

ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
 )  
 WATER QUALITY STANDARDS AND )  
 EFFLUENT LIMITATIONS FOR THE )  
 CHICAGO AREA WATERWAY SYSTEM )  
 AND THE LOWER DES PLAINES )  
 RIVER: PROPOSED AMENDMENTS )  
 TO 35 Ill. Adm. Code Parts )  
 301, 302, 303 and 304 )

R08-09  
 (Rulemaking-  
 Water)

**RECEIVED**  
**CLERK'S OFFICE**

NOV 23 2009

STATE OF ILLINOIS  
 Pollution Control Board

REPORT OF PROCEEDINGS held in the

above-entitled cause before Hearing Officer Marie  
 Tipsord, called by the Illinois Pollution Control  
 Board, taken before Laura Mukahirn, CSR, a notary  
 public within and for the County of Cook and State  
 of Illinois, at 160 North LaSalle Street, Room  
 N-502, Chicago, Illinois, on the 10th day of  
 November, 2009, commencing at the hour of 9:00 a.m.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

A P P E A R A N C E S

MS. MARIE TIPSORD, Hearing Officer  
MR. TANNER GIRARD, Chairman  
MR. ANAND RAO, Member  
MS. ALISA LIU, Member  
MS. ANDREA MOORE, Member  
DR. SHUNDAR LIN, Member  
    Appearing on behalf of the Illinois  
    Pollution Control Board

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276  
(217)782-5544

BY: MS. DEBORAH WILLIAMS  
    MS. STEPHANIE DIERS  
    MR. ROBERT SULSKI  
    MR. SCOTT TWAIT  
    MR. HOWARD ESSIG  
    MR. ROY SMOGOR

FRANZETTI LAW FIRM  
10 South LaSalle Street  
Suite 3600  
Chicago, Illinois 60603  
(312)251-5590

BY: MS. SUSAN FRANZETTI  
    Appearing on behalf of Midwest Generation

1 HEARING OFFICER TIPSORD: I think  
2 we're ready to go on the record. Good  
3 morning, everyone. My name is Marie Tipsord,  
4 and I've been appointed by the Board to serve  
5 as hearing officer in this proceeding  
6 entitled Water Quality Standards and Effluent  
7 Limitations for the Chicago Area Waterway  
8 System and Lower Des Plaines River, Proposed  
9 Amendments to 35 Ill. Admin Code 301, 302,  
10 303 and 304. This is Docket No. R 08-9.  
11 With me today to my immediate left is acting  
12 chairman G. Tanner Girard, presiding board  
13 member on this proceeding. Also to his left,  
14 far left, is board member Shundar Lin, and  
15 board member Andrea Moore will be joining us  
16 shortly. To my immediate right is Anand Rao,  
17 and to his right Alisa Liu from our technical  
18 staff.

19 This is the 35th day of hearings,  
20 and we are continuing today to hear testimony  
21 from Midwest Generation's witnesses, and  
22 specifically Mr. Greg Seegert. We will  
23 continue with IEPA's questions and then move  
24 to the Environmental Law and Policy Center.



1 will remind Mr. Seegert he has been sworn in  
2 and you're still under oath. And we will  
3 begin again with the IEPA. I believe we're  
4 at Question 73.

5 MS. FRANZETTI: If I might interrupt.  
6 I'm sorry. Mr. Seegert would like to correct  
7 a misstatement he made yesterday with respect  
8 to one of his answers, and this has to do  
9 with the San Antonio River restoration  
10 project.

11 MR. SEEGERT: Correct. In response to  
12 a question from Mr. Ettinger, I referred to a  
13 project in Texas which led to a little  
14 discussion about is the Colorado River really  
15 in Texas. So that got me thinking. I knew  
16 it was, but I went back and looked at my maps  
17 last night and yes, indeed, the Colorado  
18 River is in Texas, but it flows through  
19 Austin, not San Antonio. And so the river  
20 that I'm referring to was the San Antonio  
21 river, and then my recollection of the dollar  
22 amount was 240 million. I believe that's  
23 what I said. And the actual amount for -- it  
24 says eight miles of river south of downtown

1 San Antonio is \$272 million. So I apologize  
2 for the error.

3 MR. ETTINGER: Thank you. Are you  
4 aware of the riffle restoration project that  
5 is on the Colorado River in Texas?

6 MR. SEEGERT: No, I'm not.

7 HEARING OFFICER TIPSORD: Miss Diers?

8 MS. DIERS: We left off at 73. And  
9 I'm going to strike that question and go to  
10 74.

11 Examination

12 By Ms. Diers

13 Q. Explain why the habitat limitations  
14 you referred to on Page 12 of your testimony are  
15 permanent and irreversible?

16 A. Well, the limitations that I cite, in  
17 particular lack of riffles in fast waters, are a  
18 result of the damming of the river, and these  
19 limitations are going to continue unless the dams  
20 are removed. Siltation is also primarily a result  
21 of dams and urbanization, neither of which are  
22 reversible. And I would add that there was some  
23 discussion yesterday about couldn't you put in a  
24 riffle, and I believe my answer was something to the

1 effect of, well, if we had unlimited amounts of  
2 money, perhaps you could do it. But then I got  
3 thinking about that and realized that how could you  
4 put in a riffle in a system that's established for  
5 commercial navigation? There'd be no way to get the  
6 barges through it. So, again, you would have to  
7 take out commercial navigation in order to have  
8 riffles. So you'd have to take out the damns and  
9 eliminate navigation in order to put in a riffle  
10 assuming a riffle could be put in.

11 HEARING OFFICER TIPSORD: Mr. Seegert,  
12 you talked yesterday about a riffle along the  
13 Missouri River north of St. Louis. Is the  
14 Missouri River navigable?

15 MR. SEEGERT: Missouri River is not --  
16 My recollection is no, it's not managed for  
17 navigation. They have a series of what the  
18 corps calls channel training structures which  
19 are wing dams, things that divert flow in the  
20 river. But I don't believe that it's managed  
21 for commercial navigation. There is pleasure  
22 craft. It's deep enough for fishermen and  
23 things like that, but I don't believe that  
24 it's managed for commercial navigation.

1 BY MS. DIERS:

2 Q. Question 75: Why do you conclude the  
3 populations of minnows, darters, and suckers in the  
4 Upper Dresden Island Pool is not balanced?

5 A. Well, because there are low numbers of  
6 individuals in those species and low variety. So,  
7 yes, there are a few darters, but they're few in  
8 numbers, and the variety is very low. And then for  
9 some of the other groups that are important, minnows  
10 and suckers, they -- certain members of those groups  
11 are present, but especially amongst the minnows,  
12 it's the ones that are highly tolerant. So what you  
13 have are the minnows you don't want, but you don't  
14 have the minnows that you do want. And so what we  
15 have down there are species which are habitat  
16 generalists. So within the sucker group we have  
17 buffalo and carpsuckers, which are habitat  
18 generalists. We don't have the habitat specialist  
19 amongst the suckers in any numbers which would be  
20 redhorse, hogsucker, some of the other round-bodied  
21 suckers. So it's the difference between the  
22 representation as we have habitat generalists, but  
23 not the habitat specialists that you need to have a  
24 balanced community.



1           Q.       How many habitat specialists would be  
2 needed then?

3           A.       Well, it's, again, it's not an exact  
4 number. The way I look at something like this is if  
5 you're calculating an IBI score for a large river,  
6 there are certain metrics that species contribute  
7 to. So any species that you had is going to  
8 contribute to one of the metrics, the number of  
9 species. So the more habitat specialists that you  
10 have, the potentially higher score you could get for  
11 that metric. We talked a little bit yesterday about  
12 the metrics on percent round-bodied suckers. So if  
13 you either have no round-bodied suckers or you have  
14 only a few individuals. Since that metric is based  
15 on the percent, it's the number of individuals of  
16 those round-bodied suckers that contribute. So you  
17 need a lot because you're dealing with a percentage.  
18 And then there's some other metrics that, again,  
19 factor in. And there are even some species of fish,  
20 for example, longear sunfish. It's not an  
21 intolerant species, but it's a moderately intolerant  
22 species. It's a sunfish that does exist in the  
23 system, but in very low numbers and more often than  
24 not we don't get. But one of the metrics is number

1 of sunfish species. So if you consistently had  
2 longear sunfish, you would consistently get a higher  
3 score because it would be contributing one  
4 additional species to that metric. But in this  
5 system, we mostly have the really tolerant sunfish.  
6 We have green sunfish, we have orange spotted  
7 sunfish, we have bluegills, but we're missing the  
8 moderately intolerant sunfish species. So it's not  
9 an exact number, but if you look at the IBI, there's  
10 five or six different metrics where habitat  
11 specialists directly contribute to the score. So  
12 adding a few habitat specialists could up the score  
13 by five to ten IBI points.

14 Q. And 76, you might have touched on a  
15 little bit. Do you make a distinction between the  
16 Upper Dresden Island Pool's ability to support  
17 habitat specialists and the Upper Dresden Island  
18 Pool's ability to support viable populations of  
19 habitat specialists?

20 A. Yes. And make the distinction, again,  
21 because we're talking about the difference between  
22 an individual here and there versus having what I  
23 referred to, I think yesterday, as viable  
24 populations. That means the population must have

1 sufficient numbers to be able to reproduce  
2 successfully and sustain itself through all life  
3 stages. So it's not enough that it just can show up  
4 and stay alive. It has to be able basically to  
5 prosper. It has to find a good place where it can  
6 eat and grow, and then a place where it can  
7 ultimately reproduce, which, in some cases, is the  
8 same habitat and in other cases it's different --  
9 It's a different habitat. But all the different --  
10 the habitat needs to be there for all of its  
11 different life stages, not just larvae and not just  
12 adults, but all the stages in between. And for the  
13 habitat specialists, we have very few of them in  
14 terms of the number of species. And then we also --  
15 and even the few that we do have are poorly  
16 represented, two of these, one of those, that those  
17 aren't viable populations.

18 Q. So how do you know when you have  
19 enough when you're making these evaluations?

20 A. Well, again, I would use something  
21 like IBI, and the IBI as it's used extensively in  
22 other states for -- we're talking about boatable,  
23 nonwadable rivers. And IBIs have different scores,  
24 but a lot of them like I think the current version

1 that Illinois EPA is operating under the maximum  
2 score is six. So based on 60 as a maximum, the  
3 typical scores in Ohio for the -- it varies by  
4 ecoregion, but to reach attainment, they say you  
5 have to be between about 40 and 45. The scores here  
6 are half of that. They're basically 20 to 25. And  
7 everybody has agreed to that. It's not just our  
8 scores, but the scores calculated by MBI. So we're  
9 way far apart. We need basically another 20 IBI  
10 units. And I looked at how could you gain a certain  
11 number of IBI units, in this case, about 20. And  
12 say, well, this is what you would have to do. And  
13 so when you just do -- when you do certain things  
14 like if you had cover, you could gain a couple of  
15 IBI points, but you're not going to go up to that 40  
16 or 45. So you have to -- I mean the way I look at  
17 it is how could you gain enough species or  
18 individuals or certain kinds of species to take it  
19 from what it actually is right now, which is 20 to  
20 25, and move it way up here to 40 to 45. And given  
21 the habitat limitations, that's not going to happen.  
22 The gap is just too big.

23 And just as I continue, when you  
24 asked the question about viable populations, again,

1 and I was talking about low numbers of individuals,  
2 we heard testimony, I believe it was last month from  
3 Ms. Barcusen (ph.). Am I pronouncing that  
4 correctly?

5 MS. FRANZETTI: I think that's close.

6 MR. SEEGERT: And she was talking  
7 about a need or what she believed was a need  
8 for some inner connection between the  
9 tributaries and the main stem of the  
10 Des Plaines River. And she cited several  
11 examples and saying, well, like in the DuPage  
12 River, a -- I think she mentioned a river  
13 redhorse was collected. In one other case  
14 she might have mentioned black redhorse. But  
15 the fact that you get one or two of  
16 something, again, it doesn't mean that that's  
17 an established population. And I would grant  
18 that it's possible that if you find one and  
19 then the next year you come back and find  
20 five and the next year you come back and find  
21 ten, then something is going on. But the  
22 kind of examples that she was citing only  
23 indicate that if you go out and do a bunch of  
24 sampling occasionally, you're going to get a

1           rare fish, something that basically wandered  
2           in from somewhere else that doesn't have the  
3           right amount of habitat. It can't sustain  
4           itself, and all you're looking at is, the  
5           scientific term a lot of people use are  
6           waifs, W-A-I-F-S, and these are basically  
7           orphan fish. They just wander in from one  
8           place to the other, find themselves in a  
9           place where they can't sustain themselves and  
10          literally die out because they can't  
11          reproduce, they can't prosper.

12       BY MS. DIERS:

13           Q.       I'm going to strike Question 77 and go  
14          to 78. Please explain your understanding of how the  
15          Agency relied on IBI data generally. And then  
16          please explain your understanding of what sources of  
17          IBI and QHEI data the Agency relied on. And didn't  
18          the Agency rely on -- I'm going to strike as much or  
19          more and just ask didn't the Agency rely on QHEI  
20          data collected by EA more -- I'm sorry -- hang on.  
21          As much or more data collected by EA than IBI  
22          referenced on Page 13 in the prefiled testimony?

23           A.       Well, I believe that the Agency used  
24          the IBI as primarily a measuring stick to determine

1 how good the current fish community is and relative  
2 to how good it possibly could be. My impression is  
3 that they did rely more on the data that was  
4 collected by MBI. I went back and looked at the  
5 statement of reasons and several other documents,  
6 and, frankly, I couldn't really see how the data  
7 were used. I just -- I mean because anticipation --  
8 in anticipation of this and similar questions, I  
9 tried to follow the logic, how did you get from  
10 Point A to Point B; and, frankly, I couldn't follow  
11 it. It appeared it had something to do with the  
12 recommendation from the Lower Des Plaines UAA. But  
13 other than that, it wasn't clear to me how the data  
14 were used. I just couldn't figure it out.

15 Q. Question 79, please provide a  
16 reference for your statement on Page 14 that states  
17 Illinois EPA's contending that the Upper Dresden  
18 Island Pool shares characteristics with Illinois's  
19 general use waters that enable it to abstain Clean  
20 Water Act aquatic use goals?

21 A. Currently the only aquatic life use in  
22 Illinois that is considered consistent with Clean  
23 Water Act goals is the general use. And because  
24 it's -- the Agency is proposing that Upper Dresden

1 Island Pool be upgraded to a classification that  
2 attains -- that it believes attains Clean Water Act  
3 goals which is what the general use waters in  
4 Illinois are believed to be capable of doing, then I  
5 would conclude that the Agency must believe that  
6 Upper Dresden Island Pool shares many of the same  
7 characteristics with other general use waters in the  
8 state.

9 Q. Question 80: You state on Page 14  
10 that general use waters do not have the combination  
11 of channelization, impoundment, commercial  
12 navigation, irregular flows and significant inputs  
13 from urban storm water and wastewater discharges  
14 that characterize the Upper Dresden Island Pool.  
15 What is the basis for this statement? Would you  
16 agree don't general use waters have each of these  
17 characteristics that I just mentioned?

18 A. Well, I don't think that there are any  
19 other general use waters in Illinois that have this  
20 combination of factors; that there may be other  
21 areas that are classified as general use, and  
22 perhaps they have impoundments, perhaps they have  
23 channelizations, but I don't think they have this  
24 combination of factors or factors to this degree; in



1 other words, the degree of impoundment, the degree  
2 of channelization. Even I think in the statement or  
3 in your definition for Upper Dresden Pool, you  
4 talked about the unique flow situation that exists  
5 in the Upper Dresden -- or in the Upper Dresden Pool  
6 to support commercial navigation. So by definition  
7 unique is unique. So this is the only water body  
8 that's got that set of circumstances, but it's this  
9 combination of factors that are going to be -- that  
10 make this system what it is. Then certainly no  
11 other area in Illinois is as urbanized as the  
12 Chicago metro area. There are urban centers, but  
13 they're not nearly the magnitude of the Chicago  
14 area. No other part of the state has a wastewater  
15 treatment plant as big as Stickney. We've heard, I  
16 believe, testimony to the fact that Stickney is or  
17 may still be the largest wastewater treatment plant  
18 in the world, not just in Illinois, but in the  
19 world. So certainly no other place in Illinois has  
20 a treatment plant of that size located on it. So  
21 and then on top of the urbanized nature of this  
22 area, no other area in the state, to my knowledge,  
23 has what I would call the density of barge traffic.  
24 It's not just the number of barges moving through

1 because you have presumably about the same number  
2 moving through the Illinois River. But now you've  
3 necked this down, and there's almost no room on  
4 either side of the barge. I mean the barge goes up  
5 and it takes up pretty much all the river channels,  
6 so everything is getting all churned up. There is  
7 no other water body that's going to be like that in  
8 the state. And then another layer of this is the  
9 habitat, in this case the lack of good habitat. So  
10 it just seems that there's this whole -- it's the  
11 combination, it's not just one thing, but it's the  
12 combination, and then it's the magnitude of each one  
13 of these limitations.

14 Q. Out of all the waters that we're  
15 looking at in this proposal before the Board, would  
16 you agree that Dresden Island Pool is the least  
17 impacted?

18 MS. FRANZETTI: Counsel, when you say  
19 impacted --

20 MS. DIERS: Well, all the factors we  
21 just talked about.

22 MS. FRANZETTI: By all these factors  
23 that he's just --

24 MS. DIERS: Yes.

1 MS. FRANZETTI: Are you going to limit  
2 it to the areas he's talked about: South  
3 fork, Ship Canal?

4 MS. DIERS: I'll limit it to him.  
5 That's fine.

6 MR. SEEGERT: Of the areas that I  
7 referred to, I would characterize this area  
8 as the least poor.

9 BY MS. DIERS:

10 Q. Question 81: Are you recommending  
11 that Illinois EPA adopt Ohio's use classification  
12 system? And I'll just strike the question from  
13 there for right now.

14 A. Okay. Well, I do believe that  
15 Illinois needs a multi-tiered system of aquatic life  
16 uses. There's a position that I've taken for a  
17 number of years. We had a meeting in Springfield  
18 four or five years ago, and I commented during the  
19 comment period that one of the problems was that the  
20 state was moving ahead very nicely on setting up  
21 IBIs. But one of the -- but in order to be able to  
22 really utilize that data, you needed a multi-tiered  
23 system. So I believe they need a multi-tiered  
24 system. Whether it -- I think the Ohio system,

1 which I'm quite familiar with, is a reasonable one,  
2 but I'm not prepared to say that's the one you  
3 should adopt. I think it's a reasonable one.  
4 Conceptually it makes a lot of sense. There may be  
5 others that are equally good or even better. But  
6 you definitely need a multi-tiered approach, and I  
7 also believe that whatever system you adopt, it  
8 should be adopted statewide. I don't think that you  
9 should deal with water bodies individually. You  
10 should come up with a state-wide system which is  
11 what Ohio has, and then says okay, where do these  
12 water bodies fit within this overall system.

13 Q. I'm finished with 81. I'll strike 82,  
14 strike 83, strike 84.

15 Eighty-five: You mentioned  
16 Mr. Rankin's suggestion that the Upper Dresden Pool  
17 as a potential modifying impound use. Did  
18 Mr. Rankin make this suggestion based on habitat  
19 data alone? I'm sorry. I'm on 85.

20 MS. FRANZETTI: I'm sorry, Counsel.

21 We're getting there.

22 MR. SEEGERT: All right.

23 MS. DIERS: I'm not making it easy.

24 MR. SEEGERT: Could you repeat that,

1           please?

2       BY MS. DIERS:

3           Q.       Yes. I'm on question 85. You  
4       mentioned Mr. Rankin's discussions about the Upper  
5       Dresden Pool as a potential modified impounded use.  
6       Did Mr. Rankin make the suggestion based on habitat  
7       data alone?

8           A.       He made his conclusion based on his  
9       evaluation of the habitat.

10          Q.       And I'm going to ask the last part of  
11       that question. Did Mr. Rankin imply that his  
12       conclusion was preliminary given that he did not  
13       assess biological data in his study?

14          A.       I believe he did indicate that the  
15       biological data needs to be considered; however, in  
16       this case there's lots of biological data that's  
17       been collected, and it all supports Mr. Rankin's  
18       conclusion.

19          Q.       Okay. Strike 86, strike 87.  
20       Eighty-eight: Where in the CAWS has EA conducted  
21       fish surveys since 1980? This is referenced on Page  
22       17 of the testimony. And how many of the 3,159  
23       collections have been in the Lockport Pool and have  
24       you collected samples in the CAWS upstream of the

1 Lockport Pool?

2 A. Our studies have been in the Lockport,  
3 Brandon, and Dresden Pools except for three sampling  
4 locations in the south branch of the Chicago River,  
5 and those are done near Midwest Generation Fisk  
6 station. And in response to your inquiry about how  
7 many of the collections were made in Lockport Pool,  
8 during the period 1993 through 2005, we made 557  
9 collections in Lockport Pool.

10 Q. Ninety-four: Page 24 of your  
11 prefiled --

12 MS. FRANZETTI: Ninety-four?

13 HEARING OFFICER TIPSORD: You're  
14 skipping 89 through 93?

15 MS. DIERS: I'm sorry. Let me hang on  
16 a second. I missed a page.

17 BY MS. DIERS:

18 Q. I'll go back. Sorry. Question 90:  
19 Page 19 of your prefiled testimony you state, the  
20 fish communities in the Upper Dresden Pool and in  
21 the five mile stretch Dresden Pool downstream of the  
22 Kankakee River and downstream of the Dresden Lock  
23 and Dam were relatively similar to each other and  
24 noticeably better than those upstream at Brandon

1 Lock and Dam. What conclusions did you draw by  
2 these comparisons between the Upper Dresden Island  
3 Pool and the general use waters downstream of it?

4 A. So you skipped 89, correct?

5 Q. Yes. Sorry.

6 A. Okay. In response to Question 90, I  
7 would say as discussed in the report that's attached  
8 to my testimony that EA has concluded that the  
9 different thermal standards in the two portions of  
10 the Dresden Pool, in other words, the portion  
11 upstream of I-55 and the portion downstream of I-55  
12 that sometimes is referred to as the five-mile  
13 stretch, that those areas -- that the temperature  
14 does not have a significant effect on the fish  
15 community, and we all -- but we conclude the fish  
16 community in both areas is depressed.

17 MR. ETTINGER: May I ask you a  
18 question here? Has EA ever found a  
19 temperature problem anywhere?

20 MR. SEEGERT: Yes.

21 MR. ETTINGER: Where?

22 MR. SEEGERT: There's a situation on  
23 the Ohio River where there's a power plant.  
24 And I don't understand all the ramifications,

1 but because of how the permit is written,  
2 their temperature limit is based on like BTU  
3 loadings. So they don't actually have an  
4 instream temperature limit. And so the fish  
5 community in the tributary into which they  
6 discharge is very warm, and so there is an  
7 effect going on. But apparently, and I don't  
8 understand all the legal parts of this, but  
9 because of how the permit is written, they  
10 are in compliance. So even though there  
11 appears to be an effect going on -- well,  
12 there is an effect in part of the receiving  
13 water body, they're not in violation of the  
14 permit, and perhaps during the next permit  
15 cycle that will get changed. But so that  
16 would be one example.

17 MR. ETTINGER: Do you know what plant  
18 that is and where it is?

19 MR. SEEGERT: That is the Stuart  
20 plant, and all I can remember is it's  
21 upstream of Cincinnati on the Ohio.

22 MR. ETTINGER: Thank you.

23 BY MS. DIERS:

24 Q. Question 91: Page 19 of your prefiled



1 testimony you state, results at thermally-influenced  
2 sampling stations were comparable to those at other  
3 stations. What do you mean by comparable? How did  
4 you determine which sampling stations were thermally  
5 influenced and can we identify this in your report?

6 A. I'm not sure this is the exact order  
7 you asked the questions, but comparable means  
8 similar. It doesn't necessarily mean they're  
9 statistically similar, but basically you look at the  
10 numbers and they're pretty close. And as far as how  
11 do we know whether there was thermal influence, we  
12 take temperature measurements as part of our  
13 collections to verify what the temperature regime  
14 was within the zone that we're sampling. And that  
15 was described in the '93/'94 EA reports. And  
16 temperature data are included in those reports, and  
17 we identify the areas that are most thermally  
18 influenced which end up being those -- not  
19 surprisingly those locations that are in the actual  
20 discharge canal or one of the locations immediately  
21 next to it. So basically it's the locations that  
22 are closest to the plant that are thermally  
23 influenced.

24 MS. WILLIAMS: Can I just ask a

1 clarification really quick?

2 HEARING OFFICER TIPSORD: Keep it  
3 limited, Miss Williams.

4 MS. WILLIAMS: I just want to  
5 understand. You said that temperature data  
6 are included in those reports.

7 MS. FRANZETTI: Yes, he did.

8 MS. WILLIAMS: Where are the sampling  
9 points that the temperature data is from?

10 MR. SEEGERT: What?

11 MS. FRANZETTI: Counsel, I'm not  
12 following your question. Do you understand  
13 the question?

14 MR. SEEGERT: No.

15 MS. FRANZETTI: Can you try to  
16 rephrase?

17 MS. WILLIAMS: Is temperature data  
18 taken only at the I-55 bridge in those  
19 reports or is it throughout the sites?

20 MR. SEEGERT: No. Well, Mr. Vondruska  
21 can address that better.

22 MS. WILLIAMS: Thank you.

23 MR. VONDRUSKA: In the field for our  
24 electro --

1 HEARING OFFICER TIPSORD: Excuse me.  
2 Just for the record, you were sworn in  
3 yesterday, and you're still under oath.

