1	ILLINOIS POLLUTION CONTROL BOARD June 13, 2006			
2				
3	IN THE MATTER OF))			
4	PROPOSED NEW 35 ILL ADM. CODE) R06-25 225 CONTROL OF EMISSIONS FROM) (Rulemaking - Air) LARGE COMBUSTION SOURCES)			
5	LARGE COMBUSTION SOURCES) (MERCURY))			
б	TESTIMONY OF JEFFREY SPRAGUE			
7	BEFORE MARIE E. TIPSORD			
8	HEARING OFFICER			
9	The testimony of Jeffrey Sprague, a			
10	witness called in the rulemaking proceeding before the Illinois Pollution Control Board taken on June 13, 2006,			
11	at 9:00 a.m., at the offices of the Environmental Protection Agency, Springfield, Illinois, before Holly			
12	A. Schmid, Notary Public and Certified Shorthand Reporter, CSR No. 084-98-254587 for the State of			
13	Illinois.			
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

Pagel

1	A P P E A R A N C E S
2	MEMBERS OF THE ILLINOIS POLLUTION CONTROL BOARD: Ms. Marie E. Tipsord, Hearing Officer;
3	Dr. G. Tanner Girard, Board Member;
4	Ms. Andrea S. Moore, Board Member; Mr. Anand Rao, Board Staff;
5	Mr. Thomas Johnson, Board Staff; Mr. Tim Fox, Board Staff;
б	Mr. Nicholas Melas, Board Staff; Ms. Alisa Liu, Board Staff.
7	COUNSEL FOR THE ILLINOIS
8	ENVIRONMENTAL PROTECTION AGENCY: Mr. Charles Matoesian;
-	Ms. Gina Roccaforte;
9	Mr. John Kim; Mr. Richard Ayres;
10	MI. Richard Ayres/
11	COUNSEL FROM SCHIFF-HARDEN Ms. Kathleen Bassi;
12	Mr. Stephen Bonebrake;
13	Mr. Sheldon Zabel; Mr. Jim Ingram, Dynegy, Inc.
10	
14	COUNSEL FROM JENNER & BLOCK
15	Mr. Bill Forcade;
16	Ms. Katherine Rahill.
10	COUNSEL FROM McGUIRE-WOODS:
17	Mr. James Harrington; Mr. David Rieser.
18	MI. DAVIA RIEBEI.
19	
20	
21	
22	
23	
24	

1		EXHIBITS	
2			
3	IDENTIFICATION		PG.
4	Exhibit No. 7:		4
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			

MADAM HEARING OFFICER: Mr. Kim? 1 2 MR. KIM: Thank you. Our next witness 3 is Jeffrey Sprague, employee of the Illinois EPA, and he will be responding to the questions presented to him by 4 Dynegy and Midwest Generation. I have provided the 5 б Hearing Officer with a copy of Mr. Sprague's prefiled testimony and ask that it be admitted as if read. 7 8 MADAM HEARING OFFICER: Any objections? 9 MR. BONEBRAKE: No objection; however, we reserve our position on qualifications, until 10 11 cross-examination. 12 MADAM HEARING OFFICER: We will enter his testimony as Exhibit No. 7 and continue as we have 13 14 been. We will have you read the question and then 15 answer it. 16 (Exhibit No. 7 was admitted.) 17 (At which point Jeffrey Sprague was 18 sworn in by the court reporter.) 19 MR. SPRAGUE: Question No. 1: "Is 20 Mr. Sprague the author of section 3.0 or portions of the section in the TSD?" The answer is yes. Subpoint A: 21 22 "If so, please identify which portions." All of Section 23 3.0, excluding minor editorial changes during document 24 preparation.

