FOREST COUNTY POTAWATOMI COMMUNITY

COMMENTS

ON

PROPOSED REVISIONS TO CH. NR 446,

RELATING TO LIMITS ON MERCURY EMISSIONS

FROM COAL-FIRED ELECTRIC GENERATING UNITS

MAY 5, 2008

I **Executive Summary.**

The Forest County Potawatomi Community ("FCPC" or the "Tribe"), a federally recognized Indian tribe located in northern Wisconsin, respectfully submits these comments on the proposed revisions to Chapter NR446, relating to limits on mercury emissions from coal-fired electric generating units.

The Tribe and its members have faced and will continue to face disproportionate health, environmental, and cultural impacts from the deposition of mercury from coal-fired power plants. FCPC and its members face these disproportionate impacts because of their traditional subsistence way of life, which includes a heavy reliance on fish and other natural resources. Moreover, Devils Lake, which is an important traditional cultural resource of the Tribe and which is located on the FCPC Reservation, has been severely impacted by mercury deposition, which has lead to high levels of methyl mercury in the lake and its fish.

Because of the tremendous impacts of mercury on the Tribe, its members, and all of Wisconsin, FCPC commends DNR for its revised proposal reducing mercury emissions from coal-fired power plants. The Forest County Potawatomi Community is pleased to see a goal of 90% reductions in emissions, compared to mercury reductions in the content of the fuel. We also support the multi-pollutant option, because we understand the important role that sulfur dioxide emissions play in the creation of methyl mercury in our waters.

However, because the proposed revisions to Wisconsin's mercury rule do not adequately address numerous electric generation sources, needlessly delay implementation of a 90% reduction requirement, and do not ever require a 90% reduction from all plants, the Tribe is submitting these comments on the proposed revisions to Chapter NR446. In addition, while DNR's Mercury Finding Pursuant to Section 285.27(2)(b), Wisconsin Statutes ("DNR's Findings") strongly support the need for quick and dramatic mercury reductions, considerable evidence regarding the impacts of mercury and the ability for present reductions is not included in DNR's Findings. Accordingly, these comments also provide additional evidence that the Tribe requests be included in DNR's Findings.

II **Significant Health and Economic Impacts of Mercury that should be included in DNR's Findings.**

FCPC and its members are greatly concerned about the health and economic impacts of mercury deposition. Mercury is widely recognized to cause serious health impacts to a large portion of the American people. In addition to significantly affecting and ruining the lives of literally hundreds of thousands of people, these adverse health effects are recognized to cause billions of dollars of economic impacts.

In addition to the health impacts, some of which are noted in the DNR's Mercury Findings, mercury contamination has been found to cause learning and educational impacts that have resulted in significant costs to our state and its people. Also, FCPC tribal members, and other Native Americans in Wisconsin face substantially increased health risks because of their higher consumption of fish. It is important to note mercury's tremendous tourism-related costs

to Wisconsin, especially in areas, like those near the FCPC reservation, that rely heavily on tourism associated with recreational fishing. Moreover, mercury contamination of lakes and streams and the fish that inhabit them causes tremendous natural resource damages that need to be considered when evaluating the costs of mercury contamination. Finally, it is important to note that findings by Dr. Carl Watras, Research Scientist – Environmental Contaminants, State of Wisconsin Department of Natural Resources, U.W.-Trout Lake Station, and others that make clear that removal of mercury and sulfur emissions results in direct, substantial, and timely reductions of mercury in fish and wildlife.

A. Severe health-related impacts, especially to newborns. A very large portion of the American population is significantly impacted by mercury contamination. Indeed, mercury impacts have reached epidemic proportions. U.S. Centers for Disease Control data shows that approximately 8 percent of women of child-bearing age have levels of mercury in their blood that are at or above U.S. EPA's reference dose 69 Fed. Reg. 4658. Moreover, because mercury in the blood readily passes from the mother to her unborn child, EPA has noted that "the developing fetus is considered most sensitive to the effects of methyl mercury." 69 Fed. Reg. 79829. Because of this, EPA scientists have concluded that *630,000 infants* born *each year* may be adversely effected by mercury. See Inside EPA's Clean Air Report, Vol. XV, No. 4, Pg. 13 (February 12, 2004).

B. FCPC Tribal members and other Native Americans in Wisconsin face substantially increased health risks because of their higher consumption of fish. Because of the Tribe's heavy reliance on fish for both subsistence and cultural activities, its members are especially vulnerable to the impacts of mercury. As EPA has noted, "[s]ome populations in the U.S., such as: Native Americans . . . may rely on fish as a primary source of nutrition and/or for cultural practices. Therefore, they consume larger amounts of fish than the general population and may be at a greater risk to the adverse health effects from Hg due to increased exposure." 69 Fed. Reg. 4709.