4 MR. VONDRUSKA: Yes. Thank you. When  
5 we do conduct our electrofishing, we make  
6 real time temperature measurements, dissolved  
7 oxygen, specific conductivity, and take disc  
8 measurements right prior to when we sample.

9 MS. WILLIAMS: Thank you.

10 BY MS. DIERS:

11 Q. I'm going to go to 93. I think it  
12 flows better, and I'll probably jump back to 92.  
13 Ninety-three: On Page 21 of your prefiled  
14 testimony, you discuss the fish sampling conducted  
15 following the Adjusted Standard 96-10 opinion.  
16 Would you agree that the fish diversity, and, I  
17 guess, the balance of the fish population in the  
18 Upper Dresden Island Pool has increased since that  
19 time?

20 A. I would agree that fish abundance has  
21 increased slightly, but I would note that that's  
22 really the result of just a few species. So it's  
23 not like the whole community has increased, but  
24 rather a few species. And a number of those that

1 have increased are some of the highly tolerant. So  
2 it's not particularly surprising that they might  
3 have increased. But, yes, there has been somewhat  
4 of an increase in terms of numerical abundance. The  
5 diversity and balance I don't think are really  
6 appreciably different than if you do some of the  
7 comparisons. You compare, let's say, just kind of a  
8 hypothetical, 2000 versus 1994. 2000 might have had  
9 a higher IBI score, but another year it might not  
10 have been higher. So some of the years there's an  
11 improvement, and it almost has to do with your  
12 benchmarking it against 1993 which for reasons we  
13 don't fully understand seem to have abnormally poor  
14 scores. So compared to what we think is probably  
15 somewhat of a poor year, abundance is increased, but  
16 the diversity and the overall balance are pretty  
17 much unchanged.

18 MR. ETTINGER: I have to interrupt  
19 here again. You've been using this term  
20 intolerant or tolerant or relatively  
21 tolerant. What do you mean by intolerant  
22 species?

23 MR. SEEGERT: I'm using it, and for  
24 the most part, using the same species that

1 Ohio EPA has used. So what you -- and the  
2 way that -- there's a couple ways that are  
3 established for doing this: One is to -- and  
4 also at most state level IBIs, the person  
5 developing the IBI wants to look at both ends  
6 of the fish community. They want to look at  
7 the intolerant end and the tolerant end. So  
8 that person sits down and says, okay, I'm in  
9 Wyoming, and then they'll gather as much  
10 information as they can about fish abundance  
11 and distribution in Wyoming. And then  
12 they'll use their professional judgment,  
13 sometimes it'll be a group of people, and say  
14 these will go in this bucket, the tolerant  
15 bucket. These go into the intolerant bucket.  
16 Now, Ohio, because they have a huge  
17 biological database was able to do it  
18 differently and actually more rigorously.  
19 For the tolerant group, what they said is  
20 we've got a bunch of sites that have really  
21 low IBI scores, and so we know those are poor  
22 sites. What fish can tolerate our poor  
23 sites? What do we actually find in our poor  
24 sites? I forgot the exact percentiles that

1 they used on this, but that was the question  
2 they were asking, what do we consistently see  
3 at the very poor sites. And then they  
4 basically did the reverse of this, for  
5 what -- at our best site, what are the  
6 species of fish that are basically  
7 representative of the best sites, fish that  
8 are often not found at just fair sites or  
9 even good sites, but where you see them is at  
10 the best sites. So basically you're saying  
11 what are the fish, the intolerant are the  
12 ones that are at the best sites, and the  
13 tolerants are the ones that are at the  
14 poorest sites. And in most cases, as is  
15 typically done, you're talking about  
16 tolerance not to a whole host of toxicants,  
17 but to habitat disturbance, siltation, and  
18 sedimentation. And what U.S. EPA, I believe,  
19 calls conventional pollutants which are  
20 things like dissolved oxygen and ammonia. So  
21 it's -- You're not talking about the  
22 tolerance, the PCBs, or the ambient, but  
23 mostly to habitat disturbance, siltation and  
24 sedimentation, and conventional pollutants.

1 MR. ETTINGER: So are some fish more  
2 intolerant to one disturbance than another?

3 MR. SEEGERT: Definitely so.  
4 Something can be -- I mean the question  
5 always has to be tolerant or intolerant to  
6 what as I put the kind of general context,  
7 but there could be something which is very  
8 tolerant to sediment, but it's not at all  
9 tolerant to dissolved oxygen or -- I'll give  
10 you an example. Yellow perch, relatively  
11 speaking, is not very temperature tolerant.  
12 It's somewhat of a cool water species. But  
13 it's very tolerant to low DO conditions.  
14 That's why there are a lot of lakes in  
15 northern Wisconsin that you have freeze-out  
16 lakes where the dissolved oxygen goes almost  
17 to zero. And you'll find usually two or  
18 three species of fish, and one of those will  
19 be yellow perch, because they're very  
20 tolerant. This is where the professional  
21 judgment of the biologist comes in. So  
22 you're saying overall where am I going to  
23 place this critter? What bucket do I want to  
24 put that species in?

1 MR. ETTINGER: Where would you put  
2 channel catfish?

3 MR. SEEGERT: Channel catfish tend to  
4 be in the -- near the tolerant end. So if  
5 you think of a continuum from intolerant to  
6 tolerant, I would not call them highly  
7 tolerant. I would call them moderately  
8 tolerant.

9 MR. ETTINGER: Thank you.

10 CHAIRMAN GIRARD: Could I ask a  
11 follow-up on that, Mr. Seegert. You gave us  
12 the general characteristics you look for to  
13 identify a poor site. What are the  
14 characteristics you would use to identify the  
15 best sites?

16 MR. SEEGERT: Well, okay. Do you mean  
17 in terms of habitat or the fish community?

18 CHAIRMAN GIRARD: Well, give me both.

19 MR. SEEGERT: Okay. Well, in terms of  
20 habitat, we've heard testimony from several  
21 people talking about the 60 cut-off on the  
22 QHEI. That means it's good. It doesn't mean  
23 it's excellent. So I believe Ohio uses  
24 either 70 or 75 as a cut-off. So if you're



1 looking for the -- not sites that just might  
2 attain, but almost -- you definitely would  
3 know habitat is in a limitation. So if you  
4 said any site that's above 70, you can say  
5 habitat is not going to be a limiting factor.  
6 Then what Ohio EPA has done is based on  
7 looking at all of their sites for what their  
8 highest use is exceptional warm water. So  
9 not just warm water, exceptional warm water.  
10 And that they do state wide at an IBI of 50.  
11 They've looked at percentiles of how all  
12 their IBI sites, how all their sites score  
13 statewide for the IBI. And they're looking  
14 at the tail of the curve at the high end and  
15 they've decided that 50 is that cut-off. So  
16 if I wanted to know where the tolerant fishes  
17 might be found, I'd go to sites that have  
18 IBIs of 50 or more and see what species were  
19 there and then see -- yeah, I'm sorry, for  
20 the intolerant. And saw what intolerant  
21 species were consistently found at these  
22 sites where the IBI exceeded 50 or more. So  
23 you'd look for sites where QHEIs were  
24 probably above 70 or 75 and where the IBI

1 scores exceeded 50.

2 CHAIRMAN GIRARD: Thank you.

3 BY MS. DIERS:

4 Q. Mr. Seegert, you mentioned IBI in  
5 answering some of these questions. Were the IBI  
6 scores included in your report summarized in  
7 Attachment 1?

8 HEARING OFFICER TIPSORD: Attachment 1  
9 to his testimony?

10 MS. DIERS: Yes.

11 HEARING OFFICER TIPSORD: Which is  
12 Exhibit 366.

13 MS. FRANZETTI: Counsel, I'm sorry.  
14 Is this one of your prefiled questions or --

15 MS. DIERS: It's not.

16 MS. FRANZETTI: What's the question  
17 again? What are we --

18 MS. DIERS: He's been talking about  
19 IBI. And I wanted to know were IBI scores  
20 included in his report summarized in  
21 Attachment 1?

22 MR. SEEGERT: No.

23 MS. DIERS: Is that something that  
24 could be provided to us?

1 MS. FRANZETTI: Can you give me just a  
2 second? Because I'm not sure which IBI  
3 scores we're talking about.

4 MS. DIERS: Sure.

5 MS. FRANZETTI: Counsel, why don't I  
6 let Mr. Vondruska explain what the IBI issue  
7 is in the absence of scoring on IBI. I think  
8 that's what you're asking for, but if not,  
9 then you can follow up.

10 MR. VONDRUSKA: As part of the  
11 long-term monitoring the EA has conducted for  
12 Midwest Generation, we have not calculated  
13 IBI scores because there's not an appropriate  
14 IBI for that system.

15 MS. FRANZETTI: Explain that further  
16 what you mean by there isn't an appropriate  
17 IBI for that system. The IBI system that  
18 exists is for what type of waters?

19 MR. VONDRUSKA: For wadable streams.

20 MS. FRANZETTI: And this is not, is  
21 not a wadable stream?

22 MR. VONDRUSKA: That is correct.

23 MR. ETTINGER: Maybe I missed  
24 something. I felt we were talking earlier

1 about IBI scores of 20 and 40. Was that --

2 MR. SEEGERT: Right. Let me --

3 MR. ETTINGER: We have two different  
4 concepts playing out here, or what --

5 MR. SEEGERT: Historically EA did not  
6 calculate IBI scores for this system because  
7 there wasn't an off-the-shelf version of the  
8 IBI available that was specific to this  
9 system. You would like to have an IBI for  
10 either the ecoregion or the state that you're  
11 dealing with. Illinois has IBI, but as  
12 Mr. Vondruska just mentioned, the IBI that  
13 the State uses is restricted to smaller  
14 streams, primarily wadable streams. So we  
15 couldn't just plug that IBI in. And when we  
16 had the work group that was part of the lower  
17 UAA, the biological advisory group, we talked  
18 about this issue and we agreed that one of  
19 the things we could use was the -- another  
20 measure, the index of wellbeing or IWB. And  
21 that was probably -- that doesn't depend on  
22 all the calibrations that go into the IBI.  
23 So we could use that. Then as things  
24 eventually evolved in the hearings, then MBI

1           decided that they would apply their Ohio  
2           version, their boatable IBI to this area.  
3           And I say that's an acceptable thing to do.  
4           It's not as on target as you would like an  
5           IBI to -- you'd like to have an IBI that  
6           someone like Mr. Smogor would have developed  
7           using an Illinois specific data set. But  
8           that doesn't exist. So MBI said, hey, we'll  
9           use a surrogate, we'll use our Ohio version  
10          for this system. And when they used -- when  
11          they did that, they got scores mainly in the  
12          20s.

13                        MS. FRANZETTI: And it's those scores  
14                        that you were referring to in your testimony  
15                        in the report?

16                        MR. SEEGERT: Yes.

17                        CHAIRMAN GIRARD: Can I ask a  
18                        question? How long did it take Ohio to  
19                        develop their IBI for larger streams?

20                        MR. SEEGERT: I can't give you an  
21                        exact number of years, but it was on the  
22                        order of ten years. They're collecting data,  
23                        they started in the early '80s, because I was  
24                        still in -- I was working in Ohio at that

1 time. I worked in Ohio from 1979 to when I  
2 joined EA in early 1982. And they were in  
3 their data collection phase at that point in  
4 time. And then it wasn't until sometime in  
5 the mid to late '80s that they came out with  
6 their first iterations of their IBI and then  
7 they refined the various ones since. But  
8 they had about a ten-year period of data  
9 collection before they were able to  
10 assimilate all that data and develop IBIs not  
11 just for boat sites, but also for wadable  
12 sites.

13 HEARING OFFICER TIPSORD: And, just  
14 for the record, MBI is the name of the  
15 consulting firm that --

16 MR. SEEGERT: Midwest Biological  
17 Institute.

18 HEARING OFFICER TIPSORD: Right.

19 MS. WILLIAMS: Finish your question  
20 for the record. Because I think that there  
21 may be --

22 HEARING OFFICER TIPSORD: It's not for  
23 the record. It's just a statement that they  
24 were the consultants who worked on --

1 MS. WILLIAMS: No. That's what --  
2 they were --

3 HEARING OFFICER TIPSORD: Okay.

4 MS. WILLIAMS: I don't understand.  
5 Well, let's ask our next follow-up and it  
6 may --

7 BY MS. DIERS:

8 Q. Did the Lower Des Plaines biological  
9 subcommittee decide to use the Ohio EPA's boatable  
10 method? This is just a follow-up to what we've been  
11 talking about. So was it the subcommittee that  
12 decided to use the Ohio EPA's boatable method?

13 A. No.

14 Q. And you're saying MBI decided, just to  
15 be clear?

16 A. Yes.

17 HEARING OFFICER TIPSORD: We're still  
18 not -- you need to relay back, for the  
19 record, because we are 35 days into hearings  
20 and it's been a long time since we've talked  
21 about MBI. What is MBI's relation and why is  
22 it important that they used -- relationship  
23 to this rulemaking, and why did they -- why  
24 is it important -- Why did you use their IBI

1 scores?

2 MR. SEEGERT: MBI was a consultant who  
3 I believe was hired by Illinois EPA -- no.  
4 Were they hired by U.S. EPA?

5 AUDIENCE MEMBER: U.S. EPA.

6 MS. FRANZETTI: Someone hired them.

7 MR. SEEGERT: I thought in the  
8 statement of reasons it said our consultant.  
9 Am I misremembering?

10 MS. WILLIAMS: I'll clarify for the  
11 record, MBI, that organization, was hired by  
12 the Illinois EPA to testify on the  
13 temperature report that Mr. Yoder provided.  
14 That was their role in this proceeding.

15 HEARING OFFICER TIPSORD: And MBI did  
16 a lot of -- we have their IBI scores in the  
17 record.

18 MS. WILLIAMS: They were out there  
19 collecting data just like everyone else has  
20 been out there collecting data, and their  
21 data has been used. I believe U.S. EPA hired  
22 them to collect some data and --

23 HEARING OFFICER TIPSORD: That's fine.

24 MS. WILLIAMS: We used MBI's data. I



1 don't understand the significance. I don't  
2 want to imply here that somehow they were  
3 hired by the Agency for any -- to collect  
4 data.

5 MR. ETTINGER: As you pointed out, it  
6 is a big record. Does anybody know where  
7 this data is in the record?

8 HEARING OFFICER TIPSORD: Actually, I  
9 was just looking.

10 MS. FRANZETTI: When you say this  
11 data, Albert, MBI --

12 MR. ETTINGER: The MBI -- we have too  
13 many initials.

14 HEARING OFFICER TIPSORD: All right.  
15 Can I -- MBI qualitative habitat evaluation  
16 index field sheets are Exhibit 7. MBI fish  
17 data sheets are Exhibit 20, and that's just a  
18 quick search through. That's why I was  
19 trying to get on the record what was the  
20 basis for the use of the IBI scores from MBI.

21 MS. FRANZETTI: There is also --  
22 there's an MBI that what Mr. Seegert has at  
23 times referred to as the Rankin report, that  
24 is also a part of the record. And --

1 MR. SEEGER: He works for MBI.

2 MS. FRANZETTI: Mr. Rankin worked for  
3 MBI. So the references to Mr. Rankin's work  
4 with regard to his QHEI scoring of the Upper  
5 Dresden Island Pool is also a part of the  
6 record, but I don't know that I can spot the  
7 exhibit number. It actually may have been  
8 attached.

9 MS. WILLIAMS: It's an attachment.

10 HEARING OFFICER TIPSORD: I think it's  
11 Attachment R.

12 MS. FRANZETTI: To the statement of  
13 reasons.

14 HEARING OFFICER TIPSORD: Yes.

15 MS. FRANZETTI: That's what I thought.  
16 So those are just some of the spots,  
17 Mr. Ettinger, that contain MBI data. There  
18 may be more.

19 HEARING OFFICER TIPSORD: Thank you.  
20 I think we've established what I needed for  
21 the record. Thank you.

22 BY MS. DIERS:

23 Q. Mr. Seeger, I had asked you just a  
24 few minutes ago about who made the decision to use

1 the Ohio boatable IBI. You stated MBI. May I  
2 approach Mr. Seegert, please?

3 Mr. Seegert, I'm handing you  
4 Attachment A, what's been marked in the record as  
5 Lower Des Plaines River Use Attainability Analysis.  
6 I'm going to show you Page 6-3 of this report.  
7 Starting here could you just read that into the  
8 record?

9 A. Okay. Yes, it says after analysis by  
10 the Lower Des Plaines Use Attainability Analysis  
11 Biological Subcommittee, it was decided that the  
12 Ohio boatable IBI was the most appropriate index for  
13 evaluation of the Lower Des Plaines River.

14 Q. Does that change your answer at all?

15 A. Yes. We've discussed lots of things.  
16 And I also would add that, as you were looking for  
17 that, I remembered that the -- I had remembered the  
18 genesis of the IBI, but I also remembered that for  
19 the CAWS UAA, the IBI was definitely used because  
20 that consultant had asked us for some information,  
21 but I couldn't remember at that point either how it  
22 had all come to pass. I had just remembered that  
23 they also used it.

24 Q. That's fine. It's been years ago.

1 MS. FRANZETTI: Counsel, I just want  
2 to ask a follow-up. Mr. Seegert, are you  
3 relying on the fact that there's that  
4 sentence you were just asked to read in the  
5 UAA report for your testimony that it appears  
6 the subcommittee chose to use the IBI  
7 boatable index?

8 MR. SEEGERT: Yes. I'm relying on the  
9 accuracy of that statement.

10 MS. FRANZETTI: Do you have an  
11 independent recollection as to what the  
12 biological subcommittee decided to use?

13 MR. SEEGERT: No.

14 MS. FRANZETTI: And are there minutes  
15 of the biological subcommittee meetings that  
16 were held back during this stakeholder  
17 process?

18 MR. SEEGERT: My recollection is  
19 certainly not on a regular basis meaning I  
20 don't -- that's not to say there might have  
21 been at one meeting somebody circulated  
22 something around that said here is some  
23 issues or topics. I don't remember anyone  
24 being designated to keep minutes, and minutes

1           definitely were not circulated on a regular  
2           basis.

3       BY MS. DIERS:

4           Q.       I'm going to go back to 92. Please  
5       provide a citation for the following statement: For  
6       large rivers like the UIW, Upper Illinois Waterway,  
7       any site greater than 3 percent DELT (deformities,  
8       erosion, lesions, and tumors) anomalies received the  
9       lowest possible IBI metric score. And do you have  
10      DELT scores more recent than the 1990s?

11           A.       The DELT criteria comes directly from  
12      the Ohio EPA procedures manual where they describe  
13      how to score each IBI metric. So it's directly from  
14      their criterion or from their procedures manual.  
15      And in answer to the question about DELTs, when we  
16      had them, we had DELT scores from the '90s to the  
17      present.

18           Q.       Question 94: Page 2 of your prefiled  
19      testimony you state, and although there has been a  
20      modest improvement in the Upper Dresden Pool in  
21      terms of fish abundance since 1993, the same ten  
22      species continue to dominate the community of the  
23      Upper Dresden Pool and the five mile stretch and  
24      remain unchanged since before the adjusted standard

1 went into effect. I'm going to strike A and ask B:  
2 Are there any new species that you're seeing in this  
3 area?

4 A. We went and looked at that, and it  
5 appears that there are -- 17 species have appeared  
6 since 1995. Now, I caveat that by saying we just  
7 compared that three-year period, 1993 to 1995.  
8 There might -- Some of these fish might have been  
9 collected earlier than 1993, but that's not the  
10 comparison we were looking at, and it's not the  
11 question you had asked. So since 1995, 17 species;  
12 however, of those 17 new species, 13 are represented  
13 by 10 or fewer individuals. And now we're talking  
14 about a nine-year period that would be from 1996 up  
15 through 2000 -- I'm sorry -- 1997 through 2005. So  
16 if you're talking about a nine-year period and  
17 you're talking about 10 or fewer individuals,  
18 talking about basically one individual per year. So  
19 it's not a lot. And then in some of the years --  
20 and this was for both the five-mile stretch and  
21 Upper Dresden Island Pool combined, and some of  
22 those 17 were found only in one area, some were  
23 found only in another area, and a few were found in  
24 both areas.

1 MS. FRANZETTI: Counsel, one thing  
2 that we'd like to add to the record right  
3 now, and I'm going to let Mr. Vondruska --  
4 that relates to this a little bit. Joe,  
5 would you explain what Table 1 is and what  
6 it's meant to be.

7 MR. VONDRUSKA: In Attachment 1.

8 MR. SEEGERT: Attachment 1 to my  
9 testimony.

10 HEARING OFFICER TIPSORD: Which is  
11 Exhibit 366.

12 MR. VONDRUSKA: Thank you. On  
13 Page 10, first paragraph, end of the first  
14 sentence refers to a Table 1. That Table 1  
15 was not included with this, and we have  
16 brought copies.

17 MS. FRANZETTI: So that was an  
18 omission on our part. The report refers to a  
19 Table 1. Everybody really read it closely,  
20 as nobody asked me if it was missing Table 1.  
21 But we're going to supply it now, and I think  
22 it should probably be marked as an exhibit.

23 MS. DIERS: You caught us.

24 HEARING OFFICER TIPSORD: If there's

1 no objections, we will mark Table 1, Species  
2 Composition Number and Relative Abundance of  
3 Fish Collected By Electrofishing and Seining  
4 from Upper Dresden Pool in the five mile  
5 stretch 1993 to 1995 and 1997 to 2005 as  
6 Exhibit 367.

7 Seeing none, it's Exhibit 367. I  
8 was going to ask about that.

9 MS. WILLIAMS: So far we only have two  
10 new pieces of paper.

11 BY MS. DIERS:

12 Q. I'm done with 94. So I'm going to go  
13 on to 95. Would reduction of pollutant loads,  
14 reductions in sedimentation, and even moderate  
15 enhancement of habitat features result in some  
16 recovery of fish assemblage in the Upper Dresden  
17 Pool? And I'm just going to stop right there.

18 A. Well, I think the question is too  
19 broad to allow me to answer it definitively. First  
20 of all, what pollutant loads and to what extent of  
21 pollution reduction are you referring to? And then  
22 kind of following up on what extent the sediment  
23 reduction are you talking about and where? Where is  
24 the sediment going to be reduced from?



1 Q. I'll move on.

2 Ninety-six: On Page 22 of your  
3 prefiled testimony you state that MBI QHEI's scores  
4 did not fall within the acceptable range of  
5 difference compared to EA QHEI score. What is  
6 considered an acceptable range?

7 A. Again, there's no official acceptable  
8 range. There's nothing in writing anywhere that  
9 I've been able to find. However, based on our  
10 personal experience and some discussions that our  
11 staff had with Mr. Rankin during the training  
12 sessions that Ohio EPA run, a certification process  
13 that they provide, the answer is generally or  
14 trained experience observers, you're going to be  
15 within about five points most of the time and  
16 certainly within ten points. So five points you  
17 wouldn't be too surprised to see that level of  
18 difference, but ten points is really not  
19 explainable. There shouldn't be that much of a  
20 difference.

21 Q. Ninety-seven: I'm going reword it  
22 just a little. On Page 24 of your prefiled  
23 testimony, it appears you conclude that the  
24 difference in QHEI scores between the summer and

1 spring seasonal variation would only account for at  
2 most three points. Is this for every season, and do  
3 you have any data to support this?

4 MS. FRANZETTI: Counsel, if I can ask  
5 you to clarify. When you say is this for  
6 every season, that at most as you go from one  
7 season of the year to another, the score  
8 should not vary by more than three points?  
9 Is that the "this" that's in the "this" for  
10 every season? Is it every season of the  
11 year? And is the question that basically the  
12 QHEI scores shouldn't vary by more than about  
13 three points based on just seasonal  
14 differences?

15 MS. DIERS: I guess I'm looking at  
16 spring/summer, summer/fall, fall/winter. I  
17 don't know if that helps clarify it.

18 MS. FRANZETTI: Okay. All right. So  
19 I mean that's -- you're looking for how does  
20 the QHEI score change?

21 MS. DIERS: From season to season.

22 MS. FRANZETTI: From season to season  
23 throughout the four seasons of the year?

24 MS. DIERS: Yes.

1 MS. FRANZETTI: Okay. That's fine.

2 MS. DIERS: Sorry.

3 MR. SEEGERT: Well, typically the QHEI  
4 is done from spring through fall. It's  
5 typically not done during the wintertime.  
6 Nonetheless, regardless of season, the only  
7 QHEI metric that would change appreciably  
8 amongst any of the season would be the  
9 submetric under cover which deals with  
10 macrophyte development. So that would change  
11 from season to season, and that's what I was  
12 alluding to here in terms of the three point  
13 difference. And what I did is I looked at  
14 how many points you could get in the cover  
15 score that are attributed to macrophyte  
16 development. Because when Mr. Yoder -- I'm  
17 sorry -- Mr. Rankin was there in the spring,  
18 the macrophytes wouldn't have been developed,  
19 or at least minimally developed. And so it's  
20 true that if you come back several months  
21 later, the scores at some of the locations  
22 might have improved. So how much could they  
23 have improved, I think the maximum maybe is  
24 like six points, but that assumes that you

1 would go from no cover for macrophytes to  
2 extensive. That wouldn't happen on average.  
3 Generally there'd be some intermediate value.  
4 And if you had a site, and we've seen many of  
5 those sites, where there's essentially no  
6 macrophytes even in the summer, that score  
7 wouldn't change at all. So the range of  
8 change would be from about zero to six  
9 points, but that's why I use the word  
10 typically would change by three points or  
11 less.

