A.2 Comments and Responses

Comments in this section are grouped in the following categories:

A.2.1 General Comments Concerning License Renewal and Its Processes

A.2.2 Comments Concerning Air Quality Issues

A.2.3 Comments Concerning Water Quality Issues

A.2.4 Comments Concerning Aquatic Ecology, Terrestrial Ecology, and Threatened and Endangered Species Issues

A.2.5 Comments Concerning Human Health Issues

A.2.6 Comments Concerning Postulated Accident Issues

A.2.7 Comments Concerning Uranium Fuel Cycle and Waste Management Issues

A.2.8 Comments Concerning Decommissioning Issues

A.2.9 Comments Concerning Alternatives

A.2.10 Editorial Comments

A.2.11 Comments Concerning Issues Outside the Scope of License Renewal

A.2.1 General Comments Concerning License Renewal and Its Processes

Comment: I find that the supplement has acceptably evaluated the environmental impacts of license renewal for the Point Beach Nuclear Plant. I recommend that the report be issued as final. (PB-CB-1)

Response: *The comment relates to the license renewal process at PBNP Units 1 and 2, and is general in nature. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

Comment: Based on the review of the Point Beach Nuclear Plant draft SEIS, the U.S. EPA has rated the project and document "Environmental Concerns- insufficient information" (EC-2). This means that the U.S. EPA has identified environmental impacts that should be avoided and suggests corrective measures which may require changes to the preferred alternative or mitigation measures that can reduce impacts. The rating also means that the draft SEIS needs further information to fully assess environmental impacts of the preferred alternative or other alternatives that are reasonably available to the project. Our main concerns include: adequacy and clarity of the radiological impacts and risk estimates, entrainment of fish and shellfish at early life stages, impacts of foreseeable power uprates, and impacts to ground water. (PB-CD-1)

Response: *The comment relates to the license renewal process at PBNP Units 1 and 2, and is general in nature. Each of the specific comments provided by the commenter regarding the concerns noted above is addressed individually elsewhere in this Appendix.*

A.2.2 Comments Concerning Air Quality Issues

Comment: This sentence does not seem to be factually correct. More than one tornado has caused major property damage in the state. (PB-CC-13)

Response: *The comment is noted. The language of Section 2.2.4 indicates that a damaging tornado has occurred in the vicinity of the site in the past, specifically in Green Bay in 1959. As a tornado has occurred within a fifty mile radius of the plant in the past (1959), it is possible to have a tornado again in the future in the vicinity of PBNP, albeit with a low likelihood. The text in Section 2.2.4 has been changed to reflect this information.*

Comment: Section 8.2.1.1, Closed Cycle Cooling System, page 8-17, under the bullet Uranium and thorium. A better comparison or quantification of the relative concentrations of the uranium and thorium to the background levels needs to be provided. As is, this presentation is confusing. (PB-CD-11)

Response: *Uranium and thorium occur naturally in coal. Uranium concentrations are generally in the range of 1 to 10 parts per million. Thorium concentrations are generally about 2.5 times greater than uranium concentrations. Any deposition of uranium or thorium as a result of the burning of coal would add to natural background levels. For the basis of comparing alternatives, the staff does not perform a complete assessment of impacts for the alternatives, but rather a qualitative and, if possible, a quantitative comparison. The text in Section 8.2.1.1 has been changed to reflect this information more clearly.*

A.2.3 Comments Concerning Water Quality Issues

Comment: Section 2.1.3, Cooling and Auxiliary Water Systems, page 2-4 to 2-6. There is no description of the actual intake or outflow amounts in this system. We recommend including this specific information or explaining the reasons for excluding it. (PB-CD-2)

Response: *The comment is noted. The text in Section 2.1.3 has been changed to include this information.*

Comment: As part of its July 1, 2004 scoping comments, the U.S. EPA recommended the draft SEIS describe site hydrogeology, on-site drinking water wells, drinking water quality, and treatment of the drinking water. The U.S. EPA also recommended that NRC evaluate the potential for ground water contamination under the license renewal period, especially with regard to the abandoned settling pond. The draft SEIS responded to these comments by stating that the water issues were found to be Category 1 issues (no additional site-specific analysis required) during development of the Generic Environmental Impact Statement (GEIS). It is not clear how this issue can be a Category I issue, because it is site-specific; that is, it does not seem likely that other plants have the same groundwater regime and configuration of drinking water wells and an abandoned retention pond on site (see the first criteria for

Category 1 determination). Chapter 4.5, Groundwater Use and Quality, states that no new and significant information is found; however, the section does not provide information about groundwater at the site. Without hydrological information or ground water quality information, the SEIS does not successfully describe the impact of extended plant operation, including management of the abandoned settling pond, on groundwater and drinking water. Therefore, we recommend that the SEIS include an evaluation of ground water conditions and potential impacts of extended plant operation as part of the license renewal SEIS for this site. (PB-CD-17)

Response: *This EIS is, by NRC rules, a supplement to the GEIS. It relies to a great degree on impact analyses presented in the GEIS (NUREG-1437), including evaluations of groundwater use and quality. Every site is unique, but many environmental issues are not unique. As a supplement, this SEIS does not need to repeat all analyses and conclusions of the GEIS. Appropriate sections of the GEIS are referenced, when necessary. Volumes 1 and 2 of the GEIS are available at http://www.nrc.gov/reading-rm/doc-collection/nuregs/staff/sr1437/v1/ and http://www.nrc.gov/reading-rm/doc-collection/nuregs/staff/sr1437/v2, respectively.*

Site hydrogeology, potential for groundwater contamination, current status and issues related to the former settling pond, and other related information was reviewed by the staff during the preparation of the draft SEIS. This review included an evaluation as to whether any new and significant information existed that would warrant reconsideration of the conclusions reached in the GEIS with regard to groundwater. The staff determined that potential impacts on groundwater quality would be SMALL, as discussed in Section 4.5. Communications with the Wisconsin Department of Natural Resources (WDNR) confirmed that the WDNR does not have concerns regarding the potential for groundwater contamination at PBNP. Absent new and significant information, the NRC is to rely on the findings of the GEIS that are codified in NRC regulations as Category 1 issues. Nevertheless, text has been changed in Sections 2.2.2, 2.2.3, and 4.5 to describe more fully the conduct and results of the staff's review of groundwater quality issues, in response to the comment.

A.2.4 Comments Concerning Aquatic Ecology, Terrestrial Ecology, and Threatened and Endangered Species Issues

Comment: Per WDNR, Lake Michigan is not on the fish advisory due to mercury. (PB-CC-28)

Response: *The comment is noted. The statement that mercury and polychlorinated biphenyls (PCBs) are the main contaminants that account for fish advisories was meant as a generalized statement that referred to the entire State. The text has been changed in Section 2.2.5 to clarify that fish advisories within Lake Michigan apply only to PCBs.*

Comment: WEPCO designed and installed the fish deterrent system under a compliance agreement with the U.S. Fish & Wildlife Service. (PB-CC-31)

Response: *The comment is noted. The text in Section 4.1.2 has been changed to reflect the information provided in the comment.*

Comment: The U.S. EPA's new rules under Section 316(b) of the Clean Water Act (in 40 CFR Part 125) require Point Beach Nuclear Plant to reduce its entrainment of fish and shellfish in early life stages. Although the draft SEIS identifies current measures already in place to mitigate for entrainment (such as intake location and a high-frequency fish deterrent system), it is not clear that these measures will satisfy the rule's requirements. We recommend the final SEIS not include the following statement: "The staff concludes that the potential impacts of entrainment of fish and shellfish in the early life stages into the cooling water intake system are SMALL, and further mitigation measures are not warranted." This conclusion is premature pending the results of the study required by the Wisconsin Department of Natural Resources (WDNR) to comply with the new regulations. The WDNR will use the results of the study to determine whether other measures are necessary and need to be reflected in the plant's next discharge permit. Instead, the final SEIS could discuss how the current entrainment mitigation measures may function as a compliance alternative under the rule and achieve the targeted performance standard for the facility. (PB-CD-15)

Comment: The Draft Supplement 23 discusses the entrainment and impingement of birds, fish, and shellfish as a result of the continued operation of the cooling water intake system and indicates that entrainment and impingement of fish and shellfish will also be addressed during renewal, of the plant's National Pollution Discharge Elimination System permit. The permit renewal is under the authority of the Wisconsin Department of Natural Resources (DNR) and will be subject to the Environmental Protection Agency's recently published 316(b) Phase II regulations. The Service will coordinate with the Wisconsin DNR on the review of the data related to renewal of the permit. (PB-CE-3)

Response: *Chapters 2 and 4 of this SEIS discuss how PBNP, like all thermal electric power plants having surface water discharges, is subject to the compliance requirements of the Clean Water Act, including the recently revised Section 316(b) Phase II regulations. These are and will continue to be administered at PBNP by the State of Wisconsin Department of Natural Resources (WDNR) as part of the PBNP Wisconsin Pollutant Discharge Elimination System (WPDES) permit, irrespective of the outcome of the license renewal action that is the subject of this SEIS.*

The final rule issued by EPA on February 16, 2004 (commonly referred to as the Clean Water Act Section 316(b) Phase II regulations), establishes requirements to minimize adverse effects to fish and shellfish from cooling water intake structures at large power plants. Facilities will have several compliance alternatives to meet the performance standards defined in the final rule. The alternatives include demonstrating that the existing cooling water intake configuration provides adequate protection, selecting additional fish protection technologies (such as screens with fish return systems), and using restoration measures. Additional information regarding the rule can be found at http://www.epa.gov/waterscience/316b/. The rule became effective sixty (60) days after the date of its publication in the Federal Register (July 9, 2004, 69 FR 41575). The rule provides a period of up to approximately 4 years from the effective date of the regulation for facilities to determine the compliance alternative to be pursued, and to complete studies or facility modifications, as necessary. PBNP will be subject to the provisions of the final rule and will determine which of the compliance alternatives it will be pursuing.

As stated above, compliance with this rule is accomplished as part of each regulated facility's implementation of the Clean Water Act National Pollutant Discharge Elimination System

(NPDES) program. For PBNP, this program is administered by the WDNR, who reissued the PBNP WPDES permit on July 1, 2004. PBNP submitted their initial deliverable to the WDNR in response to the Section 316(b) Phase II requirements on December 24, 2004. WDNR, in their review of PBNP's Phase II demonstration, will clarify how the proposed mitigation measures would function as a compliance alternative and how the changes to the facility will meet the targeted performance standard.

As part of this environmental review, the NRC staff consulted with WDNR regarding PBNP's compliance with WPDES requirements, including potential changes in response to the revised Section 316(b) Phase II regulations. For the purposes of this license renewal action, the NRC staff has determined that the impacts of current and reasonably foreseeable future PBNP operations related to entrainment would be SMALL. Nevertheless, if at some time in the future the WDNR requires PBNP to implement additional mitigation measures under the new regulations, any entrainment impacts would be reduced further. The comment does not provide new and significant information and, therefore, will not be evaluated further.

Comment: The Generic EIS and Draft Supplement 23 adequately discuss most of the impacts of continued operations of the plant on fish and wildlife resources, as well as species protected by the Endangered Species Act. (PB-CE-1)

Response: *The comment relates to aquatic ecology, terrestrial ecology, and threatened and endangered species issues. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

Comment: With regard to entrainment and mortality of birds, the Draft Supplement 23 correctly states that the applicant has been reporting bird entrainment and mortality to the Service on an annual basis. While the intent of the previous modification of the intake structure was to eliminate any further mortality of cormorants (see page 2-27), the reports from June 1, 2001, to December 31, 2003, indicate bird entrainment and mortality has continued (see page 4-18). Service personnel visited the site in 2004 and viewed bird carcasses that had undergone appreciable decomposition after intake entrainment. The carcasses were tentatively identified as those of grebes and other waterfowl. The Service will continue to work with the applicant in addressing this issue. (PB-CE-4)

Response: *The comment relates to impingement of waterfowl at PBNP. At PBNP, waterfowl have been impinged (i.e., been trapped) against the traveling screens but have not been reported to pass through the screens into the plant's cooling system. Entrainment is the process whereby an organism small enough to pass through the traveling screens passes through the plant's cooling system. No entrainment of waterfowl has been reported. Text in Section 4.1.2 has been changed to address impingement of waterfowl.*

Comment: The fourth species considered in the BA is the piping plover. Although no piping plovers have been observed on the project site, there is designated critical habitat for the plover located to the south of the plant and there is also suitable habitat for the plover on the plant grounds. The Great Lakes piping plover population is rapidly expanding, and there is some probability that plovers may attempt to use the beaches on the plant property in the near future. The Service and the Commission are continuing informal consultation concerning the specifics

of annual surveys the applicant has agreed to conduct for plover use of the plant grounds over the life of the license renewal period. The Department appreciates the willingness of the applicant to cooperate with the agencies in protection of the plover. (PB-CE-2)

Response: *The comment relates to aquatic ecology, terrestrial ecology, and threatened and endangered species issues. The staff has evaluated the potential impact likely to result from operation of the PBNP for an additional 20 years. This evaluation was documented in a biological assessment (BA) submitted to the U.S. Fish and Wildlife Service (FWS) on November 22, 2004. A supplement to the BA was submitted on April 21, 2005, that included a detailed framework for piping plover monitoring and reporting. In a letter dated May 5, 2005, the FWS concurred with the staff's determination that the proposed action may affect but would not adversely affect the piping plover, thus concluding consultations with the NRC under Section 7 of the Endangered Species Act. The text in Section 4.6.2 has been revised to reflect this information.*

A.2.5 Comments Concerning Human Health Issues

Comment: Section 8.2.1.1, Closed-Cycle Cooling System, page 8-19, under Human Health. We recommend the draft SEIS either cite specific dose estimates for this alternative or provide estimates that use currently available data or that can be logically extrapolated from currently available information. We further recommend evaluating any dose estimates that fall in the risk range of 10-6 to 10-4 or greater for potential public health risk impacts and noting specific doses that are subject to regulatory requirements. This information would be useful to the public in comparing alternatives. (PB-CD-12)

Response: *The impacts to air quality and human health resulting from the operation of a coal-fired plant are discussed in general in the GEIS (NUREG-1437). The GEIS acknowledges public health risks from emphysema and cancer would likely result from coal-fired power plant emissions of regulated pollutants and radionuclides. While it is possible to estimate the dose from a coal-fired power plant, many assumptions would be required, including location and makeup of the affected population. For the basis of comparing alternatives, the staff does not perform a complete assessment of impacts of the alternatives, but rather a qualitative, and, if possible, a quantitative comparison. Because the location of an alternative to the PBNP and the surrounding population distribution for this indeterminate location is purely speculative, an estimated dose would have little real meaning. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

Comment: Section 8.2.3.1, Closed-Cycle Cooling System, page 8-44, under bullet point Human Health. Human-health impacts need to be specified, rather than merely referenced to provide a clearer understanding of the risk determination in this section of the document. (PB-CD-14)

Response: *The SEIS relies to a great degree on impact analyses presented in the GEIS (NUREG-1437) by the use of a process called tiering. The concept of tiering was promulgated by CEQ in 1978. As a supplement, this SEIS relies on tiering from the GEIS and does not need to repeat all analysis and conclusions presented in the GEIS. Appropriate sections of the GEIS are referenced, when necessary. Human health impacts are presented in 10 CFR Part 51, Appendix B, Table B-1. For ease of review, this table can be found at*

http://www.nrc.gov/reading-rm/doc-collections/cfr/part051/part051-appb.html. More detailed information on this topic can be found in Volumes 1 and 2 of the GEIS, which are available at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/v1/ and http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/v2/, respectively . The comment does not provide new and significant information and, therefore, will not be evaluated further.

A.2.6 Comments Concerning Postulated Accident Issues

Comment: The HEP that the NRC recommends to reduce by implementing an automatic pump trip on low RWST level does not include the action to trip the pumps as a critical action because there is so much time available to complete it. (The first pump is tripped at 60% RWST level and additional actions to swap to containment sump recirculation are initiated at 34% RWST level.) There would, therefore, be no measurable benefit to implementing this modification at Point Beach to offset the cost. There is the potential of increasing the probability of a spurious pump trip from the additional low RWST level pump trip circuitry. This spurious pump trip would actually result in a slight risk increase if the modification were implemented. SAMA 126 does not appear cost beneficial. (PB-CC-37 through PB-CC-42)

Response: *Text in Chapter 5 and Appendix G has been modified in response to the comments.*

Comment: External events are considered in this analysis by increasing the internal CDF by a factor of (1 + CDF-ext/CDF-int), NOT by a factor of 2.0. This is discussed in the Analysis File prepared documenting this study. Factor of (1 + CDF-ext/CDF-int) not 2.0. (PB-CC-43 through PB-CC-48)

Response: *Text in Chapter 5 and Appendix G has been modified in response to the comments.*

Comment: Change % Contribution from "12.3" to "12.2." (PB-CC-49, PB-CC-50)

Response: *Tables in Chapter 5 and Appendix G have been modified in response to the comments.*

Comment: Change population dose for "Other Core Melt Sequences" in Table 5-4 from "1.04 x 10-2" to ""1.04 x 10-1." (PB-CC-51)

Response: *Table 5-4 has been modified in response to the comment.*

Comment: Change population dose for "Other Core Melt Sequences" in Table G-2 from "0.0104" to "0.104." (PB-CC-52)

Response: *Table G-2 has been modified in response to the comment.*

Comment: Change "containment ISLOCA" to "ISLOCA." (PB-CC-53)

Response: *Text in Appendix G has been modified in response to the comment.*

Comment: Paragraph is not correct. This seems to be a misinterpretation of response to RAI 10d. An accurate description of the RAI response is provided on Page G-28, lines 17-31. (PB-CC-54)

Response: *Text in Appendix G has been modified in response to the comment.*

Comment: Change "maximum allowable benefit" to "maximum attainable benefit." (PB-CC-55)

Response: *Text in Appendix G has been modified in response to the comment.*

Comment: Section 5.2.2 Estimate of Risk, pages 5-5, 5-6. The draft SEIS states: "The baseline core damage frequency (CDF) for the purpose of the SAMA evaluation is approximately 3.59 x 10-5 per year. This CDF is based on the risk assessment for internally initiated events. NMC did not include the contribution to risk from external events within the PBNP risk estimates; however, it did account for the potential risk reduction benefits associated with external events by increasing the estimated benefits for internal events by a factor of 2.0." We recommend evaluating and presenting risk estimates from both internal and external events. In addition, given the draft SEIS statements referenced above, effects of external events should be included in the risk decision considerations, as necessary, to get an accurate portrayal of the risk of the licensing renewal. If the final SEIS does not incorporate external events into risk calculations or risk decisions, it should provide a rationale for using internally-initiated events only. (PB-CD-7)

Response: *Risk estimates for both internal and external events are presented and discussed in Section G.2 of Appendix G of this SEIS. The risk from external events at PBNP is lower than from internal events (approximately 1.3 x 10-5 per year for seismic events and 1.2 x 10-5 per year for fire events, compared to 3.5 x 10-5 per year for internal events). Numerous plant modifications and procedural/training program enhancements to reduce seismic and fire risk have already been implemented at PBNP, leading the staff to conclude in Section G.2.2 that it is unlikely that further modifications would both substantially reduce risk and remain cost beneficial. Nevertheless, as described in Section G.6.2 of Appendix G, the risk associated with external events was specifically accounted for in the risk calculations that were used to support the decision regarding potentially cost-beneficial SAMAs at PBNP.*

A.2.7 Comments Concerning Uranium Fuel Cycle and Waste Management Issues

Comment: Section 6.1, The Uranium Fuel Cycle. page 6-8, under On-Site Spent Fuel. We recommend providing a site-specific evaluation of the volume of spent fuel expected to be generated during the additional period of operation, along with more specific information on site-specific circumstances that may impact or improve the risk values for potential exposures to this spent fuel. In addition, the final SEIS should state whether additional spent fuel storage capacity is already available or will need to be built in the future. If new capacity will be constructed, we recommend the final SEIS discuss what type or storage units are proposed, noting any differences from current operations. (PB-CD-8)

Response: *Each PBNP unit contains 121 nuclear fuel assemblies, and each is currently refueled on a nominal 18-month refueling cycle. Typically, approximately one-third of the fuel assemblies are replaced during each refueling, generating approximately 40 spent fuel*

assemblies per unit. The fresh fuel and remaining assemblies are rearranged in the reactor core in a pattern designed to optimize fuel burnup while remaining within safe operating margins. Over a 20-year license renewal period, refueling would occur about 13 times, generating a total of approximately 530 spent fuel assemblies for each unit. A total of approximately 1060 spent fuel assemblies would be generated over the period of license extension for PBNP Units 1 and 2. Improvements in technology during the 20-year period of license extension could reduce the overall number of containers and/or refueling cycles, thereby making this an upper-bound estimate of potential impact.

