Before The

State Of Wisconsin
DIVISION OF HEARINGS AND APPEALS

In the Matter of the Petition for Contested Case Hearing Regarding WPDES Permit No. WI-0000914-07-0 issued to Wisconsin Electric Power Company for the Oak Creek Power Plant and Elm Road Generating Station located in Oak Creek, Wisconsin	Case No. IH-05-06

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

This matter is a review of the re-issuance of a WPDES (Wisconsin Pollution Discharge Elimination System) Permit (the "Permit") to Wisconsin Electric Power Company ("Wisconsin Electric") for its existing Oak Creek Power Plant ("OCPP") and its proposed Elm Road Generating Station ("ERGS"), collectively identified as "OCER" (Oak Creek – Elm Road), which are sited together on the shore of Lake Michigan in Milwaukee and Racine counties.

The Wisconsin Department of Natural Resources reissued the Permit on March 30, 2005. On May 4, 2005, S.C. Johnson & Son, Inc. ("S.C. Johnson"), Sierra Club, Clean Wisconsin Inc., and six unrepresented private citizens ("Petitioners") filed a joint Verified Petition for Review of the WPDES permit, requesting a contested case hearing. On May 12, 2005, the DNR granted the request for a contested case hearing. The matter was assigned to Administrative Law Judge William S. Coleman, Jr., of the Division of Hearings and Appeals ("Division") in the Wisconsin Department of Administration, to conduct the contested case hearing pursuant to Wis. Stat. Chap. 227. On August 15, 2005, S.C. Johnson notified the Division that it was withdrawing from the proceedings.

Following a prehearing conference on August 17, 2005, the following were certified as PARTIES to this proceeding, and they remain certified as Parties in accordance with Wis. Stat. §§ 227.47 and 227.53(1)(c):

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The Petitioners Sierra Club and Clean Wisconsin filed a revised statement of issues on September 9, 2005, identifying the following issues for hearing:

> "A. The Permit unlawfully treats the offshore CWIS [cooling water intake system] as an existing facility.
>
> B. DNR did not require submittal of or consider information that is required before DNR can determine whether a CWIS satisfies the existing facility standards.
>
> C. [Wisconsin Electric's] proposed new offshore cooling water intake violates entrainment standards.
>
> D. [Wisconsin Electric's] proposed new offshore cooling water intake violates impingement standards.
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> E. The Permit lacks necessary provisions for determining future compliance.
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> F. [Wisconsin Electric's] emergency intake lacks entrainment or impingement controls.
>
> H. The current record does not support a determination that the thermal standard is protective of aquatic life.
>
> I. The mercury standard violates the prohibition on dilution.
>
> J. The Permit violates antidegradation requirements."

By Order dated October 31, 2005, the Division granted summary judgment on Issue A in favor of Wisconsin Electric and the DNR.

A contested case hearing regarding the remaining issues was held on March 7 and 8, 2006, at the DNR Southeast Regional Headquarters in the City of Milwaukee. The six private citizen Petitioners did not appear in person or through counsel at the contested case hearing. All the remaining Parties appeared and participated through counsel. Members of the public were provided the opportunity to participate pursuant to Wis. Admin. Code §§ NR 2.08(1) & 2.13(1) on March 8 and 9, 2006 at the same location. At the conclusion of

the hearing, a schedule for the submission of post-hearing briefs was established, and the final brief was filed on June 5, 2006.

The DNR's re-issuance of the WPDES permit is sustained.

FINDINGS OF FACT

1. In 2000, Wisconsin Energy Corporation announced its proposal to construct the Elm Road Generating Station ("ERGS"), consisting of two 6l5-megawatt supercritical pulverized coal (SCPC) electric generating units, at the site of its Oak Creek Power Plant (OCPP) in Oak Creek, Wisconsin, where it presently operates four coal-fired electric generating units that generate 1100 MW. The combined OCPP and ERGS is identified in the Permit by the acronym "OCER" (Oak Creek – Elm Road).

2. The proposed ERGS requires multiple state-issued permits, including the following: a certificate of public convenience and necessity ("CPCN") from the Public Service Commission ("PSC"); an air emissions permit from the DNR; a permit to alter navigable waters and wetlands under Chapter 30, Wis. Stats., from the DNR; and the instant WPDES permit from the DNR for construction of a cooling water intake structure (CWIS) and the discharge of pollutants to Lake Michigan.

3. On November 10, 2003, the PSC issued a CPCN authorizing construction of the ERGS and specified the in-service dates for the two SCPC units to be respectively May 1, 2009, and May 1, 2010. (Ex. 12 at 57).

4. On December 31, 2001, Wisconsin Electric filed its initial application for reissuance of its WPDES permit. Over the following three years, Wisconsin Electric made over 30 separate submissions to the DNR as part of the permit review process. (Tr. 444-47, Exs. 16-39, 44-45).

5. Staff of the DNR were in frequent contact with the U.S. Environmental Protection Agency (EPA) throughout the permitting process. The EPA participated in the process through conference calls and meetings in the review of and comment on certain submissions by Wisconsin Electric. (Tr. 215, 445).

6. The DNR published a public notice of its intent to reissue the WPDES Permit on January 12, 2005. (Ex.41).

7. On March 8, 2005, the EPA issued its "concurrence letter" in which the EPA indicated it would not object to the reissuance of the Permit on the condition that certain provisions were included. The final Permit included those provisions. (Tr. 446; Ex. 46).

8. On March 30, 2005, the DNR issued the final Permit for OCER. (Ex. 40).

9. The ERGS project includes construction of a new open-cycle cooling water intake system that would utilize "once-through" cooling, meaning that water withdrawn from Lake Michigan would be used to condense the steam after it has passed through the

low-pressure turbine. After usage, the cooling water would be discharged back into Lake Michigan. The cooling water would not be consumed or evaporated in the process and would not come into contact with the condensed steam or any raw materials or fuels. For this reason, the cooling water is often referred to as "non-contact" cooling water. (Tr. 405).

10. The proposed cooling water intake structure (CWIS) for OCER is a structure comprised of an array of 24 submerged wedge-wire screens with a slot size of 9.5 millimeters, to be located 7,900 feet offshore in an area where the water depth is approximately 43 feet below the Lake Michigan low water datum. Each of the 24 screens consists of 8-foot diameter cylindrical screens about 32 feet long, with the cylinders to be set atop a riser pipe that extends about five feet above the lake bottom. (Ex. 26, p. 2).

11. The proposed intake has a withdrawal capacity of 1,557,000 gallons per minute, or approximately 2.2 billion gallons per day. The intake would provide cooling water to both the existing OCPP units and the proposed ERGS units.

12. In addition to the proposed CWIS, Wisconsin Electric will maintain the existing intake system as a back-up for those times when the new system is not operational. The existing cooling water intake for the OCPP is an open channel about 25 feet deep, 900 feet long, and 250 feet wide, that ends in a concrete bulkhead. (Tr. 450). The intake itself consists of four on-shore openings, each of which are approximately 14 feet high and 14 feet wide. The tops of the existing intake openings are about 10 feet below the water surface, and the bottoms of the intake openings are about one foot above the channel bottom (24 feet below the water surface).

13. Wisconsin Electric determined that it would need to use the existing intake no more than 3.3% of the time, or approximately 12 days per year, for times when the new intake is out of service for routine cleaning or due to frazil ice events. The Permit limits use of the existing intake to no more than 3.3% of the time during any twelve-month period.

14. The DNR determined that the location, design, construction and capacity of the proposed CWIS reflect the best technology available (BTA) for minimizing adverse environmental impact.

15. The DNR was required to make its BTA determination pursuant to state law, Wis. Stat. §283.31(6). The DNR looked to the federal rule that would be applicable to the proposed CWIS (known as the "Phase II" rule, effective on September 7, 2004, and codified at 40 C.F.R. §§ 125.90 to 125.99), for guidance in making its BTA determination under state law. (Tr. 229, 231).

16. The EPA determined that the DNR's BTA determination was acceptable. (Tr. 216).

17. The DNR issued the Permit without requiring Wisconsin Electric first to submit the following plans that the Phase II rule identifies as being part of a Comprehensive Demonstration Study (CDS) required as part of the application process: (a) Design Construction Technology Plan (DCTP), (b) Technology Installation and Operation Plan (TIOP), and (c) Verification Monitoring Plan (VMP).

18. In a guidance document dated August 19, 2004, entitled "Questions and Answers on Implementation," the EPA advised state regulators that facilities that had submitted a permit application before September 7, 2004 (the effective date of the Phase II rule) would have until January 7, 2008 to submit the plans specified by the rule, such as the DCTP, TIOP, and VMP. (Ex. 54).

19. Prior to issuance of the Permit, Wisconsin Electric had submitted to the DNR information relating to the potential impacts of the proposed CWIS on the lake. The reports submitted to DNR contain much of the information that would be included in the CDS. (Tr. 254).

20. The EPA informed the DNR that it would formally object to issuance of the Permit unless the DNR included a condition in the Permit requiring Wisconsin Electric to submit a complete DCTP, TIOP and VMP. The DNR included these provisions in the Permit and the EPA thereafter issued its "concurrence letter" regarding the then draft Permit.

21. The Permit required that Wisconsin Electric submit, by March 31, 2006, a DCTP, TIOP, VMP, and any restoration plan Wisconsin Electric intends to utilize. (Ex. 40 at 2-3). The Permit provides that DNR actions on these plans are subject to the public participation and adjudicatory hearing procedures in Wis. Admin. Code Chap. NR 203. (Ex. 40 at 3).

Entrainment

22. Wisconsin Electric selected the location of the proposed CWIS based on a bathymetry study. The proposed CWIS will be located in a region of open sand, with few topographic features such as reefs and outcroppings that may attract aquatic organisms. (Tr. 547). The EPA has expressed a preference for locating intake structures offshore, based on the prevailing scientific view that there are usually fewer small, entrainable organisms offshore than in near shore areas. (Tr. 452). Egg, larvae and fish abundance is generally much higher in the near shore areas than offshore areas beyond or at the edge of the littoral zone. (Tr. 362, 381).