EPA's studies and documents show the heightened exposure of Native Americans to mercury-contaminated health impacts because of their high consumption of fish compared to the general population. For example, EPA revised its standard assumptions and instead used default values for fish consumption of 142.4 grams/day for subsistence populations, such as Native American communities, more than *eight times* the 17.5 grams/day that EPA uses for the general population. *Methodology for Deriving Water Quality Criteria for the Protection of Human Health*, (US EPA, 2000), p. 4-27[1].

However, these revised values may still underestimate Native American fish consumption and the health impacts from that consumption. See e.g., *Fish Consumption and Environmental Justice: A Report Developed from the National Environmental Justice Advisory Committee Meeting of December 3-6*, 2001 (2002 revised), 14-15 (noting that while these revised numbers are a marked improvement over EPA's previous assumptions, "they are still a source of concern for those groups whose members consume at the highest levels. The result is

[1] This document is available at http://www.EPA.gov/waterscience/humanhealth/method/method.html.

that when fish is contaminated, those consuming at the higher rate will be exposed to greater quantities of contamination that are present in the fish tissue"). This concern is especially true with respect to methyl mercury, since the human intake of methyl mercury from fish consumption is directly related to the level of consumption, as well as the level of methyl mercury contamination in the fish. See Gilkinson, Miriam, *Sample Calculation of Mercury in Support of HWC Background Document*, 12 (providing equation showing that methyl mercury intake from fish is directly related to the consumption rate of fish and the concentration of methyl mercury in the fish consumed) (July 20, 1999), attached as Exhibit 1.

FCPC members may be even more exposed to mercury than Native Americans in general. FCPC's Reservation is located in Wisconsin's Northwoods, an area well known for its numerous lakes and streams, which are rich in fish resources. FCPC Tribal members regularly fish from Devils Lake and other water bodies in the Forest County area, many of which have been found to contain highly elevated levels of mercury. As discussed below, Devils Lake and its fish have been found to contain elevated levels of mercury. Furthermore, surrounding lakes used by FCPC tribal members such as Deep Hole Lake, which is adjacent to FCPC Tribal property, and Little Sand Lake, which is within a couple hundred yards of Tribal lands, have been identified as having special mercury concerns.

In addition to the increased risks FCPC Tribal members face from their high consumption of fish from impacted lakes, as heavy consumers of natural resources in general, the Potawatomi risk factor from exposure to environmental pollutants is further heightened. Because FCPC's members consume substantially higher levels of fish than the general public and because Devils Lake and other lakes and water bodies on and around FCPC's lands are significantly contaminated from mercury deposition, FCPC faces substantially increased risks of health and learning disability effects from mercury.

C. Economic cost of mercury's health-related impacts. The significant and pervasive impacts of mercury have a great economic cost to Wisconsin. Those costs include the overall lowering of IQ levels as a result of mercury emissions. As reported in The Milwaukee Journal Sentinel, Dr. Michael McCalley, a professor of community and preventive medicine at New York's Mount Sinai School of Medicine, and president of Physicians for Social Responsibility, has estimated the diminished lifetime earnings that result from the lowering of IQ in the general population as a result of exposure to mercury at approximately $2.3 billion per year. See Milwaukee Journal Sentinel, *Mercury's dangers persist*, Section G1 (April 12, 2004).[2]

D. Other economic costs associated with mercury-related contamination. It is also important to note the substantial tourism-related impacts caused by the significant mercury contamination in the nation's waters. For states like Wisconsin, that are blessed with rich water resources, and therefore rely heavily on recreational tourism associated with fishing, the situation is especially severe.

[2] This article is available at http://www.jsonline.com/alive/news/apr04/221511.asp.

The DNR has found that atmospheric mercury deposition has contaminated ***nearly all*** of the state's 15,000 lakes and 57,000 miles of rivers and streams to some level. This contamination has resulted in a ***state-wide*** fish consumption advisory. In addition, specific water bodies have been identified as having unacceptably high concentrations of mercury. This has resulted in even more stringent advisories than the general state-wide advisory. These specially impacted lakes include Deep Hole Lake, Julia Lake, Little Sand Lake, Roberts Lake, and Van Zile Lake, all of which are close to the FCPC reservation in Forest County. Indeed, the Tribe owns fee land that is adjacent to Deep Hole Lake and within a couple hundred yards of Little Sand Lake.