Onsite storage and offsite disposal of spent nuclear fuel are Category 1 issues. The safety and environmental effects of long-term storage of spent fuel on site have been evaluated by the NRC and, as set forth in the Waste Confidence Rule at 10 CFR 51.23 (available at http://www.nrc.gov/reading-rm/doc-collections/cfr/part051/part051- 0023.html), the NRC generically determined that "if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in any such reactor and generated up to that time." Section 6.1 provides the most current information available regarding the status of the application for a high-level waste repository. The comment does not provide new and significant information and, therefore, will not be evaluated further.

A.2.8 Comments Concerning Decommissioning Issues

Comment: Section 7.1, Decommissioning, pages 7-2, 7-3, under Radiation Doses. Since the Generic Environmental Impact Statement (GEIS) is based on a forty-year licensing period, an extension of another twenty years would have an impact that needs to be quantified and reported. This information should be included specifically in the final SEIS as part of the risk that would be associated with the license extension. The specific methodology needs to be provided and fully explained. (PB-CD-9)

Response: *Environmental impacts from the activities associated with the decommissioning of any reactor before or at the end of an initial or renewed license are evaluated in the GEIS (NUREG-1437) and in NUREG-0586 Generic Environmental Impact Statement for Decommissioning Nuclear Facilities, Supplement 1, Regarding the Decommissioning of Nuclear Power Reactors, published in 2002. The findings from these two documents are used to support the findings in the SEIS by the use of tiering. Tiering is a process by which agencies eliminate repetitive discussions. The effects of license renewal on the impacts of decommissioning are stated in Chapter 7 of this SEIS. The radiation doses to the public during the period of extended operation are expected to be well below applicable regulatory limits, and the occupational dose would be expected to increase only slightly. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

A.2.9 Comments Concerning Alternatives

Comment: Section 8.2.3.1, Closed -Cycle Cooling System, page 8-40, under Waste. Waste impacts need to be specified rather than merely referenced to provide a clearer understanding of the risk determination made in this section of the document. (PB-CD-13)

Response: *The SEIS relies to a great degree on impact analyses presented in the GEIS (NUREG-1437). As a supplement, this SEIS does not need to repeat all analyses and conclusions of the GEIS. Appropriate sections of the GEIS are referenced, when necessary. Waste impacts are summarized in 10 CFR Part 51, Appendix B, Table B-1. For ease of review, this table can be found at http://www.nrc.gov/reading-rm/doc-collections/cfr/part051/part051-appb.html. More detailed information on this topic can be found in Volumes 1 and 2 of the GEIS, which are available at http://www.nrc.gov/reading-rm/doc-collection/nuregs/staff/sr1437/v1/ and http://www.nrc.gov/reading-rm/doc-collection/nuregs/staff/sr1437/v2, respectively. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

A.2.10 Editorial Comments

Comment: Sentence states that "...NMC will ultimately decide whether the plant will continue to operate..." Remainder of sentence infers that NMC is the "owner". Consider clarifying this sentence to note that NMC submitted the renewal application on behalf of the owner, Wisconsin Electric Power Company (WEPCO). WEPCO will ultimately decide whether the plant will continue to operate. (PB-CC-1)

Response: *Text in the Executive Summary has been modified in response to the comment.*

Comment: Wisconsin is misspelled. (Wisconsin) (PB-CC-2)

Response: *Text in the Executive Summary has been modified in response to the comment.*

Comment: Public meetings were held in March 2005 and not February 2005. (PB-CC-3, PB-CC-5, PB-CC-36)

Response: *Text in the Executive Summary and Sections 1.2.2 and 9.0 has been modified in response to the comment.*

Comment: This paragraph should identify that NMC operates Point Beach but the plant is owned by WEPCO. (PB-CC-4)

Response: *Text in Section 1.0 has been modified in response to the comment.*

Comment: PBNP does not produce electricity for "250 million customers." WEPCO serves only about 1 million customers in total. On page 7-3 of our Environmental Report NMC states that PBNP provides about 25 % of the energy that WEPCO provides to its 1.08 million customers. (PB-CC-6)

Response: *Text in Section 1.3 has been modified in response to the comment.*

Comment: Sentence states that "NMC is required to hold certain Federal, State, and local environmental permits..." Sentence should read "NMC or Wisconsin Electric Power Company are required to hold certain Federal, State, and local environmental permits..." (PB-CC-7)

Response: *Text in Section 1.5 has been modified in response to the comment.*

Comment: Another reference to the fact that the "owners" will ultimately decide whether the plant will continue to operate. Reinforces need to assure that the document identifies WEPCO as the owner. (PB-CC-8)

Response: *Text in Section 1.4 has been modified in response to the comment.*

Comment: This "design rating" discussion would be clearer if it were stated that the reactors were "originally" designed to produce a reactor thermal output of 1518.5 megawatts thermal. This is the language used on page 2-4 lines 9-12. Suggest that the language on page 1-7 be made consistent with that on page 2-4. (PB-CC-9)

Response: *Text in Section 1.3 has been modified in response to the comment.*

Comment: "NMC has provided riprap to control further recession of the shoreline at the site." WEPCO provided the riprap and has the responsibility for controlling beach erosion at the plant. (PB-CC-10, PB-CC-12)

Response: *Text in Sections 2.1.1 and 2.2.5 has been modified in response to the comment.*

Comment: "To counter this erosion, NMC has placed riprap along the most sensitive stretches." WEPCO provided the riprap and has the responsibility for controlling beach erosion at the plant. (PB-CC-11)

Response: *Text in Section 2.2.1 has been modified in response to the comment.*

Comment: Consider deleting the word "annual." The monitoring program is essentially continuous. (PB-CC-14)

Response: *Text in Section 2.2.7 has been modified in response to the comment.*

Comment: Replace "WEPCO assessed doses" with "NMC assessed doses." (PB-CC-15)

Response: *Text in Section 2.2.7 has been modified in response to the comment.*

Comment: Consider replacing "boundary" with "site boundary". (PB-CC-16)

Response: *Text in Section 2.2.7 has been modified in response to the comment.*

Comment: The word "south" appears to be missing from the sentence. The state park is "south" of PBNP. (PB-CC-17)

Response: *Text in Section 2.2.8.3 has been modified in response to the comment.*

Comment: Sentence states that "The PBNP reactor containment structures are encased in vinyl coated steel buildings that are colored to blend with the green and brown Wisconsin countryside." This sentence is a slightly different characterization of a similar sentence on page 2-4 lines 28-29 which states "The containment structures are enclosed in vinyl coated steel buildings that are colored green and brown to blend in with the Wisconsin countryside." The sentence on page 2-39 is more accurate. Page 2-4 should be changed to be consistent with 2-39. (PB-CC-18)

Response: *Text in Section 2.1.2 has been modified in response to the comment.*

Comment: "reactor containment vessels" should be "reactor containment buildings." (PB-CC-19)

Response: *Text in Section 2.2.8.4 has been modified in response to the comment.*

Comment: Inconsistent use of the term "radiological surveillance program" On page 2-32, the term "radiological environmental monitoring program" is used. (PB-CC-20)

Response: *Text in Section 2.2.10 has been modified in response to the comment.*

Comment: The drawing has holes in the fence perimeter at the northeast corner of the switchyard and the southeast corner of the switchyard. Consider revising the drawing to assure fence perimeter accurately reflects current design. (PB-CC-21)

Response: *Figure 2-3 has been modified in response to the comment.*

Comment: The 'Warehouse & Office" building (commonly referred to as the north gatehouse) has been demolished. Consider revising the drawing to depict that this building no longer exists. (PB-CC-22)

Response: *Figure 2-3 has been modified in response to the comment.*

Comment: Section 2.1.5, - Technically, the vacuum fabric filter system does not treat the sanitary waste. The on-site sewage treatment plant treats the sanitary waste such that the effluent is suitable for discharge without further filtration. Therefore, a more accurate statement would be, "A vacuum fabric filter system is now used for treating the wastewater." (PB-CC-23)

Response: *Text in Section 2.1.5 has been modified in response to the comment.*

Comment: Section 2.1.5, - Recommend the revision of the statement that says PBNP is a large quantity generator. It should read that PBNP has historically and may in the future fluctuate between a small quantity and large quantity generator. (PB-CC-24)

Response: *Text in Section 2.1.5 has been modified in response to the comment.*

Comment: Sentence notes that NMC does not plan to add additional full-time staff at PBNP during the period of the renewed license. This is in conflict with a sentence on page 4-31, lines 25-26 which states that PBNP anticipates that no more than 2 new employees will be added during the license renewal term. Recommend that following statement is more correct: "NMC does not plan to add significant additional full-time staff at PBNP during the period of the renewed license." (PB-CC-25)

Response: *Text in Section 2.1.6 has been modified in response to the comment.*

Comment: Section 2.2.3, - The current WPDES permit was actually issued on July 1, 2004, not on July 7, 2004. The permit dates are mentioned in several other places throughout the report, but the 3 other places checked all had the correct date. It appears that just this one instance is incorrect. (PB-CC-26)

Response: *Text in Section 2.2.3 has been modified in response to the comment.*

Comment: Correct permit number is 436034500-P10. (PB-CC-27)

Response: *Text in Section 2.2.4 has been modified in response to the comment.*

Comment: Add the word "nominal." Sentence should note that PBNP reactors are on a nominal 18-month refueling cycle. (PB-CC-29)

Response: *Text in Section 2.2.8.1 has been modified in response to the comment.*

Comment: Section 4.1.1, and Section 4.1.2, - The acoustic fish-deterrent system was installed in 2002, not 2003. (PB-CC-30)

Response: *Text in Sections 4.1.1 and 4.1.2 has been modified in response to the comment.*

Comment: Section 4.1.1, and Section 4.1.2, - The proposal for the study that was due on December 31, 2004, was submitted to WDNR (transmittal letter dated 12/24/04). (PB-CC-32)

Response: *Text in Sections 4.1.1 and 4.1.2 has been modified in response to the comment.*

Comment: There is no mention that the Wisconsin State Historical Society issued a Determination of Eligibility, (sic) State Historic Preservation Office that states that the Alois Biel Fishing Shed is not eligible for the National Register of Historic Places (WSHS letter dated Oct 21, 2004). The draft EIS states that NMC did not recommend the shed for inclusion - but it is the WSHS that makes the final determination. (PB-CC-33)

Response: *Text in Section 4.4.5 has been modified in response to the comment.*

Comment: NMC owns no generating assets. This paragraph should discuss WEPCO's plans for delayed retirement and not NMC's. (PB-CC-34)

Response: *Text in Section 8.2.5.9 has been modified in response to the comment.*

Comment: Sentence states that "...NMC will ultimately decide whether the plant will continue to operate..." Actually, WEPCO will decide if PBNP continues to operate. (See Comment #1 above regarding similar paragraph on Page xv) This summary section should clarify that WEPCO is owner and NMC is operator. (PB-CC-35)

Response: *Text in Section 9.0 has been modified in response to the comment.*

Comment: Section 2.2.7, Radiological Impacts, pages 2-32 through 2-34. The references to the specific environmental standards need to be included (i.e., complete citations including title of the rule or regulation, along with the basic standard for comparison). All environmental standards that could be used for a comparison should be used, including 40 CFR 61 Radionuclide National Emission Standards for Hazardous Air Pollutants values. This will assist the public in verifying values that are cited in the text and evaluating the radiation values. (PB-CD-3)

Response: *The comment is noted. The complete citation for each of the environmental standards referenced in the text is provided in the references for Chapters 2 (Section 2.3) and 4 (Section 4.10). These standards are readily accessible on the Internet to members of the public. Text in Section 2.2.7 has been modified to refer to the basic standard for comparison (a 25-mrem total annual dose).*

Comment: Section 3.0 Environmental Impacts of Refurbishment, page 3-2, Table 3-1. Under the section on Human Health, specific information supporting any assertion that this area needs no further evaluation needs to be presented or more completely cited and described. (PB-CD-4)

Response: *The impact of refurbishment is not considered in the SEIS because, as stated in Section 3.0, the applicant does not plan any refurbishment actions at the site. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

Comment: Section 4.3, Radiological Impacts of Normal Operations, pages 4-27, 4-28, Table 4-5, and following paragraphs in the section. The draft supplemental environmental impact statement (SEIS) cites the location of radiological exposure information in the GEIS, but does not include specific values. The final SEIS should provide the specific exposure values, in addition to the GEIS citation. This will be clearer and assist the public in understanding the project's impacts. (PB-CD-5)

Response: *Radiological impacts of normal operations were considered and evaluated in the GEIS. In this SEIS, issued as a supplement to the GEIS, the staff determined whether any new and significant information is available that would change the conclusion reached in the GEIS (i.e., that these impacts would be small). The comment does not provide new and significant information and, therefore, will not be evaluated further.*

Comment: Section 4.8.3, Cumulative Radiological Impacts, page 4-69, Paragraph 1. Information or procedures used to generate values to support the assertions in this section need to be provided in a clearer manner to support the conclusions. (PB-CD-6)

Response: *Text in Section 4.8.3 has been modified in response to the comment.*

Comment: Section 8.1, No-Action Alternative, page 8-5, under Human Health. This section refers in general terms to reductions in the amount of radioactive material; we recommend adding actual values, which will assist the public in comparing alternatives. (PB-CD-10)

Response: *The conclusion presented in the SEIS is based on the logical argument that cessation of operations at PBNP would result in a reduction in radioactive emissions, since the operations producing those emissions would cease. Since the radiological impacts of normal operations were determined to be SMALL (as discussed in Section 4.3), the impact of the no-action alternative, which would result in the cessation of those operations, would logically be even less, and therefore, also SMALL. The comment does not provide new and significant information and, therefore, will not be evaluated further.*

A.2.11 Comments Concerning Issues Outside the Scope of License Renewal

Comment: My question is: can you address the impact a terrorist attack would have on the Spent Fuel Pool located between the two units at Point Beach Nuclear Plant? Since the World Trade Center complex went down, I think we all realize just what our enemies can do if given the chance. Some people feel it's just a matter of time before another similar attack is attempted. I am asking about this particular component of the Systems at Point Beach because that Spent Fuel Pool seems to me to be relatively exposed since it is housed inside a metal building. I know the actual Reactor Vessels are in a stronger environment, although, I guess so were the Buildings that were destroyed on 9-11. If this plant were ever to be a target; what would catastrophic damage to the Pool mean to us as residents of this area? What would happen to Lake Michigan? How much damage would be permanent? Thank You. (PB-CA-1)

Response: *In response to the September 11, 2001 attacks, the NRC has moved aggressively to further enhance safety and security, and has comprehensively re-evaluated and strengthened security at nuclear power plants and other facilities and for radioactive material it regulates. Actions taken by NRC since September 11, 2001, to protect nuclear facilities from attack are identified in the report entitled Protecting the Nation Since 9-11-01, which is available on the Internet at http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0314/. Major actions include the following:*

- *Ordering plant owners to increase physical security to defend against a more challenging adversarial threat.*
- *Requiring strict site access controls for personnel.*
- *Requiring utilities to conduct vehicle checks at greater stand-off distances.*
- *Improving liaison with Federal, State, and local agencies responsible for protection of the national critical infrastructure through integrated response planning.*
- *Enhancing communication and liaison with the intelligence community.*

- *Improving communication between military surveillance authorities, NRC, and its licensees to prepare power plants and to effect safe shutdown should it be necessary.*
- *Ordering plant owners to improve their capability to respond to events involving explosions or fires.*
- *Enhancing readiness of security organizations by strengthening training and qualification programs for plant security forces.*
- *Enhancing force-on-force exercises to provide a more realistic test of plant capabilities to defend against an adversary force.*
- *Working with national experts to predict the realistic consequences of terrorist attacks on nuclear facilities, including one from a large commercial aircraft. For the facilities analyzed, the results confirm that the likelihood of both damaging the reactor core and releasing radioactive material that could affect public health and safety is low.*

Even in the unlikely event of a radiological release due to terrorist use of a large aircraft against a nuclear power plant, studies indicate that there would be time to implement the required onsite mitigating actions, whether involving the reactor or the spent fuel pool. These results have also validated the offsite emergency planning basis. However, the Commission has determined that malevolent acts, including aircraft impacts, are not considered within the scope of issues to be addressed in its Environmental Impact Statements. Such events cannot be reasonably quantified and are considered speculative. The Commission's position is that NEPA does not require the NRC to evaluate the effects of impacts of a speculative and unquantifiable event.

Comment: The final SEIS should discuss planned or potential power uprates at the Point Beach Nuclear Plant and estimate resulting increases in radiological emissions, spent fuel, and other emissions. Although U.S. NRC's regulations (10 C.F.R Part 51.53(c)(2)) state that an applicant's environmental report need not discuss the demand for power, we consider power uprates to be reasonably foreseeable actions that contribute to a cumulative radiological impact under 40 C.F.R Part 1508.7, and therefore should be discussed in U.S. NRCs final SEIS. (PB-CD-16)

Response: *Although the power uprate information was considered in the SAMA analysis for sensitivity purposes, the Commission has already stated that, for NEPA purposes, a possible future action "must at least constitute a proposal pending before the agency" for it to be considered along with the proposed action, which here is license renewal. The Commission's decision was set forth in the following case: Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2) CLI-02-14, 55 NRC 278, 294-297 (2002). Since NMC does not at this time have a proposal pending before the NRC that relates to a power uprate for PBNP, the SEIS does not address future power uprates in the evaluation of the impacts of license renewal on individual issues or on cumulative impacts. In addition, the Commission in the aforementioned case stated that, for the license renewal action and a separate proposal (such as a power uprate application) to be considered together, both actions must be "interdependent," such that one cannot go forward without the other. License renewal does not depend on a power uprate, and a power uprate does not depend on license renewal;*

each action has separate utility. Should a power uprate amendment request for PBNP be filed, the staff would then consider whether there are cumulative impacts associated with the power uprate.

3/8/05

From: "Daniel Hahn" <dhahn@lsol.net>
To: <PointBeachEIS@nrc.gov>
Date: Sat, Feb 26,2005 8:03 AM
Subject: Question

1/26/05 70FR3744

(1)

PB-CA-1 Hello, My question is: can you address the impact a terrorist attack would have on the Spent Fuel Pool located between the two units at Point Beach Nuclear Plant?

Since the World Trade Center complex went down, I think we all realize just what our enemies can do if given the chance. Some people feel it's just a matter of time before another similar attack is attempted. I am asking about this particular component of the Systems at Point Beach because that Spent Fuel Pool seems to me to be relatively exposed since it is housed inside a metal building. I know the actual Reactor Vessels are in a stronger environment, although, I guess so were the Buildings that were destroyed on 9-11. If this plant were ever to be a target; what would catastrophic damage to the Pool mean to us as residents of this area? What would happen to Lake Michigan? How much damage would be permanent?

Thank You

Daniel Hahn
Two Rivers Wi
dhahn@lsol.net

ESP Review Complete

Template = ADM-013

E-RIDS = ADM-03

Add = D. Immethun (SXF)

RDB Rec'd
3-21-05
9:45 am

J. Kevin McCoy
225 Farley Branch Drive
Lynchburg, Virginia 24502-2364

01/26/05
70 FR 3744
(2)

March 12, 2005

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

Dear Sir or Madam:

PB-CB-1 I have reviewed NUREG-1437, Supplement 23, draft (*Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 23, Regarding Point Beach Nuclear Plant Units 1 and 2, Draft Report for Comment*). I find that the supplement has acceptably evaluated the environmental impacts of license renewal for the Point Beach Nuclear Plant. I recommend that the report be issued as final.

Sincerely,

J. Kevin McCoy

J. Kevin McCoy

SISP Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = S. Imboden (SKF)

NMC
Committed to Nuclear Excellence

Point Beach Nuclear Plant
Operated by Nuclear Management Company, LLC

April 11, 2005

NRC 2005-0042
10 CFR 54

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
License Nos. DPR-24 and DPR-27

Comments on Draft NUREG-1437 Supplement 23
Regarding the Point Beach Nuclear Plant License Renewal Application
(TAC Nos. MC2049 and MC2050)

By letter dated February 25, 2004, Nuclear Management Company, LLC (NMC), submitted the Point Beach Nuclear Plant (PBNP) Units 1 and 2 License Renewal Application (LRA). On January 13, 2005, the Nuclear Regulatory Commission (NRC) published for comment NUREG-1437 Supplement 23, "Generic Environmental Impact Statement for License Renewal Of Nuclear Plants, Supplement 23, Regarding Point Beach Nuclear Plant Units 1 and 2." The enclosure to this letter contains NMC's comments on this Supplement.

Should you have any questions concerning this submittal, please contact Mr. James E. Knorr at (920) 755-6863.

This letter contains no new commitments and no revisions to existing commitments.

Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosure

A093

6590 Nuclear Road • Two Rivers, Wisconsin 54241
Telephone: 920.755.2321

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

COMMENTS ON DRAFT NUREG-1437 SUPPLEMENT 23
REGARDING POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION

The following information is provided to comment on the draft NUREG-1437 Supplement 23 regarding the Point Beach Nuclear Plant (PBNP) License Renewal Application (LRA).