23. Wisconsin Electric caused studies to be conducted in 2002 and 2003 to assess the relative abundance of entrainable fish larvae and eggs at both the proposed offshore and the existing intake onshore locations. (Tr. 457; Exs. 18, 20). The studies concluded that in 2002 and 2003 there were fewer entrainable organisms offshore as compared to onshore. (Tr. 525, 560, 563; Ex. 57)

24. The calculation baseline for entrainment was derived from the densities of organisms found at the existing OCPP shoreline intake during the 2002 and 2003 studies. Densities of organisms found in the bottom stratum of water in the intake canal were used to establish the calculation baseline. This calculation baseline was then compared to the densities of organisms found in the vicinity of the proposed CWIS during the 2002 and 2003 studies. Using the comparative densities between the two sites, the entrainment reduction was 93% for 2002 densities and 73% for the 2003 densities. An alternative calculation to adjust for the fact that the 2002 and 2003 sampling was done only during nighttime hours (referred to as the "Case II" calculation), yielded no change in the entrainment reduction of 93% for 2002, but a decrease in the 2003 reduction percentage from 73% to 63%. (Tr. 559-60).

25. A confidence interval analysis of the 2003 data reflected 98% confidence that the entrainment reduction would exceed 60% under the Case I assumptions and 73% confidence under the Case II assumptions. (Tr. 562-63).

26. Lake Michigan exhibits substantial hydrodynamic and population variability. The 2002 and 2003 data show that the proposed CWIS is reasonably expected to meet the entrainment performance standards, but future studies could reflect positive or negative changes in entrainment. (Tr. 219, 359). In view of the variability of the lake, attainment of a specified level of entrainment reduction in any given year will likely never be an absolute certainty. (Tr. 383-84). Plans required by the Permit to be submitted by Wisconsin Electric and approved by the DNR before the intake becomes operational will specify procedures for continued monitoring of the intake for meeting entrainment standards, and the development of an adaptive management plan if assessments indicate that performance standards would not be met. (Ex. 40, pp. 2-3; Tr.219-20; 384-85).

27. In its 2002 and 2003 studies, Wisconsin Electric did not sample for the presence of the organisms *Diporeia* and *Mysis* because it interpreted the term "shellfish" in Wis. Stat. § 283.31(6) not to encompass the organisms *Diporeia* and *Mysis*, but rather to be limited to edible shellfish harvested for human consumption. (Tr. 458). The EPA first raised a question with the DNR regarding sampling for *Diporeia* and *Mysis* when the fieldwork for the studies was nearly complete. (Tr. 458-59).

28. *Diporeia* are small amphipods that burrow in silty sand/mud substrate. *Diporeia* are one of the most abundant macro-invertebrate species in the Great Lakes. *Diporeia* prefer cold water and darkness and are more predominant in waters of 20 meters or more in depth, with the greatest density being around depths of 40 meters, although they may be found at lower densities in shallow areas. (Tr. 586, 593). *Diporeia* exist diurnally in the bottom sediments but approximately 7 percent exhibit vertical migration about five feet above the sediments into the water column at night. At shallow depths, *Diporeia* will stay near the bottom both day and night because of strong negative phototaxis. There has been a substantial decline in *Diporeia* in Lake Michigan in the last twenty years, which is

attributed to the increase in the number of zebra mussels in the lake. There is a strong inverse correlation between the existence of zebra mussels and *Diporeia* in certain shallower waters. (Ex. 37).

29. *Mysis* are shrimp and are closely associated with the bottom in deep oligotrophic lakes such as Lake Michigan. *Mysis* range in size from 2 to 26 mm (up to about one inch in length). (Tr. 104). *Mysis* move away from light and are most active at night when they may migrate vertically through the water column. *Mysis* are found in greatest concentrations at depths of 130 feet and deeper. (Tr. 588). During warm months, *Mysis* are usually found only in deep water. Transport of *Mysis* into shallow areas is most likely to occur from deep waters that are near an abrupt change in depth to shallower waters. (Tr. 588). Such a condition does not exist near the proposed CWIS.

30. The proposed CWIS is located at a depth shallower than areas where the greatest concentrations of *Diporeia* are found. The substrate at the site of the proposed CWIS provides a marginal habitat for *Diporeia*. (Tr. 586). The DNR concluded that based on the lack of habitat and the shallow depth of the location of the proposed CWIS, that neither *Diporeia* nor *Mysis* would be entrained in numbers large enough to impact the overall estimates of entrainment. (Tr. 374).

31. Results of sampling done on October 28, 2004 at the site of the proposed CWIS showed *Diporeia* densities ranging between 115 per square meter (m2) to 862.2/m2, for an average of 565/m2. [Because *Diporeia* generally remain buried in the substrate except in the evening when a small percentage may migrate up to 5 feet above the bottom, densities of *Diporeia* are measured by taking samples from lakebed. (Ex. 37; Tr. 602). The number of *Diporeia* buried in the lake bottom cannot be extrapolated to the number that may be in a cubic meter of water above the lake bottom. (Tr. 588:21 - 589:7, 607:8 - 609:2).]

32. The Permit required Wisconsin Electric to conduct additional evaluation of the impact of entrainment when all shellfish organisms are included in the entrainment calculations, and to submit a report thereon to the DNR by March 31, 2006. (Ex. 40 at 2-3). Any modification to the Permit resulting from the report is subject to public comment and public informational and adjudicatory hearing procedures. (Ex. 40, pp. 1-3).

33. The location, design, construction and capacity of the proposed CWIS reflect the best technology available for minimizing entrainment of all life stages of fish and shellfish in Lake Michigan.

34. The proposed CWIS can be reasonably expected to achieve the entrainment performance standards of the Phase II rule.

Impingement

35. The proposed CWIS has a design through-screen velocity of less than 0.5 feet per second ("fps"). (Tr. 454). The DNR determined that the screen design meets the impingement performance standard of the Phase II rule. (Tr. 287-88).

36. Clogging of 16% of the intake screen surface would cause the through-screen velocity to exceed 0.5 fps. Wisconsin Electric will institute monitoring and maintenance procedures to keep the screens clean. (Tr. 413-14). Wisconsin Electric will conduct inspections and/or manual cleaning of the CWIS on at least an annual basis. (Tr. 456). The proposed CWIS may remain operational during cleaning.

37. The screens will be constructed of a special alloy that will largely eliminate the potential of the screens being colonized and thus obstructed by zebra mussels. (Tr. 455-56).

38. Frazil ice formation poses the greatest risk for clogging the intake screens. The selected location for the intake diminishes the chances of frazil ice formation due to the depth of the water and the low induced current through the wedge-wire screen elements. (Tr. 407).

39. Debris in the lake, including from the water plant *Cladophora*, pose a risk for clogging of the intake screens. The plant *Cladophora* is rarely seen growing at depths greater than 10 meters. (Tr. 716). *Cladophora* that is dislodged by currents tends to be carried by those currents to shore, or is deposited on the lakebed in shallow water. *Cladophora* typically does not accumulate on the lakebed at depths of greater than 10 meters. (Tr. 717).

40. The offshore location of the proposed CWIS reduces the potential for debris loading of the screens, in comparison with near shore locations, where organic and inorganic debris is more prevalent and where bottom materials are more easily stirred up from surface agitation. (Tr. 407-08).

41. Any fouling of the wedge-wire screens will cause a hydraulic head loss and reduction of water levels in the intake forebay. Those levels must be closely monitored for operational reasons, so even minor clogging of the wedge-wire screens will be evident and addressed by operational measures. (Tr. 413-14).

42. The location, design, construction and capacity of the proposed CWIS reflect the best technology available for minimizing impingement of all life stages of fish and shellfish in Lake Michigan.

43. The proposed CWIS can be reasonably expected to maintain the impingement performance standards of the Phase II rule.

44. Wisconsin Electric can reasonably be expected to comply with the Permit condition that limits operation of the emergency onshore intake 3.3% of the time during any twelve-month period. (Tr. 410-11).

Thermal Effluent Limitation

45. The DNR imposed a thermal effluent limitation of 6,200 million BTU's (MBTU) per hour on the discharge from the ERGS generating units (Tr.291) and 6,400 MBTU per hour for the combined maximum heat discharge from the outfalls for the four OCPP units.

46. Wisconsin Electric had proposed these limitations upon submission of materials to demonstrate that the limitations would be sufficient to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in the lake. (Tr. 291). The DNR reviewed Wisconsin Electric's submissions and determined that the proposed thermal discharge limitations would be sufficient to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in Lake Michigan. (Tr.291).

47. The four-unit OCPP has an approximate condenser cooling water flow of 792,000 gpm. At maximum flow conditions, the four-unit OCPP has a design temperature rise of about 12ºF above the intake water temperature. (Ex. 28, p. 6). The outfalls for the OCPP thermal discharge are all on the shoreline within 1000 feet of each other and are directed to the south along the shoreline.

48. The two-unit ERGS has a combined cooling water flow of about 740,000 gpm. At maximum flow conditions, the ERGS has a design condenser temperature rise of 15ºF above the intake water temperature. (Ex. 28, p. 6). The ERGS outfall (outfall 013) will be located about 500 feet offshore, approximately 3,200 feet north of the nearest OCPP outfall, and will be directed in a northeasterly direction, away from the onshore OCPP thermal outfalls. (Ex. 28 at 37). There is a coal dock and breakwater situated between the ERGS and OCPP outfalls.