The economic concerns associated with mercury contamination in Wisconsin are tremendous. Each year, the DNR sells approximately 1.5 million fishing licenses. Then-Attorney General Lautenschlager testified, on behalf of the State of Wisconsin, to EPA that the sales of these licenses, as well as of food, lodging, gasoline, and sporting equipment related to fishing as an activity, resulted in a total yearly economic impact of approximately *$2.1 billion*, with the sports fishing industry accounting for approximately 30,500 jobs in the state each year.

The Tribe is acutely aware of the importance of Wisconsin's recreational economy, as well as the need for a clean environment to support that economy, and the risks that environmental degradation imposes on that economy. The Tribe now directly employs about 800 persons in tribal enterprises located in Forest County. This accounts for more than 15% of all the jobs in the County. In fact, according to the State of Wisconsin's Department of Workforce Development, as of December 2005, the Tribe's government was the number one employer in Forest County, and its Northern Lights Casino facility was the County's number two employer. See Exhibit 2 (Top 100 Private & Public Employers by County in December 2005, Source: Department of Workforce Development, B. Workforce Information, ES-202, September 2006). The success of the Northern Lights Casino is heavily dependent upon the tourists drawn by outdoor recreational attractions due to the pristine nature of the area.

Forest County, like numerous other central and northern Wisconsin counties, is filled with beautiful forests, lakes, streams, and wetlands, and therefore is tremendously impacted by mercury contamination. This puts at risk a significant portion of the jobs in Forest County and elsewhere in Wisconsin. Indeed, in 2005, Forest County tourism was responsible for 18% of the total employment in that county. For the state as a whole, leisure and hospitality is responsible for 8.6% of total employment. (Wisconsin Department of Workforce Development Labor Market Information web site).

Moreover, recreational tourism is a rapidly growing economic sector for our state, and especially its northwoods. From 1994 to 2005, traveler expenditures more than tripled in Forest County. See Exhibit 3 (available at http://agency.travelwisconsin.com/Research/Economicimpact_Active/04_05_countyimpact.pdf). Indeed, recreational tourism expenditures more than doubled throughout the entire state during that time frame.

Accordingly, in order to protect and enhance Wisconsin's important and expanding recreational tourism industry and the tens of thousands of jobs that depend on it, it is critically

important for Wisconsin to address the sources of methyl mercury contamination in its lakes, rivers, and streams.

E. Tremendous natural resource damages caused by mercury deposition. DNR's report should also note that the deposition of mercury from coal-fired power plants and other industrial sources into the lakes, streams, and other water bodies has caused and continues to cause tremendous natural resource damages. Moreover, the natural conversion of the deposited mercury to poisonous methyl mercury and the bioaccumulation of methyl mercury in fish and other living organisms has created and continues to create significant natural resource damages.

F. Dr. Watras' studies indicate that removal of mercury and sulfur emissions results in direct, substantial, and timely reductions of mercury in fish and wildlife. DNR's Mercury Findings appropriately note that mercury emissions have significant localized impacts and that reductions of mercury emissions have significant localized benefits. See DNR Findings at p.13. In addition to the discussion in DNR's Mercury Findings, it is important to note that studies by Dr. Watras with others strongly suggest that methyl mercury levels in Wisconsin lakes are related to the rates of deposition of mercury and sulfate and appear to be independent of mercury stored in sediments or soils in the lake catchment.[3] This research stems from studies from lakes in northern Wisconsin that are both seepage lakes, which have no tributary in-flow or out-flow, and drainage lakes, which are fed by streams and with stream out-flow. Importantly, this research suggests that, for both types of lakes, methyl mercury levels respond rapidly and substantially to changes in deposition of mercury and sulfate.

III **Background related to the Heightened Mercury Impacts on the Tribe that is Important for DNR's Findings.**

A. FCPC's Reservation and the protection of surrounding areas. The FCPC Reservation is located in northeastern Wisconsin in Forest County. The Reservation consists of 12,000 acres with approximately seventy-five percent of the land surrounded by the Nicolet National Forest. The Reservation is sparsely populated, remote and largely wilderness. It is dominated by upland hardwood forests, which are managed for timber harvest, as well as by wetlands and rivers and lakes. The Reservation includes parcels of land scattered among three townships - - Stone Lake