CROSS EXAMINATION BY MR. BONEBRAKE: 1 2 ο. Who was the author of those minor 3 editorial changes? The editing of the document was a 4 Α. collective effort, so I can't, specifically, identify 5 б which person it was. I just know it wasn't me. Do you know what was involved in that 7 Ο. collective effort? 8 I know that Mr. Jim Ross was at the head 9 Α. of it. Beyond that, I can't tell you the full group of 10 11 people that were involved. 12 MR. SPRAGUE: No. 2: "Is Mr. Sprague's 13 testimony based on his review of Dr. Rice's reports 14 attached to the TSD and testimony in the Michigan Report 15 cited at page one of his testimony?" Yes. 16 MR. BONEBRAKE CONTINUES: 17 Q. Are there any other materials upon which 18 you base your testimony, Mr. Sprague, other than those 19 identified in Question No. 2? 20 Α. I would say just a web search of certain definitions, such as case control studies, perspective 21 22 longitudinal studies. Those meetings I couldn't quite 23 distill out of the two reports just exactly what those 24 terms meant, and so I just to do a little extra.

1 And when you say "extra" you mean searches ο. 2 of the Internet? 3 Search of the Internet. Α. 4 Q. Specifically, for what. MADAM HEARING OFFICER: You are going 5 б to have to speak up. MR. SPRAGUE: For definitions of those 7 8 terms. 9 MR. BONEBRAKE CONTINUES: 10 Maybe I missed it. What terms, Q. 11 Mr. Sprague? 12 Examples would be the Longitudinal Α. 13 Perspective Study, what that actually represented. 14 Q. So you found it necessary to look up 15 definitions of some of the terms in Section 3.0? That's correct. I had a feeling as to 16 Α. 17 what they meant, but I wanted a more authoritative 18 source as to just exactly what those terms entailed. MR. SPRAGUE: No. 3: "What is 19 20 Mr. Sprague's background in health-related fields? I have no degree or formal training in a health-related 21 22 field. No. 4: "Does Mr. Sprague have any formal 23 training or degree as a toxicologist?" No. I have received basic instruction in the related field of air 24

Радеб

toxic risk assessment, and I have gained some relevant 1 2 experience from project collaborations involving U.S. 3 EPA and/or IEPA staff responsible for reviewing and conducting risk assessments. No. 5: "Does Mr. Sprague 4 have any formal training in mercury methylation?" No. 5 6 No. 6: "Does Mr. Sprague have any formal training in the health effects of exposure to methylmercury?" No. 7 MR. BONEBRAKE CONTINUES: 8 Mr. Sprague, do you consider yourself, 9 Q. then, an expert in toxicology? 10 11 I definitely do not consider myself an Α. 12 expert in toxicology. 13 Do you consider yourself an expert with Ο. 14 respect to methylmercury? 15 Α. I think I answered that question. No. 16 MR. SPRAGUE: No. 7: "Does 17 Mr. Sprague have any formal training in deposition 18 modeling? As part of my job responsibilities, I have 19 performed deposition modeling in support of A to Z 20 (phonetic) permit reviews. I have attended courses and workshops in disbursed modeling and/or risk assessment 21 22 and incorporated depositional modeling principles and 23 practices. 24 MR. BONEBRAKE CONTINUES:

Did any of that deposition modeling class 1 ο. 2 work or other training relate to deposition modeling with respect to mercury? 3 4 Α. In most cases, it would be non-specific as 5 to the chemical species. I think principles are generally applicable to many of the chemical compounds. 6 Do you know of any deposition modeling 7 Ο. 8 characteristics that are peculiar to mercury as compared to other substances? 9 Well, with regard to deposition modeling, 10 Α. 11 there would be certain considerations with regard to the 12 velocity of deposition when it comes to dry deposition and different chemical species have difference values 13 14 assigned to them, and so generally speaking, that would 15 be a difference for mercury species. 16 MR. SPRAGUE: "At page two of his 17 testimony, Mr. Sprague refers to `acute exposure 18 incidents' as well as evidence of low level exposures. 19 I should have said quote-unquote -- as a source of 20 information regarding the symptoms and neurological effects of methylmercury poisoning." Subpoint A: "What 21 22 historical acute exposure incidents, specifically, is 23 Mr. Sprague referring to?" These have been spoken about 24 today already, the Minamata, Japan incident reported in

