is widely believed that filterable  
9 metals are likely to be complexed with other  
10 water constituents and will have little toxic  
11 influence.

12 For this reason, GLI water quality  
13 standards for metals were adopted in dissolved  
14 form and the Agency's petition in this matter  
15 lists metals water quality standards as  
16 dissolved metal.

17 Since most researchers reported total  
18 metals when relating the concentrations that

19 organisms were exposed to in toxicity tests,  
20 USEPA did some experimentation to determine the  
21 percentage of these reported concentrations  
22 that was actually dissolved metal.

23 The result of this endeavor was a  
24 table of metals conversion factors. These were

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1 published by USEPA under the GLI.

2 For example, if the final acute value  
3 for a given metal in the total form is 2.0 mg/L  
4 and the conversion factor is 0.8, as determined  
5 from measuring total vs. dissolved metal under  
6 the conditions of laboratory toxicity tests,  
7 then the dissolved metal final acute value is  
8 1.6 mg/L.

9 The proposed water quality standards  
10 have been converted to dissolved metal  
11 concentrations through the use of the stated  
12 conversion factor.

13 The BETX substances have no such  
14 toxicity relationship between dissolved and  
15 suspended components. The total form is  
16 presently considered to be that which should be  
17 regulated. Our proposal designates total BETX  
18 substances as the water quality standards.

19 Federal regulations at 40 Code of  
20 Federal Regulations 122.45 require that NPDES  
21 permit limits for metals be established as  
22 total measurable metal.

23 When water quality based effluent  
24 limits are required in a permit, this would

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1 mean converting the dissolved metal water  
2 quality standard value into a total metal  
3 value.

4 A translator factor is used for this  
5 purpose and in the absence of site-specific  
6 data concerning the ratio of total to dissolve  
7 metal, consists simply of the reciprocal of the  
8 conversion factor. This means that if a mixing  
9 zone is not involved in a Water Quality Based  
10 Effluent Limit, the total metal limit would be  
11 what the water quality standard would have been  
12 in the, quote, total metal, unquote, form.

13 That is, the differential between  
14 total and dissolved metals in the toxicity  
15 tests would not be factored out.

16 We have included a site-specific  
17 metals translator provision in the proposed

18 Illinois Pollution Control Board regulations.

19 This would allow dischargers to  
20 measure the ratio of dissolved to total metal  
21 in their effluent and thereby apply to the  
22 Agency for establishment of total metal Water  
23 Quality Based Effluent Limits based on this  
24 effluent specific relationship.

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1 Effluents will therefore essentially  
2 be regulated on their potential to discharge  
3 dissolved metals at levels consistent with the  
4 water quality standards yet within the bounds  
5 of the total metals effluent standards at  
6 35 Illinois Administrative Code Part 304.

7 At this time recalculated standards  
8 are not being proposed for six metals, arsenic,  
9 cadmium, copper, lead, mercury and trivalent  
10 chromium, found at 35 Illinois Administrative  
11 Code 302.208(e).

12 Lead and mercury standards were  
13 updated in 1996. There had been no indication  
14 that the arsenic copper and trivalent chromium  
15 standard are in need of revision and cadmium is  
16 currently under federal review.

17 However, it is appropriate to convert

18 these standards to the dissolved form to  
19 conform to USEPA guidance. This simply  
20 involves the application of the correct  
21 conversion factor.

22 The other substances in 302.208(e)  
23 are not amenable to regulation in the dissolved  
24 form. TRC(total residual chlorine) is by

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1 nature an inclusive parameter. Hexavalent  
2 chromium standards were adopted as total metal  
3 in the Board's GLI rulemaking. It may be best  
4 to continue to regulate this substance in the  
5 total metal form.

6 Part IV: Additionally, we propose  
7 several corrections to recently adopted Board  
8 regulations. The GLI rulemaking intended to  
9 list metals standards in the dissolved form.

10 The conversion factors that  
11 accomplish this were inadvertently left out,  
12 however. We now correct this mistake by  
13 inserting the proper conversion factors into 35  
14 Illinois Administrative Code 302.504(a).

15 Section 302.575 was missing several  
16 pieces of essential information that we also

17 now correct. 35 Illinois Administrative Code  
18 303.444 is a site-specific regulation that is  
19 no longer pertinent given the changes to the  
20 General Use cyanide standards and therefore we  
21 propose that the Board delete this regulation.

22 We are also proposing to replace  
23 language at 35 Illinois Administrative Code  
24 309.141(h)(3) with a more accurate instruction

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1 for implementing the metals translator in NPDES  
2 permits.

3 The proposed changes to the standards  
4 give rise to several issues regarding the  
5 implementation of water quality standards in  
6 NPDES permits and in other Agency programs.

7 The Illinois EPA intends to provide  
8 the Board a draft Agency rule for implementing  
9 water quality based effluent limits at hearing  
10 under R02-11.

11 This rule will later pass through the  
12 Joint Committee for Administrative Rules  
13 approval process before or becoming finalized.

14 The Agency rule will allow the Board  
15 and stakeholders to envision how the new Board  
16 water quality standards will be implemented in

17 the day-to-day activities of the Agency.

18 This concludes my pre-filed  
19 testimony. I will be supplementing this  
20 testimony as needed during the hearing. I  
21 would be happy to address any questions.

22

23 CLARK OLSEN,  
24 called as a witness herein, having been first

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1 duly sworn, was examined and testified as  
2 follows:Do you recognize this document?

3 EXAMINATION

4 BY MR. SOFAT:

5 Q. Mr. Clark, I'm going to --

6 HEARING OFFICER: I think it's

7 Mr. Olsen. His first name is Clark.

8 MR. SOFAT: I'm sorry. Mr. Olsen,  
9 I'm going to hand you this document. Would you  
10 please look at it for a few moments.

11 Mr. Olsen, do you recognize this document?

12 A. Yes, I do.

13 Q. Would you please tell us what this  
14 document is?

15 A. This is my pre-filed testimony with

16 respect to the matter at hand.

17 Q. Is this a true and accurate copy of  
18 your testimony that was pre-filed with the  
19 Board?

20 A. Yes, it is.

21 Q. Would you please present your  
22 testimony today?

23 A. My name is Clark Olsen and I've been  
24 employed by the Illinois Environmental

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1 Protection Agency for over 20 years.

2 I work in the Water Quality Standards  
3 Unit of the Division of Water Pollution Control  
4 as a toxicologist.

5 I have been involved with water  
6 quality standards issues throughout my career  
7 with the Agency and have participated in  
8 several previous rulemakings of this type.

9 I have a PhD in Biology from the  
10 University of Miami, Florida and have done  
11 postdoctoral research in toxicology at North  
12 Carolina State University.

13 My testimony will discuss the  
14 development process of the instant proposal  
15 before the Illinois Pollution Control Board.



16

THE DEVELOPMENT PROCESS

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Early in the year 2000, I began to gather toxicity data for the instant proposal. I developed numeric values suitable for water quality standards for several substances using USEPA sanctioned methods.

New aquatic life acute and chronic standards were derived for benzene, ethylbenzene, toluene and xylenes. These are

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called the BETX substances, BETX. For both General Use and Lake Michigan Basin waters and human health standards were developed for General Use Waters.

New General Use aquatic life acute and chronic standards were derived for Zinc, Nickel and weak acid dissociable cyanide.

There are presently single number standards for Zinc and Nickel for General Use waters and current practice recommends acute and chronic numbers.

In general, I followed the procedure laid down by USEPA in the Guidelines for Deriving Numerical National Water Quality

15 Criteria for the Protection of Aquatic  
16 Organisms and Their Uses, parenthesis (the  
17 Guidelines) end of parenthesis, 1985  
18 parenthesis again(NTIS PB85-227049) end of  
19 parenthesis, which have been followed in  
20 standards' development by the USEPA and by  
21 other states.

22 These guidelines have also been used  
23 as a basis of the procedures in 35 Illinois  
24 Administrative Code Part 302 Subpart E and

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1 Subpart F for deriving water quality criteria.

2 In the full USEPA method, often  
3 referred to as Tier I, the minimum database  
4 consists of toxicity data for representatives  
5 of 8 parenthesis (reduced to 5 in Subpart F)  
6 end of parenthesis, different groups of  
7 animals.

8 A statistical procedure then finds  
9 the 5th percentile of the distribution of the  
10 data. That is, 95% of the organisms are  
11 considered less sensitive than the one at the  
12 5th percentile level.

13 For the acute criterion, this number  
14 is divided by 2 and in the chronic criterion it

15 is used as is.

16 However, the chronic criterion is  
17 often derived by using an acute to chronic  
18 ratio, parenthesis (ACR) end of parenthesis,  
19 obtained from data for several species when  
20 adequate chronic tests are not available for  
21 all the specified groups of organisms.

22 In the proposed standards presented  
23 here, the quality of the databases available  
24 does not always allow use of the Tier I

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1 procedure for all substances and so a default  
2 (Tier II) procedure is used.

3 The Guidelines process involves  
4 several steps. First, data for each substance  
5 was obtained from the USEPA AQUIRE, that's  
6 spelled A-q-u-i-r-e, database and any other  
7 sources that were found coincidentally.

8 USEPA Ambient Water Quality Criterion  
9 documents and Great Lakes Water Quality  
10 Standards Initiative documents were also  
11 consulted for all substances.

12 Second, the data was tabulated as  
13 directed by the Guideline.

14                   Third, much of the original  
15                   literature, mostly journal articles, where the  
16                   original data was presented was obtained from  
17                   our library or other libraries so that the data  
18                   could be verified.

19                   This was especially necessary for the  
20                   data for the most sensitive species since this  
21                   data is most important in determining the  
22                   actual level of the criterion.

23                   Fourth, statistical calculations were  
24                   made by use of a spreadsheet according to the

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1                   equations in the Guidelines.

2                   Finally, documents were prepared for  
3                   each of the substances and are part of the  
4                   package submitted.

5                   With the exception of the BETX  
6                   parameters, the standards for the substances in  
7                   this rulemaking are to apply only to General  
8                   Use waters.

9                   Therefore, I used data from only  
10                  warm-water organisms in the derivations for  
11                  Zinc, Nickel and cyanide standards.

12                  Trout, salmon and other cold-water  
13                  species were included in the development of the

14 BETX standards for the Lake Michigan Basin, but  
15 not for General Use waters because these  
16 species do not occur in Illinois waters outside  
17 of Lake Michigan.

18 Additionally, only species with  
19 reproducing wild populations in the Midwest  
20 were utilized in the derivations.

21 Metals that have toxicity influenced  
22 by water hardness have standards expressed as  
23 an equation containing a factor for the slope  
24 hardness relationship.

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1 Slope values for Nickel and Zinc in  
2 our proposed standards are the same values as  
3 found in the most recent national criteria  
4 documents for GLI standards.

5 Given that all these substances had a  
6 large database of toxicity test results when  
7 the national criteria were published, the  
8 additional tests I found should have very  
9 little impact on the slope value and we  
10 therefore saw no need to change them.

11 Of all the substances considered in  
12 this rulemaking, only benzene is believed to

13 have significant human health  
14 effects-cancer-such that a separate human  
15 health standard is necessary since such  
16 standards are lower than those necessary to  
17 protect aquatic life.

18 I reported human health criteria for  
19 the other BETX substances under the individual  
20 summaries for the purpose of demonstrating that  
21 these values are much higher than the standards  
22 protective for aquatic life.

23 The metals likewise are not harmful  
24 to humans at the concentrations regulated for

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1 aquatic life. The Human health standard for  
2 benzene is the same as the Lake Michigan  
3 standard in 302.504(a).