[3] See Watras, C.J., Morrison, K.A., Regnell O. and Kratz, T.K., "The Metyhlmercury Cycle in Little Rock Lake During Experimental Acidification and Recovery," Limnol, Oceanogr, 51(1), 2006, pp. 257-270; Watras, C.J., and Morrison, K.A., 2008, "The Response of Two Remote, Temporate Lakes to Changes in Atmospheric Mercury Deposition, Sulfate, and the Water Cycle," Can. J. Fish Aquat. Sci., 65: 100-116; see also Watras, C. J., and Hrabik, T. R., "Recent Declines in Mercury Concentration in a Freshwater Fishery: Isolating the Effects of De-acidifcation and Decreased Atmospheric Mercury Deposition in Little Rock Lake," The Science of the Total Environment 297, 2002, pp. 229-237; Branfireun, B. A., Roulet, N.T., Kelly, C. A., and Rudd, J. W. M., "In Situ Sulphate Stimulation of Mercury Methylation in a Boreal Peatland: Toward a Link Between Acid Rain and Methylmercury Contamination in Remote Environments," Global Biogeochemical Cycles, Vol. 13, No. 3, September 1999, pp. 743-750; Branfireun, B. A., Bishop, K., Roulet, N. T., Granberg, G., and Nilsson, M., "Mercury Cycling in Boreal Ecosystems: The Long-Term Effect of Acid Rain Constituents on Peatland Pore Water Methylmercury Concentrations," Geophysical Research Letters, Vol. 28, No. 7, April 2001, pp. 1227-1230; King, J. K., Kostka, J. E., Frischer, M. E. and Saunders, M. F., "Sulfate-Reducing Bacteria Methylate Mercury at Variable Rates in Pure Culture and in Marine Sediments," American Society for Microbiology, June 2000, pp. 2430-2437.

(Crandon), Wabeno, and Carter. There are two wilderness areas within 10 miles of the Reservation: the Catwillow Creek and Headwaters National Wilderness areas.

The FCPC Reservation contains three watersheds: the Upper Wolf, North Branch Oconto and the Peshtigo. All of these rivers are afforded special levels of protection under state and federal law. The tributaries for these rivers originate or flow through the Reservation, with the majority being high-quality trout waters. Four lakes are located within the Reservation. Wetland areas are abundant and are habitat for wildlife and home to threatened and endangered species.

About half of its estimated 1,200 enrolled members live on the FCPC Reservation lands. The local economy is dominated by tourism and the timber industry. The FCPC is providing jobs for its people, as well as others in and around Forest County, through a series of economic development projects. The Tribe uses financial resources from these projects to protect its reservation and the pristine lands that surround it. For example, FCPC has worked to raise its concerns regarding the proposed highly sulfidic Crandon Mine proposal and, with the Sokaogon Chippewa Community, purchased the 5,000 acre mine site, which is rich in forests, wetlands and surface waters, for $16.5 million. The then-pending mining permit applications were withdrawn.

B. Critical importance of pure water and food resources to tribal way of life. In order to fully appreciate the impact associated with mercury emissions from power plants, it is important to understand the culture and beliefs of the FCPC tribe.

The FCPC ancestors have lived in the Great Lakes area since time immemorial; they have occupied eastern Wisconsin since the mid-17th century and Forest County since the latter part of the 19th century. As they moved into the forested and cut-over area of eastern Wisconsin, their people lived from the land. By necessity, they acquired most of their food, building materials and medicine from nature. Although they hunted, fished and gathered over most of the counties of the northeast part of the state, they eventually concentrated their subsistence activities in areas in the vicinity of its current Reservation lands in Forest County.

The close historical link between FCPC members and the natural environment and the continuity of this tradition into modern times is well documented. Today, plants and animals obtained from the Tribe's environment are a vital part of the religious rituals, ceremonials and medicines that define unique aspects of tribal life and form the vital link between the Tribe's cultural past and future.

Historically, the Potawatomi has conceived of the natural world as being controlled by spirits with whom the Tribe must maintain harmony and balance in order to assure health and well-being in the natural world. Today, FCPC members perpetuate these beliefs. As one of the four major spirits, water has a role of singular significance in the Tribe's culture. Water in its pure form is needed for FCPC ceremonies and rituals and is essential to preparation of certain medicines and foods. For example, water to prepare ritual foods or to mix medicines must be drawn from a specific spring, just as medicinal herbs must come from "clean" or undisturbed ground. Unless these conditions are met, the spiritual and therapeutic force of the ceremony or the medicine is lost.

The purity of water in a cultural sense is distinct from purity from a chemical or scientific perspective. Any alteration of the flow and quality of water, including contamination by airborne emissions, such as mercury and sulfur dioxide, renders water no longer pure for the Tribe's people. Furthermore, as water is sacred and represents life itself, changes to water will also affect the natural resources that rely on it to sustain themselves. In the FCPC culture, these changes will upset the balance that plants and animals depend on to survive in the natural world.