1 1956, the Negata Japan outbreak in 1963 through 1965; 2 and the 1971 methylmercury treated C-grade incident in 3 Iraq. Subpoint B: "What were the levels of 4 methylmercury exposure in those acute exposure incidents?" Specific quantification for this and the 5 6 other incidents did not appear in the documents in which my testimony is based. Dr. Rice has spoken to the 7 8 question in her responses. Subpoint C: "How do acute exposure incidents differ from low level exposures?" 9 10 Acute incident would be a short term, high level 11 exposure. Low level exposures would be small dosages in 12 either a short or extended period. 13 MR. BONEBRAKE CONTINUES: 14 Ο. Mr. Sprague, what is the bases for the two 15 definitions that you just gave us? 16 Α. My basic understanding of toxicological 17 principles. 18 Ο. That understanding is based upon the 19 materials that you reviewed, specifically, to prepare 20 Section 3.0 of the TSD? It would be independent of it through 21 Α. training I have received in the past . 22 23 MR. SPRAGUE: No. 9: "At page two of 24 his testimony, Mr. Sprague refers to the studies in the Page9

Faroe Islands, New Zealand and the Seychelles Islands. 1 2 Prior to this rulemaking matter, had Mr. Sprague ever 3 utilize or used these studies? No. Number 10: "At 4 page two of his testimony, Mr. Sprague states that these 5 three studies have quote yielded results that markedly 6 contrast, but which are not discordant with respect to 7 mercury effects on IQ. An integrative analysis of these 8 studies showed -- closed quotes. With respect to these 9 statements, subpoint A: In what way did the results of the studies `markedly contrast'"? Researchers who have 10 11 looked at the results or reported that the Faroe Islands 12 and New Zealand studies found methylmercury related 13 developmental neurotoxicity, whereas the main Seychelles 14 Islands study found no such association. Subpoint B: 15 "what is meant by the phrase "not discordant" with 16 respect to mercury effect?" Additional investigation of 17 the results of the three studies suggests evidence of 18 mercury related neurodeficits in the Seychelles Islands 19 study group, as well. 20 MR. BONEBRAKE CONTINUES: What do you mean "additional research"? 21 Ο.

A. Additional look at the data that was done
by researchers other than those that reported initial
findings.

So the research you are referring to is 1 ο. 2 the research done by others, as opposed to yourself? Oh, definitely. 3 Α. 4 Q. What specific additional studies are you 5 referring to? Α. Well, I would have to refer you to just б Dr. Rice's report, and I think what I'm recalling is 7 8 Dr. Louise Ryan's follow-up work when she was looking at the data, as well. 9 10 So the only information you can provide in Q. 11 that regard would be something contained in Dr. Rice's 12 report, which is an exhibit to the TSD? 13 And/or what was included in the Michigan Α. 14 Report, but on that particular point, I think it was 15 exclusively what was contained within Dr. Rice's report. 16 MR. SPRAGUE: Further subpoint 17 No. 1: "What is the basis for this statement?" The 18 discussion by Dr. Rice in quote "Estimation of societal 19 costs associated with methylmercury exposure in the United States," and that's the TSD, pages 26 through 27. 20 What integrative analyses is Mr. Sprague referring to?" 21 22 Evaluation of modeling results for the three 23 longitudinal studies as undertaken by Harvard and Dr. Louise Ryan, and again, the Technical Support 24

1 Document, pages 26 through 27. 2 MR. BONEBRAKE CONTINUES: 3 Mr. Sprague, I notice you're reading from Q. 4 something. Can you tell us what you're reading from? 5 Responses that I have prepared to your Α. б questions. These are responses that you, personally, 7 Ο. 8 prepared? 9 Α. Yes. 10 MR. SPRAGUE: Subpoint D: Does Mr. 11 Sprague consider the Seychelles Islands study to be 12 well-conducted and valid?" As I have already said, I am 13 not an epidemiologist, and I am not familiar with the 14 physical and psychological testing performed. MR. BONEBRAKE CONTINUES: 15 16 Ο. Does that mean, Mr. Sprague, that you have 17 no opinion, one way or another? 18 Α. Yes. It means that I don't have any 19 opinion on this particular one. 20 MR. SPRAGUE: Subpoint E: Did the National Academy of Science conclude that the Seychelles 21 22 Islands study was well-conducted and valid?" A National 23 Research Council expert panel concluded that "All three studies were high quality, well-designed studies." 24