12 BY MS. DIERS:

13 Q. Question 98. I'm going to move  
14 further down because it has to do with Exhibit 2  
15 which is where we're going next. I'll ask 99 before  
16 we move on to Exhibit 2. With respect to the QHEI  
17 scores, it seems that you have Des Plaines 283.0LB  
18 Under Substrates, Quality,  $(-2+1)/2=-0.5$  and not -1  
19 repeated twice. Therefore, shouldn't the QHEI,  
20 shouldn't the QHEI be 50.5 and not 49.5?

21 A. You're correct. The QHEI score for  
22 this location should be 50.5, not 49.5.

23 Q. Okay. Strike 100, strike 101 --  
24 HEARING OFFICER TIPSORD: You've

1 already asked those. So you don't want to  
2 strike them. You've already asked them.

3 MS. DIERS: Whatever works. 102 --

4 MS. FRANZETTI: Counsel, actually can  
5 I interrupt and just ask a follow-up question  
6 since we're on QHEI scores. This might be  
7 the place to do it.

8 Mr. Seegert, I think you  
9 reviewed Exhibit 37 which was the -- It's a  
10 CD titled Yoder CD. Included on that were  
11 what Mr. Yoder submitted to the Agency as  
12 corrected QHEI scores for UAA segments,  
13 correct?

14 MR. SEEGERT: That's correct.

15 MS. FRANZETTI: And those were  
16 corrections made as a result of issues that  
17 were identified with theirs and the QHEI  
18 scores done by Mr. Yoder's organization  
19 during testimony in this proceeding, correct?

20 MR. SEEGERT: That's correct.

21 MS. FRANZETTI: Now, have you reviewed  
22 the QHEI -- corrected QHEI scores that were  
23 contained on Exhibit 37?

24 MR. SEEGERT: Yes. I think you mean

1 the corrected corrected.

2 MS. FRANZETTI: Why do you say  
3 corrected corrected?

4 MR. SEEGERT: Because we're in our  
5 third iteration. The QHEI scores were  
6 originally submitted as part of, I believe it  
7 was, Attachment S to the statement of  
8 reasons. And then when Mr. Yoder testified,  
9 he testified to the fact that they had  
10 inadvertently forgot to include impoundment.  
11 So the scores on Attachment S are wrong, and  
12 to correct those scores he provided Exhibit 5  
13 which was a table of QHEI scores for each of  
14 the locations they sampled. During the  
15 questioning of Mr. Yoder, we brought a number  
16 of, I'll call them, mostly math errors to his  
17 attention. He acknowledged a number of those  
18 and said I'll go back and correct those. And  
19 then the result of that was a, I'll call it,  
20 an updated version of Exhibit 5, and that's  
21 what's on Exhibit 37. I took --

22 MS. FRANZETTI: What have you found  
23 with regard to the corrected corrected QHEI  
24 scores scoring sheets that are included in

1 Exhibit 37?

2 MR. SEEGERT: The original -- most,  
3 but not all, the original errors were  
4 corrected. But now they've introduced a  
5 whole new series of errors, so now there's  
6 even more errors than there were on  
7 Exhibit 5.

8 MS. FRANZETTI: And can you just  
9 generally state what the nature is of the new  
10 errors that have been introduced in the QHEI  
11 scoring sheets that are the version that is  
12 contained in Exhibit 37?

13 MR. SEEGERT: I'll put them in two  
14 categories. For the metric, for the pool  
15 metric that's one of the QHEI metrics. They  
16 apparently rescored that -- well, retabulated  
17 their scores from the raw data sheets. And  
18 so now most of the values that are in the  
19 column for pool score are wrong. So they  
20 apparently went back and rechecked, had  
21 somebody rescore. And now for that whole  
22 column, about half of the numbers are wrong.  
23 The other even sort of more curious problem  
24 is that they also rescored the metric for the

1 riparian zone quality. And if you look at  
2 the values shown in Exhibit 37, you'll see a  
3 number of values of 11. But according to the  
4 QHEI procedure, and including the version  
5 that MBI is using, it says very clearly the  
6 maximum score you can assign to this is 10.  
7 But somehow they came up with 11. So every  
8 one of those 11 values, and I believe there  
9 are five or six of them, they're all wrong.  
10 So, in summary, they corrected roughly a  
11 dozen errors and introduced roughly 20 new  
12 errors.

13 MS. FRANZETTI: And with respect to  
14 the errors, is the end result that some of  
15 the scores are off by no more than one or two  
16 points; is that correct?

17 MR. SEEGERT: In most cases, yes. The  
18 magnitude of the errors, generally one to two  
19 points. To me it goes more to this is now  
20 the third try, and it's like three -- three  
21 strikes and you're out. So it goes to the  
22 whole quality assurance process. You know,  
23 errors were pointed out. So, okay, we'll  
24 correct those errors. They not only fail to



1 correct all the errors, but in the process of  
2 doing that, introduce even more errors than  
3 you started with.

4 MS. FRANZETTI: That's the end of my  
5 questions on the QHEI scores.

6 THE ARBITRATOR: Let's take a  
7 ten-minute break. Do you have something on  
8 QHEI?

9 MR. ETTINGER: I just wanted to finish  
10 this -- I can understand why you believe 11  
11 is an error. What is the basis for saying  
12 that the other new errors you found are  
13 errors as opposed to differences in judgment?

14 MR. SEEGERT: Because Exhibit 7 are  
15 the raw data sheets that they prepared, MBI  
16 prepared in the field. And we went back to  
17 those same raw data sheets, and it doesn't  
18 have anything to do with judgment. It's just  
19 what box is checked on these data sheets and  
20 adding them up. And when you -- When we add  
21 them up, when I added them up independent --  
22 or I added them up, then without telling  
23 Mr. Vondruska what I thought the score needed  
24 to be, I said is my math correct? He made

1 the same calculations, came up with the same  
2 numbers. So in this case if you add six  
3 minus one and one, you get six. They did the  
4 same calculation and got five.

5 MR. ETTINGER: Okay. So it's  
6 basically a comparison with their sheets  
7 and --

8 HEARING OFFICER TIPSORD: You need to  
9 speak up.

10 MR. ETTINGER: It's a math problem?

11 MR. SEEGERT: It's a math problem.

12 HEARING OFFICER TIPSORD: With that,  
13 let's take a ten-minute break.

14 (Short break taken.)

15 MS. DIERS: Did we leave off starting  
16 with Exhibit 2, right?

17 HEARING OFFICER TIPSORD: Yes, we did.

18 MS. DIERS: I've asked 100, 101. I'm  
19 going to strike 102, 103, 104, 105, and go to  
20 106, and just ask the last half of that  
21 question on Page 4 of Exhibit 2.

22 MS. FRANZETTI: We are skipping 102  
23 through 105.

24 MS. DIERS: Going to 106.

1 MS. FRANZETTI: We're going to come  
2 back?

3 MS. DIERS: No. We're done. I'm not  
4 going back.

5 MS. FRANZETTI: So 106.

6 BY MS. DIERS:

7 Q. On Page 4 of Exhibit 2, you state the  
8 Upper Dresden Island Pool clearly does not have the  
9 extent of good or great habitat that is  
10 characteristic of general use waters. Is it your  
11 testimony that all general use waters have good or  
12 great habitat?

13 A. Well, for the purposes of my  
14 testimony, when I use the phrase general use waters,  
15 I'm only including within that classification the  
16 types of waters that should be properly classified  
17 as general use. I mean -- by this I mean that the  
18 habitat should, on average, be good or better. And  
19 for general use waters to attain Clean Water Act  
20 goals, they're going to need good habitat. We had  
21 discussed yesterday the fact that many of the  
22 general use waterways in Illinois were given that  
23 classification essentially by default. No one went  
24 through and decided or looked at the habitat, they

1 didn't do a use attainability assessment.

2 Q. I'm going to strike Question 107, 108,  
3 109, 110, and 111. I'm going go to Question 112.

4 In a water body, if impoundment is  
5 the main factor that is preventing aquatic life from  
6 reaching a more natural condition, is removing or  
7 greatly modifying the impoundment structure the only  
8 way that aquatic life can attain a more natural  
9 condition?

10 A. Well, although certain modifications  
11 may result in some improvement of conditions for  
12 some members of the aquatic community, the aquatic  
13 community will not improve appreciably until all the  
14 limiting factors that are preventing attainment of  
15 aquatic life goals are removed.

16 Q. I'm going to strike 113, 114. And  
17 I'll ask 115. We might have touched on this  
18 earlier, so if I did, I apologize for asking it  
19 again. But in the context of attainability of clean  
20 water contact goals on Page 5 of Exhibit 2, second  
21 full paragraph of your prefiled testimony you  
22 mentioned the potential for instream habitat  
23 improvements that could improve the biological  
24 potential of the Upper Dresden Island Pool. You

1 state that for such improvements to have a  
2 measurable effect on fish populations and species  
3 they would have to occur on an unprecedented scale.  
4 Do you know how much habitat improvement would be  
5 necessary to have a measurable effect on fish  
6 population and species in the Upper Dresden Island  
7 Pool?

8 A. Well, it's not so much a matter of how  
9 much, but rather the kind of improvement.  
10 Improvement is not going to be significant without  
11 elimination of the dams, because it's the dams that  
12 are causing so many of the severe limitations that  
13 we see. And then, similarly and simultaneously, I'd  
14 also say that removal of most of the contaminated  
15 sediment that's in the system would also be  
16 necessary.

17 Q. I'm going to strike 116, 117, 118,  
18 119. I'm going to go to 120. On Page 5 of  
19 Exhibit 2, you state that here the main limiting  
20 factor in this waterway system is the impoundment.  
21 Similarly on Page 10 of Exhibit 2 you state it is  
22 the impounding effect caused by these dams that has  
23 the greatest effect on the fish community. Please  
24 explain what the main limiting factor is in your

1 view?

2 A. Well, the main limiting factor, as  
3 I've stated several times, is the impoundment and  
4 then the attendant effects that they cause. So it's  
5 not just one thing that they do, but as I mentioned,  
6 there are limiting riffles that cause the water to  
7 slow down and cause sediment. So there's a whole  
8 series of cascading effects, and they're all  
9 associated with impoundment. And I've described  
10 that in my testimony and in the attached report.

11 Q. And 121, do you agree temperature is  
12 also a limiting factor?

13 A. I don't believe it's a limiting  
14 factor. I would agree that temperature might affect  
15 some fish. For example, there undoubtedly is some  
16 avoidance of the water mist areas near the plants  
17 for short periods of time, but that would be on a  
18 short-term basis, and, in my opinion, would have no  
19 long-term effect. It's basically just fish moving  
20 from one place to another and then when the  
21 temperatures cool down, moving back again. And I  
22 guess maybe more to the point is, as stated in my  
23 testimony in the associated or the attached  
24 document, you could change the temperature. You

1 could even eliminate the power plants, and there  
2 still would not be a fish community that attained  
3 Clean Water Act goals. It's not temperature that's  
4 limiting the system, it's all the other factors that  
5 I've mentioned.

6 Q. Strike 122. 123, on Page 6 of your  
7 report, Exhibit 2, you state it was agreed that  
8 adverse effect of such extreme variations in water  
9 level on habitat, by disrupting fish spawning and  
10 feeding, are greater than the potential effects of  
11 temperature. And this was at the UAA hearing,  
12 January 31, 2008, at Page 227. Please identify  
13 where this is found in the transcript page cited.  
14 And then do you agree that the statement in your  
15 testimony incorrectly characterizes the testimony of  
16 Mr. Yoder on Page 227?

17 A. Well, let me answer the last question  
18 first. No, I don't think it incorrectly  
19 characterizes his testimony. Mr. Yoder agreed that  
20 it could be true that adverse effects of the extreme  
21 fluctuations in the Ship Canal in terms of water  
22 height varying by four to six feet could basically  
23 trump the effects of temperature. So I think that  
24 what I said is an accurate characterization. He

1 agreed that those wide fluctuations could trump  
2 temperature.

3 Q. Did Mr. Yoder also say in that line of  
4 questioning when you're talking about in the  
5 transcript that the reverse could be true?

6 A. Yes. He did say that -- the reverse,  
7 but it would depend. I know certainly he said both,  
8 you know. It could happen in either direction.

9 Q. Thank you. I'm going to strike 124.  
10 One hundred twenty-five, on Page 8  
11 of Exhibit 2 you state, there are no known plans for  
12 reducing sedimentation in either water body, and the  
13 contributing sources will continue to add sediment  
14 to the waterway. Are you familiar with the tunnel  
15 and reserve project?

16 A. I'm aware of it. Again, I wouldn't  
17 use the term familiar, but I'm aware of the project  
18 and what its general goals are.

19 Q. Do you think that the project would  
20 result in a significant decrease in sediment loading  
21 to the waterway?

22 A. Well, based on some of the transcripts  
23 I've read and some of the testimony that I've heard  
24 when I've attended previous hearings, it's my



1 understanding that when TARP is fully online, it  
2 will reduce the number of CSO events. However, that  
3 same testimony indicated it's not going to eliminate  
4 all of the CSO events. So they're not going to  
5 disappear completely. So I think it's unclear how  
6 much of a reduction there's going to be in sediment  
7 loading. Also, I think it stands to reason that  
8 the, we'll call them events, that it's not going to  
9 handle or going to be the biggest event. In other  
10 words, the bigger the event is, the less able TARP  
11 is going to deal with it. And so it's really a  
12 volume issue. It's not just a number of CSO events  
13 that are reduced, but how much the volume. And I  
14 did not hear any testimony, but I certainly would  
15 expect that the biggest events are not going to be  
16 particularly well-controlled. And then in any case,  
17 TARP is designed, as I understand it, to deal with  
18 the CSO issue. There's still going to be all the  
19 other issues about sediment coming in through the  
20 sort of general overland flow from various nonpoint  
21 sources from the development we talked about  
22 yesterday, and I'm not positive how to correctly  
23 characterize whether they're point or not point.  
24 But it's not a regulated -- it's not an NPDS

1 discharge point, and so all of those things are  
2 still going to continue. So I think, yes, TARP  
3 overall will have -- will result in some reduction  
4 in loading, but I don't know what that level of  
5 reduction is going to be or whether it's going to be  
6 significant enough to reduce sediment to a level  
7 where it would no longer be a problem.

8 MR. ETTINGER: Is it your  
9 understanding that construction is nonsubject  
10 to NPDS?

11 HEARING OFFICER TIPSORD: I didn't get  
12 all of that.

13 MR. ETTINGER: I'm sorry. Is it your  
14 understanding that urban construction runoff  
15 is not subject to NPDS requirements?

16 MR. SEEGERT: That's my understanding,  
17 yes.

18 MR. ETTINGER: Thank you.

19 BY MS. DIERS:

20 Q. I'm going to strike 126, go to 127.

21 On Page 9 of Exhibit 2, the top of  
22 your prefiled testimony, you state that the presence  
23 of barges located near the stream bank has adverse  
24 effects on fishes. You cite the photographs in

1 Attachment 2A. How do these photographs indicate  
2 the adverse effects of barges on fish?

3 A. Well, the barges are parked along the  
4 shallow edge of the river, and this is generally one  
5 of the more product -- or should be one of the more  
6 productive parts of the river. And so any time  
7 you're going to be moving barges in and out, that's  
8 going to constantly disturb and resuspend the  
9 sediment. It's going to uproot aquatic vegetation.  
10 To the extent that there are aquatic  
11 macroinvertebrates there, it's going to either  
12 disturb -- either disturb them by stirring them up,  
13 or it's going to cause silt to fall on them which is  
14 potentially going to bury them, or at least it's  
15 certainly not going to be a positive effect. And,  
16 remember, this is not just one barge, this is a  
17 whole spring of barges. So this is a pretty long  
18 section of shore line where this activity is going  
19 on, and these barges have to be regularly moved in  
20 and out.

21 Q. And I'm going to strike 128, 129. We  
22 covered 130 and 131, so I'll move on; strike 132.  
23 I'm going to go to 133. On Page 11 of Exhibit 2 of  
24 your prefiled testimony, you state that impoundment

1 effects in Upper Dresden Island Pool eliminated or  
2 greatly reduced large groups or classes of fish  
3 including all that are obligate riffle dwellers and  
4 other species that spend much of their life in fast  
5 water over hard substrates. What obligate riffle  
6 dwellers and other species of fish that spend much  
7 of their life in fast water over hard substrates  
8 were eliminated from part of Des Plaines River that  
9 is now Upper Dresden Island Pool by the creation of  
10 the Dresden and Brandon locks and dams? And what  
11 information do you base your answer on?

12 A. Well, I think to some extent we've  
13 covered this. But as described in my testimony and  
14 the attached report, there are groups of fish that  
15 depend on these shallow fast water areas, some of  
16 which are going to be riffle, some of which are  
17 going to be runs. And those would be groups like  
18 redhorse, darters, madtons, some other round-bodied  
19 suckers, and certain minnows. And I would expect  
20 that -- And these have been reduced in abundance or,  
21 I guess what I would call, functionally eliminated.  
22 It's sort of a follow-up to what I was talking about  
23 on the viable population. Yes, you might find a  
24 couple of these things here or there, but they don't

1 really have functioning population. And I base my  
2 conclusions on the well over 20-year dataset that EA  
3 has collected which shows that the groups that I've  
4 referred to are either absent or present only in  
5 greatly-reduced abundance. I'm drawing upon that  
6 20-plus year data set for each of my conclusions.

7 MR. ETTINGER: Excuse me. Do none of  
8 these species live in lakes?

9 MR. SEEGERT: Most of them -- Well,  
10 the ones that I was -- if something is an  
11 obligate riffle dweller, it does not live in  
12 a lake, because obligate means that's where  
13 it has to be. There are a few species within  
14 this group that can spend mostly their adult  
15 life or part of their adult life in a  
16 lake-like environment. So if you sample a  
17 large impounded river like the Tennessee  
18 River or the Mississippi River, you will find  
19 redhorse. But in those cases, they're going  
20 to find places where they need to -- it's  
21 mainly a spawning situation either within  
22 that water body itself or in a large  
23 tributary. So some of the redhorse can be at  
24 part of their life stage in a lake-like

1 environment, and then there's a couple of  
2 darter species that, just for frame of  
3 reference, not in Illinois, but in the United  
4 States there are roughly 200 species of  
5 darters. And they don't all have the same  
6 habitat requirements in Illinois. I think we  
7 probably have about 20 species of darters.  
8 And there's really, out of that roughly 20  
9 species, there's only one that -- I'm  
10 sorry -- two that occur in lakes with any  
11 regularity. But I'm saying as a group, that  
12 group mainly is associated with fast water  
13 riffle areas. So there are exceptions, but  
14 they're the exceptions to the overall rule.

15 MR. ETTINGER: Of the species that you  
16 just got done naming, which ones can live in  
17 lakes?

18 MR. SEEGERT: Well, of darters that  
19 are found in this system which can live in  
20 lakes, not necessarily spawn in the lake, but  
21 at least live in the lake would be johnny  
22 darter and logperch. And then and, again,  
23 I'm not sure if we're talking about -- So  
24 your question refers to lakes, not

1           impoundments; is that correct? I don't --  
2           none of the redhorse are in the lakes -- in  
3           lakes with any regularity. They are  
4           certainly found in impoundments in the  
5           northern part of the range more than the  
6           southern part of the range. I think the  
7           shorthead redhorse occasionally occur in  
8           lakes. But, again, they're just there. They  
9           can find places to feed, but they would need  
10          fast-moving water in order to spawn.

11                   MR. ETTINGER: Just a couple of other  
12          fish here, as long as we're dealing with fish  
13          in impoundments. Can channel catfish live in  
14          lakes?

15                   MR. SEEGERT: Yes, they can.

16                   MR. ETTINGER: How about white sucker?

17                   MR. SEEGERT: Yeah. White sucker  
18          live -- again, I want to make the  
19          distinction. Yes, they can live. So the  
20          analogy would be if I set up an aquarium in  
21          my house, could I put a white sucker in there  
22          and would it live? The answer is yes. As  
23          long as the water quality is sufficient, it  
24          will live. Could it live out its whole life

1 cycle in a lake? The answer to that is no.  
2 So, for example, here in Lake Michigan there  
3 is a white sucker population. It resides  
4 there a good part of the year. But come  
5 spring, generally about mid April, they head  
6 into the tributaries to Lake Michigan. They  
7 go up to the riffles, and that's where they  
8 spawn. So if you cut off their access from  
9 Lake Michigan to their spawning areas,  
10 eventually all those adults would die out.  
11 So they can live and feed as adults in the  
12 lake, but they need the tributaries to be  
13 able to spawn.

14 MR. ETTINGER: Do some of these spawn  
15 in -- white suckers, do they spawn on shoals  
16 in lakes?

17 MR. SEEGERT: I'm not aware of white  
18 sucker being a shoal spawner, no.

19 MR. ETTINGER: Okay. Walleye? Do  
20 walleye live in lakes?

21 MR. SEEGERT: Yes, they do. And they  
22 can spawn over shoals.

23 MR. ETTINGER: Thank you.

24 HEARING OFFICER TIPSORD: Miss Diers?



1 BY MS. DIERS:

2 Q. Strike 134, 135, 136, 137 and 138.

3 I'll go to 139.

4 On Page 16 of Exhibit 2 of your  
5 prefiled testimony, you state that fishes identified  
6 as simple lithophils by Ohio EPA require  
7 cobble/boulder substrates to spawn. Does Ohio EPA's  
8 definition of simple lithophil include the  
9 requirement of cobble/boulder substrate for  
10 spawning?

11 A. I believe it does. Because that's  
12 their spawning habitat. I mean that is the  
13 definition of what a simple lithophil is.

14 Q. Strike 140, 141. One hundred  
15 forty-two: The fact that the same ten species  
16 dominated the area before the current Com Ed/Midwest  
17 Gen Adjusted Standard went into effect as have  
18 dominated after it went into effect indicates that  
19 the slightly higher thermal standards allowed by the  
20 adjusted standard did not affect the fish  
21 population. What do you mean by slightly higher  
22 thermal standards? And do you have any data  
23 comparing the ambient temperatures of the Upper  
24 Dresden Island Pool, Brandon Pool, or the CAWS

1 before and after Adjusted Standard 96-10 took  
2 effect?

3 A. With regard to the first question  
4 which is what do I mean by slightly higher thermal  
5 standards? I mean that the adjusted standard allows  
6 the temperature downstream of I-55 to be 91 degrees  
7 Farenheit at I-55 rather than the general use  
8 standard of 90. And then in your question you use  
9 the word ambient temperatures. In this system for  
10 all the reasons that have already been described,  
11 it's difficult, if not impossible, to determine what  
12 constitutes ambient in these waterways.

13 And then, second, the adjusted  
14 standard applies only downstream of I-55, so no  
15 changes in temperature would be expected in --

16 MS. WILLIAMS: Objection. Can we let  
17 Mr. Seegert answer the question?

18 MS. FRANZETTI: Well, Counsel, I mean  
19 we want an accurate record. I'm just -- He's  
20 misspeaking, reversing things. So I mean I  
21 can let him go on, but I think it's better to  
22 note to him when he's made a misstatement.

23 Counsel, I think you need to  
24 establish for Mr. Seegert what the area of

1 the adjusted standard is that you are talking  
2 about in your question. Don't put it on him  
3 to interpret that, because I will need to  
4 jump in and explain it. But it's your  
5 question, and if you object to my  
6 interceding --

7 MS. WILLIAMS: It was a quote.

8 MS. DIERS: I was using his quote, so  
9 I was asking about his quote.

10 MS. FRANZETTI: But now you're  
11 going -- No. The second part of your  
12 question.

13 MS. DIERS: You're asking about do I  
14 have any of the data on the ambient  
15 temperatures? You're going on to the second  
16 part? Okay.

17 MS. FRANZETTI: Yes. I think he's  
18 answered the first question. I mean I think  
19 actually we can move on, if you agree. I  
20 think he has. I mean the first question is  
21 what do you mean by slightly higher thermal  
22 standards, and I think he's answered that.  
23 So the simple solution here may be if you  
24 agree to just go on to the next part of the

1 next part of Question 142.

2 MS. DIERS: Sure. That's fine.

3 MS. FRANZETTI: Did you already state  
4 it for the record? I'm sorry.

5 MS. DIERS: We're on the data part,  
6 right?

7 BY MS. DIERS:

8 Q. Do you have any data comparing ambient  
9 temperatures of the Upper Dresden Island Pool,  
10 Brandon Pool or the CAWS before and after Adjusted  
11 Standard 96-10 took effect?

12 MR. SEEGERT: Okay. No. We have not  
13 compared ambient temperatures in the areas  
14 you're talking about before versus after  
15 AS 96 took effect.

16 BY MS. DIERS:

17 Q. And do you know if Commonwealth Edison  
18 had variances from the Pollution Control Board prior  
19 to the adjusted -- the Adjusted Standard 96-10?

20 A. I don't recall.

21 MR. ETTINGER: What's your  
22 understanding of what the adjusted standard  
23 did?

24 MR. SEEGERT: Well, the adjusted

1 standard gives them an extra one degree.  
2 Instead of having to meet 90, they meet 91.

3 MR. ETTINGER: Okay. That's your  
4 understanding.

5 MEMBER RAO: You think that was the  
6 only change in the adjusted standard, or  
7 there was some transitional temperature  
8 changes also involved?

9 MS. FRANZETTI: I don't think this  
10 witness is the best witness. I mean  
11 Ms. Wozniak is the witness that is most  
12 familiar with the elements of the adjusted  
13 standard. If you wish, we can bring her back  
14 up here.