4 There are currently acute and chronic  
5 General Use standards under the weak acid  
6 dissociable cyanide form.

7 The reason they are being readdressed  
8 stems from the fact that they were taken  
9 directly from USEPA national criteria document,  
10 which means that cold-water species such as  
11 trout and salmon were used in the criteria  
12 derivation.

13                    Since General Use waters are  
14                    virtually all warm water habitats, these  
15                    standards have come under scrutiny.

16                    The Metropolitan Water Reclamation  
17                    District of Greater Chicago obtained  
18                    site-specific relief from the Illinois  
19                    Pollution Control Board several years ago for  
20                    weak acid dissociable cyanide based on the  
21                    premise that warm water species were not as  
22                    sensitive. The site-specific standards they  
23                    obtained are very similar to the values we  
24                    propose.

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1                    The R88-21 rulemaking (Toxics)  
2                    recognized that total cyanide was not  
3                    representative of the toxic component of this  
4                    substance. Total cyanide laboratory analysis  
5                    measures complexed forms of cyanide, such as  
6                    some of the iron-cyanide compounds that are  
7                    known to be nontoxic.

8                    Free cyanide is a rough equivalent of  
9                    dissolved metals, but unfortunately free  
10                    cyanide is difficult to measure and other  
11                    weakly bound forms of cyanide not measurable as

12 free cyanide are probably also toxic.

13 A few analytical methods measure  
14 forms of cyanide that are not all inclusive as  
15 is total cyanide. One of these, weak acid  
16 dissociable cyanide was chosen as the best  
17 available alternative.

18 A primary reason for revising the  
19 cyanide standard is because the original R88-21  
20 two number cyanide standard was derived using  
21 cold-water species.

22 New data from native warm water  
23 species is considered in this update because no  
24 search for new data has been conducted to our

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1 knowledge since the early 1980s. We are  
2 retaining weak acid dissociable cyanide as the  
3 best available form to regulate.

4 This concludes my pre-filed  
5 testimony. I will be supplementing this  
6 testimony as needed during the hearing. I  
7 would be happy to address any questions at that  
8 time.

9 MR. SOFAT: Thank you, Mr. Olsen.

10 HEARING OFFICER TIPSORD: Excuse me,  
11 before we proceed, I just want to note for the



12 record that the Guidelines mentioned and the  
13 information from the USEPA that you discussed  
14 in your testimony, Mr. Olsen, was all apart of  
15 the original proposal filed with the Board and  
16 the exhibits; is that correct?

17 MR. OLSEN. Yes.

18

19

20

21 ALAN KELLER,

22 called as a witness herein, having been first

23 duly sworn, was examined and testified as

24 follows:

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1 EXAMINATION

2 Q. Mr. Keller, I'm going to hand you  
3 this document and ask you to review it for a  
4 few moments.

5 Mr. Keller, do you recognize this  
6 document that I just handed to you?

7 A. Yes, I do.

8 Q. Would you please tell us what this  
9 is?

10 A. This is my pre-filed testimony

11 concerning the BOD/CBOD issue.

12 Q. Is that a true and accurate copy of  
13 the document that was filed with the Board?

14 A. Yes, it is.

15 Q. Would you please present your  
16 testimony today?

17 A. Yes. My name is Alan Keller and I'm  
18 supervisor of the Northern Municipal Unit of  
19 the Permit Section of the Division of Water  
20 Pollution Control.

21 I have worked for the Agency since  
22 June 1972. I have worked in the Permit Section  
23 my entire career with the Agency and have been  
24 responsible at one time or another with all the

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1 permit programs.

2 In my present capacity, I manage a  
3 unit, which reviews construction permits and  
4 NPDES permits for municipal and semi-public  
5 facilities and also perform other duties  
6 associated with municipalities.

7 I also serve on two design criteria  
8 groups, which establish the specific design  
9 criteria for sewers, lift stations and  
10 treatment plants for municipal facilities.

11                   One group is the Agency Division of  
12                   Water Pollution Control Design Criteria  
13                   Committee and the other group is the Wastewater  
14                   Design Criteria Committee for the Great  
15                   Lakes-Upper Mississippi River Board of State  
16                   and Provincial Public Health and Environmental  
17                   Managers.

18                   I have a Bachelor of Science Degree  
19                   in Civil Engineering from the University of  
20                   Illinois concentrating in Environmental  
21                   Engineering and I am a Registered Professional  
22                   Engineer in Illinois.

23                   My testimony will discuss the  
24                   reasoning behind the development of the CBOD5

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1                   test.

2                   THE REASONING BEHIND CBOD5 TEST

3                   The Agency has interpreted the intent  
4                   of 35 Illinois Administrative Code 304.120 with  
5                   respect to compliance with the respective 5-day  
6                   biochemical oxygen demand (BOD5) effluent  
7                   requirements to be the 5-day carbonaceous  
8                   biochemical oxygen demand (CBOD5).

9                   35 Illinois Administrative Code

10 309.141 allows the Agency to establish the  
11 terms and conditions of each NPDES permit and  
12 directs the Agency to ensure compliance with  
13 the effluent limitations under Sections 301 and  
14 302 of the Clean Water Act.

15 40 Code of Federal Regulations 133  
16 provides for the use of CBOD5 for determining  
17 compliance with the definition of secondary  
18 treatment requirement.

19 This regulation was revised in the  
20 September 20, 1984 Federal Register to allow  
21 for the use of CBOD5.

22 The Agency has implemented the use of  
23 CBOD5 in lieu of BOD5 in NPDES permits since  
24 1986 and also incorporates ammonia nitrogen

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1 water quality based effluent limits where  
2 appropriate.

3 At treatment facilities where  
4 complete nitrification occurs and treatment  
5 facilities where no nitrification occurs, the  
6 CBOD5 would not be substantially less.

7 The use of the BOD5 test on raw  
8 sewage or influent only measures the  
9 carbonaceous demand in the sample because

10 insufficient nitrifying bacteria would be  
11 present during the 5-day test period.

12 It normally takes about ten days for  
13 a sufficient number of nitrifying bacteria to  
14 develop to have a measurable effect on the BOD5  
15 test. (See Attachment 1 as part of my  
16 pre-filed document).

17 However, in a treatment process where  
18 partial nitrification occurs, large numbers of  
19 nitrifying bacteria are present and  
20 nitrification can occur during the effluent  
21 BOD5 test.

22 The BOD5 test is designed to measure  
23 the carbonaceous demand in a sample and to  
24 measure the efficiency of a treatment process

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1 by comparing the carbonaceous demand before and  
2 after the treatment process.

3 In treatment processes that do not  
4 nitrify or completely nitrify the use of the  
5 BOD5 test on both the influent and effluent  
6 will provide satisfactory results.

7 However, in treatment processes that  
8 partially nitrify the use of the BOD5 test on

9 both the influent and effluent will compare the  
10 carbonaceous demand in the influent with the  
11 carbonaceous and nitrogenous demand in the  
12 effluent.

13 Such a procedure would provide no  
14 useful information on the carbonaceous removal  
15 efficiency in a treatment process.

16 An accurate determination of the  
17 removal efficiency of a treatment process in  
18 which partial nitrification occurs would  
19 require the carbonaceous demand of the influent  
20 to be measured by the BOD5 test and the  
21 carbonaceous demand of the effluent to be  
22 measured by the CBOD5 test, which suppresses  
23 the nitrogenous demand.

24 Requiring the BOD5 test on the

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1 influent and the CBOD5 test on the effluent of  
2 all facilities would allow a uniform policy on  
3 carbonaceous removal throughout the state.

4 The effluent from a treatment plant  
5 consists of many components, the Agency  
6 believes that the quality of the effluent can  
7 best be assessed and controlled when each of  
8 the components are analyzed and controlled

9 individually.

10 The characteristics of the effluent  
11 can best be assessed when the CBOD5 test is  
12 used to measure the carbonaceous demand and  
13 where ammonia nitrogen effluent standards are  
14 appropriate use the ammonia nitrogen test to  
15 measure the nitrogenous demand.

16 This procedure would be more logical  
17 than trying to measure the combined  
18 carbonaceous and nitrogenous demand with the  
19 BOD5 test, which has been proven to provide  
20 inconsistent and misleading results.

21 In addition, the attached figures  
22 depict the influence of nitrification on the  
23 BOD test Attachment 1 was taken from Metcalf  
24 and Eddy's, Wastewater Engineering: Treatment

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1 Disposal, Reuse Second Edition, Page 90.

2 Attachment 2 was taken from Metcalf  
3 and Eddy's, Third Edition, Page 76. The Third  
4 Edition also states the following: Because the  
5 reproductive rate of the nitrifying bacteria is  
6 slow it normally takes from 6 to 10 days for  
7 them to reach significant numbers and to exert

8 a measurable oxygen demand.

9                   However, if a sufficient number of  
10 nitrifying bacteria are present initially, the  
11 interference caused by nitrification can be  
12 significant.

13                   When nitrification occurs in the BOD  
14 test erroneous interpretations of treatment  
15 operating data are possible.

16                   The Agency regulates the nitrogenous  
17 biochemical oxygen demand of wastewater by  
18 incorporating the ammonia nitrogen water  
19 quality based effluent limits in NPDES Permits  
20 as appropriate under Sections 304.105 and  
21 304.122 of Subtitle C: Water Pollution.

22                   This concludes my pre-filed testimony  
23 I will be supplementing this testimony as  
24 needed during the hearing. I would be happy to

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1 address any questions.

2                   MR. SOFAT: Thank you, Mr. Keller.  
3 This concludes Agency's proposal.

4                   HEARING OFFICER TIPSORD: For the  
5 record, since we read the testimony into the  
6 record, I would like to admit Attachment 1 as  
7 Exhibit No. 2 in the hearing record and



8 Attachment 2 as Exhibit No. 3 in the hearing  
9 record so that they are in the hearing record  
10 and I have copies of those.

11 MR. SOFAT: Okay. Thank you.

12 HEARING OFFICER TIPSORD: Is there  
13 any objections to that? I see none.

14 Attachment 1 of Mr. Keller's testimony will be  
15 admitted as Exhibit No. 2 and Attachment 2 will  
16 be admitted as Exhibit No. 3. If we can go  
17 off the record for just one second?

18 (Discussion held off the record.)

19 HEARING OFFICER TIPSORD: Back on.

20 At this time then are there any  
21 questions for the Agency? And it might be best  
22 if we organize them in such a way that we go in  
23 order of the rule.

24 If you have general questions, we'll

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1 ask general questions. And if we can, just for  
2 ease of the record, if that doesn't work out,  
3 it doesn't, but if we can do that.

4 MR. ETTINGER: If I'm the only one  
5 with questions, we'll save a lot of time here.

6 HEARING OFFICER TIPSORD: Go ahead.

7 We'll start with you.

8 MR. ETTINGER: My name is Albert  
9 Ettinger, E-t-t-i-n-g-e-r, I'll give you a card  
10 later. The first question I had had to do with  
11 this Page 7 of the testimony here.

12 You mentioned the IEPA intends to  
13 provide the Board a draft Agency rule for  
14 implementing water quality based effluent  
15 limits at hearing under R02-11 and here we are,  
16 where is it?

17 MR. MOSHER: It's still under  
18 development and we intend to present that at  
19 the March hearing in Springfield.

20 MR. RAO: I have a brief follow-up to  
21 that question. You also mentioned the proposed  
22 changes to the standard for several issues  
23 regarding the implementation of the proposal  
24 standards, would you please in a briefly

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1 explain or summarize what those implementation  
2 issues are and how you plan to resolve them?

3 MR. MOSHER: Okay. The Board's rules  
4 as they now exist and then with the changes  
5 that we propose have several aspects that the  
6 Agency really needs and some instruction.