49. The physical separation of the ERGS and OCPP thermal discharge outfalls will result in separate thermal plumes. The plumes will remain separate most of the time, but models show that the plumes will interact about 20% of the time in the winter months, and less often in warmer months. Interaction between the plumes will occur at the plume fringes where the temperature differential is only 2 or 3°C, and will result in the creation of a larger plume. (Ex. 28 at 38). In the summer, plume interaction could result in an increase in plume temperature of up to 2ºF. The impact of this marginal 2ºF increase in the plume temperature would not result in temperature fluctuations in the water that are outside the range of naturally occurring temperatures in that area of the lake. The nature and extent of expected plume interaction will not have a deleterious impact on the

protection and propagation of a balanced indigenous population of fish and shellfish in those waters. (Tr. 675; Ex. 28, §5).

50. The ERGS thermal discharge will have less impact on Lake Michigan than the thermal discharge from the original eight-unit OCPP. In 1976, the DNR determined that the original eight-unit OCPP did not cause appreciable harm to a balanced indigenous population in the lake, including benthic macroinvertebrates. (Ex. 28 at 37-47; Tr. 465, 622).

a. The original eight-unit OCPP had a maximum heat discharge rate of 6,444 MBTU per hour; the maximum rate for the ERGS units will be 6,200 MBTU. (Ex. 28 at 36).

b. The original eight-unit OCPP had a combined maximum cooling water flow of 1,232,000 gpm with a design temperature rise of about 12ºF above the intake water temperature. The two ERGS units will have a combined cooling water flow of 740,000 gpm with a design condenser temperature rise of about 15ºF above the intake water temperature at maximum flow conditions. (Ex. 28, p. 6).

c. The original eight-unit OCPP discharge had a plume (as measured at the 5°F isotherm) of approximately 0.73 square miles (467 acres), while the ERGS plume at that isotherm will be 0.22 square miles (140 acres). (Ex. 28 at 36).

d. The thermal plume from the OCPP outfalls tend to become trapped along the shoreline, which limits mixing with lake waters and keeps the plume temperatures elevated. (Ex. 23 [Baird Memo], pp.5-6). The ERGS outfall about 500 feet offshore allows for better mixing and heat dissipation than the onshore OCPP outfalls. (Ex. 28 at 36).

e. The ERGS plume will be buoyant for most of the year and thus will have no effect on benthic organisms except in the area immediately surrounding the discharge. (Tr. 668). Between January and March, a "sinking plume" may form from outfall 013, raising lake bottom water temperatures by between 2 and 5 degrees F. to between 34°F and 39°F. Such a sinking plume will not have a significant effect on benthic organisms. (Tr. 666-68).

51. The ERGS plume may cause localized short-term effects on fish behavior but will not have a significant impact at the population level. (Tr.676).

52. Natural processes in Lake Michigan, such as upwellings, internal waves, and seiches, can cause rapid changes in water temperature. Natural processes have been shown to change the temperature of the water column by up to 20°F in seconds, and the water column may not return to its original temperature for several hours. (Tr. 121, 672-73). The temperature fluctuations from the ERGS plume will be no greater than naturally occurring temperature fluctuations. (Tr. 622, 671).

53. Even if the temperature difference between the ERGS thermal discharge and the receiving water is as much as 21°F, the effect will not be substantially different than at

lesser temperature differentials because the plume will be more buoyant and float to the surface more quickly. (Tr. 674).

54. Studies have shown that the effects of thermal plumes on fish distribution and mortality are "negligible" and that thermal plumes have a negligible impact on species other than fish, such as phytoplankton, zooplankton, and macro invertebrates. (Tr. 677, 682). Studies of thermal discharges at other power plants have not demonstrated negative impacts to benthic organisms. (Tr. 668). Virtually all studies at other power plants have concluded that thermal plumes have a negligible effect on fish distribution and mortality. (Tr. 677, 694).

55. The thermal discharge from the four-unit OCPP allowed by the Permit will have no greater impact on a balanced indigenous population of aquatic life in the receiving waters than the thermal discharge previously permitted for the four-unit OCPP and determined not to threaten such a population.

56. The thermal discharge from the ERGS will not threaten a balanced indigenous population of aquatic life in and on the receiving waters.

57. The lake-wide impact of the OCER thermal discharge will be extremely small. It is unlikely that any of the effects caused by the thermal plumes will be significant at the population level or at the regional ecological level. (Tr. 687). At both the whole-lake and regional scale, the thermal discharge from OCER will have a negligible impact on biota in Lake Michigan. (Tr. 684).

58. The thermal effluent limitations are sufficient to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving waters.

Mercury

59. The source of mercury in the ERGS wastewater will come from effluent from a wet flue gas desulfurization ("FGD") system, which is part of the air pollution control system to be used at ERGS. (Ex. 42 at 24). The air pollution control system on the new units will capture approximately 90% (about 561 lbs.) of the mercury released by the coal annually. Approximately 0.1% (1.3 lbs.) of the mercury in the coal will be discharged to Lake Michigan each year through the plant's wastewater discharge. (Tr. 455-57; Ex. 42 at 31).

60. Pursuant to Wis. Admin. Code Chapter NR 207, Wisconsin Electric submitted an anti-degradation demonstration to DNR that included an identification of economic and social benefits that the two ERGS units would serve. (Tr. 471; Ex. 28). The DNR concluded that Wisconsin Electric had demonstrated that the project would generate important economic and social development. (Tr. 471; Ex. 41 at 27-28).

61. The proposed SCPC units at the ERGS will utilize the best available technology for consistently maintaining the lowest mercury concentrations in the FGD wastewater effluent. (Ex. 42, p. 28).

62. The DNR did not include electricity generation through integrated gasification-combined cycle ("IGCC") plant as part of the antidegradation review because the DNR concluded that it did not have the regulatory authority to require consideration of an IGCC plant as a "pollution control alternative" to an SCPC plant as part of an antidegradation analysis.

63. A SCPC plant and an IGCC plant employ different processes and technologies to generate electricity from coal. An SCPC plant is a version of a coal boiler, while an IGCC facility is a combination of a coal gasification plant and a combined cycle gas plant. (Tr. 291, 723-24). If the two proposed SCPC units were replaced with two IGCC units, most of the proposed plant would need to be completely redesigned, and the excavation and existing earthwork would have to be re-engineered. The footprint of an IGCC facility would be more than three times larger than the footprint of the two SCPC units. (Tr. 724-25).

64. The relevant water quality criterion for mercury in Lake Michigan is 1.3 nanograms per liter (ng/L) or 1.3 parts per trillion. The 1.3 ng/L criterion represents the maximum concentration of mercury allowed in Lake Michigan in order to protect wildlife. (Tr. 468).

65. The DNR imposed a water quality based effluent limitation (WQBEL) on the ERGS discharge to make sure the water quality criterion was not exceeded in Lake Michigan and it was set at the same level as the criterion, 1.3 ng/L. (Ex. 40 at 14; Tr. 469).

66. The Permit provides that the 1.3 ng/L limitation is applicable at Outfall 013, which is the point at which the wastewater is discharged to Lake Michigan. (Ex. 40 at 14; Ex. 42 at 6; Tr. 469-70).

67. Several wastewater streams are discharged through Outfall 013, including the effluent from the ERGS wastewater treatment plant, condenser cooling water from the ERGS units, and other wastewater streams. All of these wastewater streams are combined in internal plant piping upstream of outfall 013. (Ex. 40 at 14; Ex. 42 at 6; Tr. 469-70).

DISCUSSSION

Background

This contested case hearing was heard upon the DNR's granting of a petition for review of the WPDES (Wisconsin Pollutant Discharge Elimination System) Permit pursuant to Wis. Stat. § 283.63(1). Section 283.63(1) provides in part that certain persons "may secure a review by the [DNR] of … the reasonableness of or necessity for any term

or condition of any issued, reissued or modified permit, [or] any proposed thermal effluent limitation established under s. 283.17."

Subparagraph (b) of § 283.63(1) commands that in such a contested case hearing, the DNR "shall consider anew all matters concerning the permit denial, modification, suspension or revocation." The division of hearings and appeals conducted the contested case hearing for the DNR pursuant to Wis. Stat. § 227.43(1)(b). Unless the DNR petitions for judicial review of this decision, this decision becomes the decision of the DNR by operation of Wis. Admin. Code § NR 2.155(1).

The DNR administers the WPDES program for the State of Wisconsin. The permits that it issues under the WPDES program are known as "WPDES permits" and are state permits.

WPDES permits are also federal permits under the National Pollutant Discharge Elimination System (NPDES) program, by virtue of the U.S. Environmental Protection Agency (EPA) having delegated to the State of Wisconsin the authority to issue such permits under the federal Clean Water Act (CWA). The DNR exercises this delegated authority for the State of Wisconsin. The DNR may not issue a WPDES permit to which the EPA has formally objected. Wis. Stat. § 283.31(2)(c). If the EPA were to determine that a draft WPDES permit did not meet the standards of the CWA and implementing federal regulations, the EPA could formally object to issuance of the WPDES permit on that basis, and the DNR would be barred from issuing the permit by operation of Wis. Stat. § 283.31(2)(c). Generally, rules promulgated by the DNR for the administration of the WPDES program must comply with and not exceed the requirements of the CWA and the federal regulations that implement the CWA. Wis. Stat. § 283.11(2)(a).

Regulation of Cooling Water Intake Structures (CWIS) Through WPDES Program

As part of the WPDES program, the DNR has the authority to regulate cooling water intake structures (CWIS) used to withdraw water from lakes and rivers, by virtue of Wis. Stat. § 283.31(6), which provides:

> Any permit issued by the department under this chapter which by its terms limits the discharge of one or more pollutants into the waters of the state may require that the location, design, construction and capacity of water intake structures reflect the best technology available for minimizing adverse environmental impact.

The DNR has not promulgated any rule to implement section 283.31(6).

Section 316(b) of the CWA, codified at 33 U.S.C. § 1326(b), is the federal analog to Wis. Stat. § 283.31(6), and provides:

> **Cooling water intake structures.** Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design,

> construction and capacity of water intake structures reflect the best technology available for minimizing adverse environmental impact.