Specific Comments

	Comment Number	Page	Reference Lines	Comment
PB-CC-1	1	xv	7-9	Sentence states that ".....NMC will ultimately decide whether the plant will continue to operate...." Remainder of sentence infers that NMC is the "owner". Consider clarifying this sentence to note that NMC submitted the renewal application on behalf of the owner, Wisconsin Electric Power Company (WEPCO). WEPCO will ultimately decide whether the plant will continue to operate.
PB-CC-2	2	xv	24 & 34	Wisconsin is misspelled. (Wiscsonsin)
PB-CC-3	3	xv	34	Public meetings were held in March 2005 and not February 2005.
PB-CC-4	4	1-1	20-22	This paragraph should identify that NMC operates Point Beach but the plant is owned by WEPCO.
PB-CC-5	5	1-7	17	Public meetings were held in March 2005 and not February 2005.
PB-CC-6	6	1-8	4	PBNP does not produce electricity for "250 million customers." WEPCO serves only about 1 million customers in total. On page 7-3 of our Environmental Report NMC states that PBNP provides about 25 % of the energy that WEPCO provides to its 1.08 million customers.
PB-CC-7	7	1-9	3-5	Sentence states that "NMC is required to hold certain Federal, State, and local environmental permits....." Sentence should read "NMC or Wisconsin Electric Power Company are required to hold certain Federal, State, and local environmental permits.....".
PB-CC-8	8	1-8	16-18	Another reference to the fact that the "owners" will ultimately decide whether the plant will continue to operate. Reinforces need to assure that the document identifies WEPCO as the owner.

	Comment Number	Page	Reference Lines	Comment
PB-CC-9	9	1-7	36-39	This "design rating" discussion would be clearer if it were stated that the reactors were "originally" designed to produce a reactor thermal output of 1518.5 megawatts thermal. This is the language used on page 2-4 lines 9-12. Suggest that the language on page 1-7 be made consistent with that on page 2-4.
PB-CC-10	10	2-4	4	*"NMC has provided riprap to control further recession of the shoreline at the site."* WEPCO provided the Riprap and has the responsibility for controlling beach erosion at the plant.
PB-CC-11	11	2-16	19	*"To counter this erosion, NMC has placed riprap along the most sensitive stretches."* WEPCO provided the Riprap and has the responsibility for controlling beach erosion at the plant.
PB-CC-12	12	2-20	26	*"NMC has provided riprap to control further recession of the shoreline at the site."* WEPCO provided the Riprap and has the responsibility for controlling beach erosion at the plant.
PB-CC-13	13	2-19	6-7	This sentence does not seem to be factually correct. More than one tornado has caused major property damage in the state.
PB-CC-14	14	2-32	26	Consider deleting the word "annual." The monitoring program is essentially continuous.
PB-CC-15	15	2-33	21	Replace "WEPCO assessed doses" with "NMC assessed doses"
PB-CC-16	16	2-33	25	Consider replacing "boundary" with "site boundary"
PB-CC-17	17	2-38	32	The word "south" appears to be missing from the sentence. The state park is "south" of PBNP.
PB-CC-18	18	2-39	37-39	Sentence states that "The PBNP reactor containment structures are encased in vinyl coated steel buildings that are colored to blend with the green and brown Wisconsin countryside." This sentence is a slightly different characterization of a similar sentence on page 2-4 lines 28-29 which states "The containment structures are enclosed in vinyl coated steel buildings that are colored green and brown to blend in with the Wisconsin countryside. The sentence on page 2-39 is more accurate. Page 2-4 should be changed to be consistent with 2-39.

	Comment Number	Page	Reference Lines	Comment
PB-CC-19	19	2-40	5-6	"reactor containment vessels" should be "reactor containment buildings"
PB-CC-20	20	2-52	25	Inconsistent use of the term "radiological surveillance program" On page 2-32, the term "radiological environmental monitoring program" is used.
PB-CC-21	21	2-5	Figure 2-3	The drawing has holes in the fence perimeter at the northeast corner of the switchyard and the southeast corner of the switchyard. Consider revising the drawing to assure fence perimeter accurately reflects current design.
PB-CC-22	22	2-5	Figure 2-3	The "Warehouse & Office" building (commonly referred to as the north gatehouse) has been demolished. Consider revising the drawing to depict that this building no longer exists.
PB-CC-23	23	2-11	20	Section 2.1.5, - Technically, the vacuum fabric filter system does not treat the sanitary waste. The on-site sewage treatment plant treats the sanitary waste such that the effluent is suitable for discharge without further filtration. Therefore, a more accurate statement would be, "A vacuum fabric filter system is now used for treating the wastewater."
PB-CC-24	24	2-11	23-31	Section 2.1.5, Recommend the revision of the statement that says PBNP is a large quantity generator. It should read that PBNP has historically and may in the future fluctuate between a small quantity and large quantity generator.
PB-CC-25	25	2-12	18-20	Sentence notes that NMC does not plan to add additional full-time staff at PBNP during the period of the renewed license. This is in conflict with a sentence on page 4-31, lines 25-26 which states that PBNP anticipates that no more than 2 new employees will be added during the license renewal term. Recommend that following statement is more correct: "NMC does not plan to add significant additional full-time staff at PBNP during the period of the renewed license."
PB-CC-26	26	2-18	6	Section 2.2.3, - The current WPDES permit was actually issued on July 1, 2004, not on July 7, 2004. The permit dates are mentioned in several other places throughout the report, but the 3 other places checked all had the correct date. It appears that just this one instance is incorrect.
PB-CC-27	27	2-20	9	Correct permit number is 436034500-P10

	Comment Number	Page	Reference Lines	Comment
PB-CC-28	28	2-21	6-18	Per WDNR, Lake Michigan is not on the fish advisory due to mercury.
PB-CC-29	29	2-34	22	Add the word "nominal." Sentence should note that PBNP reactors are on a nominal 18-month refueling cycle.
PB-CC-30	30	4-13 and 4-16	26 and 40	Section 4.1.1, and Section 4.1.2, - The acoustic fish-deterrent system was installed in 2002, not 2003.
PB-CC-31	31	4-16	40	*"... NMC installed a permanent fish deterrent system around the intake structures ..."* WEPCO designed and installed the fish deterrent system under a compliance agreement with the U.S. Fish & Wildlife Service.
PB-CC-32	32	4-13 and 4-18	14 30-31	Section 4.1.1, and Section 4.1.2, - The proposal for the study that was due on December 31, 2004, was submitted to WDNR (transmittal letter dated 12/24/04)
PB-CC-33	33	4-36	7-8	There is no mention that the Wisconsin State Historical Society issued a Determination of Eligibility, State Historic Preservation Office that states that the Alois Biel Fishing Shed is not eligible for the National Register of Historic Places (WSHS letter dated Oct 21, 2004). The draft EIS states that NMC did not recommend the shed for inclusion - but it is the WSHS that makes the final determination.
PB-CC-34	34	8-49	31-33	NMC owns no generating assets. This paragraph should discuss WEPCO's plans for delayed retirement and not NMC's.
PB-CC-35	35	9-1	5-8	Sentence states that "...NMC will ultimately decide whether the plant will continue to operate.." Actually, WEPCO will decide if PBNP continues to operate. (See Comment #1 above regarding similar paragraph on Page xv) This summary section should clarify that WEPCO is owner and NMC is operator.
PB-CC-36	36	9-1	36	Public meetings were held in March 2005 and not February 2005.

NMC continues to believe that the SAMA 126 would not be cost beneficial. The benefit would be small (only reduce one of the current human error probabilities (HEPs), would incorporate new failure mechanisms) and the cost would be considerable (safety related modifications).

PB-CC-37–42

The HEP that the NRC recommends to reduce by implementing an automatic pump trip on low RWST level does not include the action to trip the pumps as a critical action because there is so much time available to complete it. (The first pump is tripped at 60% RWST level and additional actions to swap to containment sump recirculation are initiated at 34% RWST level.) There would, therefore, be no measurable benefit to implementing this modification at Point Beach to offset the cost. There is the potential of increasing the probability of a spurious pump trip from the additional low RWST level pump trip circuitry. This spurious pump trip would actually result in a slight risk increase if the modification were implemented.

	Comment Number	Page	Reference Lines	Comment
PB-CC-37	37	5-5	23 - 28	SAMA 126 does not appear cost beneficial
PB-CC-38	38	5-9	17 - 28	SAMA 126 does not appear cost beneficial
PB-CC-39	39	G-16	11 – 19	SAMA 126 does not appear cost beneficial
PB-CC-40	40	G-29	25 – 31	SAMA 126 does not appear cost beneficial
PB-CC-41	41	G-31	15 – 16	SAMA 126 does not appear cost beneficial
PB-CC-42	42	G-32	8-13	SAMA 126 does not appear cost beneficial

PB-CC-43–55

External events are considered in this analysis by increasing the internal CDF by a factor of $(1 + CDF_{ext}/CDF_{int})$, NOT by a factor of 2.0. This is discussed in the Analysis File prepared documenting this study.

	Comment Number	Page	Reference Lines	Comment
PB-CC-43	43	5-6,	5	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-44	44	5-8	6	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-45	45	G-27	Table Notes	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-46	46	G-28	9	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-47	47	G-31	31	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-48	48	G-32	2	Factor of $(1 + CDF_{ext}/CDF_{int})$ not 2.0
PB-CC-49	49	5-6	14	Change % Contribution from "12.3" to "12.2".
PB-CC-50	50	5-7	16	Change % Contribution from "12.3" to "12.2".
PB-CC-51	51	G-3	15	Change population dose for "Other Core Melt Sequences" in Table 5-4 from "1.04×10^{-2}" to "1.04×10^{-1}".
PB-CC-52	52	G-4	37	Change population dose for "Other Core Melt Sequences" in Table G-2 from "0.0104" to "0.104".
PB-CC-53	53	G-9	33	Change "containment ISLOCA" to "ISLOCA".
PB-CC-54	54	G-15	31-36	Paragraph is not correct. This seems to be a misinterpretation of response to RAI 10d. An accurate description of the RAI response is provided on Page G-28, lines 17-31.
PB-CC-55	55	G-31	27	Change "maximum allowable benefit" to "maximum attainable benefit".

RDB received 4/25/05

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

1/20/05
70 FR 3744

APR 1 3 2005

REPLY TO THE ATTENTION OF: (4)

B-19J

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C. 20555-0001

Re: **Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 23: Point Beach Nuclear Plant Units 1 and 2, Draft Report (CEQ No. 050021)**

Dear Sir or Madam:

In accordance with Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (U.S. EPA) has reviewed the Draft Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 23 (SEIS): Point Beach Nuclear Plant Units 1 and 2. According to the draft SEIS, the current operating licenses for Point Beach Units 1 and 2 will expire in October 2010 and March 2013, respectively. The proposed Federal action would renew the current operating licenses for an additional 20 years.

The Nuclear Regulatory Commission (NRC) developed the Generic Environmental Impact Statement (GEIS) to streamline the license renewal process on the premise that environmental impacts of most nuclear power plant license renewals are similar, in most cases. NRC develops facility-specific SEIS documents for individual plants as the facilities apply for license renewal. The U.S.EPA provided comments on the GEIS during its development process in 1992 and 1996.

The Point Beach Nuclear Plant is located in Manitowoc County, Wisconsin, on the shoreline of Lake Michigan. Units 1 and 2 are pressurized light-water reactors. Point Beach Units 1 and 2 each currently produce 1540 megawatts of thermal energy and generate 545 megawatts of electrical power. Each unit is refueled on a 18-month cycle. Plant cooling is provided by a once-through circulating water system that draws and discharges to Lake Michigan. The U.S. EPA participated in a site visit on June 16, 2004 and provided scoping comments dated July 1, 2004.

PB-CD-1 Based on the review of the Point Beach Nuclear Plant draft SEIS, the U.S. EPA has rated the project and document "Environmental Concerns- insufficient information" (EC-2). This means that the U.S. EPA has identified environmental impacts that should be avoided and suggests corrective measures which may require changes to the preferred alternative or

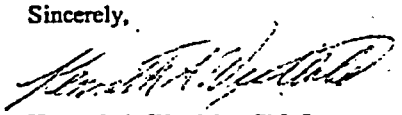
SISP Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = I-bed (SxF)

PB-CD-1 mitigation measures that can reduce impacts. The rating also means that the draft SEIS needs further information to fully assess environmental impacts of the preferred alternative or other alternatives that are reasonably available to the project. Our main concerns include: adequacy and clarity of the radiological impacts and risk estimates, entrainment of fish and shellfish at early life stages, impacts of foreseeable power uprates, and impacts to ground water.

We have enclosed our comments and the U.S. EPA rating system summary. If you have any questions or wish to discuss any aspect of the comments, please contact Anna Miller of my staff at (312) 886-7060.

Sincerely,



Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Science, Ecosystems, and Communities

Enclosures

U.S. Environmental Protection Agency Comments on Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 23: Point Beach Nuclear Plant Units 1 and 2, Draft Report, NUREG-1437

PB-CD-2 1. Section 2.1.3, *Cooling and Auxiliary Water Systems*, page 2-4 to 2-6. There is no description of the actual intake or outflow amounts from this system. We recommend including this specific information or explaining the reasons for excluding it.

PB-CD-3 2. Section 2.2.7, *Radiological Impacts*, pages 2-32 through 2-34. The references to the specific environmental standards need to be included (i.e., complete citations including title of the rule or regulation, along with the basic standard for comparison). All environmental standards that could be used for a comparison should be used, including 40 CFR 61 Radionuclide National Emission Standards for Hazardous Air Pollutants values. This will assist the public in verifying values that are cited in the text and evaluating the radiation values.

PB-CD-4 3. Section 3.0 *Environmental Impacts of Refurbishment*, page3-2, Table 3-1. Under the section on Human Health, specific information supporting any assertions that this area needs no further evaluation needs to be presented or more completely cited and described.

PB-CD-5 4. Section 4.3, *Radiological Impacts of Normal Operations*, pages 4-27, 4-28, Table 4-5, and following paragraphs in the section. The draft supplemental environmental impact statement (SEIS) cites the location of radiological exposure information in the GEIS, but does not include specific values. The final SEIS should provide the specific exposure values, in addition to the GEIS citation. This will be clearer and assist the public in understanding the project's impacts.

PB-CD-6 5. Section 4.8.3, *Cumulative Radiological Impacts*, page 4-49, Paragraph 1. Information or procedures used to generate values to support the assertions in this section need to be provided in a clearer manner to support the conclusions.

PB-CD-7 6. Section 5.2.2, *Estimate of Risk*, pages 5-5, 5-6. The draft SEIS states:

> "The baseline core damage frequency (CDF) for the purpose of the SAMA evaluation is approximately 3.59×10^{-5} per year. This CDF is based on the risk assessment for internally initiated events. NMC did not include the contribution to risk from external events within the PBNP risk estimates; however, it did account for the potential risk reduction benefits associated with external events by increasing the estimated benefits for internal events by a factor of 2.0."

We recommend evaluating and presenting risk estimates from both internal and external events. In addition, given the draft SEIS statements referenced above, effects of external events should be included in the risk decision considerations, as necessary, to get an accurate portrayal of the risk of the licensing renewal. If the final SEIS does not incorporate external events into risk calculations or risk decisions, it should provide a rationale for using internally-initiated events only.

PB-CD-8 7. Section 6.1, *The Uranium Fuel Cycle*, page 6-8, under On-Site Spent Fuel. We recommend providing a site-specific evaluation of the volume of spent fuel expected to be generated during the additional period of operation, along with more specific information on site-specific circumstances that may impair or improve the risk values for potential exposures to this spent fuel. In addition, the final SEIS should state whether additional spent fuel storage capacity is already available or will need to be built in the future. If new capacity will be constructed, we recommend the final SEIS discuss what type of storage units are proposed, noting any differences from current operations.

PB-CD-9 8. Section 7.1, *Decommissioning*, pages 7-2, 7-3, under Radiation Doses. Since the Generic Environmental Impact Statement (GEIS) is based on a forty-year licensing period, an extension of another twenty years would have an impact that needs to be quantified and reported. This information should be included specifically in the final SEIS as part of the risk that would be associated with the license extension. The specific methodology needs to be provided and fully explained.

PB-CD-10 9. Section 8.1, *No-Action Alternative*, page 8-5, under Human Health. This section refers in general terms to reductions in the amount of radioactive material; we recommend including actual values, which will assist the public in comparing alternatives.

PB-CD-11 10. Section 8.2.1.1, *Closed-Cycle Cooling System*, page 8-17, under the bullet Uranium and thorium. A better comparison or quantification of the relative concentrations of the uranium and thorium to the background levels need to be provided. As is, this presentation is confusing.

PB-CD-12 11. Section 8.2.1.1, *Closed-Cycle Cooling System*, page 8-19, under Human Health. We recommend the draft SEIS either cite specific dose estimates for this alternative or provide estimates that use currently available data or that can be logically extrapolated from currently available information. We further recommend evaluating any dose estimates that fall in the risk range of 10^{-6} to 10^{-4} or greater for potential public health risk impacts and noting specific doses that are subject to regulatory requirements. This information would be useful to the public in comparing alternatives.

PB-CD-13 12. Section 8.2.3.1, *Closed-Cycle Cooling System*, page 8-40, under Waste. Waste impacts need to be specified rather than merely referenced to provide a clearer understanding of the risk determination made in this section of the document.

PB-CD-14 13. Section 8.2.3.1, *Closed-Cycle Cooling System*, page 8-40, under Human Health. Human-health impacts need to be specified rather than merely referenced to provide a clearer understanding of the risk determination in this section of the document.

PB-CD-15 14. The U.S. EPA's new rules under Section 316(b) of the Clean Water Act (in 40 C.F.R. § 125) require Point Beach Nuclear Plant to reduce its entrainment of fish and shellfish in early life stages. Although the draft SEIS identifies current measures already in place to

PB-CD-15 mitigate for entrainment (such as intake location and a high-frequency fish deterrent system), it is not clear that these measures will satisfy the rule's requirements. We recommend the final SEIS not include the following statement: "The staff concludes that the potential impacts of entrainment of fish and shellfish in the early life stages into the cooling water intake system are SMALL, and further mitigation measures are not warranted." This conclusion is premature pending the results of the study required by the Wisconsin Department of Natural Resources (WDNR) to comply with the new regulations. The WDNR will use the results of the study to determine whether other measures are necessary and need to be reflected in the plant's next discharge permit. Instead, the final SEIS could discuss how the current entrainment mitigation measures may function as a compliance alternative under the rule and achieve the targeted performance standard for the facility.

PB-CD-16 15. The final SEIS should discuss planned or potential power uprates at the Point Beach Nuclear Plant and estimate resulting increases in radiological emissions, spent fuel, and other emissions. Although U.S. NRC's regulations (10 C.F.R §. 51.53(c)(2)) state that an applicant's environmental report need not discuss the demand for power, we consider power uprates to be reasonably foreseeable actions that contribute to a cumulative radiological impact, under 40 C.F.R § 1508.7, and therefore should be discussed in U.S. NRC's final SEIS.

PB-CD-17 16. As part of its July 1, 2004 scoping comments, the U.S. EPA recommended the draft SEIS describe site hydrogeology, on-site drinking water wells, drinking water quality, and treatment of the drinking water. The U.S. EPA also recommended that NRC evaluate the potential for ground water contamination under the license renewal period, especially with regard to the abandoned settling pond. The draft SEIS responded to these comments by stating that the water issues were found to be Category 1 issues (no additional site-specific analysis required) during development of the Generic Environmental Impact Statement (GEIS). It is not clear how this issue can be a Category 1 issue, because it is site-specific; that is, it does not seem likely that other plants have the same groundwater regime and configuration of drinking water wells and an abandoned retention pond on site (see the first criteria for Category 1 determination). Chapter 4.5 Groundwater Use and Quality states that no new and significant information is found; however, the section does not provide information about groundwater at the site. Without hydrological information or ground water quality information, the SEIS does not successfully describe the impact of extended plant operation, including management of the abandoned settling pond, on groundwater and drinking water. Therefore, we recommend that the SEIS include an evaluation of ground water conditions and potential impacts of extended plant operation as part of the license renewal SEIS for this site.

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION*

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment

United States Department of the Interior
OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

Rec'd RDB 4-12-05

April 7, 2005

ER 05/84

11/24/05 70FR71744 (3)

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

The U.S. Department of the Interior (Department) has reviewed the Generic Environmental Impact Statement (EIS) for License Renewal of Nuclear Plants (NUREG-1437) and Draft Supplement 23 for License Renewal of the Point Beach Nuclear Plant Units No. 1 and 2, Manitowoc County, Wisconsin. The plant is owned by Wisconsin Electric Power Company and operated by Nuclear Management Company LLC.

The proposed action would renew the operating license for the plant for a period of 20 years but does not involve any major construction, refurbishment, or physical alteration of the project area.

PB-CE-1 The Generic EIS and Draft Supplement 23 adequately discuss most of the impacts of continued operations of the plant on fish and wildlife resources, as well as species protected by the Endangered Species Act.