7                   And I think the people looking at  
8                   what the Agency does would like to know what  
9                   procedures the Agency uses to turn, in some  
10                  cases, these water quality standards into NPDES  
11                  permit limits.

12                  For example, many of the metals are  
13                  based on the hardness of the ambient water and  
14                  we need to provide an instruction of where  
15                  we're going to get that hardness data and how  
16                  it will be used to plug into the formula in the  
17                  Board's regs and then come up with either a  
18                  permit limit or just interpreting ambient water  
19                  quality data under these standards. So there  
20                  has to be some procedures.

21                  The Agency, for example, will use  
22                  hardness data from the nearest downstream  
23                  available station on the receiving stream for  
24                  the discharge and that kind of sets that matter

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1                  clear that that's where we're going to try to  
2                  get the hardness data.

3                  And then it would provide  
4                  alternatives if you don't have data from that  
5                  ideal spot where else would you get it? How

6 would you either use an average of that data or  
7 some other statistic of that hardness data.  
8 And we go on through the rule and describe what  
9 we're going to do.

10 One of the main parts of this  
11 implementation Agency rule will be how the  
12 Agency will do what is called a reasonable  
13 potential analysis to determine if a certain  
14 substance needs to be regulated in that NPDES  
15 permit.

16 Is there a reasonable potential for  
17 it to exceed the water quality standard. If  
18 so, we have to put limits in that permit for  
19 that substance.

20 And that involves a statistical  
21 procedure. We intend to spell all that out and  
22 it will take many, many pages to do that.

23 One final thing to mention is we will  
24 have an instruction on how the Agency will do

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1 the metals translator now that we will have  
2 dissolved metals water quality standards, but  
3 yet we still have to regulate metals on a total  
4 metal basis.

5 How will we require data to be

6 provided to us so that we will do that properly  
7 and protect the receiving stream for the  
8 dissolved metals water qualify standard?

9 That's going to involve a lot of --  
10 well, some effluent monitoring for dischargers  
11 who want to take advantage of that metals  
12 translator provision.

13 So this is going to be a lengthy  
14 document and we feel that it belongs as Agency  
15 rules. We would like to suggest that the Great  
16 Lakes Initiative Rulemaking came up with a  
17 similar Agency rules document for water quality  
18 based effluent limits.

19 And this document will be for General  
20 Use waters and it will parallel the existing  
21 Agency rule, which is part 352 in the Illinois  
22 Administrative Code.

23 So there will be a parallel system of  
24 how the Agency will do its business.

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1 MR. ETTINGER: I'll get back to  
2 asking questions if I can just make this  
3 comment in pointing out a problem here which is  
4 to the effect of some of these rules.

5                   This raises a concern which is that  
6                   it's hard to understand until we look at your  
7                   implementation rules or the effect of the  
8                   standard changes and will be difficult to  
9                   understand without looking at your  
10                   implementation rules; is that correct?

11                   MR. MOSHER: No. The Board's rules,  
12                   of course, are water quality standards and they  
13                   stand by themselves. Yes, the Agency has to  
14                   use those standards to set permit limits. You  
15                   know, it's a matter of what comes first.

16                   Properly, I think the Board's rules  
17                   come first. We can study those right now,  
18                   answer questions. And at the next hearing,  
19                   we'll give out this draft document for Agency  
20                   rules.

21                   Possibly there will be enough  
22                   interest or questions that we'll have to have a  
23                   meeting between the Agency and interested  
24                   parties to explain that. It's difficult to say

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1                   where the discussions belong. I believe in the  
2                   GLI process, we did a similar thing to what  
3                   we're trying to do here.

4                   MR. ETTINGER: In the GLI process,

5 didn't the Board openly say part of what you  
6 thought should be rules should go in the  
7 Board's standards?

8 MR. MOSHER: I wasn't too active in  
9 that, so I don't know if I can answer that  
10 question.

11 HEARING OFFICER TIPSORD: Before we  
12 proceed, if it would be possible I realize that  
13 you're looking at March 6, but if it would be  
14 possible for those to be ready perhaps before  
15 the hearing and sent to the service list prior  
16 to the hearing so people can have a chance to  
17 look at them?

18 MR. SOFAT: We'll do that. We'll  
19 send them before the hearing date.

20 MR. ETTINGER: Yeah, I think we'll  
21 have to discuss this eventually. I will say I  
22 am a little concerned that we're going to be  
23 presented with what we're told will be a very  
24 complex document and probably won't have much

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1 time before March to look at it. I know we all  
2 enjoy these hearings, but going about it the  
3 way we're going, a third hearing, you know --

4 HEARING OFFICER TIPSORD: I would  
5 just note that we have not yet gone to first  
6 notice with these rules, which means we're  
7 going to have at least one more hearing in any  
8 event because we will have to have it if  
9 nothing else the economic statement hearing so  
10 we will have to have at least one more hearing  
11 in any event.

12 MR. ETTINGER: All right. Looking  
13 now at the BETX rules. I have some sort of --  
14 I'm trying to figure out the practical effect  
15 of these rules. As I understand this overview  
16 of the derivation process when you write a  
17 permit now you're using numbers that have been  
18 derived using one of the formulas in the water  
19 quality standards, Tier I or --

20 MR. OLSEN: Yes, we've been using  
21 BETX numbers for some years now. They  
22 fluctuated around somewhat because of data  
23 interpretation and new data becomes available  
24 and so on.

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1 MR. ETTINGER: I think I have the  
2 second to the last one of these. I would just  
3 like to give people a copy of one of these so



4 that we know the sort of thing we're looking  
5 at. And I guess we'll mark this as an exhibit.  
6 Is that okay?

7 HEARING OFFICER TIPSORD: For the  
8 record, I've been handed an Illinois Register  
9 notice of public information listing derived  
10 water quality criteria and we'll go ahead and  
11 admit this as Exhibit 4 if there's no  
12 objection. I see none. We'll mark this as  
13 Exhibit 4.

14 MR. ETTINGER: We're asking all the  
15 witnesses collectively, is this the sort of  
16 document that's generated now regarding these  
17 standards?

18 MR. OLSEN: You're missing one  
19 parameter in here by the way, you didn't get  
20 the ethylbenzene.

21 MR. ETTINGER: Bottom of Page 2?

22 MR. OLSEN: I think they are out of  
23 order or something. Okay. Here it is.

24 MR. ETTINGER: Is this the last one

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1 or second to the last one?

2 MR. OLSEN: No. They come out

3 quarterly. Anyway, those numbers -- well, as I  
4 said they have fluctuated a bit. I don't think  
5 they changed much though.

6 HEARING OFFICER TIPSORD: Excuse me,  
7 before we proceed, could I ask for the record  
8 if we know what the Register citation for this  
9 is? Do we know what Illinois Register this  
10 appeared in at least by date?

11 MR. ETTINGER: I can't really tell  
12 you. This was actually faxed to us by the  
13 Agency some time ago. The date it was faxed to  
14 us was November 22, 2000, so I assume it was  
15 public before then but I don't know how much  
16 before it was learned.

17 MR. OLSEN: Excuse me, Madam Hearing  
18 Officer, we often will fax out my copy. And we  
19 eventually will maybe get a copy from the  
20 Illinois Register with the actual date of  
21 publication, but we usually will send  
22 interested parties something, you know, just  
23 what we've done ourselves. So do you want us  
24 to find out what the actual publication date

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1 for this one was?

2 HEARING OFFICER TIPSORD: If we could

3 that would be helpful because then we can look  
4 at an original rather than the copies.  
5 Sometimes they are not clear and as you pointed  
6 out, Mr. Olsen, they may be out of order too.  
7 That would be helpful. And that will be fine  
8 to let us know in March.

9 MR. ETTINGER: What is the practical  
10 effect as your understanding of adopting the  
11 water quality standard here as opposed to  
12 operating under this Illinois Register criteria  
13 procedure?

14 MR. MOSHER: Well, the substances in  
15 this list published in the Illinois Register  
16 are derived water quality criteria under 35  
17 Illinois Administrative Code 302.210.

18 They address a water quality standard  
19 and narrative water quality standard that says  
20 water should be free of toxic substances and  
21 toxic amounts essentially.

22 We have used the four BETX substances  
23 again and again in permits and this system of  
24 deriving water quality criteria under the

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1 narrative standard publishing in the Illinois

2 Register is a little ungainly.

3 It's a little hard for people to go  
4 to the Board's regs and it's impossible to go  
5 to the Board's regs. You can see the narrative  
6 standard, but you can't see all the  
7 calculations that Clark does and the final  
8 numbers that eventually get used in permits.

9 So we thought since we used these  
10 four substances again and again in NPDES  
11 permits that the time had come to establish  
12 them as water quality standards numerically in  
13 the Board's regulations.

14 We had the freedom in proposing this  
15 to the Board to use what we thought were the  
16 latest and best methodologies to do the  
17 derivation.

18 We also went back and looked for any  
19 new data that appeared in the literature and  
20 these standards are what we think are the best  
21 we could do right now.

22 Once the Board adopts them, of  
23 course, they won't change. We won't react to  
24 new data anymore until it becomes apparent that

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1 we need to go back to the Board and propose a

2 revision to those standards.

3 MR. ETTINGER: My understanding is  
4 that these numbers in this document that you  
5 published change from time to time based on new  
6 data. How do you decide that the science is  
7 firm enough or how do you decide you want to  
8 propose a water quality standard as opposed to  
9 continuing to make changes?

10 MR. OLSEN: Well, there's no firm way  
11 of saying we're at the -- that the number won't  
12 change much in the future, but I think for  
13 several of these substances at least there is a  
14 fairly big data base and we can say well, this  
15 is pretty close to what it should be.

16 I mean, this is just a -- you know,  
17 it's a construct, it's a human construct. We  
18 cannot be absolutely sure that these numbers  
19 are safe in the environment and safety factors  
20 and so on are involved.

21 And, so, at some point as Bob says,  
22 we have used these a lot and it would be just  
23 nice if the public knew what the number was and  
24 we'll keep it that way for 5, 10, 15 years or

1 something like that.

2 MR. ETTINGER: Looking at this Page 2  
3 of this overview of standards derivation  
4 process -- that's Exhibit F, I'm sorry.

5 You make reference to the currently  
6 published -- in the last full paragraph in the  
7 middle of the --

8 HEARING OFFICER TIPSORD: Excuse me,  
9 Mr. Ettinger. I'm sorry to interrupt, but  
10 that's Exhibit F in the Agency's proposal,  
11 correct?

12 MR. MOSHER: Right.

13 MR. OLSEN: I believe so.

14 MR. ETTINGER: It says here the  
15 currently published Illinois Register 14428  
16 September 2001 water quality criteria for BETX  
17 and General Use waters are as follows: And is  
18 that based on a document like Exhibit 4 only a  
19 more recent copy of it? Is that where these  
20 numbers come from?

21 MR. MOSHER: Yes.

22 MR. OLSEN: Well, actually the  
23 exhibit that you showed is just a summary that  
24 we put in the Illinois Register. I have the

1 whole worksheet, the whole document, which is  
2 part of the record, this record.

3 Also, which is like -- and there can  
4 be 5, 10 pages long with all the bibliography  
5 of all the data. Every bit of data is  
6 tabulated and then what data we've actually  
7 used.

8 There's more data in there than we've  
9 actually used just to show you what else is  
10 available, but then we'll say why we didn't use  
11 some of the data.

12 And then it goes through the data  
13 reduction processes and we don't actually have  
14 the spread sheet read on there, but we do that  
15 on the computer so that's just a few key  
16 strokes.