15 MEMBER RAO: No. It's just that he  
16 was describing what slightly higher meant.  
17 Was he focussing just on the 90 degrees and  
18 91 degrees?

19 MR. SEEGERT: Yes.

20 MEMBER RAO: And not the transitional  
21 temperatures?

22 MR. SEEGERT: That's correct.

23 MEMBER RAO: Thank you.

24 MS. WILLIAMS: I think Ms. Wozniak

1           could help us with a clarification to --

2                   MS. FRANZETTI: I don't think she can  
3           help you with the question, because it's what  
4           the witness used.

5                   MS. WILLIAMS: The witness is implying  
6           that --

7                   MS. FRANZETTI: Give me a second.  
8           With respect to what the adjusted standard  
9           does, what it contains, quite frankly we can  
10          all read the adjusted standard. So, you  
11          know, I don't think there's anything to be  
12          gained.

13                   HEARING OFFICER TIPSORD: I guess,  
14          Miss Williams, I would ask what clarification  
15          are you looking for?

16                   MS. WILLIAMS: I think his quote  
17          implies that when adjusted standard came into  
18          effect, temperatures went up and that we can  
19          infer something from what was the case before  
20          the adjusted standards to what was the case  
21          after in an environment, because legally the  
22          temperatures went up. So that, I think, is  
23          what this question was trying to get at. And  
24          if he doesn't know, then maybe Miss Wozniak

1 can help explain whether temperatures from  
2 either in the waterway or from the effluent  
3 actually went up after the relief was granted  
4 by the Board. I don't know which witness is  
5 better to clarify that point.

6 MS. FRANZETTI: Well, this witness  
7 can't clarify that point, and this is a  
8 question for this witness. So I would  
9 suggest we move on. He is giving you his  
10 answer of what he was referring to by a  
11 slightly higher thermal standard. That's all  
12 he can do in terms of -- for the purposes of  
13 this statement in his report.

14 MS. WILLIAMS: That's fine.

15 HEARING OFFICER TIPSORD: Let's move  
16 on.

17 BY MS. DIERS:

18 Q. Question 143: You state on Page 18 of  
19 Exhibit 2, Ohio EPA 1987 plus the 2006 update  
20 classifies fish based on their tolerance to  
21 environmental perturbations such as decreasing water  
22 and habitat quality. How are these classifications  
23 related to thermal impacts?

24 A. We touched on this a little bit

1 earlier. And, in this case, I don't believe that  
2 Ohio EPA specifically used thermal tolerance in  
3 developing their tolerance classification. However,  
4 several of the species they list as highly tolerant  
5 also happened to be thermally tolerant. But they  
6 did, so they just happened to be that. But they  
7 didn't use thermal tolerance as one of their  
8 end-point criteria.

9 MR. ETTINGER: And isn't shad one of  
10 the species they list as tolerant?

11 MR. SEEGERT: No, it is not.

12 BY MS. DIERS:

13 Q. Question 144: On Page 18 of  
14 Exhibit 2, you testify regarding the number of  
15 tolerant, moderately tolerant, and intolerant fish  
16 species found in the Dresden Pool. What source or  
17 sources did you look to for classification of these  
18 species? And why do you conclude on Page 18 that  
19 the preponderance of moderately tolerant and highly  
20 tolerant fishes reflect the degraded habitat of  
21 Dresden Pool? I'll stop there for now.

22 A. Okay. We also touched on this, but as  
23 indicated on the -- in the report, we used the  
24 tolerance classification system developed by Ohio



1 EPA. We did that because it covers most, if not  
2 all, of the fish species that are in the system. So  
3 even though it was developed in Ohio, I'd say it has  
4 direct applicability here. And then following up in  
5 terms of how I reached this conclusion, the species  
6 assemblage in Dresden Pool is more consistent with  
7 what you'd expect for a habitat degraded area than  
8 an area that is thermally or DO limited. As an  
9 example, blunt-nose minnow, according to Mr. Yoder  
10 or at least his rankings, is somewhat thermally  
11 sensitive, yet it's one of the most common fishes in  
12 the area suggesting that the current temperature is  
13 not adversely affecting fish populations. So in  
14 summary the results we see are consistent with  
15 habitat degradation. They're not consistent with a  
16 thermal explanation.

17 Q. I'm going to strike 145, 146, and 147.  
18 I'm going to skip 148, I'm going to strike 149, 150,  
19 151, 152, 153. I'm going to strike 154 and 155,  
20 strike 156, 157. I'll let you guys catch up.

21 MS. FRANZETTI: We are there.

22 BY MS. DIERS:

23 Q. All right. You state that since EA  
24 has used the QHEI to evaluate many streams and

1 rivers in Illinois, Indiana, Ohio, and elsewhere,  
2 including the Lower Des Plaines, have you had any  
3 training by Ohio EPA on the methodology?

4 MS. FRANZETTI: Counsel, he can easily  
5 answer all those questions at once. Do you  
6 want to just keep going?

7 MS. DIERS: That's fine.

8 BY MS. DIERS:

9 Q. Do you know if Joe Vondruska received  
10 training? Which EA staff has been trained to  
11 perform QHEI assessments, and which ones have been  
12 certified?

13 A. We've all received training. Before  
14 there was a formal certification process, I received  
15 on-the-job training from various Ohio EPA staff,  
16 including Mr. Rankin, who developed a QHEI when he  
17 was with Ohio EPA. And so I have about 20 years of,  
18 I guess they call it, hands-on experience using the  
19 QHEI. Mr. Vondruska, another of our senior  
20 biologists -- well, three others: Ken Cummings,  
21 Marty Sneen (ph.), and Mike Kazinski, and have all  
22 been -- and myself have all been trained by Ohio  
23 EPA, and all of these individuals except for myself  
24 have been certified by Ohio EPA.

1 MS. FRANZETTI: Just to follow up.

2 The individuals who you named:

3 Mr. Vondruska, Mr. Cummings, Sneen, and

4 Kazinski, have they all participated in the

5 QHEI work that's been done that is a part of

6 the data on which, Mr. Seegert, you are

7 relying in your testimony in the attached EA

8 report in Exhibit 366? Mr. Vondruska, if you

9 want to answer that, that's fine.

10 MR. VONDRUSKA: Mr. Cummings would

11 have participated in scoring the QHEI during

12 maybe portions of the '93 to '95 sampling. I

13 did most --

14 HEARING OFFICER TIPSORD: Could you

15 speak up, please?

16 MR. VONDRUSKA: I'm sorry. For the

17 studies conducted in 1993 to 1995,

18 Mr. Cummings would have been involved with

19 some of the QHEI scoring in the field. I did

20 the vast majority of it. For the EA's 2003

21 study, I did all of that, and I also did all

22 of EA's 2008 study.

23 MS. DIERS: What year were you

24 certified, sir?

1 MR. VONDRUSKA: I can't remember the  
2 exact year. It was in the mid '90s. The  
3 first certification process was through a  
4 place called Volunteer Action Program, and  
5 myself and another colleague were one of the  
6 first -- part of the first training group.  
7 Since that time Mr. Cummings and  
8 Mr. Kazinski, they're part of the qualified  
9 data collector law that has been instituted  
10 in Ohio, and they have been certified by that  
11 process.

12 BY MS. DIERS:

13 Q. Thank you. Strike 158, 159, 160, 161,  
14 162, 163, and 164. I'm going to go to 165.

15 On Page 30 of Exhibit 2 being the  
16 second paragraph of your prefiled testimony, you  
17 state that in your year 2008 survey of Upper Dresden  
18 Island Pool, silt was moderate to heavy at  
19 66 percent of locations and the imbeddedness was  
20 moderate to extensive at 66 percent of locations.  
21 Do these results indicate that silt and imbeddedness  
22 were less than moderate at 34 percent of locations  
23 in Upper Dresden Island Pool?

24 A. And by less than, I assume you mean

1 better than moderate?

2 Q. Yes.

3 A. Then based on that assumption, about a  
4 third of the locations had normal amounts of silt,  
5 basically two-thirds of the location had excessive  
6 amounts of silt.

7 Q. One hundred sixty-six: What quantity  
8 of silt represents a moderate condition and what  
9 quantity of silt represents a heavy condition?

10 A. Okay. Again, here we're relying  
11 directly on the protocol document that Ohio EPA  
12 issued in 2006. So it's not -- definition is that  
13 we may not, but we're just following the rules of  
14 the game. And according to that document, and this  
15 is a direct quote, it says heavy means that nearly  
16 the entire stream is layered with a deep covering of  
17 silt. And then in parentheses, it says pools/glides  
18 in all but the fastest area of the riffles, closed  
19 parentheses, period. And then it goes on to define  
20 moderate. It says moderate means extensive covering  
21 by silt, but with some areas of the cleaner  
22 substrates; and then it says, for example, riffles.  
23 So basically moderate means there's extensive silt,  
24 but generally the riffles, because of the velocity

1 of the water, are going to be relatively silt free.  
2 However, in the heavy condition everything is silted  
3 in.

4 Q. And Question 167, what quantitative  
5 amount of embeddedness represents a moderate  
6 condition? And then what quantitative amount of  
7 embeddedness represents an extensive condition?

8 A. Okay. Again, this is going to be  
9 coming directly from the Ohio EPA guidance document  
10 which is what we followed. And it says, quote,  
11 embeddedness is the degree that cobble, gravel, and  
12 boulder substrates are surrounded, impacted in, or  
13 covered by fine materials such as sand and silt.  
14 And then it continues on. Substrates should be  
15 considered imbedded if greater than 50 percent of  
16 the surface of the substrates are imbedded in fine  
17 material. And it continues, imbedded substrates  
18 cannot be easily dislodged. If you go to grab a  
19 rock and you can't pull it up, it's imbedded. And  
20 then they continue on the same document defines the  
21 following categories of embeddedness. Extensive  
22 means 75 percent of the site area, 75 percent or  
23 more of the site area has embedded substrates. They  
24 define moderate embeddedness between 50 and 75

1 percent of the area is embedded. And they're saying  
2 the normal condition would be less than 25 percent.  
3 So, in this case, you're going to look at how much  
4 of the total area you're surveying is embedded and  
5 then put it into one of those percentage categories.

6 Q. And, 168, is the Clean Water Act  
7 interim aquatic-life goal not attainable if the  
8 amount of silt is moderate or greater?

9 A. Well, I think that that's going to  
10 depend on the water body in question. Silt is  
11 certainly a major factor. But the presence of silt  
12 is just one potentially limiting factor that may  
13 prevent attainment of Clean Water Act goals. Here  
14 the presence of silt with all the other limiting  
15 factors that I've mentioned prevents attainment of  
16 Clean Water Act goals, and in this case I cannot  
17 separate out the presence of silt because of all the  
18 other factors that are going on and say this is --  
19 90 percent of the problem here is due to silt. And  
20 so I can't really speculate as to any particular  
21 water body can attain the Clean Water Act goal if  
22 silt is moderate or greater. It would depend on the  
23 circumstances, what are the other factors in the  
24 water body, and also what the water body type is.

1           Q.       Question 169.  On Page 30 of  
2       Exhibit 2, second paragraph of your prefiled  
3       testimony, you state that in the year 2008 survey of  
4       Upper Dresden Island Pool, silt was the only  
5       substrate at 24 percent of locations.  At these 24  
6       percent of locations, did you observe the entire  
7       stream bottom?

8           A.       Within each sampling zone, yes.

9           Q.       I'm going to strike 170, 171 and 172,  
10       and make sure no one else has anything else.  I have  
11       nothing further.  Thank you, Mr. Seegert?

12                   HEARING OFFICER TIPSORD:  All right.  
13       We'll go ahead and move on to Environmental  
14       Law Policy Center.

15                   MR. ETTINGER:  Off the record for a  
16       second.

17   (Off the record.)

18                   MS. FRANZETTI:  I actually wanted to  
19       ask a couple of IEPA's questions that they  
20       skipped.  The first one is 36.  Besides  
21       Midwest Generation, what other industrial  
22       facilities has EA conducted aquatic studies  
23       for?

24                   MR. SEEGERT:  Well, in round numbers,



1 we collect -- or we conduct about 20 aquatic  
2 studies per year, and we've been in the  
3 Chicago area for 30 years. So a reasonable  
4 estimate would be about 600 studies, and  
5 we've done that for a whole variety of both  
6 private sector companies, but also state  
7 agencies. Just some examples, I work for  
8 many utilities: American Electric Power, WE  
9 Energy, Dairy Land Power, Hosier Energy, Duke  
10 within Illinois, Amron; also worked for  
11 companies like Bethlehem Steel. I previously  
12 mentioned Acme Steel, BP Chemical, BP Oil,  
13 Coeur d'Alene Mining, blue Ridge Paper. But  
14 it's not just working for the private sector.  
15 We've done studies for the Illinois DNR, for  
16 the City of Springfield, for Claremont County  
17 in Ohio, for the Northeast Ohio Sewer  
18 District in Cleveland studying places like  
19 the Cuyahoga River. So it pretty much runs  
20 the gamut, but many, many biological studies.

21 MS. WILLIAMS: Mr. Seegert, I think  
22 you said state agencies. I don't know if I  
23 heard a state agency named in your list.

24 MS. FRANZETTI: I think I heard the

1 Illinois DNR.

2 MS. WILLIAMS: Right. But can you be  
3 specific about what you did for them.

4 MR. SEEGERT: I did -- I shouldn't  
5 just say I. EA did, but I was the lead  
6 person on doing endangered species studies.  
7 We looked for a couple different endangered  
8 species on their behalf.

9 MS. WILLIAMS: Any other state  
10 agencies you can think of?

11 MR. SEEGERT: Pardon?

12 MS. WILLIAMS: Any other state  
13 agencies you can think of?

14 MR. SEEGERT: Not state. I did also  
15 get -- I know it's not state, but we've done  
16 several projects for various corps of  
17 engineer districts, but I'm not -- Oh, and  
18 we've done work for the Indiana Department of  
19 Transportation.

20 MS. WILLIAMS: Thank you.

21 MS. FRANZETTI: And given that there's  
22 been a lot of reference to Ohio, these  
23 classification systems, Ohio IBI, I want to  
24 ask Question 37. What Ohio streams has EA

1 reviewed with respect to use attainment and  
2 nonattainment?

3 MR. SEEGERT: The Muskegon River,  
4 which involved multiple locations -- probably  
5 about 15 locations, the Portage River, again,  
6 multiple locations; the Ottawa River,  
7 multiple locations; the Great Miami River,  
8 multiple locations; the east fork of the  
9 Little Miami River, multiple locations;  
10 Hurford Run, multiple locations; the Scioto  
11 River, that's the river that runs through  
12 Columbus, Ohio, multiple locations; the  
13 leading system in southeastern Ohio, many  
14 locations. We had a network of about 25  
15 locations that we ran. We sampled annually  
16 for about a four-year period of time many  
17 locations on the Ohio River for the Seward  
18 District in the Cleveland area. We did  
19 multiple locations on the Cuyahoga River,  
20 Dick's Creek multiple locations; Domer Ditch,  
21 west fork of Beaver Creek, multiple  
22 locations; Done Brook, Robinson Run, Flat  
23 Lick Creek, Big Creek, Mill Creek, Euclid  
24 Creek, West Creek, Shakers Creek, Miller

1 Creek, North Branch Dick's Creek, Kyger  
2 Creek, Paint River, Pleasant Run, Kain Run,  
3 and Kain is with a k, K-A-I-N, Brushy Fork,  
4 Clifty Creek, Little Darby Creek, East Branch  
5 Miamiville creek, Homer Run, Shaylor Run,  
6 Shaylor is spelled S-H-A-Y-L-O-R, Wolf Gen  
7 Creek, Clear Creek, Rocky Fork, Sugar Creek,  
8 and I'm sure there are others that I'm  
9 forgetting.

10 MS. WILLIAMS: Where is the Mill Creek  
11 that you're talking about in there? Which  
12 one?

13 MR. SEEGERT: Mill Creek. Was that  
14 one of the ones that you guys did for  
15 certification?

16 MR. VONDRUSKA: That was one of the  
17 ones.

18 MR. SEEGERT: As part of this  
19 certification process that we were talking  
20 about for the QHEI, that Ohio doesn't just  
21 sit you in a classroom, they require -- they  
22 say, okay, you do the classroom stuff and  
23 then you have to go out on your own and on  
24 your own nickel, I might add, and collect --

1 and do whatever they want you to do whether  
2 it's QHEI or fish. So our guys had to go  
3 around to different streams which they had  
4 already sampled and then our scores have to  
5 agree within a certain range of the scores.  
6 So I believe this was Marty Sneen, one of the  
7 individuals I said was certified when he went  
8 through his certification process. That was  
9 one of the reference streams that he went to.

10 MS. WILLIAMS: Where?

11 MR. SEEGERT: I don't know where it is  
12 in Ohio. I can't even speculate because  
13 there are a lot of Mill Creeks,

14 MS. WILLIAMS: I want to know if it's  
15 the one that runs behind my mom's house.

16 MR. SEEGERT: Yeah, I think he stopped  
17 in there for a bite to eat. I'm not sure.

18 MR. VONDRUSKA: Is it in North  
19 Columbus?

20 MS. FRANZETTI: I have no further  
21 questions.

22 HEARING OFFICER TIPSORD: All right.  
23 Let's take about 15 minutes, come back, and  
24 we'll power through.

1

(Short break taken.)

2

\* \* \* \* \*

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

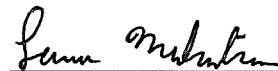
23

24

1 STATE OF ILLINOIS )  
2 COUNTY OF COOK ) SS.

3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

I, LAURA MUKAHIRN, being a Certified Shorthand Reporter doing business in the City of Chicago, Illinois, County of Cook, certify that I reported in shorthand the proceedings had at the foregoing hearing of the above-entitled cause. And I certify that the foregoing is a true and correct transcript of all my shorthand notes so taken as aforesaid and contains all the proceedings had at the said meeting of the above-entitled cause.

  
\_\_\_\_\_  
LAURA MUKAHIRN, CSR  
CSR NO. 084-003592

<b>A</b>	28:15 29:10	74:1,5,13	14:19,23	30:20	<b>anywhere</b>
<b>ability</b> 10:16	45:21 48:2	75:1 76:10	15:24 16:5	<b>amongst</b> 8:11	23:19 49:8
10:18	68:20 69:5	76:19,19,22	41:3 53:11	8:19 51:8	<b>apart</b> 12:9
<b>able</b> 4:9 11:1	<b>acceptable</b>	76:24 77:6	89:23	<b>amount</b> 5:22	<b>apologize</b> 6:1
11:4 19:21	37:3 49:4,6	77:12 78:8	<b>ago</b> 19:18	5:23 14:3	60:18
29:17 38:9	49:7	78:10,17,20	42:24 43:24	86:5,6 87:8	<b>apparently</b>
49:9 65:10	<b>access</b> 72:8	<b>Adm</b> 1:5	<b>agree</b> 16:16	<b>amounts</b> 7:1	24:7 55:16
72:13	<b>according</b>	<b>Admin</b> 3:9	18:16 27:16	85:4,6	55:20
<b>abnormally</b>	56:3 81:9	<b>adopt</b> 19:11	27:20 62:11	<b>Amron</b> 89:10	<b>appeared</b>
28:13	85:14	20:3,7	62:14 63:14	<b>analogy</b>	15:11 46:5
<b>about</b> 4:16	<b>account</b> 50:1	<b>adopted</b> 20:8	75:19,24	71:20	<b>Appearing</b>
5:14 6:23	<b>accuracy</b>	<b>adult</b> 69:14	93:5	<b>analysis</b> 43:5	2:5,15
7:3,12 9:11	44:9	69:15	<b>agreed</b> 12:7	43:9,10	<b>appears</b>
10:21 11:22	<b>accurate</b>	<b>adults</b> 11:12	36:18 63:7	<b>Anand</b> 2:3	24:11 44:5
12:5,11,24	63:24 74:19	72:10,11	63:19 64:1	3:16	46:5 49:23
13:1,7 17:4	<b>acknowledge</b>	<b>adverse</b> 63:8	<b>ahead</b> 19:20	<b>Andrea</b> 2:4	<b>applicability</b>
18:1,21	4:4	63:20 66:23	88:13	3:15	81:4
19:2 21:4	<b>acknowled...</b>	67:2	<b>Albert</b> 41:11	<b>annually</b>	<b>applies</b> 74:14
22:6 29:10	4:5 54:17	<b>adversely</b>	<b>Alisa</b> 2:3	91:15	<b>apply</b> 37:1
30:15,21	<b>Acme</b> 89:12	81:13	3:17	<b>anomalies</b>	<b>appointed</b>
32:21 34:18	<b>Act</b> 15:20,23	<b>advisory</b>	<b>alive</b> 11:4	45:8	3:4
35:3 36:1	16:2 59:19	36:17	<b>allow</b> 48:19	<b>another</b> 12:9	<b>appreciably</b>
36:18 38:8	63:3 87:6	<b>affect</b> 62:14	<b>allowed</b>	18:8 28:9	28:6 51:7
39:11,21	87:13,16,21	73:20	73:19	31:2 36:19	60:13
42:24 45:15	<b>acting</b> 3:11	<b>affecting</b>	<b>allows</b> 74:5	46:23 50:7	<b>approach</b>
46:14,16,17	<b>Action</b> 84:4	81:13	<b>alluding</b>	62:20 82:19	20:6 43:2
46:18 48:8	<b>activity</b> 67:18	<b>aforesaid</b>	51:12	84:5	<b>appropriate</b>
48:23 49:15	<b>actual</b> 5:23	95:11	<b>almost</b> 18:3	<b>answer</b> 6:24	35:13,16
50:12 52:8	25:19	<b>after</b> 4:5 43:9	28:11 31:16	43:14 45:15	43:12
55:22 64:4	<b>actually</b>	73:18 74:1	33:2	48:19 49:13	<b>April</b> 72:5
65:19,21	12:19 24:3	76:10,14	<b>alone</b> 20:19	63:17 68:11	<b>aquarium</b>
68:22 70:7	29:18,23	78:21 79:3	21:7	71:22 72:1	71:20
70:23 71:16	41:8 42:7	<b>afternoon</b>	<b>along</b> 4:17	74:17 79:10	<b>aquatic</b>
72:5 75:2,9	53:4 75:19	4:15,21	7:12 67:3	82:5 83:9	15:20,21
75:13 76:14	79:3 88:18	<b>again</b> 5:3 7:6	<b>already</b> 53:1	<b>answered</b>	19:15 60:5
82:17 85:3	<b>add</b> 6:22	9:3,18	53:2 74:10	75:18,22	60:8,12,12
89:1,4 90:3	43:16 47:2	10:20 11:20	76:3 93:4	<b>answering</b>	60:15 67:9
91:5,14,16	57:20 58:2	12:24 13:16	<b>although</b>	34:5	67:10 88:22
92:11,20	64:13 92:24	28:19 34:17	45:19 60:10	<b>answers</b> 5:8	89:1
93:23	<b>added</b> 57:21	49:7 60:19	<b>always</b> 31:5	<b>anticipation</b>	<b>aquatic-life</b>
<b>above</b> 33:4	57:22	62:21 64:16	<b>ambient</b>	15:7,8	87:7
33:24	<b>adding</b> 10:12	70:22 71:8	30:22 73:23	<b>Antonio</b> 5:9	<b>ARBITRA...</b>
<b>above-entit...</b>	57:20	71:18 85:10	74:9,12	5:19,20 6:1	57:6
1:8 95:8,12	<b>additional</b>	86:8 91:5	75:14 76:8	<b>anybody</b>	<b>area</b> 1:4 3:7
<b>absence</b> 35:7	10:4	<b>against</b> 28:12	76:13	41:6	17:11,12,14
<b>absent</b> 69:4	<b>address</b>	<b>agencies</b> 89:7	<b>Amendme...</b>	<b>anyone</b> 4:1	17:22,22
<b>abstain</b> 15:19	26:21	89:22 90:10	1:5 3:9	44:23	19:7 37:2
<b>abundance</b>	<b>adjusted</b>	90:13	<b>American</b>	<b>anything</b>	46:3,22,23
27:20 28:4	27:15 45:24	<b>agency</b> 2:6	89:8	57:18 78:11	73:16 74:24
	73:17,20	14:15,17,18	<b>ammonia</b>	88:10	81:7,8,12