Again, for the Technical Support Document page 10." 1 2 MR. KIM: Appendix A. 3 MR. SPRAGUE: Appendix A, subpoint F: 4 "According to the Seychelles Islands investigators, they 5 evaluated 60 primary endpoints through age nine and б included that their data do not support the hypothesis that there is a neurodevelopmental risk for prenatal 7 8 methylmercury exposure resulting solely from ocean fish consumption. See Myers, et al., 2003, last sentence in 9 10 abstract. Is this correct?" This is a correct 11 extraction from the author's summary section, which is 12 also being referred to as the abstract. The authors also wrote that "Exposure to methylmercury before birth 13 14 can adversely affect children's neurodevelopment." 15 Subpart G: Does Mr. Sprague contend that there is no 16 safe exposure level for methylmercury? I cannot respond 17 authoritatively to this question since I am not a 18 toxicologist. Subpoint 1: If so, what is the basis for 19 this contention?" Since my response in G was in the negative -- it was not in the affirmative -- the 20 question is not relevant. For subpart two: "If not, 21 what is the safe exposure level?" Since my response in 22 23 G was not a negative, the question is not relevant, as well. Subpoint H: "Did the Seychelles Islands 24

population study at the time of the mercury study at 1 2 that island consume more fish than is typically consumed 3 in Illinois?" The documents in which I base my testimony did not include this information. Subpoint I: 4 "Are there studies showing --5 CROSS EXAMINATION BY MR. ZABEL: б I understand those documents don't -- do 7 Ο. 8 you know, Mr. Sprague? 9 I place side boards on my analysis to Α. really include just those studies. 10 11 Ο. I'm sorry. I'm not sure I understand what 12 you mean by that. 13 I have confined the testimony that I Α. 14 prepared just upon those documents that were made available to me, and those two documents were the ones 15 16 that were made available to me. So you don't know? 17 Q. 18 Α. So my response is I confined myself to 19 those two documents. 20 ο. That's not an answer to the question. You stated that the information was not in those documents. 21 22 I'm not asking you what's in the documents. I'm asking you, Mr. Sprague, what you know. Do you know the answer 23 24 to the question?

MR. KIM: I believe Mr. Sprague just 1 2 answered that to the best of his --3 MR. ZABEL: To the contrary, he did not 4 answer it. He answered whether it was in his documents. 5 I'm asking what's in his mind. MR. SPRAGUE: I can tell you what my 6 hunch is. 7 8 MADAM HEARING OFFICER: That's fine. 9 Your best guess and we'll take it as a best guess. I believe since this is a predominant fish-eating 10 11 population that, indeed, they do eat more fish than the 12 residents of Illinois. 13 MR. ZABEL: Thank you. 14 MR. SPRAGUE: Subpoint I: "Are there 15 studies showing that the children's mothers who eat more 16 fish do better on tests in neurodevelopment than do the 17 children of mothers who eat less fish?" I have not read 18 of any specific studies. However, this morning's 19 proceedings, you identified the Daniels, et al., and 20 Oken, et al., studies that possibly have been making this association. No. 11, with respect to the Faroe 21 Islands study, subpoint A: Did the National Academy of 22 23 Sciences, the academy, consider potential confounding by 24 postnatal exposure to PCB's from breast milk ?" Yes.

1 But they have also concluded that "The effects of 2 methylmercury and PCB were independent." Subpoint B: 3 "Did the Academy continue -- excuse me. Did the academy 4 committee include "co-exposure to other neurotoxicants, e.g., PCB's on its list of sources of uncertainty 5 6 associated with the Faroe Islands study?" Yes. Subpoint C: "Does the U.S. EPA have a reference dose 7 8 for PCB's?" Yes. There's an oral reference dose for aerochlor 1016 and aerochlor 1254. U.S. EPA does not 9 10 have reference doses for specific PCB converse 11 (phonetic). Subpoint D: "How did the level of PCB 12 exposure in the Faroe Islands compare to U.S. EPA's 13 reference dose for PCB's?" Again, the documents upon 14 which my testimony is based did not specify the level of 15 PCB exposure. Subpoint E: "How did the level of PCB 16 exposure in the Faroes compare to the level that 17 produced effects in the infant monkeys that Dr. Rice 18 experimented with?" I would refer this question to 19 Dr. Rice. 20 MADAM HEARING OFFICER: For the record, I believe she answered it during her testimony. 21 22 MR. SPRAGUE: Subpoint F: Did 23 significant exposure to PCB's occur in the Seychelles 24 Islands study?" No. Subpoint G: Is it possible that