17 MR. ETTINGER: Most of the numbers,  
18 just glancing through here, are fairly close  
19 between the last Illinois Register and the  
20 proposal except there's a couple that seem to  
21 vary that General Use -- I'm sorry, the human  
22 health standard that is on Page 1 of Exhibit F  
23 seems to say 0.31 and the human health water  
24 quality criteria for benzene it says .021. Am

1 I comparing apples and oranges there or has the  
2 science changed it that much?

3 MR. OLSEN: Well, we decided just to  
4 keep it the GLI number. They have the same  
5 number in both places. GLI actually used the  
6 lower risk number 10 to the minus 5th instead  
7 of 10 to the minus 6.

8 So if you're familiar with a cancer  
9 risk based criteria and/or standard development  
10 of course that makes quite a bit of difference.

11 MR. ETTINGER: So previously or as of  
12 last September you were using, shall we say, a  
13 more cautious cancer standard and now you're  
14 going with the GLI standard because and/or  
15 which is less protective?

16 MR. OLSEN: That's right.

17 MR. RAO: May I ask a follow-up  
18 question on that? Mr. Olsen, the purpose of  
19 human health standard ambient micrograms per  
20 liter is based on incidental water consumption  
21 and ingestion of organisms under GLI, can you  
22 please explain why the human standards for  
23 benzene was not set at the Tier I human cancer  
24 criterion in July, which was, I think, 12



1 micrograms per liter --

2 MR. OLSEN: First of all --

3 MR. RAO: -- you know, 12 micrograms  
4 per liter for the open waters of Lake Michigan?

5 MR. OLSEN: The open waters of Lake  
6 Michigan are also drinking waters so that would  
7 add more exposure. What this is based on is  
8 only very incidental actual contact with the  
9 water and mostly it's based on fish  
10 consumption.

11 MR. RAO: Are there any situations  
12 where any of these General Use waters are also  
13 used for drinking water?

14 MR. OLSEN: Well, if they were used  
15 for drinking water, we would have to develop a  
16 criterion, our number, but the very few places  
17 in Illinois -- well, perhaps I should let Bob  
18 answer that.

19 MR. MOSHER: The drinking water  
20 sources are protected under the Subpart C  
21 standard. I'm not exactly sure how benzene is  
22 handled and I think we're probably going to  
23 have to go back and research an answer to your  
24 question on that.

1                   MR. RAO:  What Subpart C standard are  
2                   you talking about, the food processing --

3                   MR. OLSEN:  Yes.

4                   MR. RAO:  -- and Public Water  
5                   Environmental Standards?

6                   MR. MOSHER:  Yes.

7                   MR. RAO:  It would be helpful if you  
8                   could take a look at those standards and see  
9                   what supports it.

10                  MR. OLSEN:  Okay.

11                  HEARING OFFICER TIPSORD:

12                  Mr. Ettinger, if you would like to continue?

13                  MR. ETTINGER:  Sure.  I'll display my  
14                  ignorance by saying are any of those BETX  
15                  substances bioaccumulative?

16                  MR. OLSEN:  Well, to a small degree  
17                  if the cancer risk assessment number is such a  
18                  low number that when you work it into the  
19                  equation even a small amount of  
20                  bioaccumulation -- these aren't ordinarily  
21                  considered bioaccumulative like PCBs and things  
22                  like that, but they do obviously get into the  
23                  organism and contaminate to whatever degree of  
24                  the flesh of the fish.

1                   So if a cancer number is such a low  
2                   number, the final water quality criterion still  
3                   will be quite a low number.

4                   MR. ETTINGER: Just to compare the  
5                   benzene and these two things again, is the  
6                   Great Lakes benzene standard here, is that  
7                   based solely on drinking water or is that also  
8                   based on fish consumption.

9                   MR. OLSEN: Well, there are two  
10                  numbers. One based I think -- there are two  
11                  numbers, one should be for the open waters of  
12                  the Great Lakes and of Lake Michigan, which is  
13                  designated as a drinking water source.

14                  And there is another number which is  
15                  designated for the few streams and few little  
16                  places around Ben Harbors, which are designated  
17                  as drinking sources, but there is still fishing  
18                  going on there. And, you know, splashing in  
19                  the water, canoeing or boating.

20                  MR. ETTINGER: The .31 is the number  
21                  that they developed for the GLI to protect  
22                  fishermen who eat the fish as opposed to the  
23                  .012, which was to protect the drinking water.

24                  MR. OLSEN: I'm not sure I'm with

1       you.

2                   MR. ETTINGER:  The number we have  
3       here for general human health is the .31  
4       standard but you're proposing from what I  
5       gather also the GLI standards for harbors and  
6       the tributaries are not drinking water sources,  
7       is that correct, Mr. Olsen?

8                   MR. OLSEN:  No.  The 021 was based on  
9       fish flesh -- mainly fish consumption also in  
10      this document.

11                  MR. ETTINGER:  That's what I'm  
12      confused by.  So the .021 in the Illinois  
13      Register document, that was based on fish flesh  
14      consumption?

15                  MR. OLSEN:  Yes, but the risk level  
16      for General Use waters is 10 to the minus 6 and  
17      it's somewhat contradictory.  The waters for  
18      the Great Lakes are based on a risk level of 10  
19      to the minus 5th.

20                  However, for bioaccumulative  
21      substances the numbers really -- for substances  
22      that really bioaccumulate to a great degree may  
23      not make that much difference.  It's just that  
24      we're dealing with something that doesn't

1 bioaccumulate that much but still obviously  
2 there will be some in the flesh of the fish if  
3 there's benzene in the water.

4 MR. ETTINGER: Forget I ever brought  
5 up the bioaccumulative concept. The difference  
6 between the standard you were using last  
7 September or September 2001 and this proposed  
8 standard has to do with the cancer  
9 risk consumption analysis --

10 MR. OLSEN: We're just going with the  
11 Great Lakes number for uniformity sake.

12 MR. MOSHER: You have to realize that  
13 the General Use Subpart F procedures for  
14 deriving these criteria that you presented to  
15 the Board as Exhibit 4 were adopted in 1990, I  
16 believe.

17 They were a late '80s work project,  
18 Great Lakes Initiative came and took another  
19 look at this and said, well, it really doesn't  
20 have to be that low. Here's Great Lakes  
21 Subpart E derivation procedures. It is the  
22 latest way to do this. And we said we should  
23 go with that. It's more the state-of-the-art  
24 derivation.

1                   MR. ETTINGER: As I understand the  
2 state-of-the-art is that they decided to use a  
3 different cancer risk factor in the GLI than  
4 they did in the 1990 analysis.

5                   MR. OLSEN: That's right.

6                   MR. ETTINGER: You talked about  
7 cyanide. On cyanide I understand that the  
8 basic changes is that you threw out the Trout  
9 from the analysis here; is that correct?

10                  MR. OLSEN: Well, for the General Use  
11 standard, yes, we just stayed away from  
12 so-called cold-water species.

13                  MR. ETTINGER: Is the Agency aware of  
14 cold-water species in waters outside of Lake  
15 Michigan and Illinois?

16                  MR. MOSHER: We've looked into that  
17 quite a bit over the years and we're confident  
18 that there aren't self sustaining populations  
19 of cold-water species, Trout and Salmon  
20 specifically, in waters other than Lake  
21 Michigan and Illinois. There are, of course,  
22 several spots in the state where DNR stocks  
23 those on a put intake basis so fishermen can  
24 catch them before summer comes and the

1 temperatures get too high for them to survive.

2 But we do not consider those  
3 populations natural or sustained, so we don't  
4 believe there is a reason to protect for  
5 cold-water species in the General Use waters.

6 MR. ETTINGER: So the Agency believes  
7 that all the trout stocked by DNR and in other  
8 waters in Northern Illinois are dying in the  
9 summer if they are not caught?

10 MR. MOSHER: There is some evidence  
11 that at least in some summers that they  
12 over-summer and survive, but the evidence for  
13 their reproduction, to my knowledge, is  
14 nonexistent.

15 MR. ETTINGER: I believe this was  
16 Mr. Olsen's testimony, he said, only species  
17 with reproducing wild population utilized  
18 derivation, do I understand that to mean that  
19 you had some data on warm-water species that  
20 you didn't use because they didn't reproduce in  
21 the Midwest?

22 MR. OLSEN: Well, I don't use Western  
23 species for instance, and I don't use foreign  
24 species. Although, we have a provision that if

1       it seems as though the foreign species would  
2       come from habitats that were similar to ours  
3       and when we do our own criteria, we'll use data  
4       for that just to try to fill in the data and  
5       give us a general idea of the range of data  
6       that's available. So does that answer your  
7       question?

8               MR. ETTINGER: I believe so. Does  
9       the Agency have any -- strike that.

10              How does the Agency deal with a  
11       situation where somebody wants a permit to  
12       discharge into one of these waters in which the  
13       DNR is stocking the water with cold-water  
14       species?

15              MR. MOSHER: I can't think of a time  
16       when that has happened. At least in the direct  
17       area of the stocking. If it ever did happen,  
18       we would have to go by the Board's water  
19       quality standards. There is the  
20       anti-degradation regulation that could be  
21       imposed at such a time.

22              MR. ETTINGER: In addition to fish in  
23       looking at these cyanide standards you looked  
24       at mussels. What is the sensitivity to mussels



1 with cyanide as opposed to warm-water fish?

2 MR. MOSHER: We're going to have to  
3 check the database to see if we did use muscle  
4 data in the cyanide analysis. Can we have a  
5 minute to do that?

6 HEARING OFFICER TIPSORD: Yes.

7 MR. OLSEN: Well, I don't see any  
8 muscle data here or there just wasn't any.

9 MR. ETTINGER: If nobody else has  
10 anything about cyanide I'm going to talk about  
11 metals now or a question about metals.

12 First, we had a question about the  
13 cadmium standards. I understand it and correct  
14 me if I'm wrong, your language here says but  
15 not to exceed 50 micrograms per liter; is that  
16 correct?

17 MR. MOSHER: Yes.

18 MR. ETTINGER: Why is that being done  
19 or proposed?

20 MR. MOSHER: As I recall, 14 years  
21 ago or so, these hardness based water quality  
22 standards for metals were new and, of course,  
23 we had no experience with them. We noted that

24 if hardness of the ambient water were to be

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1 very high then the acute standard for cyanide  
2 could also be very high and approach or exceed  
3 50. And we put that in there as a precaution.

4 Given that lack of experience as this  
5 was adopted in 1990 and we've had eleven or so  
6 years to implement that cyanide standard, we  
7 had found that we never had to worry about  
8 issuing a permit with a water quality based  
9 daily maximum limit anywhere near 50 for  
10 cyanide. It never happened.

11 MR. ETTINGER: Excuse me. You were  
12 saying cyanide when I think you mean to say  
13 cadmium.

14 MR. MOSHER: Oh, I'm sorry, I mean  
15 cadmium. And so between the fact that it never  
16 happens in our experience and that we have  
17 learned to trust the formula standards is being  
18 established in a protective and widely regard  
19 as such, we decided that that extra precaution  
20 we threw in wasn't necessary. The lead  
21 standard that was updated in 1996 used to have  
22 a similar ceiling to it, which we did away with  
23 when we updated it in '96.

24

MR. ETTINGER: Do you know of any

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1 dischargers who are doing this 50 micrograms  
2 per liter of this cadmium limit?

3 MR. MOSHER: I don't know of any.

4 Maybe Al --

5 MR. KELLER: I don't know of any.

6 MR. RAO: I have a follow-up. Is the  
7 upper limit of 50 micrograms per liter, is that  
8 health based limit or is it some arbitrary  
9 standard?