The EPA promulgated regulations to implement section 316(b) in two phases. The EPA issued draft regulations addressing "best technology available" (BTA) for existing power plant intakes, known as the "Phase II" or "Existing Facilities" rule, on April 9, 2002. See 67 Fed. Reg. 17122 (April 9, 2002).

The intent behind the Phase II rule was to minimize adverse environmental impacts pursuant to section 316(b) of the CWA by reducing both entrainment and impingement. See 69 Fed. Reg. 41586/1 (July 9, 2004). The EPA determined that the environmental impacts other than entrainment and impingement from facilities covered by the Phase II rule "were acceptable at a national level." *Id.* The Phase II rule thus does not seek to regulate adverse environmental impacts other than entrainment and impingement.

In connection with the issuance of the draft Phase II rule, the EPA instructed state regulators with delegated authority from the EPA that during the rule promulgation process, state regulators should continue to conduct BTA determinations for existing facilities, "which may be more or less stringent than the proposed rule, on a case-by-case basis applying best professional judgment." 67 Fed. Reg. at 17124.

Entrainment Performance

(Issue C)

The Phase II rule contains performance standards for the reduction of entrainment. The rule defines "entrainment" to mean "the incorporation of any life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system." 40 C.F.R. § 125.93.

To demonstrate compliance with the Phase II rule's entrainment standard, Wisconsin Electric chose the method set forth in section 125.94(a)(3). This method allows an applicant to demonstrate that it has "selected, and will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet" certain performance standards. The applicable performance standard for the proposed CWIS is to "reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline." 40 C.F.R. § 125.94(b)(2).

The term "calculation baseline" is defined as follows at 40 C.F.R. § 125.93:

> *Calculation baseline* means an estimate of impingement mortality and entrainment that would occur at your site assuming that: the cooling water system has been designed as a once-through system; the opening of the cooling water intake structure is located at, and the face of the standard 3/8-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and the baseline practices, procedures, and structural

> configuration are those that your facility would maintain in the absence of any structural or operational controls …. You may also choose to use the current level of impingement mortality and entrainment as the calculation baseline. The calculation baseline may be estimated using: historical impingement mortality and entrainment data from your facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of your cooling water intake structure; or current impingement mortality and entrainment data collected at your facility. You may request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if you can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment.

Wisconsin Electric conducted sampling studies in 2002 and 2003 in the area of its current onshore intake and the area of the proposed offshore CWIS. Wisconsin Electric conferred with DNR staff on the scope of the work before conducting the studies, and the DNR staff provided no comments or suggestions regarding the proposed studies. (Tr. 458).

Based on these sampling results, the entrainment reduction for the proposed offshore intake was calculated at 93% based on the 2002 sampling, and at 74% based upon the 2003 sampling results, both of which meet the Phase II rule's 60 to 90 percent reduction standard. (Tr. 555-56; 560; Ex. 27).

The Petitioners challenge various aspects of the entrainment compliance showing.

Calculation Baseline

The calculation baseline was derived from the densities of organisms found at the existing shoreline intake during the 2002 and 2003 studies. (Tr. 554:3-8). Densities of organisms found in the bottom water stratum of the existing intake canal were used to establish the baseline. (*Id.*) This calculation baseline was then compared to the densities of organisms found in the vicinity of the proposed offshore CWIS during the 2002 and 2003 studies.

The Petitioners contend that Wisconsin Electric used the wrong figure for the number of organisms collected in the existing intake canal for purposes of determining the calculation baseline, and that the true calculation baseline should be lower (hence lowering the percentage of entrainment reduction for the proposed CWIS).

The methodology for the 2002 and 2003 sampling fieldwork involved taking samples of organisms from the upper and lower strata for the length of the existing intake canal. All sampling was done during nighttime hours. The intake canal for the existing intake is about 900 feet long, 250 feet wide, and about 25 feet deep. The intake itself is at the shoreline and has four openings, each about 14 feet high and 14 feet wide. The top edge of the intake openings are 10 feet below the water at average water levels, and the

bottom edge of the intakes are about 24 feet below the surface (about one foot above the bottom of the canal).

The Petitioners contend that the calculation baseline should not have been determined based solely on the number of organisms obtained from the bottom stratum of the intake canal, which is the more densely populated stratum of the intake canal. Rather, the Petitioners contend that the calculation baseline should have been derived from an average of the number of organisms obtained from both the surface and bottom strata of the intake canal to reflect more accurately the number of organisms actually entrained by the existing intake. Employing such a methodology would result in a lower calculation baseline.

The Phase II rule provides several different methods for establishing the calculation baseline. (Tr.76). The method that Wisconsin Electric used was consistent with EPA's rule, which can be reasonably interpreted to allow an applicant to select a water depth other than at or near the surface that would result in a higher level of entrainment. A higher level of entrainment at the existing intake would be from the bottom stratum of the intake canal, which is the measure of organisms that Wisconsin Electric used in setting the calculation baseline. The depth of the bottom stratum is within the depths of the existing intake openings, except for the bottom one-foot of the water column in the intake canal. The DNR reasonably determined that Wisconsin Electric had established a calculation baseline in conformance with the Phase II rule.

The Petitioners are also critical of the areas within the intake canal from which Wisconsin Electric collected samples for determining the calculation baseline. The Petitioners contend that the entire length of the canal should not have been sampled, but rather that sampling should have focused on the area nearer the intake at the depths at and around the longitudinal openings of the intake in order to capture the organisms actually entrained. As defined, the "calculation baseline" may be determined based upon "current biological data collected in the waterbody in the vicinity of your cooling water intake structure." 40 C.F.R. § 125.93. Wisconsin Electric complied with this standard by sampling within the 900-foot long intake canal. Collection of samples from the length of the intake canal for purposes of determining the calculation baseline was reasonable and consistent with the Phase II rule's definition of "calculation baseline."

Shellfish

The Petitioners contend that the entrainment calculation is not reliable because Wisconsin Electric did not sample for presence of *Diporeia* or *Mysis* in its 2002 and 2003 samples. *Diporeia* and *Mysis* are crustaceans that are regarded as two keystone species in Lake Michigan serving as food for fish. (Ex. 30).

The entrainment standard requires entrainment reduction of "all life stages of fish and shellfish." 40 C.F.R. § 125.94(b)(2). When Wisconsin Electric submitted its

sampling protocol to the DNR before collecting the samples in 2002 and 2003, both Wisconsin Electric and the DNR understood the term "shellfish" to refer to shellfish that are harvested commercially for human consumption, consistent with the historical meaning of this term under sections 316(a) and (b) of the CWA. (Tr. 238; 629). Consequently, Wisconsin Electric did not propose to sample for either *Diporeia* or *Mysis* in 2002 and 2003, and the DNR did not comment on this aspect of the planned sampling. Staff from the EPA who were involved in discussions regarding the planned sampling raised no concerns with the DNR regarding the scope of the planned sampling. (Tr. 275). Wisconsin Electric did not sample for the presence of either *Diporeia* or *Mysis* in the 2002 and 2003 studies.

At about the time that the fieldwork for the 2003 sampling was nearly complete, officials at the EPA raised questions with the DNR regarding the absence of sampling for *Diporeia* and *Mysis*. The EPA determined that the term "shellfish" in the Phase II rule encompassed *Diporeia* and *Mysis*. Upon receiving this guidance from the EPA, the DNR altered its view of the meaning of the term "shellfish" in the Phase II rule and thereafter deemed *Diporeia* and *Mysis* to be "shellfish" for purposes of the rule. (Tr. 239).

Thereafter, Wisconsin Electric surveyed the area of the proposed intake on October 28, 2004, taking samples from fourteen locations. The density of *Diporeia* in the samples ranged from 115 per square meter to 862 per square meter, and averaged 565 per square meter. No other amphipods were found in the samples. (Ex. 37). The measurement of the areal density of *Diporeia* in the lake bottom sediments is not susceptible to conversion to the number that may be present in the water column above the lake bottom (and thus susceptible to entrainment) during periods of nighttime vertical migration. (Tr. 184; 605; 607-09).

Evaluating the information respecting the relative abundance of *Diporeia* in the area, and its knowledge of the characteristics of *Diporeia*, the DNR assessed the expected effect of the proposed CWIS on populations of *Diporeia*. The DNR concluded that it believed small numbers of *Diporeia* would be entrained by the CWIS because the intake screens would be at or above the maximum vertical migration of the organism, and that the number entrained would not offset the entrainment reduction calculations that Wisconsin Electric had performed. (Ex. 42, p. 19; Tr. 374-75). As to *Mysis*, the DNR concluded that owing to the characteristics of *Mysis* as a deep-water organism, it did not expect significant entrainment of *Mysis* by the proposed CWIS. (Tr. 589; Ex. 25, p. 6).

Before issuing the Permit, the DNR did not require Wisconsin Electric to perform another sampling study to include *Diporeia* or *Mysis*. The EPA suggested to the DNR that the DNR include in the Permit a condition requiring additional study of the entrainment calculation. (Tr. 219). The DNR did so, placing a provision in the Permit that required Wisconsin Electric to further evaluate and quantify the impact of entrainment when all shellfish organisms are included in the entrainment calculation and to submit a report

thereon to the DNR by March 31, 2006. (Ex. 3). Based on those results, the permit allows Wisconsin Electric to propose alternative intake designs, operational measures, or restoration measures to demonstrate compliance with the entrainment performance standards of the Phase II rule. (Ex. 3). Any alternative designs, operational measures, or restoration measures that result from the report on additional studies are subject to public informational and adjudicatory hearing procedures. (Ex. 40).