1 PCB's could have had an influence on the results of the 2 Faroe Islands study by producing or contributing to 3 developmental neurotoxicity?" The external scientific 4 peer-reviewed panel providing recommendations on the 5 methylmercury reference dose felt that some test time 6 showed an effect to PCB exposure. In Michigan, a Mercury Electric Utility work group final report on 7 8 mercury emissions for coal-fired power plants is the statement, "There's been argued that polychlorinated 9 10 biphenyls contamination could be a confounding factor in 11 the Faroe Islands study, " and this is by Grongy 12 (phonetic) et al. 1998. However, "Additional analyses 13 indicates that adverse effects of methylmercury and 14 PCB's are independent of one another," from Jorgensen 15 (phonetic), et al., 1999, "The National Research Counsel 16 in 2000 similarly concluded from other studies that the 17 effects of methylmercury and PCB are independent. No. 18 12 --19 MADAM HEARING OFFICER: Mr. Bonebrake. 20 MR. BONEBRAKE CONTINUES: Just for clarity, you are just reading a 21 Ο. 22 quote from the Michigan Report? 23 Α. That's correct. 24 MR. SPRAGUE: No. 12: "At page two of

1 his testimony, Mr. Sprague states that mercury hair 2 levels are associated with "incidences of myocardial 3 infarction." Subpoint A: "Is there disagreement among 4 experts concerning whether there is such an association?" I am not aware of any published research 5 that would challenge this association. 6 MR. BONEBRAKE CONTINUES: 7 8 Q. Mr. Sprague, is your view regarding this association based solely upon the report of Dr. Rice and 9 the Michigan report that you referenced? 10 11 Α. It is. 12 MR. SPRAGUE: Subpoint B: "Is there 13 uncertainty concerning whether there is any such 14 association?" The study results described by Dr. Rice 15 indicate a connection. Subpoint C: Is Mr. Sprague 16 aware of any studies reporting an inverse association 17 between fish consumption and cardiovascular effects, 18 i.e., that fish consumption has a protective effect 19 against cardiovascular disease?" I'm aware of general 20 dietary recommendations for inclusion of omega-3 fatty acids through fish consumption? I have seen references 21 to some published research, Cornig, et al., 2005; Cohen, 22 23 et al., 2005, that presumably report an inverse association. Subpoint D: "Are such results found in 24

the Chicago Western Electric Study in Japan, in the 1 2 Nurses' Health Study, in the U.S. Physicians' Health 3 Study?" The documents upon which my testimony is based do not discuss the results of these studies, nor 4 5 describe any available data specific to Japan. No. 13: б "Mr. Spraque refers to a reference dose of 0.1 micrograms per kilogram per body weight per today at 7 8 page three of his testimony. Is this U.S. EPA's methylmercury reference dose?" Yes. Subpoint B: "Is 9 it used by the Agency in calculating a fish advisory?" 10 11 It is my understanding that it was not used for the joint EPA-FDA fish advisory. Subpoint C --12 13 MADAM HEARING OFFICER: Excuse me, 14 Mr. Sprague. I believe we need to clarify. Didn't we 15 have testimony earlier -- Dr. Hornshaw, didn't you 16 testify earlier this morning that this was the number 17 that uses --18 DR. HORNSHAW: I'm not sure which 19 agency this question refers to because it mentions U.S. 20 EPA in the prior question. If it means Illinois EPA, which we don't do the advisories, that means the Fish 21 22 Contaminant Program, then the answer is yes. 23 MR. BONEBRAKE CONTINUES: I think "agency" was defined at the beginning of our questions 24