85:18 86:22	42:9,11	59:2,4	<b>behind</b> 93:15	43:11 44:12	<b>break</b> 57:7
86:23 87:1	43:4 47:7,8	62:21 77:13	<b>being</b> 25:18	44:15 60:23	58:13,14
87:4 89:3	54:7,11	93:23	44:24 72:18	89:20	94:1
91:18	67:1	<b>balance</b>	84:15 95:4	<b>biologist</b>	<b>bridge</b> 26:18
<b>areas</b> 16:21	<b>attain</b> 33:2	27:17 28:5	<b>believe</b> 5:3	31:21	<b>bring</b> 77:13
19:2,6	59:19 60:8	28:16	5:22 6:24	<b>biologists</b>	<b>broad</b> 48:19
23:13,16	87:21	<b>balanced</b> 8:4	7:20,23	82:20	<b>Brook</b> 91:22
25:17 46:24	<b>attainability</b>	8:24	13:2 14:23	<b>bit</b> 9:11	<b>brought</b>
62:16 68:15	43:5,10	<b>bank</b> 66:23	16:5 17:16	10:15 47:4	47:16 54:15
70:13 72:9	60:1,19	<b>Barcusen</b>	19:14,23	79:24	<b>Brushy</b> 92:3
76:13 85:21	<b>attainable</b>	13:3	20:7 21:14	<b>bite</b> 93:17	<b>BTU</b> 24:2
<b>around</b> 44:22	87:7	<b>barge</b> 17:23	30:18 32:23	<b>black</b> 13:14	<b>bucket</b> 29:14
93:3	<b>attained</b> 63:2	18:4,4	40:3,21	<b>blue</b> 89:13	29:15,15
<b>asked</b> 4:11	<b>attainment</b>	67:16	54:6 56:8	<b>bluegills</b> 10:7	31:23
12:24 25:7	12:4 60:14	<b>barges</b> 7:6	57:10 62:13	<b>blunt-nose</b>	<b>buffalo</b> 8:17
42:23 43:20	87:13,15	17:24 66:23	73:11 80:1	81:9	<b>build</b> 4:12
44:4 46:11	91:1	67:2,3,7,17	93:6	<b>board</b> 1:1,10	<b>bunch</b> 13:23
47:20 53:1	<b>attains</b> 16:2,2	67:19	<b>believed</b> 13:7	2:5 3:4,12	29:20
53:2 58:18	<b>attendant</b>	<b>base</b> 68:11	16:4	3:14,15	<b>bury</b> 67:14
<b>asking</b> 30:2	62:4	69:1	<b>believes</b> 16:2	4:11 18:15	<b>business</b> 95:5
35:8 60:18	<b>attended</b>	<b>based</b> 9:14	<b>benchmar...</b>	76:18 79:4	
75:9,13	64:24	12:2 20:18	28:12	<b>Board's</b> 4:13	<hr/> <b>C</b> <hr/>
<b>assemblage</b>	<b>attention</b>	21:6,8 24:2	<b>Besides</b>	<b>boat</b> 38:11	<b>C</b> 2:1
48:16 81:6	54:17	33:6 49:9	88:20	<b>boatable</b>	<b>calculate</b>
<b>assess</b> 21:13	<b>attributed</b>	50:13 64:22	<b>best</b> 30:5,7	11:22 37:2	36:6
<b>assessment</b>	51:15	79:20 85:3	30:10,12	39:9,12	<b>calculated</b>
60:1	<b>AUDIENCE</b>	<b>basically</b>	32:15 77:10	43:1,12	12:8 35:12
<b>assessments</b>	40:5	11:4 12:6,9	<b>Bethlehem</b>	44:7	<b>calculating</b>
82:11	<b>Austin</b> 5:19	14:1,6 25:9	89:11	<b>bodies</b> 20:9	9:5
<b>assign</b> 56:6	<b>available</b>	25:21 30:4	<b>better</b> 4:17	20:12	<b>calculation</b>
<b>assimilate</b>	36:8	30:6,10	20:5 22:24	<b>body</b> 17:7	58:4
38:10	<b>Avenue</b> 2:7	46:18 50:11	26:21 27:12	18:7 24:13	<b>calculations</b>
<b>associated</b>	<b>average</b> 52:2	58:6 62:19	59:18 74:21	60:4 64:12	58:1
62:9,23	59:18	63:22 85:5	79:5 85:1	69:22 87:10	<b>calibrations</b>
70:12	<b>avoidance</b>	85:23	<b>between</b> 8:21	87:21,24,24	36:22
<b>assume</b> 84:24	62:16	<b>basis</b> 16:15	10:15,21	<b>both</b> 23:16	<b>call</b> 17:23
<b>assumes</b>	<b>aware</b> 6:4	41:20 44:19	11:12 12:5	29:5 32:18	32:6,7
51:24	64:16,17	45:2 57:11	13:8 23:2	46:20,24	54:16,19
<b>assuming</b>	72:17	62:18	49:24 86:24	64:7 89:5	65:8 68:21
7:10	<b>a.m</b> 1:14	<b>Beaver</b> 91:21	<b>bias</b> 4:15	<b>bottom</b> 88:7	82:18
<b>assumption</b>		<b>before</b> 1:8,10	<b>big</b> 12:22	<b>boulder</b>	<b>called</b> 1:9
85:3	<hr/> <b>B</b> <hr/>	4:6 18:15	17:15 41:6	86:12	84:4
<b>assurance</b>	<b>B</b> 15:10 46:1	38:9 45:24	91:23	<b>box</b> 2:7 57:19	<b>calls</b> 7:18
56:22	<b>back</b> 5:16	52:15 73:16	<b>bigger</b> 65:10	<b>BP</b> 89:12,12	30:19
<b>attached</b> 23:7	13:19,20	74:1 76:10	<b>biggest</b> 65:9	<b>branch</b> 22:4	<b>came</b> 38:5
42:8 62:10	15:4 22:18	76:14 78:19	65:15	92:1,4	56:7 58:1
62:23 68:14	27:12 39:18	82:13	<b>biological</b>	<b>Brandon</b>	78:17
83:7	44:16 45:4	<b>begin</b> 4:7 5:3	21:13,15,16	22:3,24	<b>canal</b> 19:3
<b>attachment</b>	51:20 54:18	<b>behalf</b> 2:5,15	29:17 36:17	68:10 73:24	25:20 63:21
34:7,8,21	55:20 57:16	90:8	38:16 39:8	76:10	<b>capable</b> 16:4

<b>carpsuckers</b> 8:17	<b>certified</b> 82:12,24	<b>churned</b> 18:6	<b>close</b> 13:5 25:10	<b>coming</b> 65:19 86:9	20:4
<b>cascading</b> 62:8	83:24 84:10 93:7 95:4	<b>Cincinnati</b> 24:21	<b>closed</b> 85:18	<b>commencing</b> 1:14	<b>conclude</b> 8:2 16:5 23:15 49:23 80:18
<b>case</b> 12:11 13:13 18:9 21:16 58:2 65:16 78:19 78:20 80:1 87:3,16	<b>certify</b> 95:6,9	<b>circulated</b> 44:21 45:1	<b>closely</b> 47:19	<b>comment</b> 19:19	<b>concluded</b> 23:8
<b>cases</b> 11:7,8 30:14 56:17 69:19	<b>chairman</b> 2:2 3:12 4:22 32:10,18 34:2 37:17	<b>circumstan...</b> 17:8 87:23	<b>closest</b> 25:22	<b>commented</b> 19:18	<b>conclusion</b> 21:8,12,18 81:5
<b>catch</b> 81:20	<b>change</b> 43:14 50:20 51:7 51:10 52:7 52:8,10 62:24 77:6	<b>citation</b> 45:5	<b>cobble</b> 86:11	<b>commercial</b> 7:5,7,21,24 16:11 17:6	<b>conclusions</b> 23:1 69:2,6
<b>categories</b> 55:14 86:21 87:5	<b>changed</b> 24:15	<b>cite</b> 6:16 66:24	<b>cobble/bou...</b> 73:7,9	<b>common</b> 81:11	<b>condition</b> 60:6,9 85:8 85:9 86:2,6 86:7 87:2
<b>catfish</b> 32:2,3 71:13	<b>changes</b> 74:15 77:8	<b>cited</b> 13:10 63:13	<b>Code</b> 1:5 3:9	<b>Commonw...</b> 76:17	<b>conditions</b> 31:13 60:11
<b>caught</b> 47:23	<b>channel</b> 7:18 32:2,3 71:13	<b>citing</b> 13:22	<b>Coeur</b> 89:13	<b>communities</b> 22:20	<b>conduct</b> 27:5 89:1
<b>cause</b> 1:8 62:4,6,7 67:13 95:8 95:12	<b>channeliza...</b> 16:11 17:2	<b>City</b> 89:16 95:5	<b>colleague</b> 84:5	<b>community</b> 8:24 15:1 23:15,16 24:5 27:23 29:6 32:17 45:22 60:12 60:13 61:23 63:2	<b>conducted</b> 21:20 27:14 35:11 83:17 88:22
<b>caused</b> 61:22	<b>channeliza...</b> 16:23	<b>classes</b> 68:2	<b>collect</b> 40:22 41:3 89:1 92:24	<b>collecting</b> 37:22 40:19 40:20	<b>conductivity</b> 27:7
<b>causing</b> 61:12	<b>channels</b> 18:5	<b>classification</b> 16:1 19:11 59:15,23 80:3,17,24 90:23	<b>collected</b> 13:13 14:20 14:21 15:4 21:17,24 46:9 48:3 69:3	<b>collection</b> 38:3,9	<b>connection</b> 13:8
<b>caveat</b> 46:6	<b>characteris...</b> 59:10	<b>clarification</b> 26:1 78:1 78:14	<b>collections</b> 21:23 22:7 22:9 25:13	<b>collector</b> 84:9	<b>considered</b> 15:22 21:15 49:6 86:15
<b>CAWS</b> 21:20 21:24 43:19 73:24 76:10	<b>characteris...</b> 15:18 16:7 16:17 32:12	<b>clarify</b> 40:10 50:5,17 79:5,7	<b>Colorado</b> 5:14,17 6:5	<b>collecting</b> 37:22 40:19 40:20	<b>consistent</b> 15:22 81:6 81:14,15
<b>CD</b> 53:10,10	<b>characteriz...</b> 63:24	<b>classified</b> 16:21 59:16	<b>Columbus</b> 91:12 93:19	<b>collection</b> 38:3,9	<b>consistently</b> 10:1,2 30:2 33:21
<b>Center</b> 3:24 88:14	<b>characterize</b> 16:14 19:7 65:23	<b>classifies</b> 79:20	<b>column</b> 55:19 55:22	<b>collections</b> 21:23 22:7 22:9 25:13	<b>constantly</b> 67:8
<b>centers</b> 17:12	<b>characteriz...</b> 63:15,19	<b>classificati...</b> 79:22	<b>Com</b> 73:16	<b>collector</b> 84:9	<b>constitutes</b> 74:12
<b>certain</b> 8:10 9:6 12:10 12:13,18 60:10 68:19 93:5	<b>characterize</b> 16:14 19:7 65:23	<b>classified</b> 16:21 59:16	<b>combination</b> 16:10,20,24 17:9 18:11 18:12	<b>Colorado</b> 5:14,17 6:5	<b>construction</b> 66:9,14
<b>certainly</b> 17:10,19 44:19 49:16 64:7 65:14 67:15 71:4 87:11	<b>characteriz...</b> 63:15,19	<b>classifies</b> 79:20	<b>column</b> 55:19 55:22	<b>Colorado</b> 5:14,17 6:5	<b>consultant</b> 40:2,8 43:20
<b>certification</b> 49:12 82:14 84:3 92:15 92:19 93:8	<b>checked</b> 57:19	<b>classificati...</b> 79:22	<b>Com</b> 73:16	<b>Colorado</b> 5:14,17 6:5	<b>consultants</b> 38:24
	<b>Chemical</b> 89:12	<b>classroom</b> 92:21,22	<b>combination</b> 16:10,20,24 17:9 18:11 18:12	<b>Colorado</b> 5:14,17 6:5	<b>consulting</b> 38:15
	<b>Chicago</b> 1:4 1:13 2:14 3:7 17:12 17:13 22:4 89:3 95:6	<b>cleaner</b> 85:21	<b>comes</b> 31:21 45:11	<b>combination</b> 16:10,20,24 17:9 18:11 18:12	<b>contact</b> 60:20
	<b>chose</b> 44:6	<b>clear</b> 15:13 39:15 92:7 59:8		<b>combination</b> 16:10,20,24 17:9 18:11 18:12	
		<b>Cleveland</b> 89:18 91:18		<b>combination</b> 16:10,20,24 17:9 18:11 18:12	
		<b>Clifty</b> 92:4		<b>combination</b> 16:10,20,24 17:9 18:11 18:12	

<b>contain</b> 42:17	54:1,1,3,3 54:23,23	<b>Cummings</b> 82:20 83:3	50:3 55:17 57:15,17,19	<b>degraded</b> 80:20 81:7	92:1
<b>contained</b> 53:23 55:12	55:4 56:10	83:10,18	69:6 73:22	<b>degree</b> 16:24	<b>die</b> 14:10
<b>contains</b> 78:9	<b>corrections</b> 53:16	84:7	75:14 76:5	17:1,1 77:1	72:10
95:11	<b>correctly</b> 13:4 65:22	<b>curious</b> 55:23	76:8 83:6	86:11	<b>Diers</b> 2:9 6:7
<b>contaminat...</b> 61:14	<b>Counsel</b> 18:18 20:20	<b>current</b> 11:24 15:1	84:9	<b>degrees</b> 74:6	6:8,12 8:1
<b>contending</b> 15:17	26:11 34:13	73:16 81:12	<b>database</b> 29:17	77:17,18	14:12 18:20
<b>context</b> 31:6	35:5 44:1	<b>Currently</b> 15:21	<b>dataset</b> 69:2	<b>DELT</b> 45:7	18:24 19:4
60:19	47:1 50:4	<b>curve</b> 33:14	<b>dates</b> 4:16	45:10,11,16	19:9 20:23
<b>continue</b> 3:23 6:19	53:4 74:18	<b>cut</b> 72:8	<b>day</b> 1:13 3:19	<b>DELTS</b> 45:15	21:2 22:15
12:23 45:22	74:23 82:4	<b>cut-off</b> 32:21	<b>days</b> 39:19	<b>density</b> 17:23	22:17 24:23
64:13 66:2	<b>County</b> 1:11	32:24 33:15	<b>deal</b> 20:9	<b>Department</b> 90:18	27:10 34:3
86:20	89:16 95:2	<b>Cuyahoga</b> 89:19 91:19	65:11,17	<b>depend</b> 36:21	34:10,15,18
<b>continues</b> 86:14,17	95:6	<b>cycle</b> 24:15	<b>dealing</b> 9:17	64:7 68:15	34:23 35:4
<b>continuing</b> 3:20	<b>couple</b> 12:14	72:1	36:11 71:12	87:10,22	39:7 42:22
<b>continuum</b> 32:5	29:2 68:24	<hr/> <b>D</b> <hr/>	<b>deals</b> 51:9	<b>depressed</b> 23:16	45:3 47:23
<b>contribute</b> 9:6,8,16	70:1 71:11	<b>Dairy</b> 89:9	<b>DEBORAH</b> 2:9	<b>Des</b> 1:4 3:8	48:11 50:15
10:11	88:19 90:7	<b>Dam</b> 22:23	<b>decide</b> 39:9	13:10 15:12	50:21,24
<b>contributing</b> 10:3 64:13	<b>court</b> 4:9	23:1	<b>decided</b> 33:15 37:1	39:8 43:5	51:2 52:12
<b>Control</b> 1:1,9	<b>cover</b> 12:14	<b>damming</b> 6:18	39:12,14	43:10,13	53:3 58:15
2:5 76:18	51:9,14	<b>dams</b> 6:19,21	43:11 44:12	52:17 68:8	58:18,24
<b>conventional</b> 30:19,24	52:1	7:19 61:11	59:24	82:2	59:3,6
<b>Cook</b> 1:11	<b>covered</b> 67:22 68:13	61:11,22	<b>decision</b> 4:13	<b>describe</b> 45:12	66:19 72:24
95:2,6	86:13	68:10	42:24	<b>described</b> 25:15 62:9	73:1 75:8
<b>cool</b> 31:12	<b>covering</b> 85:16,20	<b>Darby</b> 92:4	<b>decrease</b> 64:20	68:13 74:10	75:13 76:2
62:21	<b>covers</b> 81:1	<b>darter</b> 70:2	<b>decreasing</b> 79:21	<b>describing</b> 77:16	76:5,7,16
<b>copies</b> 47:16	<b>creation</b> 68:9	70:22	<b>deep</b> 7:22	<b>designated</b> 44:24	79:17 80:12
<b>corps</b> 7:18	<b>creek</b> 91:20	<b>darters</b> 8:3,7	85:16	<b>designed</b> 65:17	81:22 82:7
90:16	91:21,23,23	68:18 70:5	<b>default</b> 59:23	<b>determine</b> 14:24 25:4	82:8 83:23
<b>correct</b> 5:6	91:23,24,24	70:7,18	<b>define</b> 85:19	74:11	84:12
5:11 23:4	91:24 92:1	<b>data</b> 14:15,17	86:24	<b>develop</b> 37:19 38:10	<b>difference</b> 8:21 10:21
35:22 52:21	92:1,2,4,4,5	14:20,21	<b>defines</b> 86:20	<b>developed</b> 37:6 51:18	49:5,18,20
53:13,14,19	92:7,7,7,10	15:3,6,13	<b>definitely</b> 20:6 31:3	51:19 80:24	49:24 51:13
53:20 54:12	92:13	19:22 20:19	33:2 43:19	81:3 82:16	<b>differences</b> 50:14 57:13
54:18 56:16	<b>Creeks</b> 93:13	21:7,13,15	45:1	<b>developing</b> 29:5 80:3	<b>different</b> 10:10 11:8
56:24 57:1	<b>criteria</b> 45:11	21:16 25:16	<b>definition</b> 17:3,6 73:8	<b>development</b> 51:10,16	11:9,9,11
57:24 71:1	80:8	26:5,9,17	73:13 85:12	65:21	11:23 23:9
77:22 95:9	<b>criterion</b> 45:14	37:7,22	<b>definitively</b> 48:19	<b>Dick's</b> 91:20	28:6 36:3
<b>corrected</b> 53:12,22	<b>critter</b> 31:23	38:3,8,10	<b>deformities</b> 45:7		90:7 93:3
	<b>CSO</b> 65:2,4	40:19,20,21	<b>degradation</b> 81:15		<b>differently</b> 29:18
	65:12,18	40:22,24			<b>difficult</b> 74:11
	<b>CSR</b> 1:10	41:4,7,11			<b>direct</b> 81:4
	95:16,16	41:17 42:17			85:15
					<b>direction</b> 64:8
					<b>directly</b>

10:11 45:11 45:13 85:11 86:9 <b>disappear</b> 65:5 <b>disc</b> 27:7 <b>discharge</b> 24:6 25:20 66:1 <b>discharges</b> 16:13 <b>discuss</b> 27:14 <b>discussed</b> 23:7 43:15 59:21 <b>discussion</b> 5:14 6:23 <b>discussions</b> 21:4 49:10 <b>dislodged</b> 86:18 <b>disrupting</b> 63:9 <b>dissolved</b> 27:6 30:20 31:9,16 <b>distinction</b> 10:15,20 71:19 <b>distribution</b> 29:11 <b>District</b> 89:18 91:18 <b>districts</b> 90:17 <b>disturb</b> 67:8 67:12,12 <b>disturbance</b> 30:17,23 31:2 <b>Ditch</b> 91:20 <b>diversity</b> 27:16 28:5 28:16 <b>divert</b> 7:19 <b>DNR</b> 89:15 90:1 <b>Docket</b> 3:10 <b>document</b> 62:24 85:11	85:14 86:9 86:20 <b>documents</b> 15:5 <b>doing</b> 16:4 29:3 57:2 90:6 95:5 <b>dollar</b> 5:21 <b>Domer</b> 91:20 <b>dominate</b> 45:22 <b>dominated</b> 73:16,18 <b>done</b> 22:5 30:15 33:6 48:12 51:4 51:5 53:18 59:3 70:16 83:5 89:5 89:15 90:15 90:18 91:22 <b>down</b> 8:15 18:3 29:8 52:14 62:7 62:21 <b>downstream</b> 22:21,22 23:3,11 74:6,14 <b>downtown</b> 5:24 <b>dozen</b> 56:11 <b>DR</b> 2:4 <b>draw</b> 23:1 <b>drawing</b> 69:5 <b>Dresden</b> 8:4 10:16,17 15:17,24 16:6,14 17:3,5,5 18:16 20:16 21:5 22:3 22:20,21,22 23:2,10 27:18 42:5 45:20,23 46:21 48:4 48:16 59:8 60:24 61:6 68:1,9,10	73:24 76:9 80:16,21 84:17,23 88:4 <b>Dresdon</b> 81:6 <b>due</b> 87:19 <b>Duke</b> 89:9 <b>DuPage</b> 13:11 <b>during</b> 19:18 22:8 24:14 44:16 49:11 51:5 53:19 54:14 83:11 <b>dweller</b> 69:11 <b>dwellers</b> 68:3 68:6 <b>d'Alene</b> 89:13 <hr/> <b>E</b> <b>E</b> 2:1,1 <b>EA</b> 14:20,21 21:20 23:8 23:18 25:15 35:11 36:5 38:2 49:5 69:2 81:23 82:10 83:7 88:22 90:5 90:24 <b>each</b> 4:8 16:16 18:12 22:23 45:13 54:13 69:6 88:8 <b>earlier</b> 35:24 46:9 60:18 80:1 <b>early</b> 37:23 38:2 <b>easily</b> 82:4 86:18 <b>east</b> 2:7 91:8 92:4 <b>easy</b> 20:23 <b>eat</b> 11:6 93:17 <b>EA's</b> 83:20	83:22 <b>ecoregion</b> 12:4 36:10 <b>edge</b> 67:4 <b>Edison</b> 76:17 <b>Ed/Midwest</b> 73:16 <b>effect</b> 7:1 23:14 24:7 24:11,12 46:1 61:2,5 61:22,23 62:19 63:8 67:15 73:17 73:18 74:2 76:11,15 78:18 <b>effects</b> 62:4,8 63:10,20,23 66:24 67:2 68:1 <b>effluent</b> 1:3 3:6 79:2 <b>eight</b> 5:24 <b>Eighty-eight</b> 21:20 <b>Eighty-five</b> 20:15 <b>either</b> 9:13 18:4 32:24 36:10 43:21 64:8,12 67:11,12 69:4,21 79:2 <b>Electric</b> 89:8 <b>electro</b> 26:24 <b>electrofishi...</b> 27:5 48:3 <b>elements</b> 77:12 <b>eliminate</b> 7:9 63:1 65:3 <b>eliminated</b> 68:1,8,21 <b>elimination</b> 61:11 <b>elsewhere</b> 82:1 <b>embedded</b>	86:23 87:1 87:4 <b>embedded...</b> 86:5,7,11 86:21,24 <b>enable</b> 15:19 <b>end</b> 25:18 29:7,7 32:4 33:14 47:13 56:14 57:4 <b>endangered</b> 90:6,7 <b>ends</b> 29:5 <b>end-point</b> 80:8 <b>Energy</b> 89:9 89:9 <b>engineer</b> 90:17 <b>enhanceme...</b> 48:15 <b>enough</b> 7:22 11:3,19 12:17 66:6 <b>entire</b> 85:16 88:6 <b>entitled</b> 3:6 <b>environment</b> 69:16 70:1 78:21 <b>environme...</b> 2:6 3:24 79:21 88:13 <b>EPA</b> 12:1 19:11 29:1 30:18 33:6 40:3,4,5,12 40:21 45:12 49:12 73:6 79:19 80:2 81:1 82:3 82:15,17,23 82:24 85:11 86:9 <b>EPA's</b> 15:17 39:9,12 73:7 <b>equally</b> 20:5 <b>erosion</b> 45:8 <b>error</b> 6:2	57:11 <b>errors</b> 54:16 55:3,5,6,10 56:11,12,14 56:18,23,24 57:1,2,12 57:13 <b>especially</b> 8:11 <b>essentially</b> 52:5 59:23 <b>ESSIG</b> 2:11 <b>establish</b> 74:24 <b>established</b> 7:4 13:17 29:3 42:20 <b>estimate</b> 89:4 <b>Ettinger</b> 5:12 6:3 23:17 23:21 24:17 24:22 28:18 31:1 32:1,9 35:23 36:3 41:5,12 42:17 57:9 58:5,10 66:8,13,18 69:7 70:15 71:11,16 72:14,19,23 76:21 77:3 80:9 88:15 <b>Euclid</b> 91:23 <b>evaluate</b> 81:24 <b>evaluation</b> 21:9 41:15 43:13 <b>evaluations</b> 11:19 <b>even</b> 9:19 11:15 17:2 20:5 24:10 30:9 48:14 52:6 55:6 55:23 57:2 63:1 81:3 93:12 <b>event</b> 65:9,10
--	---	---	--	--	---