The Phase II rule does not contain a methodology for calculating the quantity of organisms that would be entrained by a proposed intake, but it does allow the "calculation baseline" component of the entrainment calculation to be based upon "current biological data collected in the waterbody in the vicinity of your cooling water intake structure." 40 C.F.R. § 125.93. Consistent with that approach, the DNR assessed biological data regarding the abundance of *Diporeia* and *Mysis* in the vicinity of the proposed CWIS. (Ex. 37). Based upon that information and its knowledge of the behavioral characteristics of *Diporeia* and *Mysis*, the DNR could reasonably expect that the proposed CWIS would meet the entrainment performance standards of the Phase II rule. See 40 C.F.R. § 125.98(b)(1)(iv).

Should subsequent studies lead to different conclusions respecting the achievement of the entrainment performance standards, the provisions of the Permit anticipate that the Permit will be modified in a manner that could reasonably be expected to bring the CWIS into compliance. The Permit was developed in recognition that entrainment performance will likely vary from year to year due to the substantial hydrodynamic variability of Lake Michigan. The Permit contemplates changes in operations and technology over time, and the use of restoration measures if appropriate, should the CWIS fail to achieve the entrainment standards once it is operational. (Tr. 219-20; 384-385). This iterative process contemplated by the Permit for the facility to achieve entrainment performance standards over time in the highly variable Lake Michigan system was a reasonable approach in implementing the Phase II entrainment standards. The fact that the EPA suggested further sampling and concurred in this approach, is strong corroborating evidence that the DNR's determination was consistent with the intent of the Phase II rule.

Seasonal Sampling

The Petitioners further challenge Wisconsin Electric's 2002 and 2003 sampling methodology as flawed because no sampling was conducted during the winter months. An expert for the Petitioners acknowledged that over 99% of the entrainment at the proposed CWIS would take place over the period that Wisconsin Electric collected samples. The Petitioners claim that the remainder of organisms entrained annually, less than 1%, may be significant because the remainder could be comprised of particularly important types of organisms. The Phase II rule, however, makes no account for the relative significance of various entrained organisms, but rather is limited to achieving an overall percentage reduction, regardless of the species of organism entrained. It was reasonable for the DNR

to allow Wisconsin Electric to conduct sampling during the parts of the calendar year when over 99% of all entrainment would occur, and to forego sampling for the remaining part of the year.

Daytime Sampling

The Petitioners also contend the manner of collection of organisms during sampling was flawed because collection was done only at night. An expert for the Petitioners was previously on record as generally believing that the methodology employed in collecting the samples was good and that they were the sorts of methods he would employ himself. (Tr. 166). Moreover, Wisconsin Electric performed an entrainment calculation based upon alternative assumptions to account for the fact that collection of samples occurred only at night. This alternative calculation resulted in the proposed CWIS continuing to meet the Phase II rule entrainment standard, with an entrainment reduction for 2003 of 67%, and for 2002 remaining at 93%. (Tr. 559-60).

A preponderance of the evidence establishes that use of this alternative calculation to adjust for the absence of daytime sampling, in lieu of conducting both nighttime and daytime sampling, was reasonable. The Phase II rule contains no guidance regarding methodology for estimating the number of organisms reasonably expected to be entrained at a proposed intake. The regulatory definition of "calculation baseline," however, provides that it may be based upon "current biological data collected in the waterbody in the vicinity" of the existing intake. 40 C.F.R. § 125.93. Wisconsin Electric computed the calculation baseline in a manner consistent with this standard, even though no daytime sampling was done.

Factoring Emergency Use of Existing Intake
(*Issue F*)

The Petitioners challenge the entrainment projections because they do not account for the entrainment that will occur when the proposed CWIS is shut down for cleaning for frazil ice events or for biofouling, during which time the existing onshore intake would provide cooling water. The Permit allows Wisconsin Electric to use the emergency intake for up to 3.3% of the time during any 12-month period (approximately 12 days per twelve-month period). Twelve days is a conservative estimate of the amount of time the existing intake would be needed. (Tr. 410-11).

Based upon experience at other power plant water intake facilities, intake fouling events are generally limited to fall and early winter periods. Less than 1% of annual expected entrainment occurs outside the May to September period. (Tr. 632). The entrainment of a small percentage of organisms during the periods that the emergency intake would most likely be used is not reasonably likely to result in a substantial change to the annual reduction in entrainment. (Tr. 163:2 -164:7). The Department reasonably determined not to adjust the entrainment performance projections based upon potential use

of the emergency intake.

Fish Attractant Quality of Proposed Intake

Wisconsin Electric did not make an upward adjustment to the quantity of organisms collected in the vicinity of the proposed CWIS to account for a potential increase in the presence of organisms as a result of any "fish attractant" properties of the proposed CWIS. The Petitioners contend this resulted in over-calculating the projected entrainment reduction percentage because the riprap associated with the CWIS would provide a likely spawning habitat for fish and thus increase the presence of fish eggs and larvae at the site.

The Petitioners' argument is grounded in evidence that the proposed CWIS will be similar to the intake at the J. H. Campbell Power Plant in eastern Lake Michigan, which has significant fish attractant properties. (Tr. 114; 177). There are significant differences, however, between the intake at the Campbell plant, and the proposed CWIS. The rip-rap for the Campbell plant intake consists of sheets of granite rock that protrude two to three feet above the lake bottom, and covers an area of approximately 4.5 acres. (Tr. 175, 177). In contrast, the rip-rap for the proposed CWIS will be flush with the lakebed, and will cover an area of approximately 1.3 acres. (Tr. 480). To the extent that the riprap at the proposed CWIS differs from that of Campbell plant intake, that difference will change the degree to which the riprap at the proposed CWIS will attract spawning fish. (Tr. 177).

The DNR placed a term in the Permit that required Wisconsin Electric to evaluate the potential of the proposed CWIS to attract fish for purposes of spawning and to quantify the impact on entrainment that may result from any such attraction. (Ex. 3). Based on those results, the Permit allows Wisconsin Electric to propose alternative intake designs, operational measures, or restoration measures to demonstrate compliance with the entrainment performance standards of the Phase II rule. (Ex. 3). Any alternative designs, operational measures, or restoration measures resulting from the report on additional studies are subject to public informational and adjudicatory hearing procedures. (Ex. 3). The DNR reasonably determined not to adjust the entrainment performance projections based upon potential properties of the proposed intake to serve as spawning habitat for fish.

Sufficiency of Entrainment Calculation

Wisconsin Electric submitted a confidence interval analysis of the 2003 data and concluded that there was a 98% probability that the entrainment reduction would be greater than 60% under the assumption that the nighttime sampling densities would be replicated during the day. When recalculated based on assumptions that there would be increased organisms present during daytime hours, this "confidence interval analysis" resulted in a 73% probability of achieving the 60% entrainment standard. (Tr. 562-63; Ex. 38).

The Petitioners contend that Wisconsin Electric's demonstration that it might not necessarily achieve the entrainment standards at all times itself establishes that the entrainment calculation was deficient.

The confidence interval analysis presented by Wisconsin Electric provided the DNR with a reasonable basis upon which to conclude that the proposed intake may reasonably be expected to meet the 60% entrainment reduction standard. The Phase II rule does not contemplate that an applicant show conclusively that it will achieve entrainment standards, but rather requires a showing that the facility "can reasonably be expected" to meet such standards. See 40 C.F.R. § 125.98(b)(1)(iv). The statistical confidence interval presented by Wisconsin Electric makes a sufficient showing that the facility may be reasonably expected to meet entrainment standards.

Impingement

(*Issue D & F*)

The Phase II rule defines "impingement" as follows. "*Impingement* means the entrapment of any life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal." 40 C.F.R. § 125.93.

The Phase II rule provides several alternatives for complying with impingement performance standards. One such alternative is for the intake to have a maximum design through-screen intake velocity of 0.5 feet per second (fps) or less. 40 C.F.R. § 125.94(a)(l). The EPA established this standard upon consideration of a study that determined that such a through-screen velocity protected at least 96% of tested fish. 69 Fed. Reg. 41601. Facilities using such screens are not required to demonstrate further that the facility meets any of the alternative impingement performance standards. 40 C.F.R. § 125.94(a)(l).

The screens for the new intake have a design through-screen velocity of no more than 0.47 fps at any point on the screen at the maximum withdrawal rate, which meets the 0.5 fps standard. (Tr. 454; Ex. 26, p. 12). Modeling demonstrated that under various scenarios about 90% of the slots will have a maximum slot-velocity between 0.35 and 0.45 fps, and that the median slot velocity is about 0.41 fps. (Ex. 26, p.12).

The only reason the proposed CWIS would not meet the 0.5 fps through-screen standard would be because of screen blockage, as from ice, algae, mussels, uprooted plant life, and other debris. Wisconsin Electric's BTA demonstration includes certain features to account for potential clogging of the screens.

- *Excess screen surface.* Three additional screen arrays have been included in the design to account for potential clogging. The additional screens result in a total screen area of 16% greater than necessary to meet the 0.5 fps standard.

- *Screen alloy.* The screens will be constructed of a material called "Z-alloy" which has been shown essentially to eliminate bio-fouling by zebra mussels. (Tr. 455; Exs. 50 & 51).
- *Frazil ice*. The selected location for the CWIS diminishes the chances of frazil ice formation due to the depth of the water and the low induced current through the wedge-wire screen elements. (Tr. 407). Wisconsin Electric has developed operating strategies to recognize the conditions with the greatest potential for frazil ice formation and to address such conditions by reducing pump flow. Wisconsin Electric developed these strategies based upon its experience with intakes at a nuclear power plant that draws cooling water from Lake Michigan. (Tr.414). Wisconsin Electric anticipates one to two frazil ice events a year, each of which would last from between 12 to 36 hours, during which the emergency intake would be used. (Tr. 410).
- *Cladophora.* With respect to fouling from plant material, particularly *Cladophora*, Wisconsin Electric has had recent experience and has instituted procedures to deal with *Cladophora*, including implementing operational measures. *Cladophora* has been seen to grow at depths of less than 10 meters (30 feet), but it is very rare below that depth, so it is less likely to be present at the proposed site than at the site of the existing onshore intake. (Tr. 716). *Cladophora* that becomes dislodged tends either to be carried to shore or deposited on the lakebed in shallow water. It does not accumulate on the lakebed at depths of greater than 10 meters. (Tr. 717).
- *Inspections/Cleaning.* Wisconsin Electric will conduct inspections and/or manual cleaning of the intake on at least an annual basis. (Tr.456). The intakes can be operable during such cleanings. (Tr. 410).
- *Monitoring.* Wisconsin Electric will institute monitoring procedures. (Tr. 413). Any fouling of the wedge-wire screens will cause a hydraulic head loss and a reduction of water levels in the intake forebay. Those levels are closely monitored because of the risk of exposing the pumps to a loss of suction head. (Tr.413:19-24). Even minor blockage of the wedge-wire screens will be readily apparent and can be addressed by appropriate operational measures. (Tr. 413-14).