1 as IEPA. 2 MADAM HEARING OFFICER: That's my 3 understanding, as well. 4 MR. SPRAGUE: I interpreted this to reflect U.S. EPA. 5 б MADAM HEARING OFFICER: Ms. Bassi, did you have a follow-up? 7 8 MS. BASSI: That was it. 9 MR. SPRAGUE: Subpoint C: "Is the 10 reference dose a measure of an average exposure level 11 per day over a period of a person's life that, if not 12 exceeded, is unlikely to create deleterious effects? 13 The U.S. EPA's Iris database describes it as "In 14 estimates with uncertainty spanning perhaps in order of 15 magnitude of daily exposure to the human population, 16 including sensitive suburbs that is likely to be without 17 appreciable risk of deleterious effects during a 18 lifetime." No. 14: In his testimony, Mr. Sprague 19 refers to an estimate by the Center for Disease Control that 6 percent of women of childbearing age have blood 20 mercury levels at or exceeding the reference dose. 21 22 Subpoint A: Where are these women located?" That 23 specific information was not provided by the CDC. Subpoint B: "Is this a reference to U.S. EPA's 24

reference dose?" Yes. Subpoint C: "How was U.S. EPA's 1 2 reference dose determined? The Technical Support 3 Document, Appendix A, pages nine through 11 provides 4 extensive remarks on the derivation of the reference dose, and I would prefer to defer to Dr. Rice for 5 6 describing any greater details of the procedure used by U.S. EPA. Subpoint D: "Is the reference dose a measure 7 8 of exposure rather than a measure of exposure in the human body?" Yes. Subpoint E: "Is there a standard 9 10 used to identify what concentration of methylmercury in 11 the human body may cause deleterious effects in some 12 portion of the population?" I know of no specific 13 standard. However, a blood mercury concentration or 14 maternal hair concentration that correlates with U.S. 15 EPA's methylmercury reference dose could potentially be 16 regarded as a "standard." Subpoint one: "If so, what 17 is the name of that standard?" The question isn't 18 relevant, at least, to my response. Subpoint two: What 19 is that standard?" The approximate correlative maternal 20 hair mercury concentration is one to 1.2 ppm's respectively, according to Dr. Rice's testimony. 21 22 Subpoint 3: "Is that standard exceeded by any portion 23 of the population referred to in the CDC study?" Yes. MR. BONEBRAKE CONTINUES: 24

Q. What portion of the population exceeds
 that standard? What portion of the population
 referenced in the CDC study exceeded 1.2 parts per
 million.

5 A. I don't know what that percentage is 6 because -- first of all, your question is framed "Is 7 that standard exceeded by any portion of the 8 population?" My response was yes. The actual 9 percentage amount? I believe it wasn't contained within 10 the documents.

11 Q. In the main body of Question 14, the 12 opening sentence, with respect to the CDC 6 percent 13 number, was that, Mr. Sprague, a number that you 14 independently pulled out of some CDC documents, or were 15 you referring to the mercury report and/or Dr. Rice's 16 report?

17 Α. You are seeing that at 14. I know my 18 specific response to 6 percent came out of Dr. Rice's 19 report, but as Dr. Rice mentioned earlier on today, 20 there are other numbers that have been thrown out there based upon different groupings of data that have been 21 22 made available by the CDC, and certainly, the high end 23 number was 16 percent I believe that she had used this morning for some of the data that has been released. 24

I'm not clear, then, where the 6 percent 1 ο. 2 number came from and maybe that question is better 3 directed to Dr. Rice. That came out of the documents and I 4 Α. 5 believe it was Dr. Rice's report, as opposed to the б Michigan report. MR. KIM: Could we maybe -- could you 7 8 identify which page of his testimony you are referring to and maybe --9 10 MR. BONEBRAKE CONTINUES: 11 ο. The last page, page 3, last sentence, "The 12 Center for Disease control has estimated that, 13 approximately, 6 percent of women of childbearing age 14 have blood mercury levels at or exceeding their 15 reference dose." I was trying to get an understanding 16 of what specific document the 6 percent number came out 17 of that estimate. 18 Α. Again, the two documents that I availed 19 myself of, the two documents that I mentioned, and I 20 would have to go back here and look through each to see. MR. KIM: Unless there are a number of 21 other -- I could suggest maybe we look into it and get 22 23 back to you. 24 MR. SPRAGUE: I'm not seeing it in the