10 MR. MOSHER: I believe it was the  
11 pre-1990 cadmium water quality standard. I'm  
12 not exactly sure, but I will check that and  
13 report back. I believe that was the case and  
14 that's why we picked 50 as the maximum it could  
15 ever be.

16 MR RAO: You also mentioned in your  
17 experience in the last ten years or so that you  
18 have not come across hardness levels high  
19 enough to exceed the 50 micrograms per liter,  
20 would it be possible for you to give some  
21 information as to the typical hardness level in  
22 the state?

23 MR. MOSHER: Yeah, I could put a  
24 summary based on actual data. But just in

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1 general for right now we deal with hardness  
2 values quite a bit. There's a north, south  
3 decrease in hardness as you go from Northern  
4 Illinois to southern Illinois. We feel that's  
5 mainly based on the ground water that tends to  
6 flow into streams.

7 Southern, Illinois having sandstone  
8 as the first layer of bedrock that you come to  
9 and then as you go further north you're more  
10 likely to get limestone.

11 And, typically, a hardness -- if I  
12 just had to pick a number for Illinois, 250  
13 milligrams per liter hardness is fairly  
14 typical.

15 It varies quite a lot. There's a  
16 stream in Southern, Illinois where 50  
17 milligrams per liter would be typical.

18 But that's the very southern tip.  
19 And as you work north it increases. There's  
20 some northern Illinois streams that go up to  
21 300, 350 typically. If you would like I can  
22 submit some examples.

23 MR. RAO: A number of these are based  
24 on hardness and I just want to know what the

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1 standard would be?

2 MR. MOSHER: We did supply I believe  
3 in Exhibit F when we come to the metals we use  
4 a hardness of 250 milligrams per liter to  
5 express what the standard would be plugging in  
6 that hardness value to the formula.

7 MR. RAO: In some of the attachments  
8 I see you have used the hardness of 50  
9 milligrams per liter.

10 MR. MOSHER: Sometimes we use 50  
11 because the national criteria documents use 50  
12 to express. And I want to correct myself, it's  
13 not Attachment F, it's a one-page attachment  
14 and that's G. That's the one that uses 250 to  
15 express what the metals standard would be under  
16 that hardness condition.

17 MR. ETTINGER: On Page 21 of Exhibit  
18 F you discussed the cadmium calculation in the  
19 Federal level, are you following that process?

20 MR. MOSHER: We're trying to keep up  
21 with that. When we were working on this

22 proposal USEPA published a draft national  
23 criteria for cadmium and it was an update from  
24 their previous document which is from the mid

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1 '80s and the public comment period was ongoing  
2 at that time. I have not seen an update of the  
3 status of that lately. Again, we could find  
4 that out easily enough and report back.

5 MR. ETTINGER: How does the current  
6 Illinois cadmium standard compare with the  
7 existing Federal criteria?

8 MR. MOSHER: The current Illinois  
9 cadmium general standard and the mid '80s  
10 Federal criteria?

11 MR. ETTINGER: Yes.

12 MR. MOSHER: I have to trust my  
13 memory here, but I believe we took the Federal  
14 criteria. We may have modified it a little bit  
15 by removing one of the species that was  
16 important in that Federal calculation.

17 And, again, that's 14 years ago and I  
18 will have to go back and check that, but what  
19 I'm saying is I believe the Board's current  
20 cadmium general standard is fairly similar to  
21 the 1980 something national criteria.

22 MR. ETTINGER: Is that true for the  
23 acute?

24 MR. MOSHER: I would think it's true

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1 for both acute and chronic. That's something  
2 that can be easily be checked and we can come  
3 back with that.

4 MR. ETTINGER: Now, we go to dissolve  
5 metal versus total. I have a couple of  
6 questions here. Does it vary from element to  
7 element or is there one translator for  
8 dissolved metal?

9 MR. ETTINGER: Are you referring to  
10 the conversion factor?

11 MR. MOSHER: Yes.

12 MR. ETTINGER: What is that?

13 MR. MOSHER: The conversion factors  
14 are unique. USEPA has published a lot and we  
15 have taken the most recent list and directly  
16 included those conversion factors in these  
17 proposed standards.

18 MR. ETTINGER: You convert it once  
19 from -- one way and convert it back again?  
20 Now, explain that a little better.

21 MR. MOSHER: In the absence of a  
22 site-specific data for the effluent or  
23 receiving stream, we intend to just take the  
24 inversion of the conversion factor we come back

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1 to our old total metal value and apply that as  
2 the permit limit if there were no mixing zone  
3 and if there were no site-specific data  
4 provided to us by the discharger who wanted to  
5 take the metal translators.

6 So the old total is being used of  
7 course now and the dischargers are meeting  
8 those permit limits, but some of them are  
9 having trouble meeting that limit based on the  
10 total metal standard.

11 They will have the opportunity to  
12 prove to us that their discharge will meet the  
13 new dissolved metal standard in the receiving  
14 stream.

15 MR. ETTINGER: Let's imagine for the  
16 sake of my example that the conversion for a  
17 given metal is 50 percent dissolved, and that's  
18 the standard cookbook USEPA, I have a total  
19 limit now of one milligram per liter, if I  
20 apply that conversion factor on my next permit



21 would I get two milligrams per liter?

22 MR. MOSHER: No. You would go back  
23 to the existing total standard. We're changing  
24 it to dissolve. So in your example, the new

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1 standard is going to be half of what the  
2 existing total was. We simply take the  
3 inversion of that and go back to the same  
4 permit limit.

5 MR. ETTINGER: So you shake it to the  
6 left and shake it to the right and come out the  
7 same place before?

8 MR. MOSHER: Correct.

9 MR. ETTINGER: But for example using  
10 my example in this particular metal if only 25  
11 percent was dissolved that would be an unusual  
12 case, but then you would be able to come out  
13 with a different permit?

14 MR. MOSHER: Right.

15 MR. ETTINGER: Because now you would  
16 not be undoing everything that you've just  
17 done?

18 MR. MOSHER: Correct.

19 MR. ETTINGER: Is the Agency going to

20 look at cases in which they believe that the  
21 gram conversion factor may be too low? In  
22 other words, if you went to dissolve you would  
23 find the percentage of dissolve was higher than  
24 what you would expect just using the USEPA

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1 formula?

2 MR. MOSHER: Those were calculated by  
3 going back to laboratory toxicity test, which  
4 are the basis of standards to begin and the  
5 USEPA said they'll go back and recreate some of  
6 those measure totals and dissolved and see what  
7 the difference was and that's why he came up  
8 with those factors.

9 They are laboratory factors and what  
10 it all means is -- we all now agree that  
11 dissolved metal is the toxic form, the question  
12 should have been based on everything recreated,  
13 all that to get where they should have been in  
14 the first place.

15 MR. ETTINGER: I guess my question  
16 is, is it only going to work to dissolve a  
17 higher percentage rather than a lower  
18 percentage than what they came out with in the  
19 USEPA laboratory or could it happen that the

20 dissolve is a higher percentage than the  
21 national figures that USEPA has published.

22 MR. MOSHER: I'm trying to think that  
23 through.

24 MR. ETTINGER: Let's try and use an

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1 example, maybe it will work. We decided that  
2 the USEPA number that comes from that chart  
3 that you've got is 50 percent, if we have a  
4 metal in the number in the water we will assume  
5 that 50 percent is dissolved and 50 percent is  
6 not.

7 A particular discharger wants to  
8 prove that in this particular case less than 50  
9 percent is dissolved so he should have a lesser  
10 cadmium, is it possible in the case of some  
11 Illinois dischargers that it's actually more  
12 than 50 percent as to a particular metal that  
13 the number could actually be higher than what  
14 the USEPA figure gives?

15 MR. MOSHER: I think the answer to  
16 that question is going to be that that  
17 discharger can make no use of the metal  
18 translator procedure and we'll fall back to the

19 standards as it appears in the Board's rules  
20 using the conversion factors.

21 MR. ETTINGER: Just in general, what  
22 kind of factors cause and dissolve the total to  
23 vary from one water body to another or one  
24 discharger to another?

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1 MR. MOSHER: It has a lot to do with  
2 other contents in the effluent or water body  
3 organic substances like humic acid, which are  
4 very common. That's the stuff that after  
5 leaves break down it's a tea color that some  
6 waters have and that's present everywhere.

7 Those organic substances tend to  
8 complex with metals. I'm not a chemist, but  
9 they latch on to the metals, bend them up and  
10 they no longer can penetrate the gills of a  
11 fish or whatever.

12 Suspended solids and even things like  
13 clay particles can do the same thing to some  
14 degree. So municipal effluents have some of  
15 these kind of things in them given their  
16 nature, the result of treated organic waste and  
17 there's still some organic particles in those  
18 effluents and that's a good thing in terms of

19 metals.

20 MR. ETTINGER: As I understand it,  
21 there's a provision for this metal conversion  
22 factor in the existing GLI rules; is that  
23 correct?

24 MR. MOSHER: Yes.

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1 MR. ETTINGER: And you proposed to  
2 strike that from the portion that covers the  
3 existing GLI rule and substitute this new  
4 309.257?

5 MR. MOSHER: Yes.

6 MR. ETTINGER: How do you decide  
7 whether to look at the conversion factor for  
8 the effluent or receiving one?

9 MR. MOSHER: USEPA as a guidance  
10 document that's been out for several years.

11 MR. RAO: Is that in your attachment?

12 MR. MOSHER: I believe it is. When  
13 our implementation Agency rules come out, it's  
14 going to tell people how the Agency will apply  
15 this and we're going to be very dependent on  
16 that document.

17 MR. ETTINGER: Just to be clear, the

18 discharger is not going to have the choice or  
19 the receiving water in deciding which number he  
20 likes best?

21 MR. MOSHER: If there's no mixing  
22 zone.

23 HEARING OFFICER TIPSORD: I would  
24 like to ask a follow-up to the next sentence

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1 there. I assume that your implementation rules  
2 will also address what your review of an  
3 approval will constitute at that time?

4 MR. MOSHER: Yes, a number of samples  
5 that we will have to have from the discharger,  
6 but then again it will lead into a Federal  
7 guidance document and the equations that are  
8 found within that document.

9 MR. ETTINGER: Would you also take a  
10 look at this and see if it might be possible to  
11 do a cross reference with your rules with this  
12 section.

13 MR. SOFAT: I will do that.

14 MR. ETTINGER: Just to be clear, if  
15 the discharger doesn't think this conversion is  
16 going to help him he does not have to do the  
17 conversion?

18 MR. MOSHER: That's correct.

19 MR. ETTINGER: You're not going to  
20 look at the conversion factor and say you  
21 should do a tighter limit, the Agency is not  
22 going to do that?

23 MR. MOSHER: No.

24 MR. ETTINGER: As to this rule, in

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1 some cases at least, we're going to let the  
2 discharger pick whether they like the number  
3 better from the effluent or receiving water; is  
4 that correct?

5 MR. MOSHER: That's what Federal  
6 guidance allows. Now, ordinarily one would  
7 think the effluent would be the more stringent  
8 case because you have not had the mixing of the  
9 ambient water with the natural goodies that are  
10 mixed up with that water. So you would think  
11 it's an advantage to the discharger if they  
12 have a mixing zone to measure in the stream  
13 itself.

14 MR. ETTINGER: Unless what the  
15 discharger is putting out is dirtier than the  
16 ambient water?

17 MR. MOSHER: In terms of suspended  
18 solids that usually is the case in Illinois in  
19 terms of BOD from my recollection, ambient  
20 waters have about the same BOD as a 10, 12  
21 discharger.

22 MR. ETTINGER: I had one more  
23 question. Some of the conversion factors that  
24 you have proposed like for example Nickel for

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1 acute standard is .998, does that make a big  
2 difference coming up with a number?