The cultural practices associated with FCPC's Reservation and surrounding lakes and forests are hunting, fishing and gathering, as well as ceremonies, rituals, appropriate harvesting practices and other actions necessary to maintain harmony and balance between FCPC members and the spirit world. It is through these activities that the Tribe's members fulfill their responsibilities in the natural world. This is reflected in the fishing and collecting activities at Devils Lake and elsewhere, and the rituals, taboos and appropriate conduct associated with avoiding harm from underworld spirits at Devils Lake.

Cultural beliefs, which include dances, rituals, ceremonies, as well as traditional Potawatomi religion and ideology remain the core of life on the FCPC Reservation. These activities depend in large part on the natural resources which must be drawn from spiritually pure natural environments. Concern about access to these resources and the ability of the environment to provide the pure resources needed to sustain FCPC's culture occupies the thoughts and prayers of the community. The long oral and written histories of FCPC members confirm that the use of wild game, fish, and plant products gathered from nature, sustained them until after the mid-point of the 20th century. Today these same resources are no less important as the source of "pure" foods for ritual and medicinal purposes and for subsistence and craft production. The continued health of the natural world as well as FCPC's continued existence as a people requires the use of these resources to conduct rituals of harmony and atonement.

The Tribe obtains most of the resources that are required to maintain its traditional culture, including religious practices, from two "resource catchments" adjacent to and including Reservation land. These areas are ecologically diverse and relatively undisturbed by the intrusion of exotic species or environmental contamination. Obviously, the maintenance of these resource catchments is critical to the Tribe's ability to maintain cultural continuity with its past. The Tribe's two resource catchments in Forest County have been found eligible for listing on the National Register of Historic Places. Attached as Exhibit 4 is a letter from the Corps of Engineers regarding the catchment areas eligibility for listing.

Wetlands and their associated lakes and streams constitute the most important source of natural foods and medicines of the FCPC members. Although upland hardwood forests, lowland conifer forests, and meadows all produce unique resources necessary for curing, rituals, and feasting, it is the open water and wetland environments that yield an estimated two-thirds of the resources that are critical for these cultural purposes. For this reason, healthy wetlands are critical to the survival of Potawatomi traditional culture.

The Tribe's hunters, fishers, and gatherers realize the importance of these natural areas to their traditional culture and particularly their spiritual purity, and are anxious to preserve them

for future generations. Accordingly, they are particularly concerned about the impacts that airborne contaminants, such as mercury and sulfur dioxide, have on these natural areas.

C. Devils Lake. Devils Lake has special significance both culturally and spiritually to FCPC and its membership. Understanding of the specific significance of this important resource is critical to understanding the need and legal requirements to protect the resource from adverse impacts from mercury deposition.

1. Background regarding Devils Lake. Devils Lake, together with its associated wetlands, is approximately thirty-five acres in size and lies entirely within the FCPC Reservation in the northwest quarter of section 2 of Lincoln Township. This lake is used as a fishing, collecting, and recreation site by the FCPC people. Devils Lake has been determined to be eligible for inclusion on the National Register of Historic Places as a traditional cultural property on the basis of its religious and spiritual significance to the community. In fact, because of the central importance of Devils Lake and the cultural activity that traditionally has occurred and continues to occur in the area around the lake, an entire ten-mile diameter resource catchment area around the lake has been found eligible for National Register listing. A map of the Devils Lake catchment area is attached as Exhibit 5.

2. FCPC's study of Devils Lake and mercury impacts. Because of the central importance of Devils Lake to FCPC's culture and way of life, the Tribe has devoted substantial resources to the study and care of the lake. In particular, because the Tribe has long been concerned about potential mercury impacts to the lake, it has devoted substantial tribal resources to evaluate mercury contamination in the lake. Beginning in 1995, the FCPC Tribal Natural Resources Department ("Tribal NRD") began collecting data regarding the levels of mercury and methyl mercury in the lake. A comprehensive report that quantifies the Devils Lake watershed hydrology and water quality (including waterborne mercury and methyl mercury) from 1995 to 2003 has been prepared for the Tribe by Horsley & Witten, Inc., The "*Devils Lake Summary Report: Water Years 1996 to 2002*" is attached as Exhibit 6.