In a letter dated November 22, 2004, the Nuclear Regulatory Commission (Commission) requested the concurrence of the U.S. Fish and Wildlife Service (Service) with the Commission's determination of effects of the proposed license renewal on four federally listed threatened and endangered species documented as occurring in Manitowoc County, as described in the Commission's Biological Assessment (BA) dated November 2004. The letter and BA are included in Appendix E of Draft Supplement 23. By letter dated January 31, 2005, the Service concurred with the determinations for the bald eagle, Pitcher's thistle, and dwarf lake iris.

PB-CE-2 The fourth species considered in the BA is the piping plover. Although no piping plovers have been observed on the project site, there is designated critical habitat for the plover located to the south of the plant and there is also suitable habitat for the plover on the plant grounds. The Great Lakes piping plover population is rapidly expanding, and there is some probability that plovers may attempt to use the beaches on the plant property in the near future. The Service and the Commission are continuing informal consultation concerning the specifics of annual surveys the applicant has agreed to conduct for plover use of the plant grounds over the life of the license renewal period. The Department appreciates the willingness of the applicant to cooperate with the agencies in protection of the plover.

SESP Reject Complete
Template = ADM-013

E-RIDS = ADM-03
Add = S. Imboden (GXF)

PB-CE-3 The Draft Supplement 23 discusses the entrainment and impingement of birds, fish, and shellfish as a result of the continued operation of the cooling water intake system and indicates that entrainment and impingement of fish and shellfish will also be addressed during renewal of the plant's National Pollution Discharge Elimination System permit. The permit renewal is under the authority of the Wisconsin Department of Natural Resources (DNR) and will be subject to the Environmental Protection Agency's recently published 316(b) Phase II regulations. The Service will coordinate with the Wisconsin DNR on the review of the data related to renewal of the permit.

PB-CE-4 With regard to entrainment and mortality of birds, the Draft Supplement 23 correctly states that the applicant has been reporting bird entrainment and mortality to the Service on an annual basis. While the intent of the previous modification of the intake structure was to eliminate any further mortality of cormorants (see page 2-27), the reports from June 1, 2001, to December 31, 2003, indicate bird entrainment and mortality has continued (see page. 4-18). Service personnel visited the site in 2004 and viewed bird carcasses that had undergone appreciable decomposition after intake entrainment. The carcasses were tentatively identified as those of grebes and other waterfowl. The Service will continue to work with the applicant in addressing this issue.

The Department has a continuing interest in working with the Commission and the applicant to ensure that impacts to resources of concern to the Department are adequately addressed. For continued consultation and coordination on fish and wildlife matters and threatened and endangered species, please contact the Field Supervisor, U.S. Fish and Wildlife Service, 2661 Scott Tower Drive, New Franken, Wisconsin 54229; Telephone: (920) 866-3650; Fax: (920) 866-1710.

We appreciate the opportunity to provide these comments.

Sincerely,

Robert Burr, for

Michael T. Chezik
Regional Environmental Officer

Appendix B

Contributors to the Supplement

Appendix B

Contributors to the Supplement

The overall responsibility for the preparation of this supplement was assigned to the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC). The statement was prepared by members of the Office of Nuclear Reactor Regulation with assistance from other NRC organizations, the Los Alamos National Laboratory, Argonne National Laboratory, Lawrence Livermore National Laboratory, Energy Research Incorporated, and the Information Systems Laboratory.

Name	Affiliation	Function or Expertise
	NUCLEAR REGULATORY COMMISSION	
Stacey Imboden	Nuclear Reactor Regulation	Project Manager
Richard Emch	Nuclear Reactor Regulation	Project Management, Radiological Safety
James Wilson	Nuclear Reactor Regulation	Aquatic and Terrestrial Ecology
Harriet Nash	Nuclear Reactor Regulation	Aquatic Ecology
Cristina Guerrero	Nuclear Reactor Regulation	General Scientist
Robert Palla	Nuclear Reactor Regulation	Severe Accident Mitigation Alternatives
Andrew Kugler	Nuclear Reactor Regulation	Section Chief
Barry Zalcman	Nuclear Reactor Regulation	Technical Monitor
Nina Barnett	Nuclear Reactor Regulation	Administrative Support
	LOS ALAMOS NATIONAL LABORATORY[a]	
Paul Schumann		Task Leader
Allyn Pratt		Deputy Task Leader
Ted Doerr		Alternatives
Lars Soholt		Terrestrial Ecology
Sam Loftin		Terrestrial Ecology
Cheryl Olson		Radiation Protection, Human Health
Peggy Powers		Cultural Resources
Craig Carmer		Technical Editor
James Liljenwall		Technical Editor
Jolene Catron		Compositor
Sherrye Lovato		Administrative Support
Janelle Vigil		Administrative Support

Name	Affiliation	Function or Expertise
	ARGONNE NATIONAL LABORATORY[b]	
Dave Miller		Hydrology and Water Quality
Bill Vinikour		Aquatic Ecology
	LAWRENCE LIVERMORE NATIONAL LABORATORY[c]	
Warren Rued		Task Leader, Land Use
Amit Basu		Water Resources, Water Use, Waste Treatment
Alan Lamont		Socioeconomics
Bill Hoppes		Aquatic Ecology
Dave Armstrong		Meteorology, Air Quality
	PACIFIC NORTHWEST NATIONAL LABORATORY[d]	
Fred Leverenz		Severe Accident Mitigation Alternatives
Bruce Schmitt		Severe Accident Mitigation Alternatives
Steve Short		Severe Accident Mitigation Alternatives

(a) Los Alamos National Laboratory is operated for the U.S. Department of Energy by the University of California.
(b) Argonne National Laboratory is operated for the U.S. Department of Energy by the University of Chicago.
(c) Lawrence Livermore National Laboratory is operated for the U.S. Department of Energy by the University of California.
(d) Pacific Northwest National Laboratory is operated for the U.S. Department of Energy by the Battelle Memorial Institute.

Appendix C

Chronology of NRC Staff Environmental Review Correspondence Related to Nuclear Management Company, LLC's Application for License Renewal of Point Beach Nuclear Plant Units 1 and 2

Appendix C

Chronology of NRC Staff Environmental Review Correspondence Related to Nuclear Management Company, LLC's Application for License Renewal of Point Beach Nuclear Plant Units 1 and 2

This appendix contains a chronological listing of correspondence between the U.S. Nuclear Regulatory Commission (NRC) and Nuclear Management Company, LLC (NMC) and other correspondence related to the NRC staff's environmental review, under Title 10 of the Code of Federal Regulations Part 51, of NMC's application for renewal of the Point Beach Nuclear Plant Units 1 and 2 (PBNP) operating licenses. All documents, with the exception of those containing proprietary information, have been placed in the Commission's Public Document Room, at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, and are available electronically from the Public Electronic Reading Room found on the Internet at the following web address: http://www.nrc.gov/reading-rm.html. From this site, the public can gain access to the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents in the publicly available records (PARS) component of ADAMS. The ADAMS accession numbers for each document are included below.

December 22, 2003	Letter from Mr. A. J. Cayia, NMC, to Mr. J. Michael Blaska, Wisconsin Department of Administration, regarding Federal Consistency Certification for license renewal of PBNP (Accession No. ML041210524).
January 6, 2004	Letter from Mr. Richard Dexter, Wisconsin Historical Society, to Mr. A. J. Cayia, NMC, regarding historic and archaeological resources in the area under review for the license renewal of PBNP (Accession No. ML041470098).
February 25, 2004	Point Beach Units 1 and 2, Applicant's Environmental Report-Operating License Renewal Stage (Accession No. ML040580025).
February 26, 2004	Letter from Ms. Janet M. Smith, U.S. Fish and Wildlife Service, to Mr. A. J. Cayia, NMC, regarding the environmental impact of license renewal of PBNP (Accession No. ML040610963).
March 1, 2004	NRC press release No. 04-029, "NRC Announces Availability of License Renewal Application for Point Beach Nuclear Power Plant" (Accession No. ML040611048).

March 2, 2004	Letter from Mr. Gary Van Middlesworth, NMC, to Mr. Travis Olson, Wisconsin Department of Administration, regarding Federal Consistency Certification for license renewal of PBNP (Accession No. ML041420323).
March 2, 2004	Letter from NRC to Mr. Gary Van Middlesworth, NMC, regarding the receipt and availability of the license renewal application for PBNP (Accession No. ML040640628).
March 8, 2004	Federal Register Notice of Receipt and Availability of Application for Renewal of Point Beach Nuclear Plant, Units 1 and 2; Facility Operating License Nos. DPR-24 and DPR-27 for an Additional 20-Year Period (69 FR 10765).
March 11, 2004	Letter from Mr. Sherman Banker, Wisconsin Historical Society, to Mr. Roger Newtown, NMC, regarding the application for license renewal of PBNP (Accession No. ML041470090).
April 7, 2004	Letter from NRC to Mr. Gary Van Middlesworth, NMC, regarding acceptance of the application for license renewal of PBNP and opportunity for a hearing (Accession No. ML040980219).
April 7, 2004	Letter from NRC to Mr. Nick Niederlander, Lester Public Library, regarding the maintenance of reference material for the PBNP license renewal review (Accession No. ML041050642).
April 13, 2004	Federal Register Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding the Renewal of Facility Operating License Nos. DPR-24 and DPR-27 for an Additional 20-Year Period (69 FR 19559).
April 16, 2004	NRC press release announcing opportunity for hearing on application for license renewal of PBNP (Accession No. ML041070354).
April 21, 2004	Summary of telecommunication with NMC to discuss environmental review of license renewal application and schedule (Accession No. ML041140404).
April 26, 2004	Letter from Mr. Kris McKinney, We Energies, to NRC providing documents requested during April 8, 2004, conference call (Accession No. ML041250592).

April 30, 2004	E-mail from Mr. Kris McKinney, We Energies, to NRC providing follow-up to action items discussed in April 8, 2004, conference call (Accession No. ML041240446).
May 5, 2004	Letter from NRC to Mr. Richard Dexter, Wisconsin Historical Society, inviting participation in the environmental scoping process for license renewal of PBNP and requesting a determination of effects of license renewal on historic properties in accordance with the National Historic Preservation Act (Accession No. ML041270553).
May 5, 2004	Letter from NRC to Mr. Don Klima, Advisory Council on Historic Preservation, inviting comments on the effects of license renewal of PBNP on historic properties in accordance with the National Historic Preservation Act (Accession No. ML041270559).
May 5, 2004	Letter from NRC to Ms. Janet Smith, U.S. Fish and Wildlife Service, requesting a list of protected species within the area under evaluation for license renewal of PBNP (Accession No. ML041280306).
May 5, 2004	Letter from NRC to Mr. Gary Van Middlesworth, NMC, forwarding the Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Process for the license renewal of Point Beach Nuclear Plant (Accession No. ML041280448).
May 12, 2004	Letter from NRC to Ms. Patricia A. Kurkul, National Oceanic and Atmospheric Administration Fisheries, requesting a list of protected species within the area under evaluation for license renewal of PBNP (Accession No. ML041330494).
May 13, 2004	Federal Register Notice of Intent to Prepare an Environmental Impact Statement and Conduct Scoping Process regarding the application for license renewal of Point Beach Nuclear Plant (69 FR 26624).
May 14, 2004	Letter from NRC to Ms. Lisa Bresette, Red Cliff Band of Lake Superior Chippewas, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041400252).
May 14, 2004	Letter from NRC to Mr. Robert Chicks, Stockbridge-Munsee Community of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041400405).

May 14, 2004	Letter from NRC to Ms. Cristina Danforth, Oneida Tribe of Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410555).
May 14, 2004	Letter from NRC to Ms. Joan Delabreau, Menominee Indian Tribe of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410534).
May 14, 2004	Letter from NRC to Mr. Ray DePerry, Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410377).
May 14, 2004	Letter from NRC to Mr. Gus Frank, Forest County Potawatomi Indian Community, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410240).
May 14, 2004	Letter from NRC to Mr. David Grignon, Menominee Indian Tribe of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041400392).
May 14, 2004	Letter from NRC to Ms. Kelly Jackson, Lac du Flambeau Band of Lake Superior Chippewa Indians, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410513).
May 14, 2004	Letter from NRC to Mr. George Lewis, Ho-Chunk Nation of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041400343).
May 14, 2004	Letter from NRC to Mr. Donald Moore, Bad River Band of Lake Superior Chippewa Indians, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041400150).
May 14, 2004	Letter from NRC to Mr. Jerry Smith, Lac Courte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410206).

May 14, 2004	Letter from NRC to Mr. Henry St. Germaine, Lac du Flambeau Band of Lake Superior Chippewa Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410068).
May 14, 2004	Letter from NRC to Mr. Louis Taylor, Lac Courte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410352).
May 14, 2004	Letter from NRC to Ms. Corina Williams, Oneida Nation of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410094).
May 17, 2004	Letter from NRC to Mr. David Merrill, St. Croix Chippewa Indians of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410612).
May 17, 2004	Letter from NRC to Ms. Sandra Rachal, Sokaogon Chippewa (Mole Lake) Community of Wisconsin, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041410580).
May 18, 2004	Letter from Mr. Gary Van Middlesworth, NMC, to Ms. Janet M. Smith, U.S. Fish and Wildlife Service, responding to concerns raised in February 26, 2004 letter (Accession No. ML041530208).
May 21, 2004	Letter from NRC to Ms. Cassandra Dixon inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041450240).
May 21, 2004	NRC meeting notice announcing public meeting in Mishicot, Wisconsin, on June 15, 2004, to discuss the environmental scoping process for the application for the license renewal of PBNP (Accession No. ML041420535).
May 25, 2004	Letter from Mr. Sherman Banker, Wisconsin Historical Society, to NRC regarding the application for license renewal of PBNP (Accession No. ML041600062).

May 26, 2004	Letter from Mr. John E. Busby, Miller Compressing Company, to NRC expressing support for license renewal of PBNP (Accession No. ML041600105).
June 1, 2004	Letter from Ms. Kelly Jackson, Lac du Flambeau Band of Lake Superior Chippewa Indians, to NRC expressing no concerns with impacts to historic properties from the proposed license renewal of PBNP (Accession No. ML041620343).
June 1, 2004	Letter from NRC to Mr. John A. Barrett, Jr., Citizen Potawatomi Nation, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041540192).
June 1, 2004	Letter from NRC to Mr. Zachariah Pahmahmie, Prairie Band Potawatomi Tribal Council, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041540246).
June 2, 2004	Letter from Mr. Robert Domrois, Newark Paperboard Mills, to NRC expressing support for license renewal of PBNP (Accession No. ML041620340).
June 2, 2004	Letter from NRC to Mr. Kenneth Meshiguad, Hannahville Indian Community, inviting participation in the environmental scoping process for the license renewal of PBNP (Accession No. ML041540263).
June 9, 2004	Letter from Mr. Mark R. Honadel, Wisconsin State Assembly, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750351).
June 10, 2004	Letter from Mr. John A. Mellowes, Charter Manufacturing Company, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750366).
June 10, 2004	Letter from Mr. Zach Pahmahmie, Prairie Band Potawatomi Nation, to NRC expressing no concerns with impacts to historic properties from the proposed license renewal of PBNP (Accession No. ML041890189).
June 14, 2004	E-mail from Mr. Bob Reynolds, ORBIS Corporation, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750358).

June 14, 2004	E-mail from Mr. Dale Scherbert, Community Memorial Hospital, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750356).
June 14, 2004	Letter from Mr. David J. Jenkins, Wisconsin Federation of Cooperatives, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750369).
June 14, 2004	Letter from Mr. Richard W. Wanta, Wisconsin Underground Contractors' Association, Inc., to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750367).
June 15, 2004	E-mail from C. W. Fay to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750353).
June 15, 2004	E-mail from D. H. Tredwell to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750352).
June 15, 2004	Letter from Mr. Kenneth J. Petersen, Manitowoc County Sheriff's Department, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750365).
June 16, 2004	E-mail from Mr. Richard Wagner, Trega Foods, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750364).
June 17, 2004	E-mail from Ms. Cheryl Brocher to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750361).
June 17, 2004	E-mail from Ms. Kathryn L. Smith to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041750360).
June 21, 2004	E-mail from Mr. Chad E. Cordle, Cellu Tissue Neenah, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041830247).

June 21, 2004	Letter from Mr. Don Markwardt, Manitowoc County Board of Supervisors, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042150282).
June 21, 2004	Letter from Mr. William J. Welch, Fox Cities Chamber of Commerce and Industry, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041830250).
June 25, 2004	Letter from NRC to Mr. Mitchell "Mickey" J. Maricque regarding hearing request for the license renewal review for PBNP (Accession No. ML041810651).
July 1, 2004	Letter from Dr. John G. Gonis, Dental Associates, Ltd., to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170119).
July 1, 2004	Letter from Mr. Donald Kaye to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041970654).
July 1, 2004	Letter from Mr. Carl Otter to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170117).
July 1, 2004	Letter from Ms. Carol Roessler, Wisconsin State Senator, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170118).
July 1, 2004	Letter from Mr. Kenneth A. Westlake, U.S. Environmental Protection Agency, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041910394).
July 2, 2004	E-mail from Mr. Steve Bongers, Outokumpu Copper Valleycast, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041940367).
July 2, 2004	Letter from Mr. Steve Bongers, Outokumpu Copper Valleycast, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041970658).

July 2, 2004	Letter from Mr. John H. Meinke, Neenah Technical Center, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041970655).
July 2, 2004	Letter from NRC to Mr. Dennis L. Koehl, NMC, forwarding request for additional information regarding severe accident mitigation alternatives for PBNP (Accession No. ML041890271).
July 5, 2004	Letter from Mr. Orville Krueger to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041970650).
July 6, 2004	Letter from Mr. Allen J. Prochnow, Concordia University, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042010181).
July 7, 2004	E-mail from Mr. John H. Goetsch to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041940378).
July 7, 2004	Letter from Mr. Bob DeKoch, The Boldt Company, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041980013).
July 7, 2004	Letter from Mr. Joseph H. Pomeroy, Mercury Marine, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041980021).
July 8, 2004	Letter from NRC to Mr. James E. Knorr, NMC, announcing project manager change for the license renewal environmental review for PBNP (Accession No. ML041950081).
July 8, 2004	Summary of Public Scoping Meetings To Support Review of PBNP License Renewal Application (Accession No. ML041960121).
July 12, 2004	Letter from Mr. George P. Brown, Humana Inc., to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170114).

July 12, 2004	E-mail from Mr. Earl Gustafson, Wisconsin Paper Council, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041980016).
July 13, 2004	E-mail from Mr. James J. Graf, City of Sheboygan Alderman, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041980024).
July 13, 2004	E-mail from Mr. Hermann Viets, Milwaukee School of Engineering, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML041980026).
July 13, 2004	Letter from Mr. Jeffrey S. Mason, BayCare Health Systems, LLC, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170121).
July 13, 2004	Letter from Mr. Edward J. Zore, Northwestern Mutual, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170120).
July 14, 2004	Letter from Mr. Joe Leibham, Wisconsin State Senator, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170106).
July 14, 2004	E-mail from Mr. R. J. Pirlot, Wisconsin Manufacturers and Commerce, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042010179).
July 16, 2004	Letter from Mr. Daniel J. Sutheimer, Pierce Manufacturing, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042170122).
July 19, 2004	Response to open items from June 16–17, 2004, NRC environmental audit to support license renewal of PBNP (Accession No. ML042020469).
July 23, 2004	Summary of site audit to support review of license renewal application for PBNP (Accession No. ML042080516).

August 5, 2004	Letter from Ms. Janet M. Smith, U.S. Fish and Wildlife Service, to NRC responding to NRC request for a list of protected species within the area under evaluation for license renewal of PBNP (Accession No. ML042290328).
August 20, 2004	Note to file docketing email pertaining to environmental review for PBNP (Accession No. ML042330285).
August 31, 2004	Letter from Mr. Dennis L. Koehl, NMC, transmitting responses to July 2, 2004, request for additional information regarding severe accident mitigation alternatives for PBNP (Accession No. ML042530218).
September 3, 2004	Letter from NRC to Mr. Dennis L. Koehl, NMC, transmitting environmental scoping summary report associated with the staff's review of the PBNP (Accession No. ML042510283).
September 8, 2004	Letter from Mr. Lars Bengtsson, Stora Enso's North American Division, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042750132)
September 8, 2004	Letter from Mr. Thomas G. Scharff, Consolidated Water Power Company, to NRC providing scoping comments regarding the license renewal review for PBNP (Accession No. ML042750138)
October 12, 2004	Note to file docketing email pertaining to comments to request-for-additional-information responses for PBNP (Accession No. ML042870219).
October 15, 2004	E-mail from Mr. Kris McKinney, We Energies, transmitting piping plover habitat survey on PBNP site (Accession No. ML043150318).
October 20, 2004	Letter from NRC to Mr. Dennis L. Koehl, NMC, stating that the license renewal schedule may be impacted by the delay in responses to the October 12, 2004, e-mail (Accession No. ML042940650).
October 28, 2004	Summary of conference call with NMC to discuss responses to the severe accident mitigation alternatives (SAMAs) requests for additional information (Accession No. ML043020631).

