

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
PROPOSED NEW 35 ILL.ADM.CODE PART 225)	PCB R06-25
CONTROL OF EMISSIONS FROM)	Rulemaking - Air
LARGE COMBUSTION SOURCES)	

NOTICE OF FILING

To:

Dorothy Gunn, Clerk
Illinois Pollution Control Board
James R. Thompson Center
Suite 11-500
100 West Randolph
Chicago, Illinois 60601

Persons included on the
ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that we have today filed with the Office of the Clerk of the Pollution Control Board the **Dynegy and Midwest Generation's Questions for Michael Murray, Ph.D.**

/s/ Kathleen C. Bassi

Kathleen C. Bassi

Dated: August 4, 2006

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
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PROPOSED NEW 35 ILL.ADM.CODE PART 225) **PCB R06-25**
CONTROL OF EMISSIONS FROM)
LARGE COMBUSTION SOURCES)

DYNEGY AND MIDWEST GENERATION'S
QUESTIONS FOR MICHAEL W. MURPHY, Ph.D.

NOW COME Participants DYNEGY MIDWEST GENERATION, INC., and MIDWEST GENERATION, LLC, and proffer the following questions for Michael W. Murphy, Ph.D., a witness at the second hearing in the above-captioned matter.

Questions

1. Did you have a role in the September 2003 workshop organized by the Society of Environmental Toxicology and Chemistry (SETAC)?
 - a. If so, what was your role?
 - b. What is the relationship between a mercury monitoring network and identifying indicators of mercury contamination in wildlife?
2. Generally in your testimony, when you say "mercury," do you mean "methylmercury"? Or do you mean "methylmercury" only when you specifically use that word?
3. Is the form of mercury taken up by non-piscivorous birds, such as by ring-necked pheasants, methylmercury?
 - a. If not, why not?
 - b. What form is it?
 - c. If so, what is the source of that methylmercury?

- d. If the form of the mercury is not methylmercury, are there any risks to humans who consume such birds?
4. In your testimony, you state that “mercury contamination” is an “additional stress” that could be “delaying recovery” of certain bird populations in southern Florida that are “significantly impacted by other factors.” What are the other factors that “stress” and “significantly impact” these bird populations in southern Florida?
5. On the fourth page of your testimony, you refer to mercury-containing seed dressings causing bird mortality.
 - a. What type of mercury was this?
 - b. What were the mercury levels found in the birds that died?
 - c. Later in the same paragraph, you refer to “ecologically relevant levels.” Please define that term, numerically if possible, and compare it to the levels found in connection with the seed dressings incident.
6. On the fifth page of your testimony discussing loons:
 - a. You refer to elevated mercury in “eggs and prey fish.” Is that loon eggs?
 - b. You refer to a decline in egg laying “in areas with elevated methylmercury concentrations in eggs and prey fish.” Was the author noting a coincidence or alleging a causation?
 - c. If the latter, did the author test for other contaminants?
 - d. If so, did he/she find any?
 - e. If so, did he/she exclude those as possible causative or contributive factors?
7. Is the form of mercury “stressing” birds in southern Florida always methylmercury; *i.e.*, do other forms of mercury cause adverse effects?

8. Are belted kingfishers a species of blue herons? *See* fifth page of your testimony, second paragraph, fifth sentence. Your testimony suggests that belted kingfishers are a species of blue herons.
 - a. If not, what did the researchers find regarding blue herons?
9. Your testimony suggests that some animals are exposed to mercury by eating insects.
 - a. How do insects take up mercury?
 - b. What form of mercury is absorbed by insects such that it can be absorbed by other animals that consume insects?
10. Why would there be greater take-up of mercury in insectivorous passerines' wintering areas than in their breeding areas?
 - a. Do such birds generally breed in the spring and/or summer?
 - b. One would assume that insectivorous birds would winter in warmer areas where insects continue to be active during the winter months. Is that correct?
 - c. Where would such wintering areas be?
11. In your testimony regarding the studies of elevated mercury levels in mink, you refer to "elevated mercury levels (e.g. 5 ppm in the diet)" in one study and then to "another study [that] reported extensive death of brain cells at high levels of methylmercury."
 - a. What type of mercury does the first reference in this sentence to "elevated mercury levels" mean?
 - b. Is there an ecologically relevant level for mercury in the diet?
 - c. If so, how does it compare to the 5 ppm?
 - d. In the other studies using "lower doses," what were those doses?

- e. Are you aware of any fish tissue sampling that has shown methylmercury levels as high as 5 ppm in Illinois fish?
 - f. What were the “high levels” of methylmercury in the second study you refer to?
 - g. Are you aware of any fish tissue sampling that has shown methylmercury levels in Illinois fish as high as the level reported in the second study you refer to that considered “high levels” of methylmercury?
12. You refer to recent studies reporting “an association between methylmercury in wild mink and other neurochemical receptors in the brain.”
- a. What do you mean by “an association”?
 - b. Was this coincidence or causation?
 - c. Did these studies find biochemical changes in the mink and otters?
 - d. You say these changes “can be associated” with “clinical effects.” Were clinical effects observed in the mink and otter?
 - e. Were other factors, such as other chemicals, excluded from causation?
 - f. If so, how?
13. Your testimony states that “[w]hile a number of studies have shown a decline in deposition in the past several decades (at least in some sediment cores), contemporary deposition rates are still thought to be well above pre-industrial values, indicating the importance of human activities.” Are you aware of any studies, including studies of the tissue of fish in museums, that show that fish tissue levels are not increasing over time even if deposition levels are?
14. Do you agree that some level of methylmercury was present in fish tissue prior to the Industrial Revolution?

15. Do you contend that some level of injury occurred to fish and animals as a result of that pre-industrial level of methylmercury in fish tissue?
16. With respect to your testimony regarding the potential harm to fish from mercury exposure:
 - a. What is the form of the mercury to which the fish studied were exposed?
 - b. At the sites where there were “[v]ery high mercury exposures (e.g. at sites contaminated by direct discharges,)” what other contaminants were in the discharges?
 - c. What was the source type of the discharges (e.g., industrial, municipal wastewater treatment plant, agricultural, run-off collection, etc.)?
 - d. What is a more “typical environmental exposure” for fish?
 - e. Do these “typical” levels vary from state-to-state?
 - f. How did you determine these “typical” levels?
 - g. What is an “environmentally relevant concentration” of methylmercury?

Respectfully submitted,

DYNEGY MIDWEST GENERATION, INC. and
MIDWEST GENERATION, LLC,

by:

Kathleen P. Bassi

One of Their Attorneys

Dated: August 4, 2006

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CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 4th day of August, 2006, I have served electronically the attached **Dynegy and Midwest Generation's Questions for Michael Murray, Ph.D.**, upon the following persons:

Dorothy Gunn, Clerk
Illinois Pollution Control Board
James R. Thompson Center
Suite 11-500
100 West Randolph
Chicago, Illinois 60601

and electronically and by first-class mail with postage thereon fully prepaid and affixed to the persons listed on the **ATTACHED SERVICE LIST**.

/s/ **Kathleen C. Bassi**

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