(a) Dr. Watras' study of mercury contamination in Devils Lake. Because of the Tribe's significant concerns regarding elevated levels of mercury in the lake, it has devoted almost $400,000 to fund further testing and analysis of mercury contamination in Devils Lake by a team of experts led by Dr. Carl Watras. Dr. Watras is an internationally recognized expert in mercury impacts to fresh water bodies who works with the Wisconsin DNR. A copy of Dr. Watras' curriculum vitae is attached as Exhibit 7.

Building on the studies conducted by Horsley & Witten, Inc., this research project indicates that the major source of mercury to the lake and its watershed is atmospheric deposition. The research also indicates that the lake has high levels of methyl mercury, which is the form of mercury that bioaccumulates in fish and is most toxic to humans and piscivorous wildlife. The lake's waterborne methyl mercury concentration ranges from 0.2 to 6.3 ng/1, with the highest concentrations occurring in the lake's anoxic bottom water. Dr. Watras' research on Devils Lake involves both mass balance studies and process-oriented studies designed to elucidate the methyl mercury cycle in the lake and watershed.

The purpose of Dr. Watras' mass balance studies was to quantify the sources and fates of inorganic mercury and methyl mercury in the lake. Essentially, these studies involve the development of an annual balance sheet that accounted for the inputs and outputs of mercury to and from the lake while tracking changes in the mercury content of the lake over time. To facilitate this effort, FCPC Tribal NRD researchers are quantifying inputs of mercury to the lake, which include direct precipitation (wet atmospheric mercury deposition falling on the lake surface) and stream flows (indirect precipitation falling on the terrestrial watershed). The hydrology of Devils Lake was particularly well suited for a mass balance analysis because it is perched above the local groundwater system. Accordingly, the groundwater provides negligible amounts of water and mercury to the lake. Dr. Watras' process-oriented studies included measurement of the rate of methyl mercury production within the lake. They also involved identification of the mechanisms by which this process is occurring.

The mass balance studies indicate that Devils Lake receives the vast majority of its mercury from atmospheric deposition in the lake, in part because of the pristine setting of the lake. It receives essentially no mercury from any point source other than the forest stream, and there is no significant geologic source of mercury in the watershed. The glacial till surrounding the lake is relatively thick, and there are no known deposits of cinnabar, the mineral form of mercury, within the till. This is generally the situation for lakes in the Wisconsin Northwoods.

Dr. Watras' work also shows that atmospherically-deposited mercury is converted to methyl mercury in the hypolimnion of Devils Lake. During the summer of 2002, roughly 0.5 grams of methyl mercury were produced in the lake's deep anoxic water. This amount of methyl mercury would be sufficient to contaminate 900 pounds of fish to levels above the Federal health advisory limit (1 ppm Hg) if it was all bioaccumulated.

There are several reasons why inorganic mercury may be converted to methyl mercury at high rates in Devils Lake. First, the lake is closely connected to a wetland that serves as an additional conduit for atmospherically-deposited mercury as well as dissolved sulfate and organic carbon. Since dissolved sulfate and organic carbon are essential nutrients for the bacteria that produces methyl mercury in the lake, contributions from the wetland may fuel additional mercury methylation. The dissolved carbon also imparts a dark tea-stained color to the lake water which blocks sunlight and retards the photo destruction of methyl mercury. In clear-water systems, methyl mercury is often destroyed relatively quickly in reactions with sunlight.

Research on Devils Lake and elsewhere indicates that acid rain, caused primarily by sulfur dioxide emissions, is an important secondary factor that may increase the production of methyl mercury. This is because acid rain also adds sulfate directly to the lake. Because of the elevated levels of sulfate in Devils Lake due to acid rain, sulfate-reducing bacteria may have also increased the production of methyl mercury in the lake.

(b) <u>FCPC's testing of fish in Devils Lake for mercury</u>. In addition to the Tribe's testing and evaluation of the mercury cycle in Devils Lake and its surrounding watershed, FCPC has tested the lake's fish for their mercury content. This testing focused on yellow perch (*Perca flavescens*) because of their abundance in the lake and their importance as a food source

for larger game fish, like largemouth bass, and for wildlife, like wading birds and small mammals. The testing showed that perch in Devils Lake have relatively high concentrations of mercury when compared to other lakes in northern Wisconsin. This result is consistent with the high concentrations of methyl mercury observed in the lake water. Testing results are attached as Exhibit 8.

An example of how increased deposition of mercury and sulfur compounds has directly affected tribal life can be seen in the decision by the Tribe to initiate a fish advisory program in Devils Lake because of the high levels of mercury found in the lake and its fish.