November 5, 2004	Fax from Mr. Kris McKinney, We Energies, to Stacey Imboden, NRC stating that piping plover habitat survey recommendations in the October 15, 2004 e-mail will be implemented. (Accession No. ML043150311).
November 22, 2004	Letter from Mr. Dennis L. Koehl, NMC, to the NRC, providing responses to the additional SAMA RAIs in the October 12, 2004 e-mail (Accession No. ML043360138).
November 22, 2004	Letter from NRC to Ms. Janet Smith, U.S. Fish and Wildlife Service, requesting concurrence on biological assessment (Accession No. ML043280682).
December 6, 2004	Note To File: Docketing of Material in Support of the PBNP Environmental Review and License Renewal Application (Accession No. ML043420094).
December 23, 2004	Email from Ms. Leakhena Au, U.S. Fish and Wildlife Service, regarding biological assessment (Accession No. ML043640231).
January 13, 2005	Letter from NRC to Mr. Dennis L. Koehl, NMC, forwarding Notice of Availability of the Draft Plant-Specific Supplement 23 to the Generic Environmental Impact Statement Regarding License Renewal for Point Beach Nuclear Plant, Units 1 and 2 (Accession No. ML050180307).
January 13, 2005	Letter from NRC to U.S. Environmental Protection Agency transmitting Draft Supplement 23 to the Generic Environmental Impact Statement Regarding License Renewal for Point Beach Nuclear Plant, Units 1 and 2 (Accession No. ML050180447).
January 26, 2005	Federal Register Notice of Availability of the Draft Supplement 23 to the Generic Environmental Impact Statement and Public Meeting for the License Renewal of Point Beach Nuclear Plant, Units 1 and 2 (70 FR 3744).
January 31, 2005	Letter from Ms. Janet Smith, U.S. Fish and Wildlife Service, to NRC regarding November 22, 2004 request for concurrence on biological assessment (Accession No. ML050480192).

February 10, 2005	NRC meeting notice announcing public meeting in Mishicot, Wisconsin on March 3, 2005, to discuss the Draft Supplemental Environmental Impact Statement for license renewal of Point Beach Nuclear Plant (Accession No. ML050410118).
February 17, 2005	Letter from Dr. Noel J. Cutright, We Energies, to Ms. Janet Smith, U.S. Fish and Wildlife Service, regarding framework for monitoring Piping Plovers (Accession No. ML050540119).
February 24, 2005	NRC Press Release No. III-05-006, "NRC Seeks Public Input on Environmental Impact Statement For Proposed Point Beach Nuclear Plant License Renewal" (Accession No. ML050550457).
February 26, 2005	E-mail from Mr. Daniel Hahn to NRC providing comments regarding the license renewal review for Point Beach Nuclear Plant (Accession No. ML050700105).
March 7, 2005	Letter from Ms. Janet Smith, U.S. Fish and Wildlife Service, to Dr. Noel J. Cutright, We Energies, suggesting revision to Piping Plover monitoring framework (Accession No. ML050760398).
March 12, 2005	Comment letter from Mr. J. Kevin McCoy, to NRC providing comments regarding the license renewal review for Point Beach Nuclear Plant (Accession No. ML050900218).
March 15, 2005	Letter from Dr. Noel J. Cutright, We Energies, to Ms. Janet Smith, U.S. Fish and Wildlife Service, updating Piping Plover monitoring framework (Accession No. ML050760463).
March 31, 2005	Summary of Public Draft Supplemental Environmental Impact Statement Meeting to Support Review of the Point Beach Nuclear Plant, Units 1 and 2, License Renewal Application (Package Accession No. ML050920006).
April 6, 2005	Docketing of Point Beach Nuclear Plant Proposal for Information Collection regarding cooling water intake structures, and revised schedule for impingement and entrainment sampling (Package Accession No. ML050950139).

April 7, 2005	Letter from Mr. Michael T. Chezik, Department of Interior, transmitting comments on Draft Supplemental Environmental Impact Statement regarding Point Beach Nuclear Plant, Units 1 and 2 (Accession No. ML051050351).
April 11, 2005	Letter from Mr. Dennis L. Koehl, NMC, transmitting comments on Draft Supplemental Environmental Impact Statement regarding Point Beach Nuclear Plant, Units 1 and 2 (Accession No. ML051090335).
April 13, 2005	Letter from Mr. Kenneth A. Westlake, EPA, transmitting comments on Draft Supplemental Environmental Impact Statement regarding Point Beach Nuclear Plant, Units 1 and 2 (Accession No. ML051160259).
April 21, 2005	Letter from NRC to Ms. Janet Smith, U.S. Fish and Wildlife Service, requesting concurrence on supplemented biological assessment (Accession No. ML051110687).
May 5, 2005	Letter from Ms. Janet Smith, U.S. Fish and Wildlife Service, to NRC providing concurrence with supplemented biological assessment (Accession No. ML051330355).
May 25, 2005	E-mail from Mr. Paul Luebke, WDNR, providing information regarding settling pond onsite at Point Beach Nuclear Plant (Accession No. ML051470092).
May 25, 2005	Docketing of letter dated April 30, 2002, from Mr. Paul Luebke, WDNR, to Ms. Elizabeth Hellman, Wisconsin Energy Corporation, approving abandonment plan for settling pond (Accession No. ML051470098).
June 14, 2005	E-mail from Mr. Jim Knorr, NMC, providing information regarding potentially cost-beneficial SAMA (Accession No. ML051720047).

Appendix D

Organizations Contacted

Appendix D

Organizations Contacted

During the course of the staff's independent review of environmental impacts from operations during the renewal term, the following Federal, State, regional, local, and Native American tribal agencies were contacted:

Bad River Band of Lake Superior Chippewa Indians, Odanah, Wisconsin

Bay-Lake Regional Planning Commission, Green Bay, Wisconsin

City Manager, Greg Buckley, Two Rivers, Wisconsin

Economic Development Director, Dan Pawlitzke, Two Rivers, Wisconsin

Fire Chief, Mike Pohlman, Two Rivers, Wisconsin

Forest County Potawatomi Indian Community, Crandon, Wisconsin

Hannahville Indian Community, Wilson, Michigan

Ho-Chunk Nation of Wisconsin, Black River Falls, Wisconsin

Lac Courte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin, Hayward, Wisconsin

Lac du Flambeau Band of Lake Superior Chippewa Indians of Wisconsin, Lac du Flambeau, Wisconsin

Manitowoc-Two Rivers Chamber of Commerce, Manitowoc, Wisconsin

Manitowoc County Department of Parks and Planning, Manitowoc, Wisconsin

Menominee Indian Tribe of Wisconsin, Keshena, Wisconsin

Mishicot Area Growth and Improvement Committee, Mishicot, Wisconsin

Mishicot School District, Office of the Superintendent, Mishicot, Wisconsin

Oneida Nation of Wisconsin, Oneida, Wisconsin

Prairie Band Potawatomi Tribal Council, Mayetta, Kansas

Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin, Bayfield, Wisconsin

Sokaogon Chippewa (Mole Lake) Community of Wisconsin, Crandon, Wisconsin

St. Croix Chippewa Indians of Wisconsin, Hertel, Wisconsin

Stockbridge-Munsee Community of Wisconsin, Bowler, Wisconsin

U.S. Environmental Protection Agency, Region 5, Chicago, Illinois

U.S. Fish and Wildlife Service, Green Bay Ecological Services Field Office, New Franken, Wisconsin

Wisconsin Department of Health and Family Services, Madison, Wisconsin

Wisconsin Department of Natural Resources, Bureau of Watershed Management, Madison, Wisconsin

Wisconsin Department of Natural Resources (Fisheries), Madison, Wisconsin

Wisconsin Department of Natural Resources (Wildlife), Madison, Wisconsin

Wisconsin Department of Natural Resources, Mishicot Field Office, Mishicot, Wisconsin

Wisconsin State Historic Preservation Office, Madison, Wisconsin

Appendix E

Nuclear Management Company, LLC's Compliance Status and Consultation Correspondence

Appendix E

Nuclear Management Company, LLC's Compliance Status and Consultation Correspondence

Correspondence issued and received during the process of evaluation of the application for renewal of the operating licenses for Point Beach Nuclear Plant Units 1 and 2 (PBNP) is identified in Table E-1. Copies of the correspondence are included at the end of this appendix.

The licenses, permits, consultations, and other approvals obtained from Federal, State, regional, and local authorities for PBNP are listed in Table E-2.

Table E-1. Consultation Correspondence

Source	Recipient	Date of Letter
U.S. Nuclear Regulatory Commission (P.T. Kuo)	Advisory Council on Historic Preservation (D. Klima)	May 5, 2004
U.S. Nuclear Regulatory Commission (P.T. Kuo)	U.S. Fish and Wildlife Service (J. Smith)	May 5, 2004
U.S. Nuclear Regulatory Commission (P.T. Kuo)	Wisconsin Historical Society (R. Dexter)	May 5, 2004
U.S. Nuclear Regulatory Commission (P.T. Kuo)	National Oceanographic and Atmospheric Administration Fisheries (P. Kurkul)	May 12, 2004
Wisconsin Historical Society (S. Banker)	U.S. Nuclear Regulatory Commission (P.T. Kuo)	May 25, 2004
U.S. Fish and Wildlife Service (J. Smith)	U.S. Nuclear Regulatory Commission (P.T. Kuo)	August 5, 2004
U.S. Nuclear Regulatory Commission (P.T. Kuo)	U.S. Fish and Wildlife Service (J. Smith)	November 22, 2004
U.S. Fish and Wildlife Service (J. Smith)	U.S. Nuclear Regulatory Commission (P.T. Kuo)	January 31, 2005
U.S. Nuclear Regulatory Commission (P.T. Kuo)	U.S. Fish and Wildlife Service (J. Smith)	April 21, 2005
U.S. Fish and Wildlife Service (J. Smith)	U.S. Nuclear Regulatory Commission (P.T. Kuo)	May 5, 2005
Wisconsin Department of Natural Resources (P. Luebke)	U.S. Nuclear Regulatory Commission (S. Imboden)	May 25, 2005

Table E-2. Federal, State, Local, and Regional Licenses, Permits, Consultations, and Other Approvals for PBNP

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
NRC	10 CFR Part 50	Operating License, Pt. Beach Unit 1	DPR-24	10/5/70	10/5/10	Authorizes operation of Unit 1.
NRC	10 CFR Part 50	Operating License, Pt. Beach Unit 2	DPR-27	11/16/71	3/8/13	Authorizes operation of Unit 2.
FWS	Section 7 of the Endangered Species Act (16 USC 1536)	Consultation				Requires a Federal agency to consult with FWS regarding whether a proposed action will affect endangered or threatened terrestrial species.
NOAA Fisheries	Section 7 of the Endangered Species Act (16 USC 1536)	Consultation				Requires a Federal agency to consult with NMFS regarding whether a proposed action will affect endangered or threatened aquatic species.
Wisconsin Historical Society	Section 106 of the National Historic Preservation Act (16 USC 470f)	Consultation				The National Historic Preservation Act requires Federal agencies to take into account the effect of any undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places.
Wisconsin Department of Administration	Section 307 of the Coastal Zone Management Act (16 USC 1456[c][3][A])	Certification				Requires an applicant to provide certification to the Federal agency issuing the license that license renewal would be consistent with the Federally approved State coastal zone management program. Based on its review of the proposed activity, the State must concur with or object to the applicant's certification.

Table E-2. (contd)

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
USDOT	49 USC 5108	Registration	053003450 005L	06/02/03	06/30/05[a]	Hazardous materials shipments.
EPA	Resource Conservation and Recovery Act (42 USC 6912) and Ch. 101.09 Wisconsin Statutes	Notification of Regulated Waste Activity	WID093422 657	NA	NA	Hazardous waste generation and transport.
WDNR	Clean Water Act (33 USC Section 1251 et seq.) and Ch. 283 Wisconsin Statutes	Individual WPDES Permit	WI-0000957-07-0	7/1/04	6/30/09	PBNP discharges to Lake Michigan. Permit remains in effect pending State review of renewal application.
WDNR	Clean Water Act (33 USC Section 1251 et seq.) and Ch. 283 Wisconsin Statutes	General WPDES Industrial Storm Water Discharge Permit (Tier 2)	WI-S067857-1	05/30/95	03/31/06	Storm water runoff from industrial facilities.
WDNR	Federal Clean Air Act (42 USC 7661-7671) and Ch. 285 Wisconsin Statutes	Renewed Air Pollution Control Operation Permit	436034500-P10	10/17/03	10/17/08	Air emissions from a gas turbine, boilers, generators, a fire pump, and a paint spray booth.
WDNR	Ch. 280 Wisconsin Statutes	Registration	436063430	NA	NA	Nontransient noncommunity water supply registration for PBNP.
WDNR	Ch. 280 Wisconsin Statutes	Registration	43612602, 43601096, and 43603450	NA	NA	Transient noncommunity water supply registrations for Energy Info. Center, North Gatehouse, and Site Boundary Control Center.
WDNR	Ch. 281 Wisconsin Statutes	High-Capacity Well Approval	52824, 52825, 52826	NA	NA	Approval for wells with combined capacity >1 × 10^5 gpd.

Table E-2. (contd)

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
WDNR	Ch. 29.614 Wisconsin Statutes	Scientific Collecting Permit	SCP-LM-18-9397	01/13/02	12/31/05	Collection of fish for radioactivity analysis. Remains in effect pending State review of renewal application.
Wisconsin Department of Commerce	Federal Resource Conservation and Recovery Act (42 USC 6912) and Ch. 101.09 Wisconsin Statutes	Underground Storage Tank Registration	Owner ID: 382951 Site ID: 118971 Tank IDs: 764837, 764843, 285454, 930217 and 930224	10/20/95 10/01/92 08/25/03	NA	Storage of flammable materials in underground tanks.
Wisconsin Department of Commerce	Ch. 101.09 Wisconsin Statutes	Aboveground Storage Tank Registration	Owner ID: 382951 Site ID: 118971 Tank IDs: 206578, 206579, 206580, 206581, 206582, 206583, 206584, 455264, 455274 206615, 206616 206690	10/01/92 10/20/95 10/19/95	NA	Storage of flammable materials in aboveground tanks.
South Carolina Department of Health and Environmental Control	South Carolina Radioactive Waste Transportation and Disposal Act (S.C. Code of Laws 13-7-110 et seq.)	Radioactive Waste Transport Permit	00604805-X	11/02/04	12/31/05	Transportation of radioactive waste to disposal facility in South Carolina.

Table E-2. (contd)

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
Tennessee Department of Environment and Conservation	Tennessee Code Annotated 68-202-206	License to Ship Radioactive Material	T-WI002-L03	01/01/04	12/30/04[a]	Shipments of radioactive material to processing facility in Tennessee.

(a) Permit renewal application submitted.
> – greater than
CFR – Code of Federal Regulations
EPA – U.S. Environmental Protection Agency
FWS – U.S. Fish and Wildlife Service
gpd – gallons per day
NA – not applicable, one-time registration
NOAA – National Oceanographic and Atmospheric Administration
NMFS – National Marine Fisheries Service
NRC – U.S. Nuclear Regulatory Commission
USC – United States Code
USDOT – U.S. Department of Transportation
WDNR – Wisconsin Department of Natural Resources
WPDES – Wisconsin Pollutant Discharge Elimination System

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 5, 2004

Mr. Don Klima, Director
Office of Federal Agency Programs
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 809
Washington, DC 20004

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL REVIEW

Dear Mr. Klima:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application to renew the operating licenses for Point Beach Nuclear Plant, Units 1 and 2 (PBNP), which is located on the western shore of Lake Michigan in Two Rivers, Wisconsin, approximately 30 miles southeast of Green Bay, Wisconsin. PBNP is operated by Nuclear Management Company, LLC (NMC). The application for renewal was submitted by NMC on February 26, 2004, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54). The NRC has established that, as part of the staff review of any nuclear power plant license renewal action, a site-specific Supplemental Environmental Impact Statement (SEIS) to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, will be prepared under the provisions of 10 CFR Part 51, which implements the National Environmental Policy Act of 1969 (NEPA). In accordance with 36 CFR 800.8, the SEIS will include analyses of potential impacts to historic and cultural resources. A draft SEIS is scheduled for publication in January 2005, and will be provided to you for review and comment.

If you have any questions or require additional information, please contact the Environmental Project Manager for the Point Beach project, Mr. William Dam, at 301-415-4014 or WLD@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266, 50-301

cc: See next page

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 5, 2004

Ms. Janet Smith
Field Supervisor
U.S. Fish and Wildlife Service
Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, WI 54229-9565

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION (NRC) ENVIRONMENTAL REVIEW AND REQUEST FOR PROTECTED SPECIES WITHIN THE AREA UNDER EVALUATION FOR THE POINT BEACH NUCLEAR PLANT LICENSE RENEWAL

Dear Ms. Smith:

Thank you for providing my staff the opportunity to meet with you on March 17, 2004, to discuss the U.S. Nuclear Regulatory Commission's (NRC) process for reviewing an application to extend the operating licenses of Point Beach Nuclear Plant, Units 1 and 2 (PBNP). Mr. William Dam and our consultant with Los Alamos National Laboratory, Dr. Paul Schumann, found the discussions with you, Ken Stromberg, and Larry Thompson to be very informative and beneficial as we begin the process of collecting information to write a draft Supplemental Environmental Impact Statement (SEIS).

The NRC has established that, as part of the staff review of any nuclear power plant license renewal action, a site-specific SEIS to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, will be prepared under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act of 1969 (NEPA). In addition the NEPA interactions satisfy the provisions of the Fish and Wildlife Coordination Act of 1934.

To support the SEIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of PBNP and its associated transmission lines. As mentioned in your February 26, 2004 letter to Nuclear Management Company, LLC (NMC), we understand that your office will coordinate and request input from the Wisconsin Department of Natural Resources, which maintains the Natural Heritage Inventory. In addition, our staff received the September 2003 report you sent titled, "Recovery Plan for the Great Lakes Piping Plover," which provides important information that we will include in the SEIS.

Attached is a map of the transmission-line corridors from the NMC license application (Enclosure). NMC has agreed to provide you with an additional detailed geo-referenced map of the site and transmission-line corridors. The proposed action would include the use and continued maintenance of existing plant facilities and transmission lines. The PBNP site

located in Manitowoc County, Wisconsin, covers approximately 1260 acres, of which approximately 1050 acres are used for agriculture.

For the specific purpose of connecting PBNP to the regional transmission system, there is a total of approximately 73 miles of transmission lines that occupy approximately 1955 acres of land. These transmission line corridors are being evaluated as part of the SEIS process. The transmission line corridors traverse Brown and Manitowoc Counties. The corridors pass through land that is primarily rolling hills covered with forests or farm land. Three 345-kilovolt (kV) lines connect PBNP to the electric grid. A fourth transmission line connects Kewaunee Nuclear Power Plant to the PBNP substation.

NRC will hold two public scoping meetings for the PBNP license renewal supplement to the GEIS on June 15, 2004, at Fox Hills, 250 West Church Street in Mishicot, Wisconsin. There will be two sessions to accommodate interested parties with the first session convening at 1:30 p.m. and continuing until 4:30 p.m., as necessary. The second session will convene at 7:00 p.m., with a repeat of the overview portions of the meeting, and will continue until 10:00 p.m., as necessary. Additionally, the NRC staff will host informal discussions one hour before the start of each session. To be considered, comments must be provided either at the transcribed public meetings or in writing. No formal comments on the proposed scope of the supplement to the GEIS will be accepted during informal discussions. In addition to attending the public meetings, you and your staff are invited to attend our site audit at PBNP on June 16-17, 2004. The audit will include a tour of the area surrounding the facility, examination of the intake structure, screen house, and transmission line corridors, as well as document reviews.

The comment period on the scope of the environmental review closes on July 14, 2004. Comments should be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Mail Stop T-6D59, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, or by e-mail to *PointBeachEIS@nrc.gov*. At the conclusion of the scoping process, the NRC staff will prepare a summary of the significant issues identified and the conclusions reached and will mail a copy to you.

The NRC will issue the draft SEIS for public comment (anticipated publication date, January 2005), and will hold another set of public meetings in the site vicinity to solicit comments on the draft. A copy of the draft SEIS will be sent to you for your review and comment. After consideration of public comments received on the draft, the NRC will prepare a final SEIS. The issuance of a final SEIS for PBNP is planned for August 2005. If you have any questions or require additional information, please contact Mr. William Dam, Environmental Project Manager, at 301-415-4014 or WLD@nrc.gov.