Based upon the expected frequency of potential fouling events, including the experience of the J. H. Campbell plant in eastern Lake Michigan, the 3.3% limitation on operation of the emergency intake is a conservative estimate as to the amount of time the emergency intake will be needed. (Tr. 410-11). The existing intake has no controls for impingement so it is likely that some impingement will occur when it is used, though populations will be lower when frazil ice conditions require use of the emergency intakes, thus reducing impingement during those events. The Permit reasonably allows use of the

emergency intake for up 3.3% of the time. Allowing limited use of the emergency intake, during which there will likely be some impingement mortality, is a reasonable operational measure that does not substantially diminish the positive impact of the new intake, which will virtually eliminate impingement mortality when in operation. (Ex. 5, p. 4).

The DNR's determination that the use of wedge-wire screens with a maximum through-screen design velocity of 0.5 feet per second would constitute BTA for impingement by the proposed CWIS was reasonable.

Sweep Velocity

The Petitioners challenge the conclusion that the intake screens are not likely to be clogged by floating debris because the velocity of the Lake Michigan current passing by the wedge wire screens will be less than the through-screen velocity. The Petitioners point to a regulatory standard (which they recognize does not apply to the proposed CWIS) that provides that in those instances where wedge wire screen technology is employed in freshwater rivers, the ambient current of the river (referred to as the "sweep velocity") must be "sufficient … to promote cleaning of the screen face." 40 C.F.R. § 125.99(a). This "sweep velocity" moves debris, small biota and other clogging material, past the screens.

The evidence is insufficient to establish that the proposed intake is likely to be exposed to the type or quantity of passing debris that would be expected in a flowing river. Even if the screens do experience clogging as a consequence of passing debris, the evidence is insufficient to establish that the monitoring and maintenance procedures would not eliminate the blockage before the through-screen velocity exceeded the impingement standard.

The preponderance of the evidence establishes that the design and location of the proposed CWIS, and the operational and control practices, are such that it may be reasonably expected to meet the impingement performance standards in conformance with the Permit and the Phase II rule.

Cooling Water Intake System -- Completeness of Application for Permit
(*Issues B & E*)

Wisconsin Stat. § 283.31(6) provides a broad standard for the regulation of proposed intake structures, the totality of which specifies that the DNR "may require that the location, design, construction and capacity of water intake structures reflect the best technology available for minimizing adverse environmental impact." Lacking any state rule implementing this standard, the DNR referred to the applicable federal regulation (known as the Phase II rule) for guidance in determining whether the proposed CWIS reflected the "best technology available for minimizing adverse environmental impact" under Wis. Stat. § 283.31(6).

The final Phase II rule was published on July 9, 2004, and became effective on September 7, 2004. 69 Fed. Reg. 41576 (July 9, 2004). The Phase II rule requires a permit applicant to submit several reports as part of the BTA demonstration, including a Design and Construction Technology Plan (DCTP), a Technology Implementation and Operation Plan (TIOP), and a Verification Monitoring Plan (VMP).

The content of the DCTP and TIOP are described in 40 C.F.R. § 125.95(b)(4), and the content of a VMP is described in 40 C.F.R. § 125.95(b)(7). The DCTP and TIOP relate to showing that the technologies and operational measures for an intake will function as required to minimize adverse environmental impact. The VMP relates to a plan to measure the actual performance of an intake for minimizing adverse environmental impact once an intake has become operational.

The EPA issued guidance in August 2004 instructing state regulators that if an application for a permit was received before the issuance of the final Phase II rule, but the permit was not issued until after the rule took effect, then the state regulator should include a schedule in the permit for the submission of reports required by the Phase II rule, such as the DCTP, TIOP, and VMP. (Tr. 534; Ex. 54).

During the WPDES application process for the ERGS, the DNR was in frequent communication with the EPA, and the DNR understood that the EPA would object to any proposed WPDES permit for the proposed CWIS that did not comport with the Phase II rule. (Tr. 215-16). Because sec. 283.31(2)(c), Stats., prohibits issuance of a WPDES permit to which the EPA objects, the DNR reasonably determined to look to the Phase II rule to guide it in the exercise of its discretion to determine BTA under Wis. Stat. § 283.31(6). (Tr. 215-16).

The DNR followed the EPA's guidance of August 2004 (Ex. 54) that expressly sanctioned the inclusion of a schedule within the permit for submission of the DCTP, TIOP, and VMP. See 40 C.F.R. § 125.95(a)(2)(ii).

Section 6.1 of the Permit required Wisconsin Electric to submit the DCTP, TIOP, and VMP by March 31, 2006. Section 2.12 of the Permit provides that the Permit must be modified upon approval of any of those submittals, and notes that any such permit modification would be subject to the public notice and public participation procedures, and adjudicatory hearing procedures, under Chapter NR 203, Wis. Admin. Code. (Ex. 3).

The DNR, in the exercise of its discretion, could have chosen to defer reissuance of the Permit to await submission of the DCTP, TIOP, and VMP, rather than to provide for a schedule for their future submission. (Tr. 220). The Petitioners assert that the DNR reissued the Permit prematurely, and that it should have required Wisconsin Electric to submit the DCTP, TIOP, and VMP for review and approval before reissuing the Permit.

The submissions that Wisconsin Electric made in connection with the permit application contained much of the information that would be required by the DCTP, TIOP,

and VMP, though certainly not all information that would be required those plans. (Tr. 254). The DNR determined not to defer permit reissuance to await submission of these reports, concluding that it had sufficient information with which to make a BTA determination without them based on its best professional judgment. (Ex. 42, p. 15).

In view of the EPA's guidance that allows a state to make a BTA decision for a CWIS without the benefit of certain plans specified in the Phase II rule (Ex. 54), it is plain that a state agency may make a lawful BTA determination without the benefit of those plans. EPA's concurrence with the draft permit, particularly in view of its frequent communications with the DNR throughout the permitting process, is strong corroborating evidence that these plans were not essential to a determination of whether a permit reflected the BTA to minimize adverse environmental impact. (Tr. 216).

The Petitioners have failed to carry their burden to show that the submission of these plans before reissuance of the Permit was necessary for the DNR to make its BTA determination under Wis. Stat. § 283.31(6). The Petitioners have further not carried their burden to show that the permit condition allowing the submission of these plans after permit issuance (and subject to challenge through the public informational and adjudicatory hearing processes) was not reasonable. Wis. Stat. § 283.63(1).

The DNR's inclusion in the Permit of the schedule for submission of the DCTP, TIOP, and VMP, in conformance with EPA's guidance issued in connection with the issuance of the draft Phase II rule, was reasonable.

Thermal Effluent Limitation

(*Issue H)*

The Permit imposes thermal effluent limitations on the four on-shore outfalls that serve the existing four-unit OCPP (outfalls 003, 004, 005 and 006) and a single outfall that will serve the two ERGS units (outfall 013). The DNR imposed a thermal effluent limitation of 6,400 million BTU's (MBTU) per hour on the thermal discharges from the OCPP outfalls and 6,200 MBTU per hour for the combined maximum heat discharge from the ERGS outfall.

The DNR imposed these so-called "alternative" thermal effluent limitations in the Permit pursuant to Wisconsin Electric's request.[1] (Ex. 29). The DNR has the authority to impose a thermal effluent limitation in a WPDES permit upon a demonstration by the applicant that "the proposed limitation is more stringent than necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish and

[1] The term "alternative" effluent limitation is somewhat of a misnomer because there are presently no established thermal effluent limitations for which there could be a true "alternative." (Tr. 223-24). See *Wisconsin Electric Power Co. v. State Natural Resources Bd.*, 90 Wis.2d 656, 280 N.W.2d 218 (1979)(declaring DNR's thermal water quality standards for power plants invalid).

wildlife in and on the body of water into which the discharge is made." Wis. Stat. § 283.17(1).

The term "balanced indigenous population" is defined in Wis. Admin. Code § NR 209.01(3) in pertinent part as follows:

> "Balanced, indigenous community" or "balanced, indigenous population" means a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species, and non–domination of pollution tolerant species. Such a community may include historically non–native species introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modifications….

As part of its demonstration concerning the impact of the ERGS thermal discharge plume, Wisconsin Electric submitted an analysis that compared the modeled OCPP and ERGS plumes with evaluations of the impact on a balanced indigenous population of aquatic life in 1972-73 of the then eight-unit OCPP thermal plume. Based on this 1972-73 evaluation, in 1976 the DNR concluded that the thermal discharge from the then eight-unit OCPP did not cause prior appreciable harm and that a balanced indigenous population of aquatic life was present. (Tr. 464; Exs. 23, 24). The DNR's 1976 determination included the finding that "[n]either periphyton nor benthic macroinvertebrates were found to be affected by the thermal discharge from Oak Creek," and "that the main influences on these communities are substrate type, depth, light penetration and nutrient availability." (Ex. 23 [Order, ¶8]).