D. Unique cultural impacts because of limitations on ability to engage fully in subsistence and cultural activities. As discussed in Section III B. above, FCPC's members have a strong connection to the natural world. This is manifested in cultural activities that range from hunting and fishing to gathering of resources for medicines, crafts, and other cultural purposes. Performing these activities is necessary in order for the Tribe's people to attempt to maintain harmony in the natural world. Many of these activities depend upon having pure resources, such as water or plants that have not been altered (and are collected in the proper manner and from the correct location).

The mercury contamination discussed above threatens more than the physical health of FCPC's members: It also threatens the Tribe's spiritual well-being. The contamination of Tribal waters, such as Devils Lake, and the entry of mercury into the food chain and into plant tissues renders the use of these resources problematic for cultural purposes. The Tribe is left with an untenable choice of ingesting materials that may ultimately injure Tribal members' health, or foregoing cultural practices that are essential to their spiritual well-being.

This is an additional dilemma that the general public – even those who hunt and fish and use natural resources for food and craft purposes – does not face because these resources do not have the enormous cultural value they do for Tribal members. In this sense, the impacts of mercury contamination pose a unique threat to Native American populations such as FCPC. Because of this, it is important to note that FCPC is not the only tribe in Wisconsin that may be significantly impacted by mercury pollution. As DNR is aware, eleven tribes are located within Wisconsin's borders.

After decades of losing the lands and resources FCPC ancestors used in their subsistence way of life, mercury contamination threatens perhaps FCPC's most important remaining resource: its clean water. The cultural damage that accompanies poisoning the Tribe's water and the fish and other animals and plants that depend on and use that water is incalculable. It is critical that DNR fully appreciate FCPC's and other tribes' cultures and their use of fish and other wildlife resources to properly assess and address the environmental and human health hazards that they face from mercury contamination. Otherwise, as discussed in greater detail below, DNR will not be able to protect the Tribe's interests from permitted mercury emissions, and to assess and address the disproportionately high and adverse impacts that tribes face from mercury deposition and to ensure that tribes enjoy the same degree of protection from environmental and health hazards as other residents.

IV **Additional Information Related to Options for Controlling Mercury that should be Included in DNR's Findings.**

Wis. Stats. §285.27(2)(b)3 calls for DNR's Findings to include an evaluation of the options for managing the risks caused by mercury and the finding that the chosen compliance alternative reduces risks in the most cost-effective manner possible. DNR's Findings appropriately contain a detailed discussion of mercury control technologies. However, FCPC notes that DNR's Findings should likely stress two points that may not be sufficiently highlighted by DNR.

First, DNR should note that the chosen compliance alternative in DNR's proposed modifications to Chapter NR446 clearly reduces risks in the most cost effective manner practicable. Indeed, DNR's chosen compliance alternative is to allow utilities to choose essentially whatever technology(ies) and/or methodology(ies) that they wish to reduce mercury emissions to the required levels. In addition, DNR's proposed rule making allows utilities to choose between a mercury-only and a multi-pollutant approach. Thus, DNR's proposal provides utilities maximum flexibility in addressing the mercury risk concerns and makes certain that utilities can reduce mercury risks in the most cost-effective manner practicable.

Second, DNR's Findings should note that the technologies referenced in the Findings can be combined with each other to allow utilities to reduce mercury emissions from each of its plants by at least 90% at this time. Attached as Exhibit 9 is the testimony of Dr. J. Phyllis Fox, which the Tribe submitted regarding the proposed federal CAMR rule. In this testimony, Dr. Fox identified "many technologies that [even as of 2004 were] commercially available or soon to be commercially available" and concludes that "[o]ne or more of these technologies from this portfolio could be deployed *today to reduce Hg from each of the plants in the entire US fleet of coal-fired plants by at least 90%*." Id. at 4 (emphasis added). According, it is important that the DNR's Findings make clear that 90% mercury reductions can be achieved today using present technology.

V **In Order to Appropriately Address the Significant Health and Environmental Concerns Associated with Mercury Deposition from Wisconsin's Power Plants, DNR's Proposed Rule must be Changed to Require Reductions Sooner and from All Sources**.

DNR's Findings demonstrate the need for dramatic (i.e., at least 90%) reductions of mercury from electric generation sources in Wisconsin. In addition, the DNR's Findings also support the need for swift implementation of these dramatic reductions, and for all electric generating sources to be included in the dramatic reductions. The additional evidence presented in these comments regarding, among other things, the additional and heightened impacts to FCPC and other tribes and their members from mercury deposition further demonstrates the need for swift and dramatic reductions. Because of the need for swift and dramatic reductions from all Wisconsin electric generating sources, FCPC urges that the following adjustments be made to DNR's proposed rule making:

- Requiring 90% reductions under the mercury-only option by no later than the beginning of 2012.