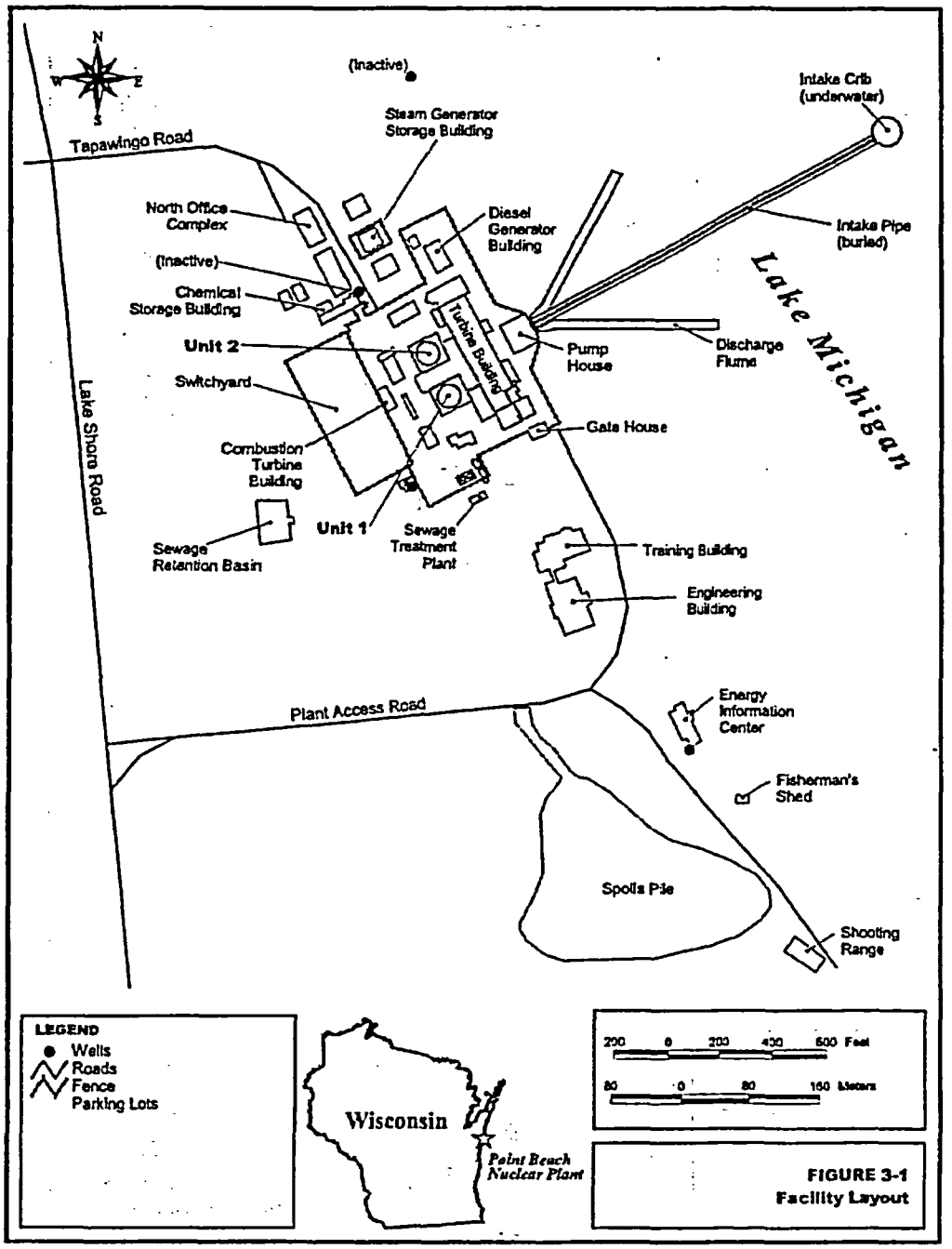
Sincerely,

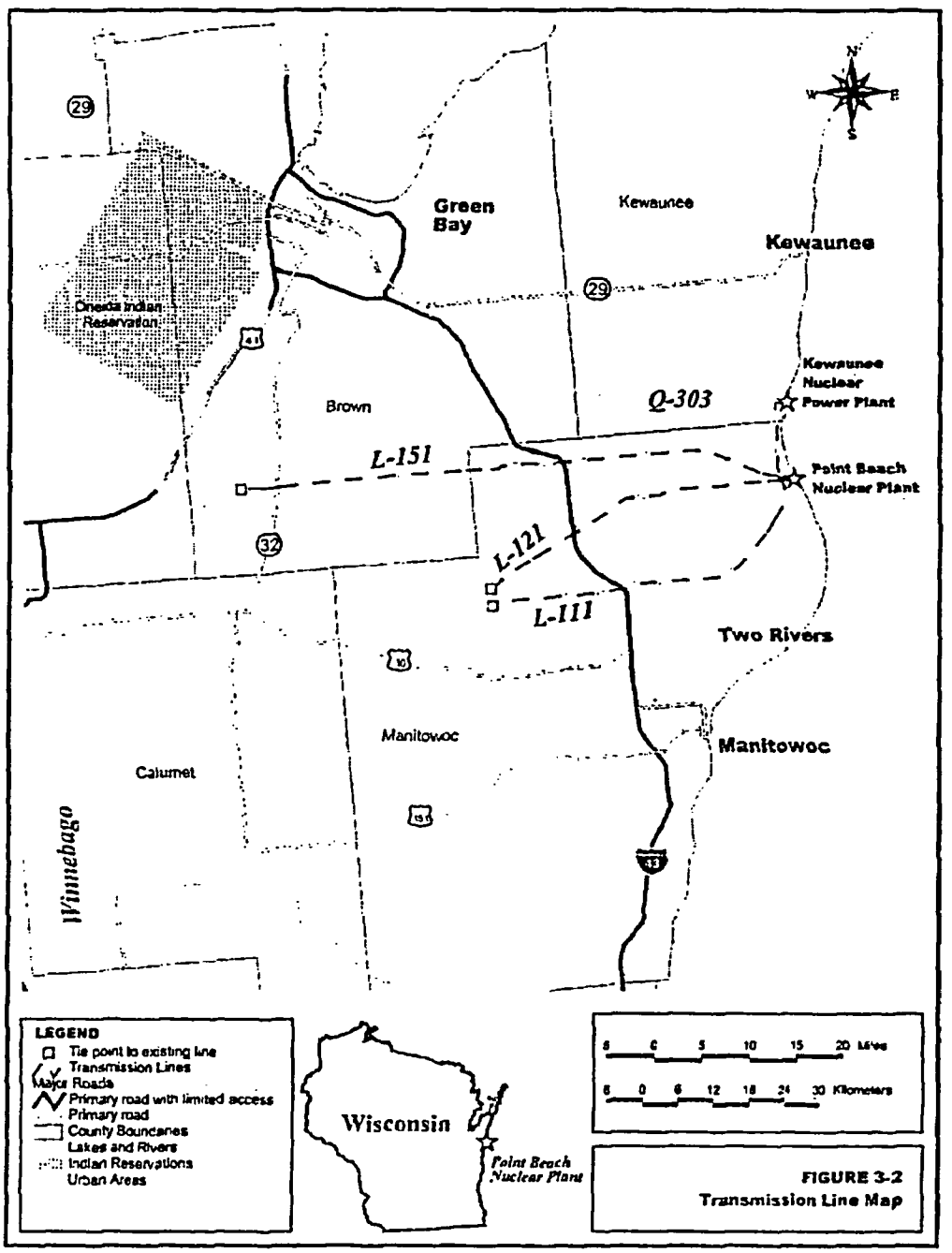
Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

Enclosure: As stated

cc: See next page


N
W
E
S
(Inactive)
Intake Crib
(underwater)
Steam Generator
Storage Building
Tapawingo Road
North Office
Complex
Diesel
Generator
Building
Intake Pipe
(buried)
(Inactive)
Chemical
Storage Building
Turbine Building
Lake Michigan
Unit 2
Pump
House
Discharge
Flume
Switchyard
Lake Shore Road
Gate House
Combustion
Turbine
Building
Unit 1
Sewage
Treatment
Plant
Sewage
Retention Basin
Training Building
Engineering
Building
Plant Access Road
Energy
Information
Center
Fisherman's
Shed
Spoils Pile
Shooting
Range
LEGEND
Wells
Roads
Fence
Parking Lots
Wisconsin
Point Beach
Nuclear Plant
200 0 200 400 600 Feet
80 0 80 160 Meters
FIGURE 3-1
Facility Layout


Green Bay
Kewaunee
Kewaunee
Oneida Indian Reservation
Kewaunee Nuclear Power Plant
Brown
Q-303
L-151
Point Beach Nuclear Plant
L-121
L-111
Two Rivers
Manitowoc
Manitowoc
Calumet
Winnebago
LEGEND
Tie point to existing line
Transmission Lines
Major Roads
Primary road with limited access
Primary road
County Boundaries
Lakes and Rivers
Indian Reservations
Urban Areas
Wisconsin
Point Beach Nuclear Plant
0 5 10 15 20 Miles
0 8 12 18 24 30 Kilometers
FIGURE 3-2
Transmission Line Map

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 5, 2004

Mr. Richard Dexter
Wisconsin Historical Society
Division of Historic Preservation
816 State Street
Madison, WI 53706

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL REVIEW

Dear Mr. Dexter:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application to renew the operating licenses for Point Beach Nuclear Plant, Units 1 and 2 (PBNP), which is located on the western shore of Lake Michigan in Two Rivers, Wisconsin, approximately 30 miles southeast of Green Bay, Wisconsin. PBNP is operated by Nuclear Management Company, LLC (NMC). The application for renewal was submitted by NMC on February 26, 2004, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54). The NRC has established that, as part of the staff review of any nuclear power plant license renewal action, a site-specific Supplemental Environmental Impact Statement (SEIS) to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437, will be prepared under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act of 1969 (NEPA). In accordance with 36 CFR 800.8, the SEIS will include analyses of potential impacts to historic and archaeological resources.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for a license renewal action is the area at the power plant site and its immediate environs that may be impacted by post-license renewal land-disturbing operations or projected refurbishment activities associated with the proposed action. The APE may extend beyond the immediate environs in those instances where post-license renewal land-disturbing operations or projected refurbishment activities, specifically related to license renewal, may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

While preparing its application, NMC contacted your office by letter dated December 22, 2003. In its letter, NMC stated there are no plans to significantly alter current operations over the license renewal period. NMC further stated that no expansion of existing facilities is planned. In addition, no land-disturbing activities are anticipated beyond those required for routine maintenance and repairs.

On June 15, 2004, the NRC will conduct two public NEPA scoping meetings at Fox Hills, 250 West Church Street in Mishicot, Wisconsin. You and your staff are invited to attend. The anticipated publication date for the draft SEIS is January 2005. Your office will receive a copy of the draft SEIS along with a request for comments. If you have any questions or require additional information, please contact Mr. William Dam, Project Manager at 301-415-4014 or WLD@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

cc: See next page

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 12, 2004

Ms. Patricia A. Kurkul
Regional Administrator
NOAA Fisheries
Northeast Regional Office
One Blackburn Drive
Gloucester, MA 09130-2298

SUBJECT: REQUEST FOR LIST OF PROTECTED SPECIES WITHIN THE AREA UNDER EVALUATION FOR POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL

Dear Ms. Kurkul:

The U.S. Nuclear Regulatory Commission (NRC) is reviewing an application submitted by Nuclear Management Company, LLC (NMC) for the renewal of the operating licenses for Point Beach Nuclear Plant, Units 1 and 2 (PBNP). PBNP is located on the western shore of Lake Michigan in Two Rivers, Wisconsin, approximately 30 miles southeast of Green Bay, Wisconsin. As part of the review of the license renewal application, the NRC is preparing a Supplemental Environmental Impact Statement (SEIS) under the provisions of the National Environmental Policy Act (NEPA) of 1969, as amended, which includes an analysis of pertinent environmental issues, including endangered or threatened species and impacts to fish and wildlife. This letter is being submitted under the provisions of the Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act of 1934, as amended.

The proposed action would include the use and continued maintenance of existing plant facilities and transmission lines. The PBNP site covers approximately 1260 acres, of which approximately 1050 acres are used for agriculture. Structures and parking lots occupy about 70 acres, and the remaining acreage is a natural mix of woods, wetlands, and open areas. The area within 6 miles of the plant is mainly farmland, woods, and small residential communities.

Each PBNP unit uses a once-through cooling system with intake and surface discharge to Lake Michigan. The intake structure had been reconfigured in 2001 due to bird mortality rates. The intake structure now stands below the lake surface.

For the specific purpose of connecting PBNP to the regional transmission system, there is a total of approximately 73 miles of transmission lines that occupy approximately 1955 acres of land. These transmission line corridors are being evaluated as part of the SEIS process. The transmission line corridors traverse Brown and Manitowoc Counties. The corridors pass through land that is primarily rolling hills covered with forests or farm land. The enclosed transmission line map shows the transmission system that is being evaluated in the SEIS. Three 345-kilovolt (kV) lines connect PBNP to the electric grid. A fourth transmission line connects Kewaunee Nuclear Power Plant to the PBNP Substation.

To support the EIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of endangered, threatened, candidate, and proposed species, and designated and proposed critical habitat under the jurisdiction of NOAA Fisheries, that may be in the vicinity of PBNP site and its transmission line corridors. The NRC has also contacted the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources and requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of PBNP and its associated transmission lines.

We plan to hold two public NEPA scoping meetings on June 15, 2004, at Fox Hills, 250 West Church Street in Mishicot, Wisconsin. From June 16-17, 2004, we plan to conduct a site audit. You and your staff are invited to attend both the site audit and the public meetings. Your office will receive a copy of the draft SEIS along with a request for comments. The anticipated publication date for the draft SEIS is January 2005.

If you have any questions concerning the NRC staff review of this license renewal application, please contact Mr. William Dam, Project Manager, at 301-415-4014 or WLD@nrc.gov.

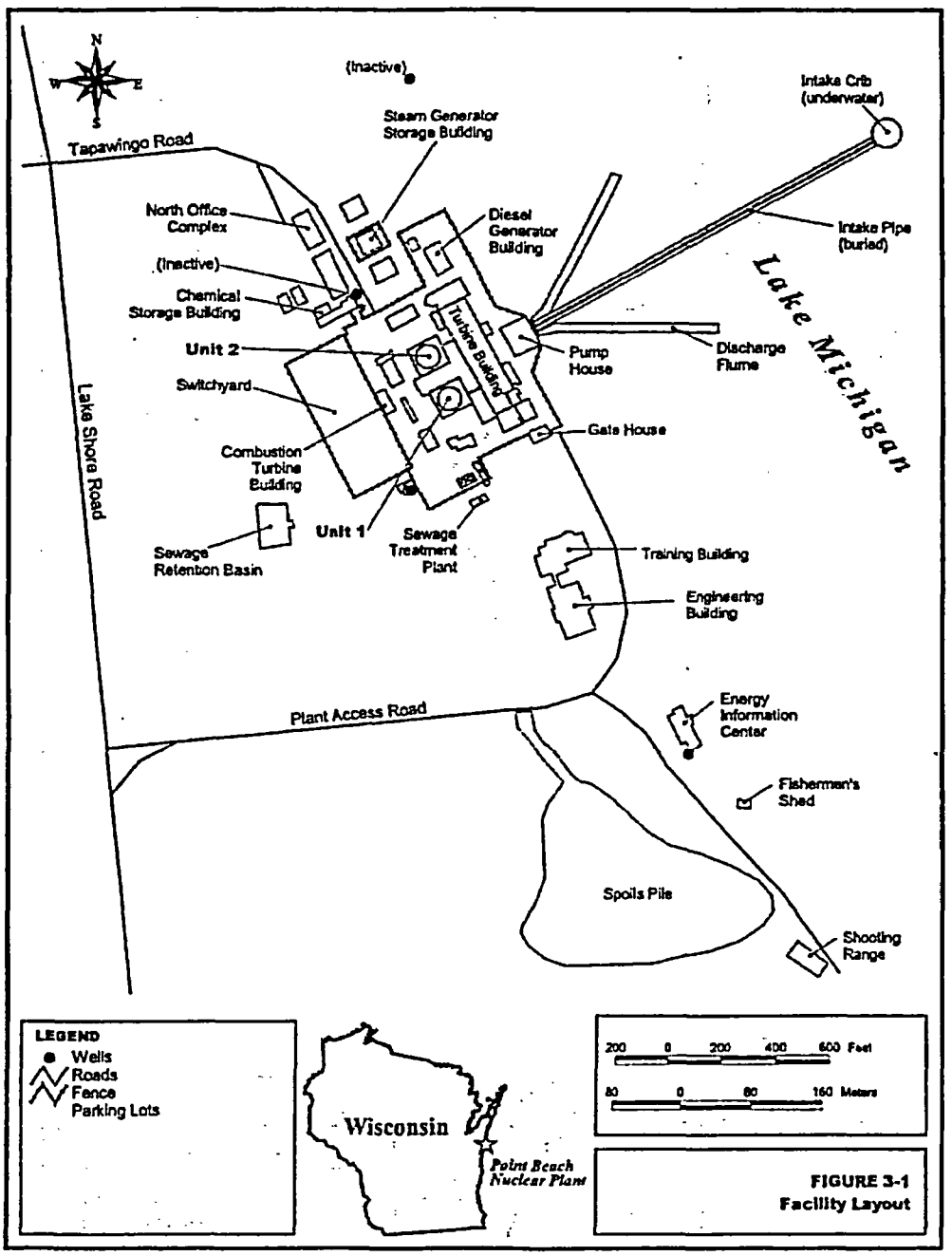
Sincerely,

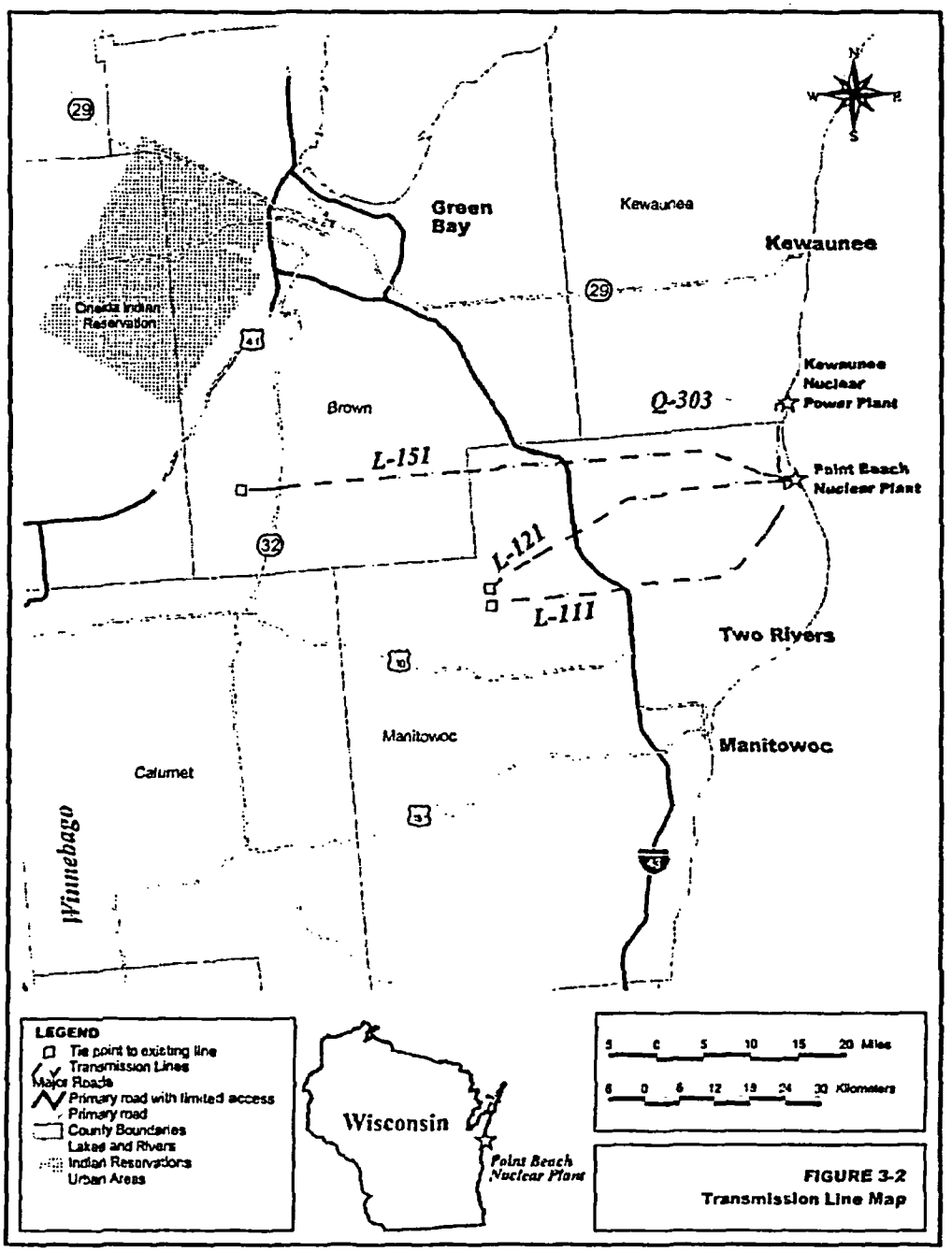
Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

Enclosures: 1. PBNP Transmission Line Map
2. PBNP Site Layout

cc w/encls.: See next page


N
W
E
S
(Inactive)
Intake Crib
(underwater)
Steam Generator
Storage Building
Tapawingo Road
North Office
Complex
Diesel
Generator
Building
Intake Pipe
(buried)
(Inactive)
Chemical
Storage Building
Turbine Building
Lake Michigan
Unit 2
Pump
House
Discharge
Flume
Switchyard
Lake Shore Road
Gate House
Combustion
Turbine
Building
Unit 1
Sewage
Retention Basin
Sewage
Treatment
Plant
Training Building
Engineering
Building
Plant Access Road
Energy
Information
Center
Fisherman's
Shed
Spoils Pile
Shooting
Range
LEGEND
Wells
Roads
Fence
Parking Lots
Wisconsin
Point Beach
Nuclear Plant
200 0 200 400 600 Feet
80 0 80 160 Meters
FIGURE 3-1
Facility Layout


Green Bay
Kewaunee
Kewaunee
Oneida Indian Reservation
Kewaunee Nuclear Power Plant
Brown
Q-303
L-151
Point Beach Nuclear Plant
L-121
L-111
Two Rivers
Manitowoc
Manitowoc
Calumet
Winnebago
LEGEND
Tie point to existing line
Transmission Lines
Major Roads
Primary road with limited access
Primary road
County Boundaries
Lakes and Rivers
Indian Reservations
Urban Areas
Wisconsin
Point Beach Nuclear Plant
Miles
Kilometers
FIGURE 3-2
Transmission Line Map

WISCONSIN HISTORICAL SOCIETY

Headquarters Building
816 State Street
Madison, WI 53706-1482
608-264-6400

May 25, 2004

Mr. PaoTsin Kuo
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

SHSW#: 03-1046/MN
RE: License Renewal: Point Beach Nuclear Plant

Dear Mr. Kuo:

We have received your submittal of May 5, 2004 regarding the above referenced project. As indicated in our previous correspondence of March 11, 2004 to Roger Newton, it was not possible to determine that the fisherman's shed is not eligible for inclusion in the National Register of Historic Places based on the information that was submitted for review. We recommended that a qualified architectural historian prepare a NPS 10-900 form for the property and submit it to our office for review and comment. To date, we have not received the information needed to determine if the fisherman's shed is eligible for inclusion in the National Register of Historic Places.