1 Michigan document. I have to assume that it was in 2 Dr. Rice's document, but again, the key point is there 3 were different years of data released, so the 6 percent versus the 10 percent that was mentioned Jim Ross' 4 testimony yesterday versus the 16 percent all hinge upon 5 6 which years of data you're referring to. MR. BONEBRAKE CONTINUES: 7 8 Q. Then just a related question, Mr. Sprague, 9 in your testimony where you refer to blood mercury 10 levels at or exceeding the reference dose, you are 11 referring to the .1 micrograms per kilogram per day 12 standard? 13 Forgive me. Could you repeat that? Α. 14 Ο. Sure. In that last sentence, on page 15 three of your testimony, where you refer to mercury 16 levels at or exceeding the reference dose, the reference 17 dose that you're referring to is the .1 micrograms per 18 kilogram per day standard? 19 Α. That's correct. 20 ο. That is a standard for intake or consumption. Is that correct? 21 22 That's correct. Α. 23 But the CDC was looking at concentrations Ο. in the body. Is that correct? 24

It appears as though it could be 1 Α. 2 interpreted that way. 3 I guess you don't really know, Q. 4 Mr. Sprague? I would have to I think go back to the 5 Α. б document and see within the context of which it was said. It might be a bit more illuminating as to what 7 8 was actually said in regard to that, but yeah. Short of doing that, I can't say with 100 percent certainty. 9 10 MR. KIM: If you would like, we can 11 have him look into that answer and to the question you 12 raised concerning his testimony, the 6 percent figure, 13 and try to respond shortly. MR. BONEBRAKE: That would be fine. 14 15 MADAM HEARING OFFICER: Are there any questions for Mr. Sprague. 16 17 CROSS EXAMINATION BY MR. HARRINGTON: 18 Ο. Mr. Sprague, you stated that you relied on 19 the Michigan study. Is that correct? 20 Α. Michigan Utility Report, that's correct. Yes. Are you familiar with the discussion 21 Ο. there of methylmercury in Lake Michigan and the reasons 22 23 for its presence or absence? I, again, I put sideboards on those 24 Α.

1 documents that I was looking at, and it was, 2 specifically, Section 2.5 in the Michigan Utility 3 Report, so if what you're referring to existed outside of that section, then my answer would be, no, I didn't 4 look at that. 5 б Ο. Thank you. MADAM HEARING OFFICER: Anything 7 further? Now would be a good --8 9 MS. GEERTSMA CONTINUES: 10 Q. Mr. Sprague, are you aware under what 11 circumstances the Michigan Report was prepared? Let me 12 be more specific. Did the governor ask anyone within 13 the Michigan Government to produce a report on mercury? 14 Α. I believe that's the case, yes. 15 Ο. Are you aware of any announcements made by 16 the governor of Michigan as to what she would like the 17 Agency to do as a result of that report? 18 Α. No, I do not. 19 MADAM HEARING OFFICER: Anything else? 20 Now is a good time to take a real break. 21 (At which point in the proceedings a 22 10 minute break was taken.) 23 24

1 STATE OF ILLINOIS)

3

2 COUNTY OF ST. CLAIR)SS

I, Holly A. Schmid, a Notary Public in 4 and for the County of Williamson, DO HEREBY CERTIFY that 5 б pursuant to agreement between counsel there appeared before me on June 13, 2006, at the office of the 7 Illinois Pollution Control Board, Springfield, Illinois, 8 Jeffrey Sprague, who was first duly sworn by me to 9 10 testify the whole truth of his knowledge touching upon the matter in controversy aforesaid so far as he should 11 12 be examined and his examination was taken by me in 13 shorthand and afterwards transcribed upon the typewriter 14 (but not signed by the deponent, and said testimony is herewith returned. 15 16 IN WITNESS WHEREOF I have hereunto set 17 my hand and affixed my Notarial Seal this 17th day of 18 June, 2006. 19 20 HOLLY A. SCHMID 21 Notary Public -- CSR 22 084-98-254587 23 24