65:8,12,15	55:1,7,12	73:15	<b>figure</b> 15:14	80:20 81:11	54:22 57:12
<b>eventually</b>	56:2 57:14	<b>factor</b> 9:19	<b>find</b> 11:5	<b>Fisk</b> 22:5	63:13 70:19
36:24 72:10	58:16,21	33:5 60:5	13:18,19,20	<b>fit</b> 20:12	71:4 80:16
<b>ever</b> 23:18	59:7 60:20	61:20,24	14:8 29:23	<b>five</b> 10:10,13	<b>four</b> 19:18
<b>every</b> 50:2,6	61:19,21	62:2,12,14	31:17 49:9	13:20 19:18	50:23 63:22
50:10,10	63:7 64:11	87:11,12	68:23 69:18	22:21 45:23	<b>four-year</b>
56:7	66:21 67:23	<b>factors</b> 16:20	69:20 71:9	48:4 49:15	91:16
<b>everybody</b>	73:4 79:19	16:24,24	<b>fine</b> 19:5	49:16 56:9	<b>frame</b> 70:2
12:7 47:19	80:14 83:8	17:9 18:20	40:23 43:24	58:4	<b>frankly</b> 15:6
<b>everyone</b> 3:3	84:15 88:2	18:22 60:14	51:1 76:2	<b>five-mile</b>	15:10 78:9
4:21 40:19	<b>exist</b> 9:22	63:4 87:15	79:14 82:7	23:12 46:20	<b>FRANZET...</b>
<b>everything</b>	37:8	87:18,23	83:9 86:13	<b>Flat</b> 91:22	2:12,15 5:5
18:6 86:2	<b>exists</b> 17:4	<b>fail</b> 56:24	86:16	<b>flow</b> 7:19	13:5 18:18
<b>evolved</b>	35:18	<b>fair</b> 30:8	<b>finish</b> 4:19	17:4 65:20	18:22 19:1
36:24	<b>expect</b> 65:15	<b>fall</b> 49:4 51:4	38:19 57:9	<b>flows</b> 5:18	20:20 22:12
<b>exact</b> 9:3	68:19 81:7	67:13	<b>finished</b>	16:12 27:12	26:7,11,15
10:9 25:6	<b>expected</b>	<b>fall/winter</b>	20:13	<b>fluctuations</b>	34:13,16
29:24 37:21	74:15	50:16	<b>firm</b> 2:12	63:21 64:1	35:1,5,15
84:2	<b>experience</b>	<b>familiar</b> 20:1	38:15	<b>focussing</b>	35:20 37:13
<b>Examination</b>	49:10,14	64:14,17	<b>first</b> 38:6	77:17	40:6 41:10
6:11	82:18	77:12	47:13,13	<b>follow</b> 15:9	41:21 42:2
<b>example</b> 9:20	<b>explain</b> 6:13	<b>far</b> 3:14 4:17	48:19 63:18	15:10 35:9	42:12,15
24:16 31:10	14:14,16	12:9 25:10	74:3 75:18	83:1	44:1,10,14
62:15 72:2	35:6,15	48:9	75:20 84:3	<b>followed</b>	47:1,17
81:9 85:22	47:5 61:24	<b>Fahrenheit</b>	84:6,6	86:10	50:4,18,22
<b>examples</b>	75:4 79:1	74:7	88:20	<b>following</b>	51:1 53:4
13:11,22	<b>explainable</b>	<b>fast</b> 6:17 68:4	<b>fish</b> 9:19 14:1	26:12 27:15	53:15,21
89:7	49:19	68:7,15	14:7 15:1	45:5 48:22	54:2,22
<b>exceeded</b>	<b>explanation</b>	70:12	21:21 22:20	81:4 85:13	55:8 56:13
33:22 34:1	81:16	<b>fastest</b> 85:18	23:14,15	86:21	57:4 58:22
<b>excellent</b>	<b>express</b> 4:14	<b>fast-moving</b>	24:4 27:14	<b>follow-up</b> 4:1	59:1,5
32:23	<b>extensive</b>	71:10	27:16,17,20	32:11 39:5	74:18 75:10
<b>except</b> 22:3	52:2 84:20	<b>features</b>	29:6,10,22	39:10 44:2	75:17 76:3
82:23	85:20,23	48:15	30:6,7,11	53:5 68:22	77:9 78:2,7
<b>exceptional</b>	86:7,21	<b>feed</b> 71:9	31:1,18	<b>foregoing</b>	79:6 81:21
33:8,9	<b>extensively</b>	72:11	32:17 41:16	95:8,9	82:4 83:1
<b>exceptions</b>	11:21	<b>feeding</b> 63:10	45:21 46:8	<b>forgetting</b>	88:18 89:24
70:13,14	<b>extent</b> 48:20	<b>feet</b> 63:22	48:3,16	92:9	90:21 93:20
<b>excessive</b>	48:22 59:9	<b>felt</b> 35:24	61:2,5,23	<b>forgot</b> 29:24	<b>free</b> 86:1
85:5	67:10 68:12	<b>few</b> 8:7,7	62:15,19	54:10	<b>freeze-out</b>
<b>Excuse</b> 27:1	<b>extra</b> 77:1	9:14 10:12	63:2,9 67:2	<b>fork</b> 19:3	31:15
69:7	<b>extreme</b> 63:8	11:13,15	68:2,6,14	91:8,21	<b>from</b> 3:17,21
<b>exhibit</b> 34:12	63:20	27:22,24	71:12,12	92:3,7	5:12 12:19
41:16,17		42:24 46:23	73:20 79:20	<b>formal</b> 82:14	13:2 14:2,7
42:7 47:11	<b>F</b>	69:13	80:15 81:2	<b>forty-two</b>	15:9,12
47:22 48:6	<b>facilities</b>	<b>fewer</b> 46:13	81:13 93:2	73:15	16:13 19:12
48:7 52:14	88:22	46:17	<b>fishermen</b>	<b>found</b> 23:18	26:9 32:5
52:16 53:9	<b>fact</b> 13:15	<b>field</b> 26:23	7:22	30:8 33:17	32:20 38:1
53:23 54:12	17:16 44:3	41:16 57:16	<b>fishes</b> 33:16	33:21 46:22	41:20 45:11
54:20,21	54:9 59:21	83:19	66:24 73:5	46:23,23	45:13,14,16

46:14 48:4	56:18 67:4	12:21 13:21	<b>greatly</b> 60:7	<b>hands</b> 4:4	<b>helps</b> 50:17
48:24 50:6	72:5 85:24	13:24 14:13	68:2	<b>hands-on</b>	<b>her</b> 77:13
50:21,22	<b>Generation</b>	14:18 17:9	<b>greatly-red...</b>	82:18	<b>hey</b> 37:8
51:4,11	2:15 4:20	18:7 19:1	69:5	<b>hang</b> 14:20	<b>high</b> 33:14
52:1,8	22:5 35:12	21:10 24:7	<b>green</b> 10:6	22:15	<b>higher</b> 9:10
55:17 60:5	88:21	24:11 27:11	<b>Greg</b> 3:22	<b>happen</b>	10:2 28:9
62:20 65:20	<b>Generation's</b>	31:22 33:5	<b>group</b> 8:16	12:21 52:2	28:10 73:19
65:21 68:8	3:21	43:6 45:4	29:13,19	64:8	73:21 74:4
72:8 76:18	<b>genesis</b> 43:18	46:1 47:3	36:16,17	<b>happened</b>	75:21 77:16
78:19 79:1	<b>getting</b> 18:6	47:21 48:8	69:14 70:11	80:5,6	79:11
79:2 82:15	20:21	48:12,17,24	70:12 84:6	<b>hard</b> 68:5,7	<b>highest</b> 33:8
86:9	<b>Girard</b> 2:2	49:14,21	<b>groups</b> 8:9	<b>having</b> 10:22	<b>highly</b> 8:12
<b>full</b> 60:21	3:12 4:22	52:13,15	8:10 68:2	77:2	28:1 32:6
<b>fully</b> 28:13	32:10,18	58:19,24	68:14,17	<b>head</b> 72:5	80:4,19
65:1	34:2 37:17	59:1,4,20	69:3	<b>hear</b> 3:20	<b>him</b> 19:4
<b>functionally</b>	<b>give</b> 31:9	60:2,3,16	<b>grow</b> 11:6	65:14	74:21,22
68:21	32:18 35:1	61:10,17,18	<b>guess</b> 27:17	<b>heard</b> 13:2	75:2
<b>functioning</b>	37:20 78:7	64:9 65:3,4	50:15 62:22	17:15 32:20	<b>hired</b> 40:3,4
69:1	<b>given</b> 12:20	65:6,8,9,11	68:21 78:13	64:23 89:23	40:6,11,21
<b>further</b> 35:15	21:12 59:22	65:15,18	82:18	89:24	41:3
52:14 88:11	90:21	66:2,5,5,20	<b>guidance</b>	<b>hearing</b> 1:8	<b>Historically</b>
93:20	<b>gives</b> 77:1	67:7,8,9,11	86:9	2:2 3:1,5	36:5
<hr/>	<b>giving</b> 79:9	67:13,14,15	<b>guys</b> 81:20	4:16,24 6:7	<b>hogsucker</b>
<b>G</b>	<b>go</b> 3:2 6:9	67:18,21,23	92:14 93:2	7:11 22:13	8:20
<hr/>	12:15 13:23	68:16,17	<hr/>	26:2 27:1	<b>Homer</b> 92:5
<b>G</b> 3:12	14:13 22:18	69:19 75:11	<b>H</b>	34:8,11	<b>Hosier</b> 89:9
<b>gain</b> 12:10,14	27:11 29:14	75:15 81:17	<b>habitat</b> 6:13	38:13,18,22	<b>host</b> 30:16
12:17	29:15 33:17	81:18,18,19	8:15,17,18	39:3,17	<b>hour</b> 1:14
<b>gained</b> 78:12	36:22 45:4	82:6 84:14	8:22,23 9:1	40:15,23	<b>house</b> 71:21
<b>game</b> 85:14	48:12 50:6	86:1,8 87:3	9:9 10:10	41:8,14	93:15
<b>gamut</b> 89:20	52:1 54:18	87:9,18	10:12,17,19	42:10,14,19	<b>HOWARD</b>
<b>gap</b> 12:22	58:19 60:3	88:9	11:8,9,10	47:10,24	2:11
<b>gather</b> 29:9	61:18 66:20	<b>good</b> 3:2 4:22	11:13 12:21	52:24 58:8	<b>huge</b> 29:16
<b>gave</b> 32:11	67:23 72:7	11:5 15:1,2	14:3 18:9,9	58:12,17	<b>hundred</b>
<b>Gen</b> 73:17	73:3 74:21	18:9 20:5	20:18 21:6	63:11 66:11	64:10 73:14
92:6	75:24 84:14	30:9 32:22	21:9 30:17	72:24 78:13	85:7
<b>general</b> 15:19	86:18 88:13	59:9,11,18	30:23 32:17	79:15 83:14	<b>Hurford</b>
15:23 16:3	92:23 93:2	59:20 72:4	32:20 33:3	88:12 93:22	91:10
16:7,10,16	<b>goal</b> 87:7,21	<b>grab</b> 86:18	33:5 41:15	95:8	<b>hypothetical</b>
16:19,21	<b>goals</b> 15:20	<b>Grand</b> 2:7	48:15 59:9	<b>hearings</b>	28:8
23:3 31:6	15:23 16:3	<b>grant</b> 13:17	59:12,18,20	3:19 36:24	<hr/>
32:12 59:10	59:20 60:15	<b>granted</b> 79:3	59:24 60:22	39:19 64:24	<b>I</b>
59:11,14,17	60:20 63:3	<b>gravel</b> 86:11	61:4 63:9	<b>heavy</b> 84:18	<b>IBI</b> 9:5 10:9
59:19,22	64:18 87:13	<b>great</b> 59:9,12	70:6 73:12	85:9,15	10:13 11:21
64:18 65:20	87:16	91:7	79:22 80:20	86:2	11:21 12:9
74:7	<b>goes</b> 18:4	<b>greater</b> 45:7	81:7,15	<b>height</b> 63:22	12:11,15
<b>generalists</b>	31:16 56:19	63:10 86:15	<b>half</b> 12:6	<b>held</b> 1:7	14:15,17,21
8:16,18,22	56:21 85:19	87:8,22	55:22 58:20	44:16	14:24 28:9
<b>generally</b>	<b>going</b> 6:9,19	<b>greatest</b>	<b>handing</b> 43:3	<b>help</b> 4:12	29:5,21
14:15 49:13	9:7 12:15	61:23	<b>handle</b> 65:9	78:1,3 79:1	33:10,12,13
52:3 55:9					

33:22,24	<b>immediate</b>	<b>included</b>	<b>initials</b> 41:13	73:24 76:9	44:4 46:6
34:4,5,19	3:11,16	25:16 26:6	<b>inner</b> 13:8	84:18,23	48:17 49:22
34:19 35:2	<b>immediately</b>	34:6,20	<b>inputs</b> 16:12	88:4	50:13 53:5
35:6,7,13	25:20	47:15 53:10	<b>inquiry</b> 22:6	<b>issue</b> 35:6	55:8 57:9
35:14,17,17	<b>impacted</b>	54:24	<b>Instead</b> 77:2	36:18 65:12	57:18 58:20
36:1,6,8,9	18:17,19	<b>including</b>	<b>Institute</b>	65:18	62:5,19
36:11,12,15	86:12	56:4 59:15	38:17	<b>issued</b> 85:12	65:12 67:16
36:22 37:2	<b>impacts</b>	68:3 82:2	<b>instituted</b>	<b>issues</b> 44:23	70:2,16
37:5,5,19	79:23	82:16	84:9	53:16 65:19	71:8,11
38:6 39:24	<b>implies</b> 78:17	<b>incorrectly</b>	<b>instream</b>	<b>iteration</b> 54:5	74:19 75:24
40:16 41:20	<b>imply</b> 21:11	63:15,18	24:4 60:22	<b>iterations</b>	77:15,17
43:1,12,18	41:2	<b>increase</b> 28:4	<b>intended</b>	38:6	80:6 82:6
43:19 44:6	<b>implying</b>	<b>increased</b>	4:12	<b>it'll</b> 29:13	83:1 85:13
45:9,13	78:5	27:18,21,23	<b>interceding</b>	<b>IWB</b> 36:20	87:12 89:7
90:23	<b>important</b>	28:1,3,15	75:6	<b>I-55</b> 23:11,11	89:14 90:5
<b>IBIs</b> 11:23	8:9 39:22	<b>indeed</b> 5:17	<b>interim</b> 87:7	26:18 74:6	92:20
19:21 29:4	39:24	<b>independent</b>	<b>intermediate</b>	74:7,14	
33:18 38:10	<b>impossible</b>	44:11 57:21	52:3		<b>K</b>
<b>idea</b> 4:17,18	74:11	<b>index</b> 36:20	<b>interpret</b>	<b>J</b>	<b>k</b> 92:3
<b>identified</b>	<b>impound</b>	41:16 43:12	75:3	<b>January</b> 4:16	<b>Kain</b> 92:2,3
53:17 73:5	20:17	44:7	<b>interrupt</b> 5:5	63:12	<b>Kankakee</b>
<b>identify</b> 25:5	<b>impounded</b>	<b>Indiana</b> 82:1	28:18 53:5	<b>Joe</b> 47:4 82:9	22:22
25:17 32:13	21:5 69:17	90:18	<b>intolerant</b>	<b>johnny</b> 70:21	<b>Kazinski</b>
32:14 63:12	<b>impounding</b>	<b>indicate</b>	9:21,21	<b>joined</b> 38:2	82:21 83:4
<b>IEPA</b> 5:3	61:22	13:23 21:14	10:8 28:20	<b>joining</b> 3:15	84:8
<b>IEPA's</b> 3:23	<b>impoundm...</b>	67:1 84:21	28:21 29:7	<b>judgment</b>	<b>keep</b> 26:2
88:19	16:11 17:1	<b>indicated</b>	29:15 30:11	29:12 31:21	44:24 82:6
<b>Ill</b> 1:5 3:9	54:10 60:4	65:3 80:23	31:2,5 32:5	57:13,18	<b>Ken</b> 82:20
<b>Illinois</b> 1:1,9	60:7 61:20	<b>indicates</b>	33:20,20	<b>jump</b> 27:12	<b>kind</b> 13:22
1:12,13 2:5	62:3,9	73:18	80:15	75:4	28:7 31:6
2:6,8,14	67:24	<b>individual</b>	<b>introduce</b>	<b>just</b> 11:3,11	48:22 61:9
12:1 15:17	<b>impoundm...</b>	10:22 46:18	57:2	11:11 12:7	<b>kinds</b> 12:18
15:22 16:4	16:22 71:1	<b>individually</b>	<b>introduced</b>	12:13,22,23	<b>knew</b> 5:15
16:19 17:11	71:4,13	20:9	55:4,10	14:7,19	<b>know</b> 11:18
17:18,19	<b>impression</b>	<b>individuals</b>	56:11	15:7,14	24:17 25:11
18:2 19:11	15:2	8:6 9:14,15	<b>involved</b> 77:8	16:17 17:18	29:21 33:3
19:15 36:11	<b>improve</b>	12:18 13:1	83:18 91:4	17:24 18:10	33:16 34:19
37:7 40:3	60:13,23	46:13,17	<b>irregular</b>	18:11,21,23	41:6 42:6
40:12 45:6	<b>improved</b>	82:23 83:2	16:12	19:12 25:24	50:17 56:22
59:22 70:3	51:22,23	93:7	<b>irreversible</b>	26:4 27:2	61:4 64:7,8
70:6 82:1	<b>improveme...</b>	<b>industrial</b>	6:15	27:22 28:7	66:4 76:17
89:10,15	28:11 45:20	88:21	<b>Island</b> 8:4	30:8 33:1,9	78:11,24
90:1 95:1,6	60:11 61:4	<b>infer</b> 78:19	10:16,17	35:1 36:12	79:4 82:9
<b>Illinois's</b>	61:9,10	<b>influence</b>	15:18 16:1	36:15 38:11	89:22 90:15
15:18	<b>improveme...</b>	25:11	16:6,14	38:13,23	93:11,14
<b>imbedded</b>	60:23 61:1	<b>influenced</b>	18:16 23:2	39:10,14	<b>knowledge</b>
86:15,16,17	<b>inadverten...</b>	25:5,18,23	27:18 42:5	40:19 41:9	17:22
86:19	54:10	<b>information</b>	46:21 59:8	41:17 42:16	<b>known</b> 64:11
<b>imbeddedn...</b>	<b>include</b> 54:10	29:10 43:20	60:24 61:6	42:23 43:7	<b>Kyger</b> 92:1
84:19,21	73:8	68:11	68:1,9	43:22 44:1	<b>K-A-I-N</b> 92:3

<b>L</b>	65:10 84:22	<b>line</b> 64:3	<b>long</b> 37:18	52:6	<b>math</b> 54:16
<b>lack</b> 6:17	84:24 87:2	67:18	39:20 67:17	<b>made</b> 5:7	57:24 58:10
18:9	<b>let</b> 22:15 35:6	<b>list</b> 80:4,10	71:12,23	21:8 22:7,8	58:11
<b>lake</b> 69:12	36:2 47:3	89:23	<b>longear</b> 9:20	42:24 53:16	<b>matter</b> 1:2
70:20,21	63:17 74:16	<b>literally</b>	10:2	57:24 74:22	61:8
72:1,2,6,9	74:21 81:20	14:10	<b>longer</b> 66:7	<b>madtons</b>	<b>maximum</b>
72:12	<b>let's</b> 4:22	<b>lithophil</b> 73:8	<b>long-term</b>	68:18	12:1,2
<b>lakes</b> 31:14	28:7 39:5	73:13	35:11 62:19	<b>magnitude</b>	51:23 56:6
31:16 69:8	57:6 58:13	<b>lithophils</b>	<b>look</b> 9:4 10:9	17:13 18:12	<b>may</b> 4:1
70:10,17,20	79:15 93:23	73:6	12:16 25:9	56:18	16:20 17:17
70:24 71:2	<b>level</b> 29:4	<b>little</b> 5:13	29:5,6	<b>main</b> 13:9	20:4 23:17
71:3,8,14	49:17 63:9	9:11 10:15	32:12 33:23	60:5 61:19	38:21 39:6
72:16,20	66:4,6	47:4 49:22	56:1 80:17	61:24 62:2	42:7,18
<b>lake-like</b>	<b>Lick</b> 91:23	79:24 91:9	87:3	<b>mainly</b> 37:11	43:1 60:11
69:16,24	<b>life</b> 11:2,11	92:4	<b>looked</b> 5:16	69:21 70:12	75:23 85:13
<b>Land</b> 89:9	15:21 19:15	<b>Liu</b> 2:3 3:17	12:10 15:4	<b>major</b> 87:11	87:12
<b>large</b> 9:5	60:5,8,15	<b>live</b> 69:8,11	33:11 46:4	<b>majority</b>	<b>maybe</b> 35:23
45:6 68:2	68:4,7	70:16,19,21	51:13 59:24	83:20	51:23 62:22
69:17,22	69:15,15,24	71:13,18,19	90:7	<b>make</b> 10:15	78:24 83:12
<b>larger</b> 37:19	71:24	71:22,24,24	<b>looking</b> 14:4	10:20 17:10	<b>MBI</b> 12:8
<b>largest</b> 17:17	<b>like</b> 5:6 7:23	72:11,20	18:15 33:1	20:18 21:6	15:4 36:24
<b>larvae</b> 11:11	9:4 11:21	<b>loading</b>	33:7,13	27:5 71:18	37:8 38:14
<b>LaSalle</b> 1:12	11:24 12:14	64:20 65:7	41:9 43:16	88:10	39:14,21
2:13	13:11 18:7	66:4	46:10 50:15	<b>makes</b> 20:4	40:2,11,15
<b>last</b> 5:17 13:2	24:2 27:23	<b>loadings</b> 24:3	50:19 78:15	<b>making</b>	41:11,12,15
21:10 58:20	30:20 36:9	<b>loads</b> 48:13	<b>lot</b> 9:17 11:24	11:19 20:23	41:16,20,22
63:17	37:4,5,6	48:20	14:5 20:4	<b>managed</b>	42:1,3,17
<b>late</b> 38:5	40:19 45:6	<b>located</b> 17:20	31:14 40:16	7:16,20,24	43:1 49:3
<b>later</b> 51:21	47:2 51:24	66:23	46:19 90:22	<b>manual</b>	56:5 57:15
<b>Laura</b> 1:10	56:20 68:17	<b>location</b>	93:13	45:12,14	<b>MBI's</b> 39:21
95:4,16	69:17 89:11	52:22 85:5	<b>lots</b> 21:16	<b>many</b> 9:1	40:24
<b>law</b> 2:12 3:24	89:18	<b>locations</b>	43:15	16:6 21:22	<b>mean</b> 12:16
84:9 88:14	<b>limit</b> 19:1,4	22:4 25:19	<b>Louis</b> 7:13	22:7 41:13	13:16 15:7
<b>layer</b> 18:8	24:2,4	25:20,21	<b>low</b> 8:5,6,8	51:14 52:4	18:4 25:3,8
<b>layered</b> 85:16	<b>limitation</b>	51:21 54:14	9:23 13:1	59:21 61:12	28:21 31:4
<b>lead</b> 90:5	33:3	84:19,20,22	29:21 31:13	81:24 89:8	32:16,22
<b>leading</b> 91:13	<b>limitations</b>	85:4 88:5,6	<b>lower</b> 1:4 3:8	89:20,20	35:16 50:19
<b>least</b> 18:16	1:3 3:7 6:13	91:4,5,6,7,8	15:12 36:16	91:13,16	53:24 59:17
19:8 51:19	6:16,19	91:9,10,12	39:8 43:5	<b>maps</b> 5:16	59:17 73:12
67:14 70:21	12:21 18:13	91:14,15,17	43:10,13	<b>Marie</b> 1:8 2:2	73:21 74:4
81:10	61:12	91:19,20,22	82:2	3:3	74:5,18,20
<b>leave</b> 58:15	<b>limited</b> 26:3	<b>Lock</b> 22:22	<b>lowest</b> 45:9	<b>mark</b> 48:1	75:18,20,21
<b>led</b> 5:13	81:8	23:1		<b>marked</b> 43:4	77:10 84:24
<b>left</b> 3:11,13	<b>limiting</b> 33:5	<b>Lockport</b>	<b>M</b>	47:22	<b>meaning</b>
3:14 6:8	60:14 61:19	21:23 22:1	<b>macroinve...</b>	<b>Marty</b> 82:21	44:19
<b>legal</b> 24:8	61:24 62:2	22:2,7,9	67:11	93:6	<b>means</b> 10:24
<b>legally</b> 78:21	62:6,12,13	<b>locks</b> 68:10	<b>macrophyte</b>	<b>material</b>	25:7 32:22
<b>lesions</b> 45:8	63:4 87:12	<b>logic</b> 15:9	51:10,15	86:17	69:12 85:15
<b>less</b> 52:11	87:14	<b>logperch</b>	<b>macrophytes</b>	<b>materials</b>	85:20,23
	<b>Lin</b> 2:4 3:14	70:22	51:18 52:1	86:13	86:22