- Requiring 70% mercury reductions and NO_x and SO_2 reductions under the multi-pollutant option by no later than the beginning of 2012, with full 90% mercury reductions under this option by the beginning of 2015.

- Requiring all sources 25 MW and above to meet one of the two above requirements.

- Requiring each source individually to achieve 90% reductions within five years of the date that overall 90% reductions are required under the mercury-only and multi-pollutant options.

Unless these requirements are implemented, Wisconsin will continue to expose our people and natural resources to severe and undue mercury impacts.

A. The present DNR proposal allows severe mercury contamination to continue for far too long. Wisconsin statutes authorize the DNR to meet its public trust obligations and promulgate standards regarding mercury and other hazardous air contaminants as the Department determines are "needed to provide adequate protection for public health or welfare." Wis. Stat. §285.27(2)(b). In the DNR's Findings, the Department clearly includes more than enough evidence of both the tremendous and damaging impacts associated with mercury emissions from electric generating units and the present ability to take action to dramatically limit those emissions. Thus, it is clear from DNR's Findings that dramatic reductions in mercury emissions, as well as other related contaminants, are both needed and available now to provide adequate protection for public health and welfare. The additional evidence in FCPC's comments, which, among other things, demonstrates the heightened impacts of mercury on tribes in Wisconsin, further bolsters the need for dramatic reductions of mercury and related contaminants as soon as possible.

In light of the clear need for and availability of dramatic and swift action to reduce mercury and related emissions in Wisconsin, there simply is no excuse for waiting until 2015 to require 90% mercury reductions under the mercury-only option or 2021 under the multi-pollutant approach. Indeed, the DNR Findings make clear that substantially quicker reductions are both available and needed. As is noted in the DNR's Findings and bolstered by evidence in these comments, the human costs of mercury deposition, which comes primarily from electric generation units and has a significant localized effect, are tremendous. In addition, as is noted in the DNR's Findings and bolstered by the evidence presented in these comments, numerous technologies and methodologies are already available to achieve 90% mercury reductions as well as reductions of NO_x and SO_2. Finally, as is noted in both DNR's Findings and these comments, there is significant evidence that reductions in mercury and sulfur emissions result in swift and localized reductions in mercury concentrations in water bodies. Given the tremendous human health and welfare costs associated with mercury and related emissions in Wisconsin and the clear ability to address this situation now, there is simply no reason to wait until 2015 or 2021 to take significant action.

As noted in the DNR Findings, Illinois, a significant coal-producing state, has already taken action to require 90% mercury reductions by 2009. Given that it is already the middle of

2008, it may not be reasonable to expect 90% reductions by 2009 in Wisconsin. However, there is no reason why 90% mercury reductions under the mercury-only option could not be achieved, at the latest, by the beginning of 2012. Likewise, there is no reason why utilities that choose to pursue the multi-pollutant approach cannot, like WE Energies, achieve the first step in this approach (i.e., 70% mercury reduction and reductions of NO_x and SO_2) by 2012. Also, after the first step in the multi-pollutant approach is taken, there is no reason to wait an additional six years for additional mercury reductions, so that the 90% requirement can be met. Rather, implementation of the additional mercury reductions should occur no later than three years after the first step under the multi-pollutant approach.

B. The present DNR proposal allows unneeded mercury contamination from numerous electric generating units, many of which are located in the most populated portions of the state. The Tribe is also especially concerned about the lesser requirements for electric units of less than 150 MW under the DNR proposal. Those units are often the dirtiest power plants in the state, and many are located in the most populated areas of the state. They pose some of the greatest risks to the people of our state and should not be held to a lesser standard. A good example is the Menomonee Valley power plant, which has the highest rate of pollution of any power plant in the state and is in the largest urban area. This plant should receive the highest priority for emission reductions, but is exempt from the 90% reduction because it is comprised of two 140 MW units. That provision must be changed. These plants should be subject to the 90% reduction requirements that apply to facilities 150 MW and over. If they are not, they will cause "hot spots" of mercury contamination, which will affect very populated portions of the state.

C. The present DNR proposal should be modified to require that each electric generating unit achieve 90% mercury reductions. In order to ensure that hot spots do not remain in the state and that a 90% reduction is truly met throughout the state, it is critical that DNR's proposal be modified to require that all plants eventually meet the 90% reduction, not just a utility's fleet average. Similar to Illinois, Wisconsin's rule should require that within five years of the 90% fleet-wide mercury reduction requirements, 90% reductions must be met by each electric generating unit.

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