As pointed out in our letter of January 6, 2004 to the applicant, it is not possible to determine if project activities, including leased property under cultivation are having an adverse effect on unidentified archeological sites within the proposed project area. As I mentioned in our telephone conversation, there would be two options regarding archeological sites. First, one could complete an archeological survey for all projects lands pursuant to 36 CFR 800.4 or we could develop a Memorandum of Agreement that would detail how and when archeological surveys would be completed for land management activities.

We look forward to working with you to complete the Section 106 review process in a timely manner. If you would like to discuss these matters in greater detail, please call me at (608) 264-6507.

Sincerely,

Sherman Banker
Office of Preservation Planning

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

August 5,, 2004

Dr. Pao-Tsin Kuo
Program Director
License Renewal and Environmental Impacts Program
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Pao-Tsin Kuo:

Your May 5, 2004 letter (received May 10, 2004) requested a list of species and information on the protected, proposed, and candidate species and critical habitat that may be in the vicinity of the Point Beach Nuclear Plant (Plant) and its associated transmission line corridors (Project). In a February 26, 2004 letter to the Nuclear Management Company LLC and copied to Mr. William Dam of the Nuclear Regulatory Commission (Commission), the U.S. Fish and Wildlife Service (FWS) identified the need for a more detailed map of the Project area, one that depicted the Project boundaries more precisely. Your letter attached a map that was also not detailed enough for the FWS to query the Wisconsin Department of Natural Resources' Natural Heritage Inventory database, to obtain information regarding species or habitats that may be in the vicinity of the Project. However, a more detailed map was submitted by the Nuclear Management Company LLC, in a letter dated May 18, 2004 (received by the FWS May 21, 2004), and the FWS relied on that map to prepare this response.

Our understanding is that no Federally-listed threatened or endangered species, proposed species, candidate species, or designated or proposed critical habitat occur within the Project area at this time. However, it is possible that habitats within or near the Project may be used in the future by listed, proposed, or candidate species that are not present within the Project area at this time. For example, while the Federally-listed (endangered) piping plover (*Charadrius melodus*) is currently rare along the Wisconsin shore of Lake Michigan, expanding populations in Michigan increase the likelihood it will disperse and occur with greater frequency in Wisconsin. In our February 26, 2004 letter to the Nuclear Management Company, the FWS recommended evaluation of the shoreline habitat near the Plant, to assess its suitability to the piping plover. The FWS also recommended the description of potential measures to control the levels of human disturbance in any habitats deemed suitable.

A response pertaining to these recommendations, by Dr. Noel Cutright of We Energies (dated May 12, 2004 and addressed to Gary Van Middlesworth of the Nuclear Management Company), was delivered to the FWS Green Bay Ecological Services Field Office as an attachment to a

letter from the Nuclear Management Company LLC to the FWS, dated May 18, 2004. Dr. Cutright clarifies that no formal species surveys or habitat evaluations have been conducted at the Plant or its associated lands (p..1). Regarding the piping plover, Dr. Cutright agrees that this species may occupy or nest on the Plant beach area over the term of the new license (p. 2). Regarding controls on human disturbance, Dr. Cutright notes the presence of boulders at the north and south shoreline boundaries, offshore buoy markers to identify restricted waters near the Plant, and the presence of security personnel to prevent unauthorized access (p. 2). Dr. Cutright concludes that other than restricted beach access along the Plant, there do not appear to be other factors that would make the Project shoreline any more attractive to nesting piping plovers than shoreline north or south (p. 2).

As in our February 26, 2004 letter to the Nuclear Management Company, the FWS recommends evaluation of the shoreline habitat near the Plant, to assess its suitability to the piping plover; we are not recommending evaluation of shoreline outside the Project boundaries, north or south of the Plant. The shoreline location of the Point Beach Nuclear Plant, its restricted access (that reduces human disturbances), its proximity to 5 miles of designated critical habitat along the nearby Point Beach State Forest, and low Lake Michigan surface elevations collectively suggest that habitat could be suitable near the Plant for plovers to occupy or nest there in the future. Dr. Cutright agrees that plovers may occupy or nest on the Plant beach area over the term of the new license. An on-site, shoreline evaluation would reveal the presence or absence of factors (e.g., habitat elements) relevant to its attractiveness to plovers, and may also suggest measures to enhance habitat suitability. Procedures should be developed to notify resource agency personnel and provide timely access to the shoreline along the Plant, in the event that plovers occupy or nest there. Measures to control disturbances or nest predation (e.g., by erecting an exclosure) should be proposed, as well as additional monitoring requirements that may be warranted if nests appear.

To avoid delay and confusion, the recommendations discussed above and in our February 26, 2004 letter should be discussed between the Commission (the federal action agency) and the Nuclear Management Company LLC (the non-federal entity in the informal consultation process). Following that coordination, we suggest the Commission contact the FWS to discuss our recommendations and your suggestions for how to proceed. The FWS understands that our point-of-contact with the Commission on this matter is no longer William Dam or Jim Wilson, but is now Stacey Imboden. When the Commission contacts the FWS to consult further on this matter, we can confirm on this point.

Please continue to direct issues regarding this matter to Larry Thompson of my staff at (920) 866-1736, or you may contact me at (920) 866-1725.

Sincerely,

Janet M. Smith
Field Supervisor

cc: Wisconsin DNR
Nuclear Management Company LLC

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 22, 2004

Ms. Janet Smith
Field Supervisor
U.S. Fish and Wildlife Service
Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, WI 54229-9565

SUBJECT: REQUEST FOR CONCURRENCE - BIOLOGICAL ASSESSMENT FOR POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL

Dear Ms. Smith:

The U.S. Nuclear Regulatory Commission (NRC) has prepared the enclosed biological assessment (BA) to evaluate whether the proposed renewal of the Point Beach Nuclear Plant, Units 1 and 2 (PBNP) operating licenses for a period of an additional 20 years would have adverse effects on listed species. The proposed action (license renewal) is not a major construction activity. PBNP is located on the western shore of Lake Michigan in Manitowoc County, Wisconsin, approximately 48 km (30 mi) southeast of Green Bay and 24 km (15 mi) north-northeast of Manitowoc.

By letter dated May 5, 2004, to the U.S. Fish and Wildlife Service (FWS), the NRC requested a list of Federally threatened or endangered species that may be in the vicinity of PBNP and its associated transmission lines. In a letter dated August 5, 2004, the FWS provided a list of Federally threatened or endangered species. The FWS stated that no Federally-listed threatened or endangered species, proposed species, candidate species, or proposed critical habitat occur at the PBNP site, but that beach habitat near PBNP could be suitable nesting habitat for piping plover (*Charadrius melodus*) at some time in the future. The NRC staff has also included in its evaluation three other potentially-occurring Federally-listed species.

In addition the staff also contacted the National Oceanic and Atmospheric Administration - Fisheries (NOAA Fisheries) by letter dated May 12, 2004, requesting a list of Federally threatened or endangered aquatic species that may be in the vicinity of PBNP. NOAA Fisheries did not respond to the May 12, 2004, letter.

The staff has determined that license renewal for PBNP may affect, but is not likely to adversely affect the bald eagle and the piping plover, and will have no effect on the dwarf lake iris and the dune or Pitcher's thistle.

We are requesting your concurrence with our determination. In reaching our conclusion, the NRC staff relied on information provided by the applicant, on literature research and interviews with experts, and on information provided by FWS.

J. Smith -2-

If you have any questions regarding this Biological Assessment or the staff's request, please contact Ms. Stacey Imboden, Environmental Project Manager, at 301-415-2462 or via e-mail at sxf@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

Enclosure: As stated

cc w/encl.: See next page

Biological Assessment

Point Beach Nuclear Plant
License Renewal Review

November 2004

Docket Numbers
50-266
50-301

U.S. Nuclear Regulatory Commission
Rockville, Maryland

1.0 Introduction

The U.S. Nuclear Regulatory Commission (NRC) issues operating licenses for domestic nuclear power plants in accordance with the provisions of the Atomic Energy Act of 1954, as amended, and NRC implementing regulations. The purpose and need for the proposed action (that is, renewal of an operating license) is to provide an option that allows electric power generation to continue beyond the term of the current nuclear power plant operating license, so future generating needs can be met if the operator and State regulatory agencies pursue that option.

Wisconsin Electric Power Company (WEPCO) owns Point Beach Nuclear Plant, Units 1 and 2 (PBNP), and Nuclear Management Company, LLC (NMC) operates PBNP. WEPCO is doing business as We Energies, and is a wholly owned subsidiary of Wisconsin Energy Corporation. In August 2000, WEPCO transferred operating authority for PBNP to NMC (NMC 2004). NMC has prepared an environmental report in conjunction with its application for renewal of the PBNP operating licenses, as provided for by the following NRC regulations:

- Title 10, Energy, Code of Federal Regulations (CFR) Part 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants, Section 54.23, Contents of Application - Environmental Information (10 CFR 54.23).

- Title 10, Energy, CFR Part 51, Environmental Protection Requirements for Domestic Licensing and Related Regulatory Functions, Section 51.53, Postconstruction Environmental Reports, Subsection 51.53(c), Operating License Renewal Stage [10 CFR 51.53(c)].

The NRC is reviewing an application submitted by NMC (the applicant) for the renewal of the operating licenses for PBNP for a period of an additional 20 years. There will be no major construction, refurbishment, or replacement activities associated with this action. This biological assessment examines the potential effects of the continued operation of PBNP on four Federally-listed species that could occur within the PBNP site, near the site, or along its associated transmission line rights-of-way (ROWs) pursuant to Section 7(a)(2) of the Endangered Species Act.

In a letter dated May 5, 2004 (NRC 2004), the NRC requested that the U.S. Fish and Wildlife Service (FWS) provide lists of Federally-listed endangered or threatened species and information on protected, proposed, and candidate species, as well as any designated critical habitat, that may be in the vicinity of PBNP and its associated transmission line ROWs. In a response dated August 5, 2004 (FWS 2004a), the FWS Green Bay Field Office noted that beach habitat near PBNP could be suitable nesting habitat for piping plover (*Charadrius melodus*) at some time in the future. Three other potentially-occurring Federally-listed species were identified by NRC staff and are included in this assessment.

2.0 Proposed Action

The proposed action is the renewal of the operating licenses for PBNP. The plant is located on the western shore of Lake Michigan in Manitowoc County, Wisconsin, approximately 48 km (30 mi) southeast of Green Bay and 24 km (15 mi) north-northeast of Manitowoc (Figure 1)

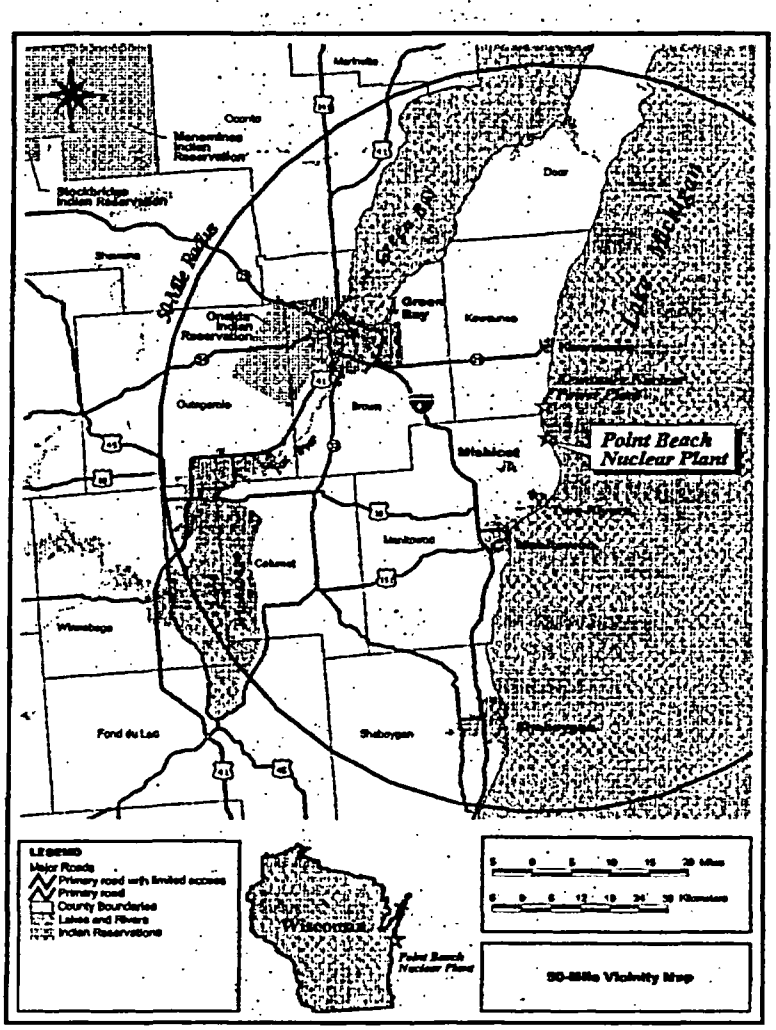


Figure 1. Location of PBNP.

(NMC 2004). The current operating license for Unit 1 expires on October 5, 2010, and for Unit 2 on March 8, 2013. NMC has submitted an application to the NRC to renew these operating licenses for an additional 20 years of operation (i.e., until October 5, 2030, for Unit 1 and March 8, 2033 for Unit 2). The renewed licenses, if issued, will be effective from their date of issuance until 20 years after the expiration date of the current operating licenses.

3.0 Environmental Setting

3.1 Aquatic Resources

Impacts on Federally-listed terrestrial threatened or endangered species that could potentially occur as a result of continued operation of the plant cooling water system during the renewal period are outlined in this section.

Lake Michigan is the source of water for the cooling and auxiliary water systems at PBNP, which operates as a once-through cooling plant. Water from Lake Michigan reaches PBNP through a submerged offshore intake. Water returns to Lake Michigan through a surface shoreline discharge. The system removes waste heat from the condensers as well as other plant equipment and discharges water through separate flumes for each unit. At peak capacity, water is circulated at a maximum rate of 22 m^3/s (783 ft^3/s) through each condenser and then returned to the lake. The water withdrawn for these systems flows first through the intake structure to the forebay, then to the condensers and other equipment. Auxiliary water systems include service water and fire protection.

In May 2001, the intake structure was reconfigured to resolve a bird mortality issue. The modified structure stands approximately 3.4 m (11 ft) above the lake floor, has an outside diameter of about 33 m (110 ft), and has an inside chamber with a diameter of 18 m (60 ft). The top is covered with a steel superstructure and a trash rack made of high-density polyethylene having approximately 18-cm by 45-cm (7-in. by 18-in.) openings (NMC 2001). Water enters the chamber through the trash rack as well as through void spaces around the limestone blocks and through 76-cm (30-in.) pipes that penetrate the blocks in a ring about 1.5 m (5 ft) above the lakebed. The pipes are covered with 3-cm by 5-cm (1.2-in. by 2-in.) bar gratings to prevent debris and large fish from entering the intake system.

3.2 Terrestrial Resources

The PBNP site is located on 510 ha (1260 ac) on the shore of Lake Michigan (NMC 2004). The site and surrounding area consist primarily of agricultural land and forest. Approximately 42 ha (104 ac) of the property are devoted to industrial use. The site consists of land leased for farming and woodlots up to 19 ha (47 ac) in size. The woodlots occupy a total of about 40 ha (100 ac), making up about 9 percent of the PBNP property. The plant communities here include a variety of trees such as aspen (*Populus tremuloides*), blue beech (*Fagus grandifolia*), hemlock (*Tsuga canadensis*), and maple (*Acer*) species forming the overstory (AEC 1972). The woodlots are maintained in a natural state and provide food, cover, and nesting sites for a variety of wildlife.

The terrestrial wildlife that occurs at PBNP site and surrounding areas is typical of that found in similar habitats throughout Wisconsin (AEC 1972). Common mammals include white-tailed deer (*Odocoileus virginianus*), cottontail rabbit (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cineroargenteus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and masked shrew (*Sorex cinereus*). Upland birds that occur on the property include ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), American goldfinch (*Carduelis tristis*), eastern bluebird (*Sialia sialia*), blue jay (*Cyanocitta cristata*), and eastern meadowlark (*Stumella magna*). Several waterfowl also occur here, including the Canada goose (*Branta canadensis*) and the wood duck (*Aix sponsa*). Additionally, the site is occupied by several common amphibians and reptiles such as the tiger salamander (*Ambystoma tigrinum*), northern leopard frog (*Rana pipiens*), American toad (*Bufo americanus*), and the painted turtle (*Chrysemys picta*).

The PBNP property contains about 3 km (2 mi) of Lake Michigan shoreline. The shoreline here consists of mostly narrow, bare beaches ranging from 6 m to 15 m (20 ft to 50 ft) wide that extend from the water's edge to low bluffs created by years of erosion. Riprap has been placed along the edges of the bluffs to reduce erosion, which had been occurring at the rate of 0.8 m to 1.5 m (2.5 ft to 5 ft) per year (AEC 1972). The shoreline on the PBNP property does not contain any sand dunes.

In its Environmental Report, the applicant identified three 345-kilovolt (kV) transmission lines that connect PBNP to the power grid (Figure 2) (NMC 2004). A fourth 345-kV line connects the Kewaunee Nuclear Power Plant to the substation at PBNP. Currently the four lines are owned and maintained by the American Transmission Company (ATC). The transmission lines are described below and each corridor's characteristics are shown in Table 1.

Table 1. PBNP Transmission Line Rights-of-Way

Substation	Rights-of-Way	Number of Lines	kV	Approximate Length		Approximate Width		Approximate Area	
				km	(mi)	m	(ft)	ha	(ac)
Granville	L-111	1	345	32.0	20.0	67	220	210	530
Arcadian	L-121	1	345	29.0	18.0	67	220	190	480
North Appleton	L-151	1	345	47.5	29.7	67	220	320	790
PBNP	Q-303	1	345	9.0	5.6	67	220	61	150

Source: NMC 2004

Each ROW is 67 m (220 ft) wide. Figure 2 shows the transmission system for PBNP. For the specific purpose of connecting PBNP to the power grid, ATC has a total of 118 km (73.3 mi) of transmission lines occupying approximately 791 ha (1955 ac) of easement (NMC 2004). The ROWs pass through land that is primarily rolling hills covered in forest and farmland. These ROWs pass through rural areas with low population densities. The lines cross numerous State and Federal highways, including Wisconsin Highways 42 and 147 and Interstate 43.