12:11 17:24	66:11 72:24	9:8,24 10:3	57:13	65:20	6:17 87:20
18:1 19:17	78:13 79:15	11:16 13:13	<b>orange</b> 10:6	<b>own</b> 92:23,24	<b>particularly</b>
27:24 37:21	83:14 88:12	13:15,18	<b>order</b> 7:7,9	<b>oxygen</b> 27:7	28:2 65:16
42:7 48:2	93:22	14:7 18:11	19:21 25:6	30:20 31:9	<b>parts</b> 1:5
54:15,17	<b>official</b> 49:7	18:12 19:19	37:22 71:10	31:16	24:8 67:6
56:3 65:2	<b>off-the-shelf</b>	19:21 20:1	<b>organization</b>		<b>pass</b> 43:22
65:12 80:14	36:7	20:2,3	40:11 53:18	<b>P</b>	<b>PCBs</b> 30:22
<b>numbers</b> 8:5	<b>often</b> 9:23	24:16 25:20	<b>original</b> 55:2	<b>P</b> 2:1,1	<b>people</b> 14:5
8:8,19 9:23	30:8	29:3 31:2	55:3	<b>page</b> 6:14	29:13 32:21
11:1 13:1	<b>Oh</b> 90:17	31:18 34:14	<b>originally</b>	14:22 15:16	<b>per</b> 46:18
25:10 55:22	<b>Ohio</b> 12:3	36:18 44:21	54:6	16:9 21:21	89:2
58:2 88:24	19:24 20:11	46:18,22	<b>orphan</b> 14:7	22:10,16,19	<b>percent</b> 9:12
<b>numerical</b>	23:23 24:21	47:1 50:6	<b>other</b> 4:8 8:9	24:24 27:13	9:15 45:7
28:4	29:1,16	55:15 56:8	8:20 9:18	43:6 45:18	84:19,20,22
<b>N-502</b> 1:13	32:23 33:6	56:15,18	11:8,22	47:13 49:2	86:15,22,22
	37:1,9,18	58:3,3	13:13 14:8	49:22 58:21	87:1,2,19
<b>O</b>	37:24 38:1	59:23 62:5	15:5,13	59:7 60:20	88:5,6
<b>oath</b> 5:2 27:3	39:9,12	62:20 64:10	16:7,19,20	61:18,21	<b>percentage</b>
<b>object</b> 75:5	43:1,12	67:4,5,16	17:1,11,14	63:6,12,13	9:17 87:5
<b>Objection</b>	45:12 49:12	70:9 73:14	17:19,22	63:16 64:10	<b>percentiles</b>
74:16	73:6,7	77:1 80:7,9	18:7 22:23	66:21 67:23	29:24 33:11
<b>objections</b>	79:19 80:2	81:11 84:5	23:10 25:2	73:4 79:18	<b>perch</b> 31:10
48:1	80:24 81:3	85:7 87:5	55:23 57:12	80:13,18	31:19
<b>obligate</b> 68:3	82:1,3,15	87:12 88:10	63:4 65:9	84:15 88:1	<b>perform</b>
68:5 69:11	82:17,22,24	88:20 92:12	65:19 68:4	<b>Paint</b> 92:2	82:11
69:12	84:10 85:11	92:14,16	68:6,18	<b>paper</b> 48:10	<b>perhaps</b> 7:2
<b>observe</b> 88:6	86:9 89:17	93:6,9,15	71:11 87:14	89:13	16:22,22
<b>observers</b>	89:17 90:22	<b>ones</b> 8:12	87:18,23	<b>paragraph</b>	24:14
49:14	90:23,24	30:12,13	88:21 90:9	47:13 60:21	<b>period</b> 19:19
<b>occasionally</b>	91:12,13,17	38:7 69:10	90:12	84:16 88:2	22:8 38:8
13:24 71:7	92:20 93:12	70:16 82:11	<b>others</b> 20:5	<b>Pardon</b> 90:11	46:7,14,16
<b>occur</b> 61:3	<b>Ohio's</b> 19:11	92:14,17	82:20 92:8	<b>parentheses</b>	85:19 91:16
70:10 71:7	<b>Oil</b> 89:12	<b>online</b> 65:1	<b>Ottawa</b> 91:6	85:17,19	<b>periods</b>
<b>off</b> 6:8 56:15	<b>okay</b> 4:21	<b>only</b> 9:14	<b>out</b> 7:7,8	<b>parked</b> 67:3	62:17
58:15 72:8	19:14 20:11	13:22 15:21	13:23 14:10	<b>part</b> 17:14	<b>permanent</b>
88:15,17	21:19 23:6	17:7 26:18	15:14 18:14	21:10 24:12	6:15
<b>officer</b> 1:8	29:8 32:16	46:22,23	36:4 38:5	25:12 28:24	<b>permit</b> 24:1,9
2:2 3:1,5	32:19 39:3	48:9 50:1	40:18,20	35:10 36:16	24:14,14
4:24 6:7	43:9 50:18	51:6 56:24	41:5 56:21	41:24 42:5	<b>person</b> 29:4,8
7:11 22:13	51:1 52:23	59:15 60:7	56:23 67:7	47:18 54:6	90:6
26:2 27:1	56:23 58:5	69:4 70:9	67:20 70:8	68:8 69:15	<b>personal</b>
34:8,11	72:19 75:16	74:14 77:6	71:24 72:10	69:24 71:5	49:10
38:13,18,22	76:12 77:3	88:4	87:17 92:23	71:6 72:4	<b>perturbati...</b>
39:3,17	80:22 85:10	<b>on-the-job</b>	<b>over</b> 4:8 68:5	75:11,16,24	79:21
40:15,23	86:8 92:22	82:15	68:7 69:2	76:1,5 83:5	<b>ph</b> 13:3 82:21
41:8,14	<b>omission</b>	<b>operating</b>	72:22	84:6,8	<b>phase</b> 38:3
42:10,14,19	47:18	12:1	<b>overall</b> 20:12	92:18	<b>photographs</b>
47:10,24	<b>once</b> 4:17	<b>opinion</b>	28:16 31:22	<b>participated</b>	66:24 67:1
52:24 58:8	82:5	27:15 62:18	66:3 70:14	83:4,11	<b>phrase</b> 59:14
58:12,17	<b>one</b> 4:7 5:8	<b>opposed</b>	<b>overland</b>	<b>particular</b>	<b>pieces</b> 48:10

<b>place</b> 11:5,6 14:8,9 17:19 31:23 53:7 62:20 84:4	48:13,20 <b>pollutants</b> 30:19,24 <b>pollution</b> 1:1 1:9 2:5 48:21 76:18	<b>portions</b> 23:9 83:12 <b>position</b> 19:16 <b>positive</b> 65:22 67:15	87:13 <b>preventing</b> 60:5,14 <b>prevents</b> 87:15 <b>previous</b> 64:24	64:15,17,19 <b>projects</b> 90:16 <b>pronouncing</b> 13:3 <b>properly</b> 59:16	82:16,19 83:5,11,19 92:20 93:2 <b>QHEIs</b> 33:23 <b>QHEI's</b> 49:3
<b>places</b> 69:20 71:9 89:18	<b>pool</b> 8:4 15:18 16:1 16:6,14 17:3,5 18:16 20:16 21:5,23 22:1,7,9,20 22:21 23:3 23:10 27:18 42:5 45:20 45:23 46:21 48:4,17 55:14,19 59:8 60:24 61:7 68:1,9 73:24,24 76:9,10 80:16,21 81:6 84:18 84:23 88:4	<b>possible</b> 13:18 45:9 <b>possibly</b> 15:2 <b>potential</b> 4:16 20:17 21:5 60:22 60:24 63:10 <b>potentially</b> 9:10 67:14 87:12 <b>power</b> 23:23 63:1 89:8,9 93:24 <b>preconceived</b> 4:14 <b>prefiled</b> 14:22 22:11 22:19 24:24 27:13 34:14 45:18 49:3 49:22 60:21 66:22 67:24 73:5 84:16 88:2	<b>previously</b> 89:11 <b>primarily</b> 6:20 14:24 36:14 <b>prior</b> 27:8 76:18 <b>private</b> 89:6 89:14 <b>probably</b> 27:12 28:14 33:24 36:21 47:22 70:7 91:4 <b>problem</b> 23:19 55:23 58:10,11 66:7 87:19 <b>problems</b> 19:19 <b>procedure</b> 56:4 <b>procedures</b> 45:12,14 <b>proceeding</b> 3:5,13 40:14 53:19 <b>proceedings</b> 1:7 95:7,11 <b>process</b> 44:17 49:12 56:22 57:1 82:14 84:3,11 92:19 93:8 <b>product</b> 67:5 <b>productive</b> 67:6 <b>professional</b> 29:12 31:20 <b>Program</b> 84:4 <b>project</b> 5:10 5:13 6:4	<b>proposal</b> 18:15 <b>Proposed</b> 1:5 3:8 <b>proposing</b> 15:24 <b>prosper</b> 11:5 14:11 <b>PROTECT...</b> 2:6 <b>protocol</b> 85:11 <b>provide</b> 15:15 45:5 49:13 <b>provided</b> 34:24 40:13 54:12 <b>public</b> 1:11 <b>pull</b> 86:19 <b>purposes</b> 59:13 79:12 <b>put</b> 6:23 7:4 7:9,10 31:6 31:24 32:1 55:13 71:21 75:2 87:5 <b>P.O</b> 2:7	<b>qualified</b> 84:8 <b>qualitative</b> 41:15 <b>quality</b> 1:3 3:6 52:18 56:1,22 71:23 79:22 <b>quantitative</b> 86:4,6 <b>quantity</b> 85:7 85:9 <b>question</b> 4:1 4:2 5:4,12 6:9 8:2 12:24 14:13 15:15 16:9 19:10,12 21:3,11 22:18 23:6 23:18 24:24 26:12,13 30:1 31:4 34:16 37:18 38:19 45:15 45:18 46:11 48:18 50:11 52:13 53:5 58:21 60:2 60:3 63:17 70:24 74:3 74:8,17 75:2,5,12 75:18,20 76:1 78:3 78:23 79:8 79:18 80:13 86:4 87:10 88:1 90:24 <b>questioning</b> 54:15 64:4 <b>questions</b> 3:23 4:3,7 4:10,11 15:8 25:7
<b>plans</b> 64:11 <b>plant</b> 17:15 17:17,20 23:23 24:17 24:20 25:22 <b>plants</b> 62:16 63:1 <b>playing</b> 36:4 <b>Pleasant</b> 92:2 <b>please</b> 4:5,7 4:10 14:14 14:16 15:15 21:1 43:2 45:4 61:23 63:12 83:15 <b>pleasure</b> 7:21 <b>plug</b> 36:15 <b>plus</b> 79:19 <b>point</b> 15:10 15:10 38:3 43:21 51:12 62:22 65:23 65:23 66:1 79:5,7 <b>pointed</b> 41:5 56:23 <b>points</b> 10:13 12:15 26:9 49:15,16,16 49:18 50:2 50:8,13 51:14,24 52:9,10 56:16,19 <b>Policy</b> 3:24 88:14 <b>pollutant</b>	<b>Pools</b> 22:3 <b>pools/glides</b> 85:17 <b>Pool's</b> 10:16 10:18 <b>poor</b> 19:8 28:13,15 29:21,22,23 30:3 32:13 <b>poorest</b> 30:14 <b>poorly</b> 11:15 <b>population</b> 10:24 13:17 27:17 61:6 68:23 69:1 72:3 73:21 <b>populations</b> 8:3 10:18 10:24 11:17 12:24 61:2 81:13 <b>Portage</b> 91:5 <b>portion</b> 23:10,11	<b>preponder...</b> 80:19 <b>presence</b> 66:22 87:11 87:14,17 <b>present</b> 8:11 45:17 69:4 <b>presiding</b> 3:12 <b>presumably</b> 18:1 <b>pretty</b> 18:5 25:10 28:16 67:17 89:19 <b>prevent</b>	<b>Q</b> <b>QHEI</b> 14:17 14:19 32:22 42:4 49:5 49:24 50:12 50:20 51:3 51:7 52:16 52:19,20,21 53:6,12,17 53:22,22 54:5,13,23 55:10,15 56:4 57:5,8 81:24 82:11		

34:5,14 57:5 82:5 88:19 93:21 <b>quick</b> 26:1 41:18 <b>quite</b> 20:1 78:9 <b>quote</b> 75:7,8 75:9 78:16 85:15 86:10	10:5 15:6 19:22 26:1 27:22 28:5 29:20 47:19 49:18 65:11 69:1 70:8 87:20 <b>reason</b> 65:7 <b>reasonable</b> 20:1,3 89:3 <b>reasons</b> 15:5 28:12 40:8 42:13 54:8 74:10 <b>recall</b> 76:20 <b>received</b> 45:8 82:9,13,14 <b>receiving</b> 24:12 <b>recent</b> 45:10 <b>rechecked</b> 55:20 <b>recollection</b> 5:21 7:16 44:11,18 <b>recommen...</b> 15:12 <b>recommen...</b> 19:10 <b>record</b> 3:2 4:10,13 27:2 38:14 38:20,23 39:19 40:11 40:17 41:6 41:7,19,24 42:6,21 43:4,8 47:2 74:19 76:4 88:15,17 <b>recovery</b> 48:16 <b>redhorse</b> 8:20 13:13 13:14 68:18 69:19,23 71:2,7 <b>reduce</b> 65:2 66:6 <b>reduced</b>	48:24 65:13 68:2,20 <b>reducing</b> 64:12 <b>reduction</b> 48:13,21,23 65:6 66:3,5 <b>reductions</b> 48:14 <b>reference</b> 15:16 70:3 90:22 93:9 <b>referenced</b> 14:22 21:21 <b>references</b> 42:3 <b>referred</b> 5:12 6:14 10:23 19:7 23:12 41:23 69:4 <b>referring</b> 5:20 37:14 48:21 79:10 <b>refers</b> 47:14 47:18 70:24 <b>refined</b> 38:7 <b>reflect</b> 80:20 <b>regard</b> 42:4 54:23 74:3 <b>regarding</b> 80:14 <b>regardless</b> 51:6 <b>regime</b> 25:13 <b>regular</b> 44:19 45:1 <b>regularity</b> 70:11 71:3 <b>regularly</b> 67:19 <b>regulated</b> 65:24 <b>related</b> 79:23 <b>relates</b> 47:4 <b>relation</b> 39:21 <b>relationship</b> 39:22 <b>relative</b> 15:1 48:2	<b>relatively</b> 22:23 28:20 31:10 86:1 <b>relay</b> 39:18 <b>relied</b> 14:15 14:17 <b>relief</b> 79:3 <b>rely</b> 14:18,19 15:3 <b>relying</b> 44:3 44:8 83:7 85:10 <b>remain</b> 45:24 <b>remember</b> 24:20 43:21 44:23 67:16 84:1 <b>remembered</b> 43:17,17,18 43:22 <b>remind</b> 5:1 <b>removal</b> 61:14 <b>removed</b> 6:20 60:15 <b>removing</b> 60:6 <b>repeat</b> 20:24 <b>repeated</b> 52:19 <b>rephrase</b> 26:16 <b>report</b> 1:7 23:7 25:5 34:6,20 37:15 40:13 41:23 43:6 44:5 47:18 62:10 63:7 68:14 79:13 80:23 83:8 <b>reported</b> 95:7 <b>reporter</b> 4:9 95:5 <b>reports</b> 25:15 25:16 26:6 26:19 <b>represent</b> 4:6 <b>representat...</b>	8:22 <b>representat...</b> 30:7 <b>represented</b> 11:16 46:12 <b>represents</b> 85:8,9 86:5 86:7 <b>reproduce</b> 11:1,7 14:11 <b>require</b> 73:6 92:21 <b>requirement</b> 73:9 <b>requireme...</b> 66:15 70:6 <b>rescore</b> 55:21 <b>rescored</b> 55:16,24 <b>reserve</b> 64:15 <b>resides</b> 72:3 <b>respect</b> 5:7 52:16 56:13 78:8 91:1 <b>response</b> 5:11 22:6 23:6 <b>restoration</b> 5:9 6:4 <b>restricted</b> 36:13 <b>result</b> 6:18 6:20 27:22 48:15 53:16 54:19 56:14 60:11 64:20 66:3 <b>results</b> 25:1 81:14 84:21 <b>resuspend</b> 67:8 <b>retabulated</b> 55:16 <b>reverse</b> 30:4 64:5,6 <b>reversible</b> 6:22 <b>reversing</b> 74:20	<b>reviewed</b> 53:9,21 91:1 <b>reword</b> 49:21 <b>Ridge</b> 89:13 <b>rifle</b> 6:4,24 7:4,9,10,12 68:3,5,16 69:11 70:13 <b>rifles</b> 6:17 7:8 62:6 72:7 85:18 85:22,24 <b>right</b> 3:16,17 12:19 14:3 19:13 20:22 27:8 36:2 38:18 41:14 47:2 48:17 50:18 58:16 76:6 81:23 88:12 90:2 93:22 <b>rigorously</b> 29:18 <b>riparian</b> 56:1 <b>river</b> 1:5 3:8 5:9,14,18 5:19,21,24 6:5,18 7:13 7:14,15,20 9:5 13:10 13:12,12 18:2,5 22:4 22:22 23:23 43:5,13 67:4,6 68:8 69:17,18,18 89:19 91:3 91:5,6,7,9 91:11,11,17 91:19 92:2 <b>rivers</b> 11:23 45:6 82:1 <b>ROBERT</b> 2:10 <b>Robinson</b> 91:22 <b>rock</b> 86:19 <b>Rocky</b> 92:7
--	--	--	---	--	--

<b>role</b> 40:14	<b>saying</b> 13:11	50:22 51:6	47:8 51:3	91:17	87:14,17,19
<b>room</b> 1:12	30:10 31:22	51:8,11,11	53:8,14,20	<b>Sewer</b> 89:17	87:22 88:4
18:3	39:14 46:6	<b>seasonal</b> 50:1	53:24 54:4	<b>shad</b> 80:9	<b>siltation</b> 6:20
<b>roughly</b>	57:11 70:11	50:13	55:2,13	<b>Shakers</b>	30:17,23
56:10,11	87:1	<b>seasons</b>	56:17 57:14	91:24	<b>silted</b> 86:2
70:4,8	<b>says</b> 5:24	50:23	58:11 66:16	<b>shallow</b> 67:4	<b>similar</b> 15:8
<b>round</b> 88:24	20:11 29:8	<b>second</b> 22:16	69:9 70:18	68:15	22:23 25:8
<b>round-bodi...</b>	43:9 56:5	35:2 60:20	71:15,17	<b>shares</b> 15:18	25:9
8:20 9:12	85:15,17,20	74:13 75:11	72:17,21	16:6	<b>similarly</b>
9:13,16	85:22 86:10	75:15 78:7	74:17,24	<b>Shaylor</b> 92:5	61:13,21
68:18	<b>scale</b> 61:3	84:16 88:2	76:12,24	92:6	<b>simple</b> 73:6,8
<b>ROY</b> 2:11	<b>scientific</b>	88:16	77:19,22	<b>sheets</b> 41:16	73:13 75:23
<b>rule</b> 70:14	14:5	<b>section</b> 67:18	80:11 83:6	41:17 54:24	<b>simultaneo...</b>
<b>rulemaking</b>	<b>Scioto</b> 91:10	<b>sector</b> 89:6	88:11,24	55:11,17	61:13
1:3 39:23	<b>score</b> 9:5,10	89:14	89:21 90:4	57:15,17,19	<b>since</b> 9:14
<b>rules</b> 85:13	10:3,11,12	<b>sediment</b>	90:11,14	58:6	21:21 27:18
<b>run</b> 49:12	12:2 28:9	31:8 48:22	91:3 92:13	<b>Ship</b> 19:3	38:7 39:20
91:10,22	33:12 45:9	48:24 61:15	92:18 93:11	63:21	45:21,24
92:2,2,5,5	45:13 49:5	62:7 64:13	93:16	<b>shole</b> 72:18	46:6,11
<b>runoff</b> 66:14	50:7,20	64:20 65:6	<b>seeing</b> 46:2	<b>sholes</b> 72:15	53:6 81:23
<b>runs</b> 68:17	51:15 52:6	65:19 66:6	48:7	72:22	84:7
89:19 91:11	52:21 55:19	67:9	<b>seem</b> 28:13	<b>shore</b> 67:18	<b>sir</b> 83:24
93:15	56:6 57:23	<b>sedimentat...</b>	<b>seems</b> 18:10	<b>short</b> 58:14	<b>sit</b> 92:21
<b>R08-09</b> 1:3	<b>scores</b> 11:23	30:18,24	52:17	62:17 94:1	<b>site</b> 30:5
<hr/>	12:3,5,8,8	48:14 64:12	<b>seen</b> 52:4	<b>shorthand</b>	32:13 33:4
<b>S</b>	28:14 29:21	<b>see</b> 15:6 30:2	<b>segments</b>	95:5,7,10	45:7 52:4
<b>S</b> 2:1 54:7,11	34:1,6,19	30:9 33:18	53:12	<b>shorthead</b>	86:22,23
<b>same</b> 11:8	35:3,13	33:19 49:17	<b>Seining</b> 48:3	71:7	<b>sites</b> 26:19
16:6 18:1	36:1,6	56:2 61:13	<b>senior</b> 82:19	<b>shortly</b> 3:16	29:20,22,23
28:24 45:21	37:11,13	81:14	<b>sense</b> 20:4	<b>short-term</b>	29:24 30:3
57:17 58:1	40:1,16	<b>Seegert</b> 3:22	<b>sensitive</b>	62:18	30:7,8,9,10
58:1,4 65:3	41:20 45:10	4:18 5:1,6	81:11	<b>show</b> 11:3	30:12,14
70:5 73:15	45:16 49:3	5:11 6:6	<b>sentence</b> 44:4	43:6	32:15 33:1
86:20	49:24 50:12	7:11,15	47:14	<b>shown</b> 56:2	33:7,12,12
<b>sample</b> 27:8	51:21 52:17	13:6 19:6	<b>separate</b>	<b>shows</b> 69:3	33:17,22,23
69:16	53:6,12,18	20:22,24	87:17	<b>Shundar</b> 2:4	38:11,12
<b>sampled</b>	53:22 54:5	23:20,22	<b>series</b> 7:17	3:14	52:5
54:14 91:15	54:11,12,13	24:19 26:10	55:5 62:8	<b>side</b> 18:4	<b>sits</b> 29:8
93:4	54:24 55:17	26:14,20	<b>serve</b> 3:4	<b>significance</b>	<b>situation</b>
<b>samples</b>	56:15 57:5	28:23 31:3	<b>sessions</b>	41:1	17:4 23:22
21:24	93:4,5	32:3,11,16	49:12	<b>significant</b>	69:21
<b>sampling</b>	<b>scoring</b> 35:7	32:19 34:4	<b>set</b> 17:8 37:7	16:12 23:14	<b>six</b> 10:10
13:24 22:3	42:4 54:24	34:22 36:2	69:6 71:20	61:10 64:20	12:2 51:24
25:2,4,14	55:11 83:11	36:5 37:16	<b>setting</b> 19:20	66:6	52:8 56:9
26:8 27:14	83:19	37:20 38:16	<b>several</b> 13:10	<b>silt</b> 67:13	58:2,3
83:12 88:8	<b>SCOTT</b> 2:10	40:2,7	15:5 32:20	84:18,21	63:22
<b>San</b> 5:9,19,20	<b>search</b> 41:18	41:22 42:1	51:20 62:3	85:4,6,8,9	<b>sixty-six</b> 85:7
6:1	<b>season</b> 50:2,6	42:23 43:2	80:4 90:16	85:17,21,23	<b>size</b> 17:20
<b>sand</b> 86:13	50:7,10,10	43:3 44:2,8	<b>severe</b> 61:12	86:1,13	<b>skip</b> 81:18
<b>saw</b> 33:20	50:21,21,22	44:13,18	<b>Seward</b>	87:8,10,11	<b>skipped</b> 23:4

88:20 <b>skipping</b> 22:14 58:22 <b>slightly</b> 27:21 73:19,21 74:4 75:21 77:16 79:11 <b>slow</b> 62:7 <b>smaller</b> 36:13 <b>Smogor</b> 2:11 37:6 <b>Sneen</b> 82:21 83:3 93:6 <b>solution</b> 75:23 <b>some</b> 6:22 8:9,20 9:18 9:19 11:7 13:8 28:1,6 28:10 31:1 34:5 40:22 42:16 43:20 44:22 46:8 46:19,21,22 48:15 49:10 51:21 52:3 56:14 60:11 60:12 62:15 62:15 64:22 64:23 66:3 68:12,15,16 68:18 69:23 72:14 77:7 83:19 85:21 89:7 <b>somebody</b> 44:21 55:21 <b>somehow</b> 41:2 56:7 <b>someone</b> 37:6 40:6 <b>something</b> 6:24 9:4 11:20 13:16 13:21 14:1 15:11 31:4 31:7 34:23 35:24 44:22 57:7 69:10 78:19	<b>sometime</b> 38:4 <b>sometimes</b> 23:12 29:13 <b>somewhat</b> 28:3,15 31:12 81:10 <b>somewhere</b> 14:2 <b>sorry</b> 5:6 14:20 20:19 20:20 22:15 22:18 23:5 33:19 34:13 46:15 51:2 51:17 66:13 70:10 76:4 83:16 <b>sort</b> 55:23 65:20 68:22 <b>source</b> 80:16 <b>sources</b> 14:16 64:13 65:21 80:17 <b>south</b> 2:13 5:24 19:2 22:4 <b>southeastern</b> 91:13 <b>southern</b> 71:6 <b>spawn</b> 70:20 71:10 72:8 72:13,14,15 72:22 73:7 <b>spawner</b> 72:18 <b>spawning</b> 63:9 69:21 72:9 73:10 73:12 <b>speak</b> 4:7 58:9 83:15 <b>speaking</b> 4:8 31:11 <b>specialist</b> 8:18 <b>specialists</b> 8:23 9:1,9 10:11,12,17	10:19 11:13 <b>species</b> 8:6 8:15 9:6,7,9 9:19,21,22 10:1,4,8 11:14 12:17 12:18 27:22 27:24 28:22 28:24 30:6 31:12,18,24 33:18,21 45:22 46:2 46:5,11,12 48:1 61:2,6 68:4,6 69:8 69:13 70:2 70:4,7,9,15 73:15 80:4 80:10,16,18 81:2,5 90:6 90:8 <b>specific</b> 27:7 36:8 37:7 90:3 <b>specifically</b> 3:22 80:2 <b>speculate</b> 87:20 93:12 <b>spelled</b> 92:6 <b>spend</b> 68:4,6 69:14 <b>spot</b> 42:6 <b>spots</b> 42:16 <b>spotted</b> 10:6 <b>spring</b> 50:1 51:4,17 67:17 72:5 <b>Springfield</b> 2:8 19:17 89:16 <b>spring/sum...</b> 50:16 <b>SS</b> 95:1 <b>St</b> 7:13 <b>staff</b> 3:18 4:12 49:11 82:10,15 <b>stage</b> 69:24 <b>stages</b> 11:3 11:11,12	<b>stakeholder</b> 44:16 <b>standard</b> 27:15 45:24 73:17,20 74:1,5,8,14 75:1 76:11 76:19,22 77:1,6,13 78:8,10,17 79:11 <b>standards</b> 1:3 3:6 23:9 73:19,22 74:5 75:22 78:20 <b>stands</b> 65:7 <b>started</b> 37:23 57:3 <b>starting</b> 43:7 58:15 <b>state</b> 1:11 4:5 16:8,9 17:14,22 18:8 19:20 22:19 25:1 29:4 33:10 36:10,13 45:19 49:3 55:9 59:7 61:1,19,21 63:7 64:11 66:22 67:24 73:5 76:3 79:18 81:23 84:17 88:3 89:6,22,23 90:9,12,14 90:15 95:1 <b>stated</b> 43:1 62:3,22 <b>statement</b> 15:5,16 16:15 17:2 38:23 40:8 42:12 44:9 45:5 54:7 63:14 79:13 <b>states</b> 11:22 15:16 70:4	<b>statewide</b> 20:8 33:13 <b>state-wide</b> 20:10 <b>station</b> 22:6 <b>stations</b> 25:2 25:3,4 <b>statistically</b> 25:9 <b>stay</b> 11:4 <b>Steel</b> 89:11 89:12 <b>stem</b> 13:9 <b>STEPHAN...</b> 2:9 <b>stick</b> 14:24 <b>Stickney</b> 17:15,16 <b>still</b> 5:2 17:17 27:3 37:24 39:17 63:2 65:18 66:2 <b>stirring</b> 67:12 <b>stop</b> 48:17 80:21 <b>stopped</b> 93:16 <b>storm</b> 16:13 <b>stream</b> 35:21 66:23 85:16 88:7 <b>streams</b> 35:19 36:14 36:14 37:19 81:24 90:24 93:3,9 <b>Street</b> 1:12 2:13 <b>stretch</b> 22:21 23:13 45:23 46:20 48:5 <b>strike</b> 6:9 14:13,18 19:12 20:13 20:14,14 21:19,19 46:1 52:23 52:23 53:2 58:19 60:2	60:16 61:17 63:6 64:9 66:20 67:21 67:22 73:2 73:14 81:17 81:18,19,20 84:13 88:9 <b>strikes</b> 56:21 <b>structure</b> 60:7 <b>structures</b> 7:18 <b>Stuart</b> 24:19 <b>studies</b> 22:2 83:17 88:22 89:2,4,15 89:20 90:6 <b>study</b> 21:13 83:21,22 <b>studying</b> 89:18 <b>stuff</b> 92:22 <b>subcommit...</b> 39:9,11 43:11 44:6 44:12,15 <b>subject</b> 66:15 <b>submetric</b> 51:9 <b>submitted</b> 53:11 54:6 <b>substrate</b> 73:9 88:5 <b>substrates</b> 52:18 68:5 68:7 73:7 85:22 86:12 86:14,16,17 86:23 <b>successfully</b> 11:2 <b>sucker</b> 8:16 71:16,17,21 72:3,18 <b>suckers</b> 8:3 8:10,19,21 9:12,13,16 68:19 72:15 <b>sufficient</b> 11:1 71:23
---	--	---	--	--	---