The thermal plume for the current four-unit OCPP is substantially smaller than that of the former eight-unit OCPP, and the heat load is substantially less. Wisconsin Electric's demonstration for the proposed thermal limitations concluded that based on the diminished plume and heat load of the current four-unit OCPP, that the continued thermal discharge from the OCPP would not threaten a balanced indigenous population of aquatic life, *unless* there has been a relevant change in the aquatic community. (Ex. 28, pp. 31-34).

Wisconsin Electric's demonstration similarly concluded that the proposed plume from the ERGS would be less threatening to a balanced indigenous population than the plume from the eight-unit OCPP in 1972-73, *unless* there has been a relevant change in the aquatic community. This is because the ERGS plume would similarly be smaller in size and have a lower heat load than the thermal plume from the former eight-unit OCPP (Ex. 28, pp. 31-34).

Wisconsin Electric's demonstration included a review of the 2002 and 2003 larval fish studies, and concluded that the fish community structure in the existing waters was similar to that seen 30 years before. (Ex. 28, pp. 33, 39). The demonstration noted that the changes to the Lake Michigan fish community over the last 50 years have occurred on

a lake-wide basis or throughout the Great Lakes system as a result of changes in the ecology of the lake, and have not been caused by thermal pollution from power plants. (Ex. 28, p. 40). The demonstration assessed the expected impact of the proposed thermal discharges on certain species (including representative important species such as alewife, yellow perch, rainbow trout, lake trout, coho salmon, Chinook salmon, and bloater), and concluded that the thermal impact on these species would be negligible. (Ex. 28, pp. 45-46).

Wisconsin Electric's demonstration also included modeling of the interaction between the OCPP thermal plume and ERGS thermal plume. The modeling showed that the plumes would remain separate most of the time, but that when the plumes did interact the interaction would not threaten a balanced indigenous population of aquatic life. (Ex. 28, pp. 38-39).

The DNR accepted Wisconsin Electric's demonstration that the thermal effluent limitations were sufficient to assure the protection and propagation of a balanced indigenous population of aquatic life in the waters. The Petitioners challenge the reliability of Wisconsin Electric's demonstration to support the thermal effluent limitations on a variety of grounds.

Pointing to the dramatic decline in the population of *Diporeia* in Lake Michigan since 1976, the Petitioners challenge the validity of the conclusion that "there have been no changes in the aquatic community which would preclude reliance on the results" of the 1972-73 study of the OCPP thermal discharge.

Wisconsin Electric's demonstration in support of the proposed thermal effluent limitations addressed the anticipated impact of the thermal discharges on benthic organisms such as *Diporeia* and *Mysis*. The demonstration noted that the maximum plume temperatures will occur in the summer and that the plume will be buoyant during this time and thus not affect *Diporeia*, *Mysis*, or other benthic organisms. (Tr. 667; Ex. 28, p. 38). In the winter, when the plume may be bottom attached for 3,500 to 4,000 feet from the outfall, the temperature differential between the discharge and the ambient water at 1,000 feet from the outfall would not exceed about 9ºF, which is within the range of naturally occurring temperature fluctuations in those waters. (Tr. 699-702). Indeed, there is some evidence involving studies of other power plants on Lake Michigan that warmer temperatures from discharges of those plants may have contributed to an increase in the abundance of certain benthic invertebrates. (Tr. 667). Wisconsin Electric reasonably presented the results of studies on the effects of thermal discharges to Lake Michigan from other power plants in support of its showing that the proposed thermal discharge was not likely to have an adverse impact on a balanced indigenous community of fish and shellfish in the receiving waters. A preponderance of the evidence supports the conclusion that there have been no changes in the aquatic community that preclude reliance on the 1972-73 study in assessing the impact of the proposed thermal discharges.

The Petitioners assert that the 1972-1973 thermal study should not have been relied upon because the combined thermal discharges from OCER will be greater in volume and temperature than the discharges from the former eight-unit OCPP. The combined OCER thermal discharge will be approximately 350,000 gpm greater in volume than the eight-unit 1976 OCPP discharge. The design temperature rise from the ERGS thermal discharge will be about 3ºF higher than the discharge from the eight-unit OCPP.

A preponderance of the evidence shows that these distinctions do not render the 1972-73 study an unreliable basis upon which to conclude that the thermal impacts of the proposed thermal discharges will be no more threatening to a balanced indigenous population of aquatic life than the OCPP thermal discharges in the early 1970's. The proposed outfall 013 would discharge less water than the 1976 OCPP thermal discharge (about 400,000 gpm less), and will be discharging effluent in the opposite direction from the OCPP discharges, from an outfall about 3,200 feet distant.

The plumes will remain separate most of the time and will interact only under certain wind and current conditions. It is projected that overlap may occur during the winter months about 20% of the time, and less frequently during the non-winter months. When overlap occurs it will be at the fringes where the temperature differential with the ambient water is only 2 or 3°C, and will create a larger plume. (Ex. 28 at 38). In the summer, plume interaction could result in an increase in plume temperature of up to 2ºF. The evidence supports the conclusion that the impact of this marginal 2ºF increase in the plume temperature would not result in temperature fluctuations in the water that are outside the range of naturally occurring temperature fluctuations in that area of the lake. Plume interaction thus would not have a deleterious effect on the protection and propagation of a balanced indigenous population of fish and shellfish in those waters. (Tr. 675; Ex. 28, §5).

The design 3ºF greater temperature in the ERGS discharge over the eight-unit OCPP discharge would not result in the ERGS plume temperature exceeding the range of naturally occurring temperature fluctuations in Lake Michigan. Also, the location of the 013 outfall allows for better mixing and heat dissipation than the OCPP discharges, further mitigating the higher temperature of the ERGS discharge.

The Petitioners further challenge Wisconsin Electric's demonstration because no specific modeling was done to evaluate the effects of the plume from outfall 013 for those periods of lower cooling water flow in the winter, which may result in a discharge temperature differential of 21ºF. The evidence establishes that during such periods of greatest temperature differential, the plume with tend to separate from the bottom and thus not affect benthic organisms. (Tr. 699-702). The evidence also establishes that such temperature fluctuations are naturally occurring in those waters, albeit not during the winter months. (Tr. 667-68; 701-03). Notwithstanding the absence of precise modeling for this more extreme temperature differential, the weight of the evidence establishes that

the discharge plume is not likely to jeopardize a balanced indigenous population in those waters.

At both the whole-lake and regional scale, the proposed thermal discharge will have a negligible impact on biota currently living in Lake Michigan. (Tr. 684). A preponderance of the evidence establishes that the thermal effluent limitations are sufficient to assure the protection and propagation of a balanced indigenous population of aquatic life in the waters.

Mercury Discharge

Combining Wastestreams
(*Issue I*)

About 10% of the mercury contained in the coal that will be used to fuel the SCPC units will be discharged to the environment. Most of that -- about 63.5 pounds of mercury per year -- will be discharged to the air through the stacks. About 1.3 pounds will be discharged in the wastewater generated by the wet flue gas desulferization (FGD) system, which is an air pollution control component of the SCPC units.

The treated wastewater from the FGD system will be combined with the wastewater from the cooling water intake system for the SCPC units before the combined waste streams (non-contact cooling water and FGD process wastewater) are discharged to Lake Michigan at outfall 013.

The DNR determined that the lowest mercury concentrations in the FGD wastewater effluent should not exceed 1.5 ug/L (parts per billion) through use of the best available control technology for the FGD system. (Ex. 40, p. 8). The Petitioners do not challenge this determination.

The Permit imposes the applicable water quality based effluent limitation for mercury at 1.3 ng/L (parts per trillion), which is the most stringent water quality criterion for mercury in Lake Michigan. Wis. Admin. Code § NR 105.07.

The FGD effluent, if discharged directly to Lake Michigan before being combined with the non-contact cooling water, would violate the Permit's effluent limitation for mercury. Only after combining the FGD effluent with the heat-contaminated non-contact cooling water can the effluent from the FGD be discharged to Lake Michigan in conformance with the Permit's effluent limitation for mercury.

The Petitioners contend that allowing Wisconsin Electric to combine the FGD effluent with the effluent from the cooling water intake system in order to achieve compliance with the Permit's effluent limitation for mercury is unlawful.

The Petitioners have not identified any controlling regulatory standard or practice that would prohibit Wisconsin Electric from combining multiple waste streams within the

ERGS before discharging a combined effluent that meets all prescribed effluent limitations. Moreover, the evidence presented on the matter shows that the DNR measures compliance with water quality based effluent limitations at the point of discharge to a body of water. The DNR has issued WPDES permits to numerous facilities that combine different production waste streams before discharge, resulting in compliance with water quality based effluent limitations that otherwise might not be achieved if the waste streams were not combined before discharge. (Tr. 295). There is no evidence that the DNR has measured the point of compliance for a water quality based effluent limitation anywhere but at the point of discharge to a water body.

The Permit reasonably measures compliance with the mercury effluent limitations at the point of discharge.

Antidegradation
(*Issue J*)

The discharges of mercury from the ERGS will constitute an increased loading of mercury to Lake Michigan. Mercury is specified as a bioaccumulative chemical of concern ("BCC") under Chapter NR 105, Wis. Admin. Code. By operation of sec. NR. 207.05(4)(b), this discharge of mercury to Lake Michigan will result in a "significant lowering of water quality." As a consequence, Wisconsin Electric was required by the DNR's "Water Quality Antidegradation" rule, Wis. Admin. Code Chapter NR 207, to demonstrate that this "significant lowering of water quality" could not be prevented by the use of "pollution control alternatives." Section NR. 207.04 of the Antidegradation Rule provides in pertinent part as follows:

> **NR 207.04 Fish and aquatic life waters.**
>
> **(1)** APPLICATION INFORMATION. Persons proposing a new or increased discharge to fish and aquatic life waters shall provide documentation for the following:
>
> * * * *
>
> (d) If the new or increased discharge is found to result in a significant lowering of water quality . . . the permit applicant shall demonstrate the following:
>
> 1. The proposed significant lowering of water quality cannot be prevented in a cost effective manner by the following types of pollution control alternatives:
>
> a. Use of conservation measures.
>
> b. Use of recycling measures.
>
> c. Use of other applicable wastewater treatment process or operational changes.
>
> d. Use of source reduction measures.
>
> e. Use of other pollution minimization alternatives.