3 MR. MOSHER: No, it doesn't. I guess  
4 that's what it's telling us when you take some  
5 Nickel salt off the shelf and dissolve it in  
6 some water in the laboratory and expose  
7 organisms in this water to see how toxic it is.

8 We're taking USEPA and applying them.  
9 You're correct.

10 MR. ETTINGER: When you're looking at  
11 the hardness factor are you looking at the  
12 influent or stream?

13 MR. MOSHER: Stream.

14 HEARING OFFICER TIPSORD: Mr Ettinger  
15 has offered in the matter of site-specific  
16 rulemaking for the sanitary district Decatur,



17 Illinois R85-15, 1987 Illinois Env. Lexis 424.  
18 Is there any objection? I see none. We have  
19 copies of that coming down too.

20 Mr. Ettinger, if you would like to  
21 continue.

22 MR. ETTINGER: Yes. My -- we  
23 discussed earlier pertaining to all of these  
24 rules and proposals that these had earlier been

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1 submitted to the public for review prior to you  
2 going to the Illinois Register with it; is that  
3 true?

4 I'm sorry, perhaps I wasn't very  
5 clear. I believe you said that at least it's a  
6 part of this that you discussed the proposals  
7 as the standard with various interested parties  
8 before the Agency formally made its proposal;  
9 is that correct?

10 MR. MOSHER: Yes.

11 MR. ETTINGER: Is that true with  
12 regards to the BOD/CBOD portion of the  
13 proposal?

14 MR. MOSHER: No.

15 MR. ETTINGER: As I understand it,

16 just as a matter of BOD, CBOD is a fraction of  
17 the total BOD; is that correct?

18 MR. OLSEN: That's true.

19 MR. ETTINGER: I gather also because  
20 of the fact that the nitrifying critters  
21 generally take longer to start going than NBOD5  
22 is closer to total BOD5 than BOD30 is to  
23 NBOD30?

24 MR. KELLER: That would depend on the

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1 number of nitrifying organisms.

2 MR. ETTINGER: In general, do you  
3 know what the ratio is of CBOD5 to the total  
4 BOD5?

5 MR. KELLER: The total BOD5 or --

6 MR. ETTINGER: Let's just strike that  
7 and start over. As to any particular  
8 discharger, do you know what fraction of the  
9 total BOD5 is CBOD5?

10 MR. KELLER: Are you talking influent  
11 or effluent or just a nitrifying plant or a  
12 non-nitryifying -- there's a lot of different  
13 scenarios that I don't know which one you're  
14 asking about?

15 MR. ETTINGER: Very good

16 clarification. We'll talk about effluent for  
17 now.

18 MR. KELLER: Okay.

19 MR. ETTINGER: Just looking at  
20 effluent as to any particular dischargers, do  
21 you know what the ratio is of CBOD5 to BOD5?

22 MR. KELLER: Again for a nitrifying  
23 facility that completely nitrifies.

24 MR. ETTINGER: Well, so it would

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1 depend as to how much it nitrifies as to what  
2 the ratio is as of CBOD5 to BOD5?

3 MR. KELLER: Yes, that's correct.

4 MR. ETTINGER: What kind of range are  
5 you familiar with?

6 MR. KELLER: I really haven't  
7 evaluated that range.

8 MR. ETTINGER: Le's give you some  
9 credit here, you are the guy who is chiefly in  
10 charge of writing the CBOD permits for all of  
11 northern Illinois; is that correct?

12 MR. KELLER: Correct.

13 MR. ETTINGER: So you've looked at a  
14 lot of sewage treatment plants, right?

15 MR. KELLER: Right.

16 MR. ETTINGER: But you don't know  
17 what the ratio is of CBOD5 to total BOD5.

18 MR. KELLER: We have been requiring  
19 monitoring the CBOD5 since 1986 and not had the  
20 corresponding effluent data that you're asking  
21 about.

22 MR. ETTINGER: So you agree that to  
23 the extent that CBOD5 is not the same as BOD5  
24 that this proposal represents a weakening of

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1 the tool?

2 MR. KELLER: No. We do not believe  
3 that.

4 MR. ETTINGER: Well, let's see here.  
5 As I understand it, right now the BOD5 limit is  
6 10 and 20 depending on the pollution ratio; is  
7 that correct?

8 MR. KELLER: The BOD on it is 30  
9 actually. If the pollution ratio show greater  
10 than 5 to 1, it's 20. If it's greater than 5  
11 to 1 and the population quotes are greater than  
12 10,000 and if pollution ratio is less than 5 to  
13 1 it is 10.

14 MR. ETTINGER: Thirty is the number

15 that is the secondary contact definition under  
16 the Federal definition under secondary  
17 treatment?

18 MR. KELLER: Correct. It's the  
19 secondary treatment definition.

20 MR. ETTINGER: That question was even  
21 poor by my standards. The Federal definition  
22 of what constitutes secondary treatment as to  
23 BOD is 30 BOD5; is that correct?

24 MR. KELLER: Correct.

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1 MR. ETTINGER: And so as to these  
2 plants with the large amounts of pollution as  
3 to BOD5, the limit that you put in the permit  
4 is 30?

5 MR. KELLER: It typically is COBD5 at  
6 25 as allowed by that same definition.

7 MR. ETTINGER: So you may get  
8 compensation there from BOD5 to CBOD5 based on  
9 the Federal regulation?

10 MR. KELLER: Correct.

11 MR. ETTINGER: And that's 133.102 the  
12 definition of secondary treatment?

13 MR. KELLER: I believe that's the

14 correct number.

15 MR. ETTINGER: And so the Federal  
16 government when they allow you to substitute  
17 CBOD5 to BOD5 it's used as a 25 milligram per  
18 liter CBOD5 in place of a 30 milligram per  
19 liter BOD5; is that correct?

20 MR. KELLER: Correct.

21 MR. ETTINGER: But as to the limits  
22 in the Board's rules where it currently states  
23 20 BOD5 or 10 BOD5 you're not making any  
24 compensation or conversion factor so to speak

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1 for BOD?

2 MR. MOSHER: Correct.

3 MR. ETTINGER: What does the Agency  
4 do in terms of writing a permit element for BOD  
5 that ensures BOD standards?

6 MR. KELLER: Well, the standards for  
7 BOD5 are basically technology based and based  
8 on the pollution ratio and receiving treatment.

9 MR. ETTINGER: You don't look --

10 MR. KELLER: In addition for those  
11 receiving streams may have a lower pollution  
12 ratio. We do evaluate ammonia nitrogen as it  
13 has the effects on the --

14 MR. ETTINGER: Do you ever go in and  
15 calculate on a plant by plant basis what the  
16 BOD5 or CBOD5 levels should be?

17 MR. KELLER: No.

18 MR. ETTINGER: You only computed to  
19 the Board as an effluent standard described by  
20 the Board?

21 MR. KELLER: Correct.

22 MR. ETTINGER: Are you aware of the  
23 Streeter Philips(phonetic) model?

24 MR. KELLER: Yes. Could I go back

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1 and correct? There have been a couple of  
2 permits albeit a very few in just the exception  
3 where the dissolved oxygen was taken into  
4 account and receiving stream and we did lower  
5 the standards to, again, another  
6 technology-based type standard. So we had  
7 lowered a couple of permits.

8 MR. ETTINGER: So when you mean  
9 another technology based standard you went to  
10 20 to 10 in that case?

11 MR. KELLER: Correct.

12 MR. ETTINGER: Have you -- I'll ask

13 the whole panel here, you said you did not in  
14 general know the ratio as CBOD5 and BOD5 as to  
15 any sewage treatment without -- strike that.  
16 I'll start over.

17 Without knowing anything more about  
18 the sewage treatment plan, you could not give  
19 me the ratio of CBOD5 to BOD5 just from knowing  
20 its a sewage treatment?

21 MR. KELLER: No.

22 MR. ETTINGER: And I assume that  
23 would also hold true for an industrial  
24 discharger that you would not know the ratio

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1 for CBOD5 to BOD5?

2 MR. KELLER: No.

3 MR. ETTINGER: Have you any  
4 information as to what the range could be of  
5 CBOD, you know, the ratio between CBOD5 and  
6 BOD5 other than what was put in your attachment  
7 to your testimony?

8 MR. KELLER: No. As part of my  
9 testimony, I did state this for those that  
10 completely nitrified and those that do not  
11 nitrify at all the CBOD value is very, very  
12 close to that BOD value.



13 MR. ETTINGER: Most dischargers fall  
14 somewhere in between?

15 MR. KELLER: A lot of them do  
16 depending on the load at the time, a number of  
17 things can surface, things like that.

18 MR. ETTINGER: Looking at your -- at  
19 what is I think Attachments CC to your Exhibit  
20 F, there's a reference in the second column,  
21 this is biochemical oxygen demand and it's from  
22 this standard methods book, Exhibit CC.

23 MR. KELLER: Okay.

24 MR. ETTINGER: Looking at the second

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1 column, it says nitrogenous demand can be  
2 estimated directly from hormonal nitrogen?

3 MR. KELLER: Correct.

4 MR. ETTINGER: Do you know how to do  
5 that?

6 MR. KELLER: Yes.

7 MR. ETTINGER: How does it work  
8 roughly?

9 MR. KELLER: Basically, you determine  
10 the calibrates with what the ammonia nitrogen  
11 concentration is and the amount of nitrogen

12 demand would be 4.6 times that concentration  
13 for the complete nitrogenous demand.

14 MR. ETTINGER: Let's say I've got one  
15 milligram per liter of ammonia, would I  
16 multiply that times 4.6 in BOD?

17 MR. KELLER: It would be 4.6, like,  
18 pounds of oxygen demand or whatever figure it  
19 was, that would be oxygen demand.

20 MR. ETTINGER: In most Illinois  
21 dischargers they have an ammonia discharge  
22 limit that is one or above or some part of the  
23 year, don't they?

24 MR. KELLER: Most do, yes.

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1 MR. ETTINGER: In the document that I  
2 marked as Exhibit 5, which is the Board's  
3 opinion on the third to last page we see a note  
4 in the Board's opinion that indicates that in  
5 this particular case, Decatur's effluent CBOD5  
6 is approximately 61 percent of the BOD5.

7 MR. KELLER: Yes, okay.

8 MR. ETTINGER: Does that accord with  
9 your understanding of something within the  
10 range of Illinois dischargers?

11 MR. KELLER: I really haven't

12 evaluated anything to elect that. Decatur has  
13 a high industrial compound in their waste water  
14 which may influence this very much.

15 MR. ETTINGER: How does the Agency go  
16 about setting ammonia limits for a discharger?

17 MR. KELLER: Well, we look at the  
18 water quality standards for ammonia, we look at  
19 PH and temperature of the receiving water  
20 downstream of the discharge, we look at the  
21 availability of mixing; and then we fall back  
22 on whether or not the treatment plant has been  
23 nitrifying or meeting a low level of ammonia in  
24 the past; and we calculate ammonia permit limit

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1 protective of that water quality standard for  
2 the stream.

3 MR. ETTINGER: Now, is that ammonia  
4 water quality limit based on a toxicity of  
5 ammonia?

6 MR. KELLER: Well, yes. The standard  
7 is based on ammonia toxicity to aquatic life.

8 MR. ETTINGER: Do you make any  
9 separate calculations as to how much BOD load  
10 the ammonia will add to the water?