<b>Sugar</b> 92:7	<b>sustain</b> 11:2	46:18 48:23	54:9	<b>thermal</b> 23:9	<b>though</b> 24:10
<b>suggest</b> 79:9	14:3,9	64:4 68:22	<b>testify</b> 40:12	25:11 73:19	81:3
<b>suggesting</b>	<b>sworn</b> 5:1	70:23 75:1	80:14	73:22 74:4	<b>thought</b> 40:7
81:12	27:2	76:14 92:11	<b>testimony</b>	75:21 79:11	42:15 57:23
<b>suggestion</b>	<b>system</b> 1:4	92:19	3:20 6:14	79:23 80:2	<b>three</b> 22:3
20:16,18	3:8 7:4 9:23	<b>Tanner</b> 2:2	13:2 14:22	80:7 81:16	31:18 50:2
21:6	10:5 17:10	3:12	17:16 21:22	<b>thermally</b>	50:8,13
<b>Suite</b> 2:13	19:12,15,23	<b>target</b> 37:4	22:19 23:8	25:4,17,22	51:12 52:10
<b>SULSKI</b>	19:24,24	<b>TARP</b> 65:1	25:1 27:14	80:5 81:8	56:20,20
2:10	20:7,10,12	65:10,17	32:20 34:9	81:10	82:20
<b>summarized</b>	35:14,17,17	66:2	37:14 44:5	<b>thermally-i...</b>	<b>three-year</b>
34:6,20	36:6,9	<b>technical</b>	45:19 47:9	25:1	46:7
<b>summary</b>	37:10 61:15	3:17	49:3,23	<b>thing</b> 18:11	<b>through</b> 5:18
56:10 81:14	61:20 63:4	<b>telling</b> 57:22	53:19 59:11	37:3 47:1	7:6 11:2
<b>summer</b>	70:19 74:9	<b>temperature</b>	59:14 60:21	62:5	17:24 18:2
49:24 52:6	80:24 81:2	23:13,19	62:10,23	<b>things</b> 7:19	22:8,14
<b>summer/fall</b>	91:13	24:2,4	63:15,15,19	7:23 12:13	41:18 46:15
50:16	<b>systems</b>	25:12,13,16	64:23 65:3	30:20 36:19	46:15 51:4
<b>sunfish</b> 9:20	90:23	26:5,9,17	65:14 66:22	36:23 43:15	58:23 59:24
9:22 10:1,2	<b>S-H-A-Y-L...</b>	27:6 31:11	67:24 68:13	66:1 68:24	65:19 84:3
10:5,6,7,8	92:6	40:13 62:11	73:5 83:7	74:20	91:11 93:8
<b>supply</b> 47:21		62:14,24	84:16 88:3	<b>think</b> 3:1	93:24
<b>support</b>	<b>T</b>	63:3,11,23	<b>Texas</b> 5:13	10:23 11:24	<b>throughout</b>
10:16,18	<b>table</b> 47:5,14	64:2 74:6	5:15,18 6:5	13:5,12	26:19 50:23
17:6 50:3	47:14,19,20	74:15 77:7	<b>Thank</b> 6:3	16:18,23	<b>time</b> 4:8,19
<b>supports</b>	48:1 54:13	81:12	24:22 26:22	17:2 19:24	27:6,19
21:17	<b>tail</b> 33:14	<b>temperatur...</b>	27:4,9 32:9	20:3,8	38:1,4
<b>sure</b> 25:6	<b>take</b> 7:7,8	62:21 73:23	34:2 42:19	27:11 28:5	39:20 49:15
35:2,4	12:18 25:12	74:9 75:15	42:21 47:12	28:14 32:5	62:17 67:6
70:23 76:2	27:7 37:18	76:9,13	64:9 66:18	35:7 38:20	84:7 91:16
88:10 92:8	57:6 58:13	77:21 78:18	72:23 77:23	42:10,20	<b>times</b> 41:23
93:17	93:23	78:22 79:1	84:13 88:11	47:21 48:18	62:3
<b>surface</b> 86:16	<b>taken</b> 1:10	<b>ten</b> 10:13	90:20	51:23 53:8	<b>Tipsord</b> 1:9
<b>surprised</b>	19:16 26:18	13:21 37:22	<b>their</b> 24:2	53:24 63:18	2:2 3:1,3
49:17	58:14 94:1	45:21 49:16	29:12 33:7	63:23 64:19	4:24 6:7
<b>surprising</b>	95:10	49:18 73:15	33:7,12,12	65:5,7 66:2	7:11 22:13
28:2	<b>takes</b> 18:5	<b>tend</b> 32:3	37:1,2,19	68:12 70:6	26:2 27:1
<b>surprisingly</b>	<b>talk</b> 4:15	<b>Tennessee</b>	38:3,6,6	71:6 74:21	34:8,11
25:19	<b>talked</b> 7:12	69:17	39:24 40:14	74:23 75:17	38:13,18,22
<b>surrogate</b>	9:11 17:4	<b>ten-minute</b>	40:16,20	75:18,20,22	39:3,17
37:9	18:21 19:2	57:7 58:13	45:14,14	77:5,9,24	40:15,23
<b>surrounded</b>	36:17 39:20	<b>ten-year</b> 38:8	55:17 58:6	78:2,11,16	41:8,14
86:12	65:21	<b>term</b> 14:5	68:4,7	78:22 87:9	42:10,14,19
<b>survey</b> 84:17	<b>talking</b> 10:21	28:19 64:17	69:14,15,24	89:21,24	47:10,24
88:3	11:22 13:1	<b>terms</b> 11:14	72:8,9	90:10,13	52:24 58:8
<b>surveying</b>	13:6 30:15	28:4 32:17	73:12 79:20	93:16	58:12,17
87:4	30:21 32:21	32:19 45:21	80:3,7 90:8	<b>thinking</b> 5:15	66:11 72:24
<b>surveys</b>	34:18 35:3	51:12 63:21	<b>theirs</b> 53:17	7:3	78:13 79:15
21:21	35:24 39:11	79:12 81:5	<b>themselves</b>	<b>third</b> 54:5	83:14 88:12
<b>SUSAN</b> 2:15	46:13,16,17	<b>testified</b> 54:8	14:8,9	56:20 85:4	93:22

<b>titled</b> 53:10	<b>tributary</b> 23:24 24:8	<b>urbanization</b> 6:21	<b>variances</b> 76:18	83:8,10,16
<b>today</b> 3:11,20	24:5 69:23	26:5,12	<b>variation</b> 50:1	84:1 92:16
<b>tolerance</b> 30:16,22	<b>tried</b> 15:9	28:13 39:4	<b>variations</b> 63:8	93:18
79:20 80:2	<b>true</b> 51:20	41:1 57:10	<b>varies</b> 12:3	<hr/> <b>W</b> <hr/>
80:3,7,24	63:20 64:5	65:17	<b>variety</b> 8:6,8	<b>wadable</b> 35:19,21
<b>tolerant</b> 8:12	95:9	<b>understan...</b> 14:14,16	<b>various</b> 38:7	36:14 38:11
10:5 28:1	<b>trump</b> 63:23	65:1 66:9	65:20 82:15	<b>waifs</b> 14:6
28:20,21	64:1	66:14,16	90:16	<b>wait</b> 4:2,4,20
29:7,14,19	<b>try</b> 26:15	76:22 77:4	<b>vary</b> 50:8,12	<b>walleye</b> 72:19,20
31:5,8,9,11	56:20	<b>undoubtedly</b> 62:15	<b>varying</b> 63:22	<b>wander</b> 14:7
31:13,20	<b>trying</b> 41:19	<b>unique</b> 17:4	<b>vast</b> 83:20	<b>wandered</b> 14:1
32:4,6,7,8	78:23	17:7,7	<b>vegetation</b> 67:9	<b>want</b> 8:13,14
33:16 80:4	<b>tumors</b> 45:8	<b>United</b> 70:3	<b>velocity</b> 85:24	26:4 29:6
80:5,10,15	<b>tunnel</b> 64:14	<b>units</b> 12:10	<b>verify</b> 25:13	31:23 41:2
80:15,19,20	<b>turn</b> 4:2	12:11	<b>version</b> 11:24	44:1 53:1
<b>tolerants</b> 30:13	<b>TWAIT</b> 2:10	<b>unless</b> 6:19	36:7 37:2,9	71:18 74:19
<b>tolerate</b> 29:22	<b>twenty-five</b> 64:10	<b>unlimited</b> 7:1	54:20 55:11	82:6 83:9
<b>top</b> 17:21	<b>twice</b> 52:19	<b>unprecede...</b> 61:3	56:4	90:23 93:1
66:21	<b>two</b> 11:16	<b>until</b> 4:2,20	<b>versus</b> 10:22	93:14
<b>topics</b> 44:23	13:15 23:9	38:4 60:13	28:8 76:14	<b>wanted</b> 33:16
<b>total</b> 87:4	31:17 36:3	<b>update</b> 79:19	<b>very</b> 8:8 9:23	34:19 57:9
<b>touched</b> 10:14 60:17	48:9 55:13	<b>updated</b> 54:20	11:13 19:20	88:18
79:24 80:22	56:15,18	<b>upgraded</b> 16:1	24:6 30:3	<b>wants</b> 29:5
<b>toxicants</b> 30:16	70:10	<b>Upper</b> 8:4	31:7,11,13	<b>warm</b> 24:6
<b>traffic</b> 17:23	<b>two-thirds</b> 85:5	10:16,17	31:19 56:5	33:8,9,9
<b>trained</b> 49:14	<b>type</b> 35:18	15:17,24	<b>viable</b> 10:18	<b>wasn't</b> 15:13
82:10,22	87:24	16:6,14	10:23 11:17	36:7 38:4
<b>training</b> 7:18	<b>types</b> 59:16	17:3,5,5	12:24 68:23	<b>wastewater</b> 16:13 17:14
49:11 82:3	<b>typical</b> 12:3	20:16 21:4	<b>view</b> 62:1	17:17
82:10,13,15	<b>typically</b> 30:15 51:3	22:20 23:2	<b>violation</b> 24:13	<b>water</b> 1:3,4
84:6	51:5 52:10	27:18 42:4	<b>volume</b> 65:12	3:6 15:20
<b>transcript</b> 63:13 64:5	<hr/> <b>U</b> <hr/>	45:6,20,23	65:13	15:23 16:2
95:10	<b>UAA</b> 15:12	46:21 48:4	<b>Volunteer</b> 84:4	16:13 17:7
<b>transcripts</b> 64:22	36:17 43:19	48:16 59:8	<b>Vondruska</b> 26:20,23	18:7 20:9
<b>transitional</b> 77:7,20	44:5 53:12	60:24 61:6	27:4 35:6	20:12 24:13
<b>Transport...</b> 90:19	63:11	68:1,9	35:10,19,22	31:12 33:8
<b>treatment</b> 17:15,17,20	<b>UIW</b> 45:6	73:23 76:9	36:12 47:3	33:9,9
<b>tributaries</b> 13:9 72:6	<b>ultimately</b> 11:7	84:17,23	47:7,12	59:19 60:4
72:12	<b>unchanged</b> 28:17 45:24	88:4	57:23 82:9	60:20 62:6
	<b>unclear</b> 65:5	<b>uproot</b> 67:9	82:19 83:3	62:16 63:3
	<b>under</b> 5:2	<b>upstream</b> 21:24 22:24		63:8,21
	12:1 27:3	23:11 24:21	<hr/> <b>V</b> <hr/>	64:12 68:5
	51:9 52:18	<b>urban</b> 16:13	<b>value</b> 52:3	68:7,15
	<b>understand</b> 17:12 66:14		<b>values</b> 55:18	69:22 70:12
			56:2,3,8	71:10,23



79:21 86:1	93:7,9	<b>whole</b> 18:10	53:3	<b>Yoder's</b>	<b>116</b> 61:17
87:6,10,13	<b>were</b> 15:7,14	27:23 30:16	<b>world</b> 17:18	53:18	<b>117</b> 61:17
87:16,21,21	22:7,23	55:5,21	17:19	<hr/>	<b>118</b> 61:17
87:24,24	25:2,4 27:2	56:22 62:7	<b>wouldn't</b>	<b>Z</b>	<b>119</b> 61:18
<b>waters</b> 6:17	30:2 33:18	67:17 71:24	49:17 51:18	<b>zero</b> 31:17	<b>12</b> 6:14
15:19 16:3	33:21,23	89:5	52:2,7	52:8	<b>120</b> 61:18
16:7,10,16	34:5,19	<b>wide</b> 33:10	64:16	<b>zone</b> 25:14	<b>121</b> 62:11
16:19 18:14	35:24 37:14	64:1	<b>Wozniak</b>	56:1 88:8	<b>122</b> 63:6
23:3 35:18	38:2,9,24	<b>Williams</b> 2:9	77:11,24	<hr/>	<b>123</b> 63:6
59:10,11,14	39:2 40:4	25:24 26:3	78:24	<b>\$</b>	<b>124</b> 64:9
59:16,19	40:18 41:2	26:4,8,17	<b>writing</b> 49:8	<b>\$272</b> 6:1	<b>126</b> 66:20
<b>waterway</b>	43:16 44:4	26:22 27:9	<b>written</b> 24:1	<hr/>	<b>127</b> 66:20
1:4 3:7 45:6	44:16 45:1	38:19 39:1	24:9	<b>0</b>	<b>128</b> 67:21
61:20 64:14	46:10,22,22	39:4 40:10	<b>wrong</b> 54:11	<b>0.5</b> 52:18	<b>129</b> 67:21
64:21 79:2	46:23 53:10	40:18,24	55:19,22	<b>08-9</b> 3:10	<b>13</b> 14:22
<b>waterways</b>	53:15,17,22	42:9 48:9	56:9	<b>084-003592</b>	46:12
59:22 74:12	54:5 55:3,6	74:16 75:7	<b>Wyoming</b>	95:16	<b>130</b> 67:22
<b>way</b> 7:5 9:4	56:23 59:22	77:24 78:5	29:9,11	<hr/>	<b>131</b> 67:22
12:9,16,20	68:8 83:23	78:14,16	<b>W-A-I-F-S</b>	<b>1</b>	<b>132</b> 67:22
29:2 60:8	84:5,22	79:14 89:21	14:6	<hr/>	<b>133</b> 67:23
<b>ways</b> 29:2	92:19	90:2,9,12	<hr/>	<b>1</b> 34:7,8,21	<b>134</b> 73:2
<b>well</b> 6:16 7:1	<b>west</b> 91:21,24	90:20 92:10	<b>Y</b>	47:5,7,8,14	<b>135</b> 73:2
8:5 9:3	<b>we'll</b> 4:15,18	93:10,14	<b>yeah</b> 33:19	47:14,19,20	<b>136</b> 73:2
11:20 12:12	4:19,20	<b>wing</b> 7:19	71:17 93:16	48:1 52:18	<b>137</b> 73:2
13:11 14:23	37:8,9	<b>wintertime</b>	<b>year</b> 13:19,20	46:17 47:13	<b>138</b> 73:2
16:18 18:20	56:23 65:8	51:5	28:9,15	56:6 61:21	<b>139</b> 73:3
19:14 24:11	88:13 93:24	<b>Wisconsin</b>	46:18 50:7	<b>10th</b> 1:13	<b>14</b> 15:16 16:9
26:20 32:16	<b>we're</b> 3:2 5:3	31:15	50:11,23	<b>100</b> 52:23	<b>140</b> 73:14
32:18,19	10:7,21	<b>wish</b> 77:13	69:6 72:4	58:18	<b>141</b> 73:14
39:5 48:18	11:22 12:8	<b>witness</b> 77:10	83:23 84:2	<b>101</b> 52:23	<b>142</b> 76:1
51:3 55:16	18:14 20:21	77:10,11	84:17 88:3	58:18	<b>143</b> 79:18
59:13 60:10	25:14 35:3	78:4,5 79:4	89:2	<b>102</b> 53:3	<b>144</b> 80:13
61:8 62:2	39:17 46:13	79:6,8	<b>years</b> 19:17	58:19,22	<b>145</b> 81:17
63:17 64:22	47:21 52:15	<b>witnesses</b>	19:18 28:10	<b>1021</b> 2:7	<b>146</b> 81:17
67:3 68:12	53:6 54:4	3:21	37:21,22	<b>103</b> 58:19	<b>147</b> 81:17
69:2,9	59:1,3	<b>Wolf</b> 92:6	43:24 46:19	<b>104</b> 58:19	<b>148</b> 81:18
70:18 74:18	70:23 71:12	<b>word</b> 52:9	82:17 89:3	<b>105</b> 58:19,23	<b>149</b> 81:18
76:24 79:6	76:5 85:10	74:9	<b>yellow</b> 31:10	<b>106</b> 58:20,24	<b>15</b> 91:5 93:23
82:20 87:9	85:13	<b>words</b> 17:1	31:19	59:5	<b>150</b> 81:18
88:24	<b>we've</b> 17:15	23:10 65:10	<b>yesterday</b> 5:7	<b>107</b> 60:2	<b>151</b> 81:19
<b>wellbeing</b>	29:20 32:20	<b>work</b> 4:23	6:23 7:12	<b>108</b> 60:2	<b>152</b> 81:19
36:20	39:10,20	36:16 42:3	9:11 10:23	<b>109</b> 60:3	<b>153</b> 81:19
<b>well-contro...</b>	42:20 43:15	83:5 89:7	27:3 59:21	<b>11</b> 56:3,7,8	<b>154</b> 81:19
65:16	52:4 68:12	90:18	65:22	57:10 67:23	<b>155</b> 81:19
<b>went</b> 5:16	82:13 89:2	<b>worked</b> 38:1	<b>Yoder</b> 40:13	<b>110</b> 60:3	<b>156</b> 81:20
15:4 46:1,4	89:5,15	38:24 42:2	51:16 53:10	<b>111</b> 60:3	<b>157</b> 81:20
55:20 57:16	90:15,18	89:10	53:11 54:8	<b>112</b> 60:3	<b>158</b> 84:13
59:23 73:17	<b>white</b> 71:16	<b>working</b>	54:15 63:16	<b>113</b> 60:16	<b>159</b> 84:13
73:18 78:18	71:17,21	37:24 89:14	63:19 64:3	<b>114</b> 60:16	<b>16</b> 73:4
78:22 79:3	72:3,15,17	<b>works</b> 42:1	81:9	<b>115</b> 60:17	<b>160</b> 1:12

84:13	12:19 36:1	<b>3600</b> 2:13	<b>8</b>		
<b>161</b> 84:13	41:17 56:11	<b>366</b> 34:12	<b>8</b> 64:10		
<b>162</b> 84:14	70:7,8	47:11 83:8	<b>80</b> 16:9		
<b>163</b> 84:14	82:17 89:1	<b>367</b> 48:6,7	<b>80s</b> 37:23		
<b>164</b> 84:14	<b>20s</b> 37:12	<b>37</b> 53:9,23	38:5		
<b>165</b> 84:14	<b>20-plus</b> 69:6	54:21 55:1	<b>81</b> 19:10		
<b>167</b> 86:4	<b>20-year</b> 69:2	55:12 56:2	20:13		
<b>168</b> 87:6	<b>200</b> 70:4	90:24	<b>82</b> 20:13		
<b>169</b> 88:1	<b>2000</b> 28:8,8		<b>83</b> 20:14		
<b>17</b> 21:22 46:5	46:15	<b>4</b>	<b>84</b> 20:14		
46:11,12,22	<b>2003</b> 83:20	<b>4</b> 58:21 59:7	<b>85</b> 20:19 21:3		
<b>170</b> 88:9	<b>2005</b> 22:8	<b>40</b> 12:5,15,20	<b>86</b> 21:19		
<b>171</b> 88:9	46:15 48:5	36:1	<b>87</b> 21:19		
<b>172</b> 88:9	<b>2006</b> 79:19	<b>45</b> 12:5,16,20	<b>89</b> 22:14 23:4		
<b>18</b> 79:18	85:12	<b>49.5</b> 52:20,22			
80:13,18	<b>2008</b> 63:12		<b>9</b>		
<b>19</b> 22:19	83:22 84:17	<b>5</b>	<b>9</b> 66:21		
24:24	88:3	<b>5</b> 54:12,20	<b>9:00</b> 1:14		
<b>19276</b> 2:7	<b>2009</b> 1:14	55:7 60:20	<b>90</b> 22:18 23:6		
<b>1979</b> 38:1	<b>21</b> 27:13	61:18	74:8 77:2		
<b>1980</b> 21:21	<b>217)782-55...</b>	<b>50</b> 33:10,15	77:17 87:19		
<b>1982</b> 38:2	2:8	33:18,22	<b>90s</b> 45:16		
<b>1987</b> 79:19	<b>22</b> 49:2	34:1 86:15	84:2		
<b>1990s</b> 45:10	<b>227</b> 63:12,16	86:24	<b>91</b> 24:24 74:6		
<b>1993</b> 22:8	<b>24</b> 22:10	<b>50.5</b> 52:20,22	77:2,18		
28:12 45:21	49:22 88:5	<b>557</b> 22:8	<b>92</b> 27:12 45:4		
46:7,9 48:5	88:5	<b>6</b>	<b>93</b> 22:14		
83:17	<b>240</b> 5:22	<b>6</b> 63:6	25:15 27:11		
<b>1994</b> 28:8	<b>25</b> 12:6,20	<b>6-3</b> 43:6	83:12		
<b>1995</b> 46:6,7	87:2 91:14	<b>60</b> 12:2 32:21	<b>94</b> 25:15		
46:11 48:5	<b>283.0LB</b>	<b>600</b> 89:4	45:18 48:12		
83:17	52:17	<b>60603</b> 2:14	<b>95</b> 48:13		
<b>1996</b> 46:14		<b>62794-9276</b>	83:12		
<b>1997</b> 46:15	<b>3</b>	2:8	<b>96</b> 76:15		
48:5	<b>3</b> 45:7	<b>66</b> 84:19,20	<b>96-10</b> 27:15		
<b>2</b>	<b>3,159</b> 21:22		74:1 76:11		
<b>2</b> 45:18 52:14	<b>30</b> 84:15 88:1	<b>7</b>	76:19		
52:16,18	89:3	<b>7</b> 41:16 57:14	<b>98</b> 52:13		
58:16,21	<b>301</b> 1:6 3:9	<b>70</b> 32:24 33:4	<b>99</b> 52:15		
59:7 60:20	<b>302</b> 1:6 3:9	33:24			
61:19,21	<b>303</b> 1:6 3:10	<b>73</b> 5:4 6:8			
63:7 64:11	<b>304</b> 1:6 3:10	<b>74</b> 6:10			
66:21 67:23	<b>31</b> 63:12	<b>75</b> 8:2 32:24			
73:4 79:19	<b>312)251-55...</b>	33:24 86:22			
80:14 84:15	2:14	86:22,24			
88:2	<b>34</b> 84:22	<b>76</b> 10:14			
<b>2A</b> 67:1	<b>35</b> 1:5 3:9	<b>77</b> 14:13			
<b>2+1</b> 52:18	39:19	<b>78</b> 14:14			
<b>20</b> 12:6,9,11	<b>35th</b> 3:19	<b>79</b> 15:15			
	<b>36</b> 88:20				