Wisconsin Electric limited its antidegradation analysis to pollution control alternatives that could be applied to the proposed SCPC units, which were the type of generating units that the PSC had authorized Wisconsin Electric to construct and operate by its CPCN issued in November 2003. The Petitioners claim that the antidegradation showing was deficient because it did not consider substituting the SCPC electricity generating units with IGCC electricity generating units as a "pollution control alternative" to the mercury discharge from the SCPC units. Effluent from an IGCC unit would not contain any mercury.

The DNR did not require Wisconsin Electric to include IGCC for the stated reasons that the "permit is predicated on the Wisconsin Public Service Commission's decision that authorized the construction of a coal-burning power plant," and that "[t]here is no regulatory basis for the Department to evaluate alternative manufacturing processes under the WPDES permitting authority." (Ex. 5, p. 18).

The DNR correctly interpreted section NR 207.04(1)(d)1 to preclude consideration of IGCC units among any of the five types of "pollution control alternatives" identified in that provision. Substitution of IGCC units for the SCPC units cannot be fairly considered to be within the scope of the term "conservation measure" (subparagraph 1.a) or "recycling measure" (subparagraph 1.b) for the reduction of the mercury discharge.

Nor could such substitution of IGCC units for the proposed SCPC units be fairly considered to be within the scope of the "use of other applicable wastewater treatment process or operational changes" (subparagraph 1.c.) for reduction of the mercury discharge from the ERGS facility. An IGCC unit would not entail the use of an "other applicable wastewater treatment process" -- no wastewater treatment process for mercury is applicable to an IGCC unit because an IGCC unit would not cause mercury to be added to any wastewater. The term "operational changes" in this subparagraph is a reference to such operational changes to the wastewater treatment process, not to a wholesale change in the nature of the facility.

The substitution of IGCC units for the SCPC units cannot fairly be deemed to be within the scope of the terms "source reduction measures" or "other pollution minimization alternatives," as those terms are used in section NR 207.04(1)(d)1.d. & 1.e., for the reduction of the mercury discharge from the SCPC units. This is because SCPC and IGCC electricity generating units employ profoundly different processes to produce electricity from coal, and they consequently require almost completely different physical plants.

The main commonality an IGCC unit has with an SCPC unit is that an IGCC unit may use coal as its fuel stock. An SCPC unit combusts pulverized coal to create electricity. An IGCC facility "gasifies" the coal in a chemical reaction, and thereafter combusts the "syngas" product to power its combustion turbines. An SCPC unit is a

refined version of a coal combustion boiler, while an IGCC facility is a combination of a coal gasification plant and combined cycle gas turbine.

Virtually all components of IGCC units and SCPC units are mutually exclusive. An IGCC unit includes a number of components that do not exist in a SCPC plant, including the following: an air separation unit; three oxygen-blown coal gasifiers; two combustion turbines; two heat recovery steam generators; a steam turbine generator; an acid-gas recovery unit; a sulfuric acid production facility; a coal-slurry/preparation facility; slag handling equipment; a storage facility for the slag; and a 200-foot tall gas flare. The following components of an SCPC unit do not exist in an IGCC unit: components of the power block (steam generator, steam turbine, generator, and condenser); the air quality control equipment (the selective catalytic reduction system, baghouse, flue gas scrubber, wet precipitator, the limestone system, the stack); and the byproduct and waste handling systems (gypsum system, bottom and fly ash systems). The footprint of an IGCC unit at the OCER site would be about 350% greater than that of an SCPC unit.

Substitution of an IGCC unit for an SCPC unit would constitute far more than the use of a mere "source reduction measure" or employment of "other pollution minimization alternatives" to reduce the mercury discharge. Rather, it would require Wisconsin Electric to build a profoundly different facility for the generation of electricity. If consideration of IGCC unit were required in an antidegradation analysis for an SCPC unit, then so would the myriad other forms of electricity generation, such as natural gas, nuclear, wind, etc. The antidegradation rule does not empower the DNR to include IGCC or any other of these alternate means of generating electricity in an antidegradation analysis under section NR 207.04(1)(d)1.

The Petitioners assert that if IGCC were determined to be an appropriate "pollution control alternative" under section NR 207.04, this would not be tantamount to the DNR directing that Wisconsin Electric construct IGCC units in lieu of SCPC units, but rather would merely establish the effluent limitation for mercury consistent with the construction of an IGCC facility. This argument is unpersuasive. The very nature of the antidegradation analysis involves determining that a specific measure or action would reduce the discharge of a certain pollutant. If IGCC units were found to be a "pollution control alternative" to the mercury that an SCPC unit would discharge, it would become impossible to construct an SCPC unit and meet the effluent limitation.

The DNR properly determined that it lacked the authority under Wis. Admin. Code Chap. 207 to direct Wisconsin Electric to include IGCC electricity generation as a type of "pollution control alternative" to the discharge of mercury from the proposed SCPC plants in its antidegradation analysis.

CONCLUSIONS OF LAW

1. The Wisconsin Division of Hearings and Appeals has authority to hear contested cases and enter necessary orders in the review of WPDES permits referred to the Division by the Department of Natural Resources pursuant to Wis. Stat. §§ 227.43(1)(b) and 283.63(1).

2. The DNR administers a pollutant discharge elimination system program consistent with the requirements of the federal Clean Water Act. Wis. Stat. § 283.001(2). The DNR regulates the discharges of pollutants into the waters of the state through the Wisconsin Pollutant Discharge Elimination System ("WPDES") permitting program. Wis. Stat. § 283.31(1-7); Wis. Admin. Code § NR 200-299.

3. The WPDES Permit issued for the Oak Creek-Elm Road plant was issued exclusively under state law. (Tr. 229:2-7)

4. The proposed cooling water intake structure constitutes the best technology available to minimize entrainment and impingement under the standards of the Phase II rule. Wis. Stat. § 283.31(6); 40 C.F.R. §§ 125.90 to 125.99.

5. The proposed cooling water intake structure can reasonably be expected to meet the 60% entrainment reduction standard of the Phase II rule. 40 C.F.R. §125.98(b)(I)(iv).

6. Use of wedge-wire screens with a maximum through-screen design velocity of less than 0.5 feet per second for the proposed intake constitutes BTA for impingement. 40 C.F.R. § 125.94(a)(1)(ii). The proposed intake can reasonably be expected not to exceed a through-screen velocity of 0.5 fps. 40 C.F.R. §125.98(b)(I)(iv).

7. The Permit reasonably allows use of an emergency intake that is not controlled for impingement or entrainment up to 3.3% of the time in any twelve-month period. Wis. Stat. § 283.31(6).

8. The inclusion in the Permit of a schedule for submission of the DCTP, TIOP, and VMP was consistent with U.S. EPA's guidance for the submission of these reports under the Phase II rule and was not an erroneous exercise of the DNR's discretion under Wis. Stat. § 283.31(6).

9. The thermal effluent limitations in the Permit are more stringent than necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife. Wis. Stat. § 283.17(1).

10. Outfall 013 is the point for determining compliance with the water quality based effluent limitation for mercury. DNR lacks authority to impose a water-quality based effluent limit on internal plant wastewater streams.

11. The DNR has no authority to require Wisconsin Electric to include IGCC process technology as part of its antidegradation demonstration for mercury under Wis. Admin. Code Chapter NR 207.

ORDER

WHEREFORE, IT IS ORDERED that the Department's issuance of WPDES Permit No. WI-0000914-07-0 is sustained.

Dated at Milwaukee, Wisconsin July 10, 2006.

STATE OF WISCONSIN
DIVISION OF HEARINGS AND APPEALS
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By: _____
William S. Coleman, Jr.
Administrative Law Judge

NOTICE

Set out below is a list of alternative methods available to persons who may desire to obtain review of the attached decision of the Administrative Law Judge. This notice is provided to insure compliance with Wis. Stat. § 227.48 and sets out the rights of any party to this proceeding to petition for rehearing and administrative or judicial review of an adverse decision.

1. Any party to this proceeding adversely affected by the decision attached hereto has the right within twenty (20) days after entry of the decision, to petition the secretary of the Department of Natural Resources for review of the decision as provided by Wisconsin Administrative Code § NR 2.20. A petition for review under this section is not a prerequisite for judicial review under Wis. Stat. §§ 227.52 and 227.53.

2. Any person aggrieved by the attached order may within twenty (20) days after service of such order or decision file with the Department of Natural Resources a written petition for rehearing pursuant to Wis. Stat. § 227.49. Rehearing may only be granted for those reasons set out in Wis. Stat. § 227.49(3). A petition under this section is not a prerequisite for judicial review under Wis. Stat. §§ 227.52 and 227.53.

3. Any person aggrieved by the attached decision which adversely affects the substantial interests of such person by action or inaction, affirmative or negative in form is entitled to judicial review by filing a petition therefor in accordance with the provisions of Wis. Stat. §§ 227.52 and 227.53. Said petition must be filed within thirty (30) days after service of the agency decision sought to be reviewed. If a rehearing is requested as noted in paragraph (2) above, any party seeking judicial review shall serve and file a petition for review within thirty (30) days after service of the order disposing of the rehearing application or within thirty (30) days after final disposition by operation of law. Since the decision of the Administrative Law Judge in the attached order is by law a decision of the Department of Natural Resources, any petition for judicial review shall name the Department of Natural Resources as the respondent, and shall be served upon the Department of Natural Resources. Persons desiring to file for judicial review are advised to closely examine all provisions of Wis. Stat. §§ 227.52 and 227.53, to insure strict compliance with all its requirements.