11 MR. KELLER: No. The water quality  
12 standard does not take into account anything  
13 like that.

14 MR. ETTINGER: Are you familiar with  
15 how the 30 limits were chosen by the Board.

16 MR. KELLER: Not exactly. That was  
17 about three months before I started that  
18 actually.

19 MR. ETTINGER: I brought copies, but  
20 I could tell you it was originally picked by a  
21 Board decision made on March 7, 1972, which for  
22 some reason or another it's not on Lexis and  
23 I'm not sure how I came up with this, but you  
24 might want to look at that.

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1 HEARING OFFICER TIPSORD: Excuse me,  
2 Mr. Ettinger, could you give us the rulemaking  
3 number as well?

4 MR. ETTINGER: Yes. It was a little  
5 confusing because there was three different  
6 rules, R70-80, R71-14 and R71-20 -- I'm sorry  
7 R70-8.

8 HEARING OFFICER TIPSORD: Thank you.

9 MR. ETTINGER: Have you looked at the  
10 technological capacities of sewage treatment

11 plants in Illinois?

12 MR. KELLER: Yes.

13 MR. ETTINGER: And you looked at the  
14 cost?

15 MR. KELLER: We looked at the cost  
16 only through the facility plant reviews where  
17 engineers present that information for new  
18 treatment plant expansions.

19 MR. ETTINGER: In general, do you  
20 have any understanding as to how much it costs  
21 to have a plant, say, produce CBOD level of 8  
22 versus 10?

23 MR. KELLER: No. We never really  
24 evaluated that.

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1 MR. ETTINGER: Do you know how much  
2 it costs to go from 20 to 10?

3 MR. KELLER: From 20 to 10 would  
4 basically require an additional unit of  
5 filtration basically to try and physically  
6 remove solids from the waste water and the  
7 associated BOD.

8 Usually when you go from a 20 to a 10  
9 effluent standards are in all cases basically.

10 There's also a low flow receiving stream and  
11 you're also going to be nitrifying at that  
12 facility with the discharge parts of the BOD.

13 MR. ETTINGER: I realize this varies  
14 from plant to plant and varies over time, but  
15 is there some rule of thumb you use in the  
16 industry as to what the cost is?

17 MR. KELLER: Some of the recent small  
18 sized plants from around a half million gallons  
19 to one million gallons may cost and I would  
20 have to really give you a range but it's  
21 somewhere between 5 and \$10 per gallon, I  
22 believe. That's based on some prices we've  
23 seen recently.

24 MR. ETTINGER: And you don't have any

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1 information as to what the cost is of removing  
2 CBOD on industrial facilities.

3 MR. KELLER: No. We've never been  
4 involved with cost and industries like that.  
5 It's more by them and there's no grant program  
6 associated with those projects so ...

7 MS. LIU: Can I ask a clarifying  
8 question?

9 MR. KELLER: Yes.

10 MS. LIU: You said 5 to \$10 a gallon?

11 MR. KELLER: If you have a one main  
12 gallon per day treatment plant, it may cost you  
13 between 5 and 10 gallons -- \$10 million rather.

14 And that's really a ball park number  
15 depending on how much of the plant has to be  
16 renovated and how much you can use at the  
17 plant.

18 Recently, I have seen -- it cost  
19 about \$8 million for one main gallon per day  
20 plant. And it was a brand new site so  
21 everything was --

22 MR. TRISTANO: Is that a one-time  
23 cost or --

24 MR. KELLER: That's the actual

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1 construction cost. You also have your annual  
2 operation maintenance cost and that plant  
3 typically would be a 20 year design life.

4 MR. ETTINGER: Do you have any  
5 information as to whether a plant that could  
6 meet a 10 CBOD limit versus a 8 CBOD limit?

7 MR. KELLER: Typically, again,  
8 depending on the actual load, a plant would

9 probably produce an eight part CBOD limit if  
10 it's going to be versus 10.

11 The units in which you put out on the  
12 field don't really refine that much. It goes  
13 from 200 raw sewage to say 3 parts which is  
14 equivalent to a secondary treatment.

15 Typically, most mechanical plants  
16 will also produce a 20 and they'll produce a  
17 30. And that's where your 10, 12 limits come  
18 in or just the degree of magnitude.

19 MR. ETTINGER: If a plant already has  
20 to nitrify because of ammonia toxicity could it  
21 add much cost meaning a lower CBOD limit?

22 MR. KELLER: How low are you talking  
23 about?

24 MR. ETTINGER: Let's say we have a

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1 plant that had to nitrify and it qualifies for  
2 a 20 CBOD not because of the pollution, but  
3 because of either nitrify or ammonia, is it  
4 likely to hit the 10 CBOD anyway?

5 MR. KELLER: No.

6 MR. ETTINGER: What extra equipment  
7 would you need to hit the CBOD limit that you  
8 would to remove a low ammonia?



9 MR. KELLER: You would need to remove  
10 more solids and remove that associated BOD with  
11 the solids.

12 MR. ETTINGER: I think I'm done for  
13 today.

14 HEARING OFFICER TIPSORD: Would you  
15 identify, please?

16 MR. DUBIO: Dennis Dubio from Joliet,  
17 Illinois. My question is for Mr. Keller.

18 Al, a plant that has had a permeant  
19 process reduced since 1986 that would be  
20 correct to assume it has a CBOD limit in its  
21 permit?

22 MR. KELLER: Yes.

23 HEARING OFFICER TIPSORD: Go ahead,  
24 Mr. Ettinger.

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1 MR. ETTINGER: Is there anything in  
2 this rule that requires that there be an  
3 ammonia limit for you to use a CBOD limit as  
4 opposed to BOD limit?

5 MR. KELLER: Not in this rulemaking,  
6 no.

7 MR. ETTINGER: The wording of the

8 rule, I'm not sure I got the last one, is  
9 interesting. It says compliance with the BOD  
10 in numeric standard will be determined by the  
11 analysis of the carbonation, (biochemical  
12 oxygen demand), by that, do you mean to use 10  
13 CBOD instead of 10 BOD.

14 MR. KELLER: We mean to use possibly  
15 20 CBOD versus 20 BOD or 10 CBOD versus 10 BOD.

16 MR. ETTINGER: The wording is curious  
17 in that it doesn't really set any sort of  
18 conversion factor because it just seems to say  
19 that you can substitute one for the other, but  
20 that's the intention that you basically put a C  
21 in front of the BOD?

22 MR. KELLER: Correct. It does also  
23 recognize the last sentence, the Federal  
24 Resister that we've passed in 1984, I believe,

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1 as far as the definition of secondary  
2 treatment.

3 MR. ETTINGER: Because if you went to  
4 30 CBOD you violate the Federal law?

5 MR. KELLER: Correct.

6 MR. ETTINGER: That's all I have.

7 MR. RAO: I have a general question

8 regarding the economic impact of the proposed  
9 regulations. In the statement of the Agency it  
10 has indicated that the regular community to --  
11 the impact on the regular community would be  
12 minimal because the dischargers are already  
13 complying with the proposed rules.

14 First, would you please clarify in  
15 that statement you're referencing just to the  
16 BETX standard or also referencing to the new  
17 standard proposal for Nickel and Zinc?

18 MR. MOSHER: Well, anybody subjected  
19 to the BETX water quality standards as  
20 translated into impetus permit limits is  
21 providing treatment.

22 Usually these are underground storage  
23 tank, fuel tank, clean-up sites where the  
24 ground water is being pumped to the surface,

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1 treated and then discharged to the surface  
2 water.

3 And the treatment methodologies used  
4 now are adequate to meet the proposed  
5 standards. As far as the Zinc and Nickel  
6 standard goes, we, from our knowledge of metals

7 concentrations in effluents, we believe that  
8 with the metals translator all the dischargers  
9 that I'm aware of would meet the new Zinc and  
10 Nickel dissolved water quality standards in the  
11 receiving stream.

12 Cyanide, of course, we're raising the  
13 standard so as far as economic impact there,  
14 there could be a few cases positive for  
15 dischargers in a way in economic impact.

16 So, again, generally changing total  
17 metals to dissolve metals standards, there are  
18 a few municipal dischargers in the state right  
19 now that are having trouble with the copper  
20 limits that we set based on the existing water  
21 quality standard.

22 I know of four that have come to  
23 light. We feel that the metals translator  
24 procedure that would be allowable under this

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1 new rule would benefit those dischargers that  
2 they would now be shown to be meeting the  
3 appropriate water quality standard in the  
4 stream. And of course that's a positive  
5 economic effect on those four dischargers.

6 MR. RAO: In reviewing the proposed

7 standards specifically Nickel and Zinc standard  
8 that you proposed, based on the typical  
9 hardness of 250 milligrams per liter the acute  
10 standards for Nickel is 179 micrograms per  
11 liter compared to 1000 micrograms per liter  
12 which is the current standard.

13 So the difference -- the standard for  
14 being reduced significantly. So are you saying  
15 that most of the standards would be able to  
16 meet the significantly lower standards without  
17 upgrading their treatment plan?

18 MR. MOSHER: Yes, with the use of the  
19 metals translator. Yes, I believe most of them  
20 and I'm not aware of any that wouldn't so I'm  
21 saying most of them would be able to meet the  
22 new standard.

23 It is significantly lower. And,  
24 again, remember that the Nickel and Zinc

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1 standards came to us from the original Board  
2 back in the early '70s before the science of  
3 toxicity testing was really well established.

4 And if you go back to the record at  
5 that time those values were established based

6 on the personal judgment of a few individuals.  
7 And it wasn't much of a science back then.

8 MR. RAO: I have no problem with the  
9 science or the basis of the standard. I just  
10 wanted to get some information about how it  
11 could impact the dischargers of complying with  
12 the lower number.

13 MR. MOSHER: I'm certainly not aware  
14 of any dischargers that I know would not be  
15 able to meet these.

16 MR. RAO: I have a question for  
17 Mr. Olsen. In deriving the numbers for BETX  
18 compounds, in your calculations that you have  
19 submitted in the exhibits, which are  
20 attachments to your proposal, first you have to  
21 use calculations based on Subpart E and Subpart  
22 F procedures, and the final proposed numbers  
23 were picked for -- some of them I think you  
24 picked the calculations using Subpart F and for

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1 some using Subpart E.

2 Can you explain what's the ratio the  
3 Agency uses for using a specifically procedure?

4 MR. MOSHER: Well, when I calculate a  
5 number I have to use Subpart F if it's a

6 general use water. If I do occasionally, I  
7 don't think we've ever actually done it, but if  
8 we did it for Lake Michigan, we would have to  
9 use Subpart E.

10 But the Board can make a decision on  
11 either one. So this is -- I guess I can say  
12 we're getting a little work to do. But Subpart  
13 E should be the better thing, but because of  
14 time lag and so on we still have Subpart F.  
15 You know, things have moved along a little bit  
16 in the year since then. I would suggest that  
17 we use Subpart E, but I think these are the  
18 Board's rules so we have shown you the  
19 calculations that are the suggestion.

20 MR. RAO: Because the actual values  
21 that you calculated using Subpart E and Subpart  
22 F, some of the number standards are higher than  
23 the values that you calculated.

24 So are you saying it's up to the

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1 Board to look at those numbers and pick what we  
2 think is appropriate?

3 MR. MOSHER: Well, since these are  
4 Board standards, they are not -- you know, they

5 are a little bit beyond what we do. You tell  
6 us how to do things when we do them on a  
7 case-by-case basis for permits and over the  
8 years, but if you're going to publish  
9 something, then it's your standards, so we're  
10 showing you what the calculations are and what  
11 our recommendations are, but there's really, as  
12 far as we're concerned and the USEPA is  
13 concerned, I guess there's no stringent  
14 pressure on you to do it one way or the other  
15 way as far as -- the legal status of those  
16 rules are. We know what our legal status is,  
17 but, you know, we don't know exactly what your  
18 legal status is.

19 MR. RAO: For example, the General  
20 Use for chronic criterion for toluene was  
21 calculated to be 230 micrograms per liter using  
22 Subpart F and 600 micrograms per liter using  
23 Subpart E and the proposed standard is 600  
24 micrograms per liter.

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1 MR. OLSEN: Yes.

2 MR. RAO: So in this particular case,  
3 are you saying the Board should look at both  
4 the numbers and then decide which one to use?



5 MR. OLSEN: Yes.

6 MR. MOSHER: I think what we mean to  
7 say in this proposal, we come out and propose  
8 certain numbers. Those numbers in our  
9 professional judgment are the numbers that we  
10 would have the Board adopt.

11 The thing that Clark is trying to say  
12 is when we use the existing Board regulations  
13 we are held to Subpart F if it's a General Use  
14 water and we derive on water quality criterion.  
15 We have no choice. Those are your regulations.  
16 But when we're proposing something to you,  
17 we're not bound by that. We do the best method  
18 that's available to us whether it's Subpart E,  
19 Subpart F or because we've heard from USEPA  
20 yesterday that they decided they found a new  
21 scientific fact and we can take that and  
22 propose it to you.

23 MR. RAO: If that's the case, would  
24 it be possible for the Agency to take a look at

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1 those numbers and give us a little bit more  
2 scientific explanation as to why you picked one  
3 number instead of the other, you know, just

4 looking at the number for toluene, we had a  
5 Subpart E number, which is 230 micrograms per  
6 liter which is significantly less than the  
7 Subpart -- I'm sorry, the Subpart F number  
8 which is 230 micrograms per liter is  
9 significantly less than what you proposed as  
10 the 600 micrograms per liter.

11 So if you can tell us what methods  
12 you used to pick this higher number it would be  
13 helpful to the Board to look at those.

14 MR. OLSEN: Could I comment just a  
15 little bit more? I would suggest that what  
16 we're doing is using arbitrary procedures. I  
17 mean, in the end they have to be arbitrary, but  
18 they are loosely tied -- they are tied in  
19 general to what we think is safe in the water,  
20 but we cannot say whether one is safer than the  
21 other.

22 It's just that in the development of  
23 Subpart E, it was felt that this seems to be a  
24 little bit more reasonable and that's based on

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1 the Great Lakes Initiative.

2 And I don't think there's anything  
3 more than that because it's very hard to say

4           whether something is safe in the environment  
5           because you're usually dealing with orders of  
6           magnitude rather than a factor of several, two  
7           or three fold. That's the way biology is.

8                         We just cannot say whether something  
9           is completely safe in the environment because  
10          we cannot in fact even measure what safety is  
11          in the environment.

12                        MR. SOFAT: I think we will get back  
13          to the Board on that question.

14                        MR. RAO: I have a similar question  
15          regarding the proposed Lake Michigan standards  
16          for toluene and xylene. Both the proposed  
17          standards for Lake Michigan are higher than the  
18          General Use standards.

19                        MR. OLSEN: Well --

20                        MR. RAO: Let me look at the numbers  
21          here. The proposed standards for toluene for  
22          Lake Michigan is 610, chronic standard and the  
23          proposed standards for toluene for General Use  
24          is 600 micrograms.

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1                        MR. OLSEN: Could I have the numbers  
2          in front of me so I don't have to try to

3 remember them?

4 MR. RAO: Yes.

5 MR. OLSEN: Excuse me, again, we were  
6 comparing chronic numbers?

7 MR. RAO: Both acute and chronic.

8 MR. OLSEN: Okay. I had some charts  
9 that had these all nicely laid out, but  
10 unfortunately they are not right in front of me  
11 at this moment.

12 HEARING OFFICER TIPSORD: Mr. Olsen,  
13 maybe it would help if we just read this into  
14 the record and when you have a chance to look  
15 at this you can get back to us at the March  
16 hearing.

17 MR. OLSEN: We could do that for the  
18 March hearing.

19 MR. RAO: So you can take a look at  
20 the proposed numbers for Lake Michigan --

21 MR. OLSEN: What I would like to do  
22 is say that I admit that these numbers, you  
23 know, bounce around, fluctuate around because  
24 you're using these procedures that tell you in

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1 a cookbook sort of way, well, you do this and  
2 then you do this and then you do this.

3                   And they just come out differently  
4                   when you do the different procedures. We would  
5                   probably suggest that the Board adopt Subpart E  
6                   just to cross the Board, but that's a long  
7                   process as you know to go through this Board  
8                   proceeding. So we're just suggesting that  
9                   probably Subpart E is the best way for you to  
10                  go. I can't do that down state, but you can do  
11                  that if you'd like because --

12                  MR. RAO: Actually --

13                  MR. OLSEN: -- that's your  
14                  privilege.

15                  MR. RAO: -- my question regarding  
16                  those proposed standards were my understanding  
17                  was Lake Michigan standards were more stringent  
18                  than the General Use standards and since we  
19                  have higher numbers for Lake Michigan, I wanted  
20                  to know --

21                  MR. OLSEN: Well, they should be, but  
22                  the trouble is the way you pick and choose the  
23                  data when you go through these procedures you  
24                  can come out with something that's different.

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1                  That's the problem.

2                   MR. MOSHER: I think what we'll try  
3                   to do is come up with a one-page table and show  
4                   each proposed standard and what its origin was  
5                   and then comment to why we went that route and  
6                   keep it all on one page.

7                   We did try to do that in Attachment  
8                   F. It's, of course, very lengthy and complex,  
9                   but we'll produce that one-page table for you.

10                  HEARING OFFICER TIPSORD: Go ahead.

11                  MR. POLLS: My name is Irwin Polls.  
12                  I have a follow-up on I guess it's Exhibit F  
13                  specifically under the derivation of the  
14                  ethylbenzene. It says in here regarding the  
15                  Illinois method that was used you used Tier II  
16                  rather than Tier I. This is for Mr. Olsen, is  
17                  that -- the reason was that you didn't have  
18                  enough species to use Tier I.

19                  MR. OLSEN: That is correct. The  
20                  data base for ethylbenzene is rather meeker  
21                  compared to the other chemicals.

22                  MR. POLLS: Now, for the chronic  
23                  standard, it states here that you use Tier III.  
24                  Can you explain the difference between Tier III

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1                  and Tier II?

2 MR. OLSEN: That's the default that  
3 was under Subpart -- using Subpart F. That was  
4 the default under Subpart F you can divide by  
5 25. Actually, it gets more complicated.

6 MR. POLLS: So the Tier III, the  
7 reason why you're using Tier III is because you  
8 did not have enough data to use Tier I or Tier  
9 II?

10 MR. OLSEN: That's correct. If you  
11 have an acute to chronic ratio that gives a  
12 good idea of some relationship between those  
13 two, but we don't even have that for  
14 ethylbenzene under the way the rules are  
15 written so we use the default.

16 MR. POLLS: So actually the acute to  
17 the chronic ratio was not for ethylbenzene?

18 MR. OLSEN: It's a default acute to  
19 chronic ratio I should say.

20 MR. POLLS: Which is called Tier III?

21 MR. OLSEN: Yes.

22 MR. POLLS: Now, is that also used  
23 for the chronic standard for xylene, it says  
24 here --

1                   MR. OLSEN: I'm not sure. I couldn't  
2 quite hear you. There's a little noise  
3 outside.

4                   MR. POLLS: Under total xylene, is  
5 this the default method the same default method  
6 that was used for calculating the chronic for  
7 ethylbenzene?

8                   MR. OLSEN: Yeah -- no. We could  
9 have used the Subpart F default, but we went  
10 ahead and just used the Subpart E. So, again,  
11 there's a matter of choice, but what we just  
12 presented here is a Subpart E because it seemed  
13 very reasonable. It was a -- it looked like a  
14 typical kind of ACA.

15                   MR. POLLS: How can you explain in  
16 the summary in Exhibit F under total xylene, it  
17 says the chronic data says it's an inadequate  
18 calculation criteria for General Use except by  
19 the default method.

20                   So what you're saying you did not use  
21 the default method in xylene?

22                   MR. OLSEN: There were ACRs, but  
23 there wasn't enough for a Tier I, which is very  
24 seldom that you find that.



1                   MR. RAO: The last question, this is  
2                   regarding the conversion factor for cadmium  
3                   under Section 302.504.

4                   I think there is a typographical  
5                   error in the conversion factor if you can take  
6                   a look at it and make sure you have the right  
7                   numbers?

8                   MR. MOSHER: Okay. We'll do that.

9                   MR. RAO: Thank you.

10                  HEARING OFFICER TIPSORD: Are there  
11                  any further questions for the Agency?

12                  MR. ETTINGER: We're looking for  
13                  another typo.

14                  HEARING OFFICER TIPSORD: Can we go  
15                  off the record for a second?

16                  (A short break in proceedings.)

17                  Back on.

18                  MR. ETTINGER: 302.575 B, we think  
19                  there's an I missing at the last word after  
20                  tropic level.

21                  MR. OLSEN: Yes, that's correct.

22                  HEARING OFFICER TIPSORD: Are there  
23                  any other questions?

24                  MR. POLLS: For the record, when you

1           calculated the acute and chronic standards for  
2           BETX, the only data that was used was for  
3           warm-water species, all cold-water species were  
4           removed in the database when you were looking  
5           at General Use?

6                         MR. OLSEN:  Yes.

7                         MR. POLLS:  Thank you.

8                         HEARING OFFICER TIPSORD:  Anything  
9           further?

10                        Okay.  There's a second hearing  
11           scheduled for March 6, 2002, in Springfield,  
12           Illinois at Room 403, that's the Board's office  
13           in Springfield in our hearing room there.

14                        The purpose of the hearing will be to  
15           continue to offer additional comments and  
16           testimony and we will again probably start with  
17           Agency follow-up testimony before proceeding  
18           with the pre-filed testimony at that time.

19                        Testimony should be pre-filed by  
20           February 20th and served on the service list at  
21           that time, and I will allow the mailbox rule to  
22           apply, so simply just place them in the mail on  
23           February 20th.

24                        Are there any other questions?

1                   MR. ETTINGER: We had a few questions  
2                   about these Tier things, should we do those in  
3                   writing?

4                   HEARING OFFICER TIPSORD: Why don't  
5                   you do those in writing on February 20th as  
6                   well and then the Agency can respond at the  
7                   March 6th hearing.

8                   If anyone else has technical  
9                   questions or additional questions for the  
10                  Agency, if they would like to submit them in  
11                  writing that they would do it by the February  
12                  20th date.

13                  I'm sure it will be very helpful to  
14                  the Agency to prepare for the March 6th  
15                  hearing.

16                  I want to thank you all for your  
17                  attention and your cooperation. This has been  
18                  a good hearing. Thank you very much. We are  
19                  adjourned.

20  
21                                 (Whereupon, these were all the  
22                                 proceedings had at this time.)  
23  
24

1 STATE OF ILLINOIS )  
2 ) SS:  
3 COUNTY OF C O O K )  
4

5 I FRANCINE BUONAVOLANTO being first  
6 duly sworn, on oath says that she is a court  
7 reporter doing business in the City of Chicago;  
8 and that she reported in shorthand the  
9 proceedings of said hearing, and that the  
10 foregoing is a true and correct transcript of  
11 her shorthand notes so taken as aforesaid, and  
12 contains the proceedings given at said hearing.

13  
14 \_\_\_\_\_  
15 Certified Shorthand Reporter

16  
17 SUBSCRIBED AND SWORN TO  
18 before me this \_\_\_\_\_ day  
19 of \_\_\_\_\_, 2002.

20  
21  
22 \_\_\_\_\_  
23 Notary Public

24