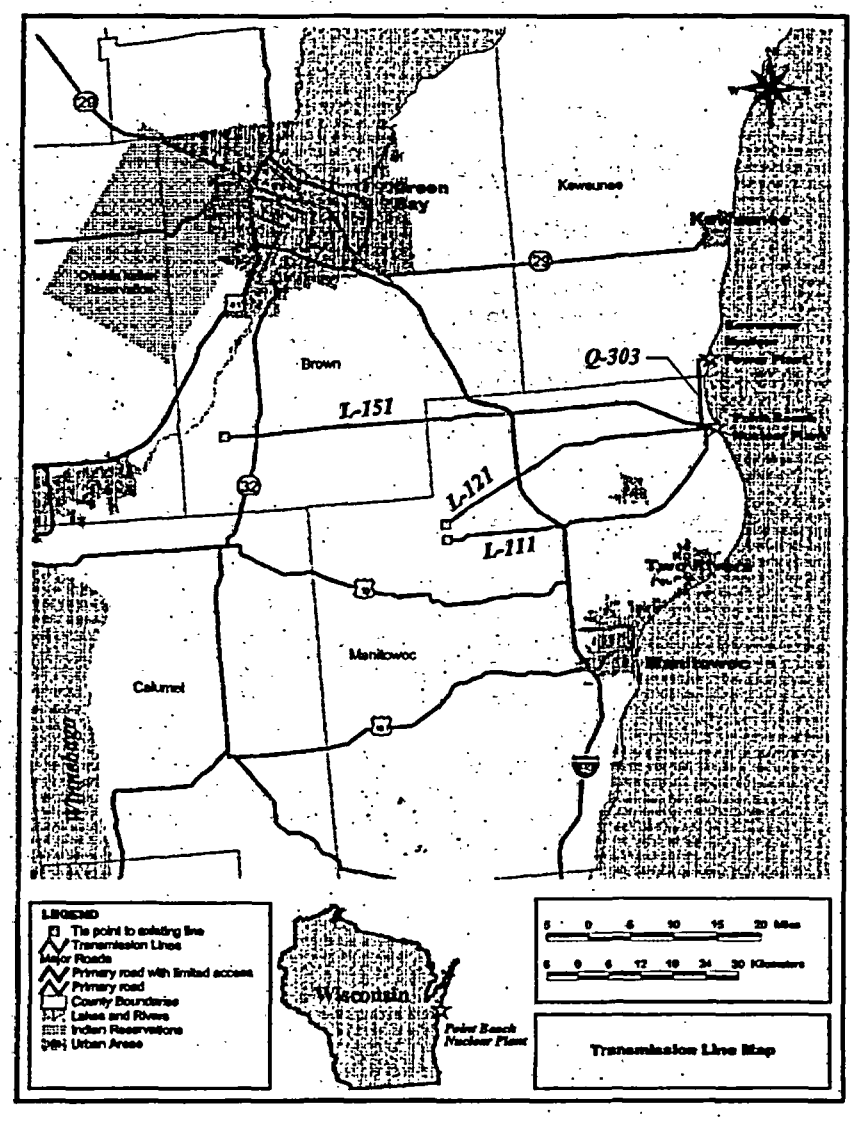


Figure 2. PBNP transmission lines.

ROWs that pass through farmland generally continue to be managed as such. ATC plans to maintain these lines indefinitely as they are an integral part of the larger transmission system. These transmission lines are expected to remain a permanent part of the regional transmission system after decommissioning of PBNP.

ATC implements the ROW inspection and maintenance program for PBNP-associated transmission lines (ATC 2004). ATC manages transmission line ROWs using a wire zone/border zone concept. The wire zone is directly below the transmission lines and vegetation is primarily low growing forbs and grasses. The border zone extends from the wire zone to the edge of the ROW and woody species less than 5 m (15 ft) tall provide a transition to the surrounding habitats. Vegetation management activities may include tractor mowing, manual chainsaw clearing, and application of herbicides by a state-licensed, commercial applicator. Trimming is usually performed every 5 to 7 years, depending on the growth rates of vegetation in a given area. ATC recognizes that transmission line ROWs provide ancillary compatible uses including wildlife habitat, biodiversity corridors, recreation, and aesthetics. ATC practices a vegetation management program that utilizes physical, chemical, and biological treatments to promote stable, diverse, low-growing plant communities in a way that promotes wildlife habitat and reduces environmental impacts.

4.0 Assessment of Federally-Listed Species

There are no Federally-listed threatened or endangered aquatic species known to occur at the PBNP site or on habitat crossed by the associated transmission line ROWs (NMC 2004). There are four Federally-listed threatened or endangered terrestrial species that have been identified by the staff as potentially occurring in the vicinity of PBNP and its associated transmission lines. Three species have been recorded in Manitowoc County: the bald eagle (*Haliaeetus leucocephalus*), the piping plover (*Charadrius melodus*), and the dune or Pitcher's thistle (*Cirsium pitcheri*) (WDNR 2004). The dwarf lake iris (*Iris lacustris*), also a Federally-listed species, has been recorded in Brown County, which is traversed by a PBNP transmission line. Table 2 presents those Federally and State-listed species that have been recorded in Brown and Manitowoc Counties and could potentially occur on the PBNP site or transmission line ROWs, if suitable habitat were available.

Table 2. Terrestrial Species Listed as Endangered or Threatened by the FWS and that Occur or Potentially Occur Within the PBNP Site or the Associated Transmission Line Rights-of-Way

Scientific Name	Common Name	Federal Status[a]
Birds		
Haliaeetus leucocephalus	bald eagle	T
Charadrius melodus	piping plover	E
Plants		
Cirsium pitcheri	dune (or Pitcher's) thistle	T
Iris lacustris	dwarf lake iris	T

(a) E = endangered, T = threatened. Sources: FWS 2004b.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is Federally-listed as threatened in the lower 48 states (FWS 2004b). This species is a large raptor that is found along the coastline around lakes and rivers. Eagles generally nest in tall trees or on cliff faces near water and away from human disturbance. No bald eagle nesting occurs on the plant site and none have been observed to forage in the vicinity of the plant (We Energies 2004a). The transmission lines extend for the most part to the west, away from Lake Michigan and bald eagle foraging habitat.

For these reasons, the staff has determined that continued operation of PBNP over the 20-year license renewal period may affect, but is not likely to adversely affect the bald eagle.

Piping Plover (*Charadrius melodus*)

The piping plover is Federally-listed as endangered in the Great Lakes region (FWS 2004b). Piping plovers breed only in three North American geographic regions: the Atlantic coast, the Northern Great Plains, and the Great Lakes. Great Lakes piping plovers breed along sparsely vegetated beaches, cobble pans, and sand spits along the shoreline. The FWS defines their essential breeding habitat as greater than 7 m (23 ft) wide beach, greater than 0.4 km (0.25 mi) of shoreline length, dune area of 1.95 ha (4.82 ac), patches of cobble or degree cover, and areas of beach with up to 50 percent of vegetation cover (FWS 2004b). The stretch of shoreline nearest to PBNP that is designated as critical breeding habitat is at Point Beach State Forest, approximately 5 km (3 mi) to the southeast, where about 13 km (8 mi) of shoreline have been designated as suitable, although there are no records of breeding at this location (FWS 2004c). The only breeding plovers known within Wisconsin in recent years are along the shores of Lake Superior (WDNR 2004).

We Energies conducted an initial piping plover suitability assessment of their Lake Michigan property on October 1, 2004. The assessment concluded that portions of the shoreline appear to be suitable nesting habitat (We Energies 2004b). Based on this result, a series of recommendations was presented:

- No measures should be taken to enhance habitat suitability,
- A piping plover breeding census should be conducted annually between June 1 and June 15 using the International Piping Plover Breeding Census guidelines, and an individual census report should be completed each year,
- The FWS Green Bay Field Office and the Wisconsin Department of Natural Resources Bureau of Endangered Resources should be contacted on the day that nesting piping plovers are discovered on the site, and
- We Energies will collaborate with the above-mentioned agency staffs to determine beach access, nesting habitat protection, and monitoring requirements.

In correspondence dated November 5, 2004, We Energies agreed to implement these recommendations (We Energies 2004c). In addition, NMC restricts unauthorized public access to the Lake Michigan beach area of the PBNP site with a line of boulders at the north and south boundaries, buoy markers off the shoreline to mark restricted waters, and twenty-four hour security personnel surveillance. For these reasons, the staff has determined that continued operation of PBNP over the 20-year license renewal period may affect, but is not likely to adversely affect the piping plover.

Dune or Pitcher's Thistle (*Circium pitcheri*)

The dune or Pitcher's thistle is Federally-listed as threatened over its entire range (FWS 2004b). The preferred site for the dune or Pitcher's thistle is an area between a sandy beach and a fully vegetated dune next to the shorelines of the Great Lakes (WDNR 2004). The primary threats to the species are disturbance through recreational activities (ATV use, trampling, etc.) and overstory encroachment (NatureServe 2004). Although no suitable habitat for this species has been identified at the PBNP site or along associated transmission line corridors, beach habitat is protected. NMC restricts unauthorized public access to the Lake Michigan beach area of the PBNP site with a line of boulders at the north and south boundaries, buoy markers off the shoreline to mark restricted waters, and twenty-four hour security personnel surveillance.

For these reasons, the staff has determined that continued operation of PBNP over the 20-year license renewal period will have no effect on the Pitcher's thistle.

Dwarf Lake Iris (*Iris lacutris*)

The dwarf lake iris is Federally-listed as threatened over its entire range (FWS 2004b). The dwarf lake iris is endemic to the northern shores of Lake Michigan and Lake Huron. This species is found in association with the Niagara Escarpment, a limestone formation that extends from the Door Peninsula to the north of the PBNP site through Michigan and Ontario to New York. In Wisconsin the dwarf lake iris is found on the northwestern shore of Lake Michigan and the eastern shore of Green Bay in Brown and Door counties (WDNR 2004). The primary threat to this species is habitat degradation due to overstory encroachment (NatureServe 2004). This species apparently thrives with frequent natural disturbance and does not appear to be detrimentally impacted by human disturbance and is reported to do well in old-field conditions (NatureServe 2004). Although this species has not been recorded at the PBNP site or along associated transmission line corridors, potential beach habitat is protected. NMC restricts unauthorized public access to the Lake Michigan beach area of the PBNP site with a line of boulders at the north and south boundaries, buoy markers off the shoreline to mark restricted waters, and twenty-four hour security personnel surveillance.

For these reasons, the staff has determined that continued operation of PBNP over the 20-year license renewal period will have no effect on the dwarf lake iris.

5.0 Conclusions

The NRC staff has evaluated the potential impacts of an additional 20 years of continued PBNP operation on four species that are Federally-listed as threatened or endangered and have the potential to occur at the PBNP site or along its associated transmission line corridors. Although none of the four species are known to occur at the site or along transmission line corridors, NMC and ATC have developed and implemented procedures to protect wildlife and habitat.

The staff has determined that license renewal for PBNP may affect, but is not likely to adversely affect the bald eagle and the piping plover, and will have no effect on the dwarf lake iris and the dune or Pitcher's thistle.

6.0 References

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

10 CFR Part 54. Code of Federal Regulations, Title 10, *Energy*, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants."

Atomic Energy Act of 1954. 42 United States Code (USC) 2011, et seq.

American Transmission Company (ATC). 2004. *Routine Right-of-Way Maintenance.* Accessed at: http://www.atcllc.com/projects_rightofway.shtml, on November 8, 2004.

NatureServe 2004. *NatureServe Explorer: an Online Encyclopedia of Life.* Version 3.1, NatureServe, Arlington, Virginia. Accessed at http://www.natureserve.org, on November 9, 2004.

Nuclear Management Company, LLC (NMC). 2004. *Point Beach Nuclear Plant Operating License Renewal Application Environmental Report.* Mishicot, Wisconsin. February 2004.

U.S. Atomic Energy Commission (AEC). 1972. *Final Environmental Statement Related to Operation of Point Beach Nuclear Plant Units 1 and 2,* Docket Nos. 50-266 and 50-301. Directorate of Licensing.. Washington, DC.

U.S. Fish and Wildlife Service (FWS). 2004a. Letter from U.S. Fish and Wildlife Service to Nuclear Regulatory Commission. Subject: Response to the May 5, 2004 NRC staff letter requesting information regarding threatened and endangered species in the vicinity of the PBNP. (August 5, 2004).

U.S. Fish and Wildlife Service (FWS). 2004b. *Species Information, Threatened and Endangered Animals and Plants website.* Accessed at http://endangered.fws.gov/wildlife.html, on August 2, 2004 through September 23, 2004.

U.S. Fish and Wildlife Service (FWS). 2004c. *All About Piping Plovers.* Accessed at http://plover.fws.gov/facts.html on November 9, 2004.

U.S. Nuclear Regulatory Commission (NRC). 2004. Letter from Nuclear Regulatory Commission to U.S. Fish and Wildlife Service. Subject: Request for information regarding threatened and endangered species in the vicinity of PBNP. (May 5, 2004).

We Energies. 2004a. Letter from We Energies Senior Terrestrial Ecologist, Dr. N. Cutright, to Nuclear Management Company Vice President. Subject: Response to U.S. Fish and Wildlife Service Letter. (May 12, 2004).

We Energies. 2004b. Piping plover Habitat on We Energies Property Near the Point Beach Nuclear Plant. Performed by Dr. N. Cutright, (October 15, 2004).

We Energies. 2004c. Letter from We Energies to Nuclear Regulatory Commission. Subject: Implementation of Piping Plover Habitat Survey Recommendations. (November 5, 2004).

Wisconsin Department of Natural Resources (WDNR). 2004. *Wisconsin State Threatened and Endangered Species website.* Accessed at: http://www.dnr.state.wi.us/org/land/er/working_list/taxalists/TandE.asp on May 5, 2004.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

January 31, 2005

Dr. Pao-Tsin Kuo
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001

re: Request for Concurrence
Biological Assessment for Point Beach
Nuclear Plant
Units 1 and 2 License Renewal
Manitowoc County, Wisconsin

Dear Dr. Kuo:

This letter responds to your November 22, 2004 request for U.S. Fish and Wildlife Service (Service) concurrence with your determination of effects of the proposed license renewal on federally-listed threatened and endangered species and is a follows up on a december 23, 2004 electronic message to Ms. Stacey Imboden. The proposed action would renew the operating license for the Point Beach Nuclear Plant, Units 1 and 2 (PBNP), for a period of 20 years. It does not involve additional construction. The plant is located on the western shore of Lake Michigan in Manitowoc County, Wisconsin. We have reviewed the Biological Assessment (BA) for the license renewal, and any other accompanying documents. Our comments follow.

Three federally-listed species, the bald eagle, piping plover, and Pitcher's thistle, have been documented in Manitowoc County. An additional species, the dwarf lake iris, has been documented in Brown County, which is traversed by a PBNP transmission line.

The bald eagle is not known to nest in the plant area, and has not been observed foraging in or near the plant area. The transmission lines generally extend to the west, away from Lake Michigan. However, we disagree with the BA that it extends away from bald eagle foraging habitat. Bald eagles have been observed foraging on smaller, interior waterbodies that may be found near the transmission line. Nonetheless, the license renewal does not involve additional construction or expansion of lines. Therefore, we concur with your determination that the proposed action may affect, but will not adversely affect the bald eagle.

The Pitcher's thistle has not been observed in the PBNP area, or along the transmission line corridors. No suitable habitat has been observed for the thistle within the project area. Based on this information, we concur with your determination that the proposed action will not affect the Pitcher's thistle.

The dwarf lake iris has not been observed in the PBNP area, or along the transmission line corridors. However, any suitable habitat for the iris is protected from public access and would not be disturbed as a result of the proposed action. Based on this information, we concur with your determination that the proposed action will not affect the dwarf lake iris.

The piping plover has not been observed on the PBNP property. However, there is designated critical habitat for the plover located to the south of the plant. There is also suitable habitat for the plover on the plant grounds. The Great Lakes piping plover population is rapidly expanding, and there is some probability that plovers may attempt to use the beaches on the PBNP property in the near future. The BA states that WE Energies has agreed to conduct an annual individual census between June 1 and June 15 over the life of the license renewal period; they have agreed to contact the Service's Green Bay Ecological Services Field Office and the Wisconsin Department of Natural Resources (DNR)-Bureau of Endangered Resources on the same day that nesting is discovered; and they will collaborate with Service and DNR staff in protection and monitoring of those nests.

While we are encouraged by the willingness of the applicant to cooperate with agencies in protection of the plover, we request the following modifications to the proposed plover-related actions. We prefer that two or more surveys be conducted during the breeding season, with one occurring before May 30, and one or more occurring between June 1 and June 15. Surveys should be separated by at least 5 days. However, if only one "census" is done annually, we request that it be conducted by June 10. If one or more piping plovers are observed during the census, the Green Bay Ecological Services Field Office should be contacted immediately to initiate coordination on additional actions. The site should be monitored daily without disturbing the birds. If piping plovers persist on the site for more than a few days, trained Service staff should be allowed to visit the site, accompanied by appropriate personnel, to determine if nesting has been initiated or will likely occur (based on the behavior of the birds). If nesting occurs, WE Energies should collaborate with Service and DNR staff in protection and monitoring of the nests in accordance with the 2003 *Recovery Plan for the Great Lakes Piping Plover.*

Once we receive confirmation that the aforementioned measures will be included in the license renewal, we will be able to issue our concurrence with your determination for the piping plover. We look forward to your response regarding our recommendations for piping plover monitoring and/or protection.

While our concurrence with your determinations for the bald eagle, Pitcher's thistle, and dwarf lake iris is current as of the date of this letter, please be aware that over time, habitats at or near the project site may be utilized by listed or proposed species not present at this time. Further, fish, wildlife or plant species occurring within the project area may become federally-listed as threatened or endangered or proposed for listing; it also is possible that critical habitat could be proposed or designated for a species. Therefore, if the project is modified, this office should be

contacted for an updated review of the project. Our species/critical habitat list is updated every 6 months.

We appreciate the opportunity to respond. Questions pertaining to these comments can be directed to Ms. Leakhena Au at 920-866-1734.

Sincerely,

Janet M. Smith

Janet M. Smith
Field Supervisor

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 21, 2005

Ms. Janet Smith
Field Supervisor
U.S. Fish and Wildlife Service
Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, WI 54229-9565

SUBJECT: REQUEST FOR CONCURRENCE - BIOLOGICAL ASSESSMENT FOR POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL

Dear Ms. Smith:

The U.S. Nuclear Regulatory Commission (NRC) has prepared a biological assessment (BA) and transmitted it to U.S. Fish and Wildlife Service (FWS) on November 22, 2004. That BA evaluated whether the proposed renewal of the Point Beach Nuclear Plant, Units 1 and 2 (PBNP) operating licenses for a period of an additional 20 years would have adverse effects on listed species. In the BA, the staff has determined that license renewal for PBNP may affect, but is not likely to adversely affect the bald eagle and the piping plover, and will have no effect on the dwarf lake iris and the Pitcher's thistle.

By letter dated January 31, 2005, FWS concurred with NRC determinations regarding the bald eagle, the Pitcher's thistle, and the dwarf lake iris. With regard to the piping plover, FWS noted that the piping plover has not been observed on the PBNP property but that piping plovers may attempt to use the beaches on the PBNP property in the near future. Therefore, FWS requested additional modifications to We Energies' proposed piping plover monitoring framework.

We Energies revised its piping plover monitoring framework based on subsequent discussions with FWS. The revised framework contains six points, as outlined in We Energies' letter to FWS dated February 17, 2005. FWS responded to this revised monitoring framework by letter to We Energies dated March 7, 2005, in which FWS said that it concurs with framework points one through five but suggests a change to point six. This letter supplements the BA by incorporating We Energies' commitment to modify monitoring framework point six by letter to FWS dated March 15, 2005. The We Energies Point Beach piping plover monitoring framework incorporates the suggested changes from FWS, and stands as follows (as adapted from March 15, 2005 letter from We Energies to FWS):

1. No measures will be taken to enhance habitat suitability along the stretch of beach owned by We Energies near the PBNP;
2. An annual piping plover breeding census will be conducted at this location between June 1 and June 15, with a target date of June 10 over the term of the new license;
3. The International Piping Plover Breeding Census (IPPBC) guidelines will be followed, and an IPPBC individual census report will be completed each year;
4. The Green Bay office of the FWS and the Wisconsin Department of Natural Resources will be contacted on the same day that piping plovers are found nesting at this location;

5. Contacts with the natural resource agency staffs described in the above step will be used to discuss beach access on the property, measures to protect the nest, and additional monitoring requirements of the nest site;
6. If piping plovers are observed on the PBNP property, follow up surveys will be conducted in the same year; earlier and repeated surveys will be conducted the next year, continuing for as long as piping plovers are observed at the PBNP property.

NRC is requesting your concurrence with our determination in the November 22, 2004, BA as supplemented by this letter. The original BA is attached to this letter. The staff has determined that license renewal for PBNP may affect, but is not likely to adversely affect the bald eagle and the piping plover, and will have no effect on the dwarf lake iris and the Pitcher's thistle. In reaching our conclusion, the NRC staff relied on information provided by the applicant, on literature research and interviews with experts, and on information provided by FWS.

If you have any questions regarding this BA or the staff's request, please contact Ms. Stacey Imboden, Environmental Project Manager, at 301-415-2462 or via e-mail at sxf@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

Enclosure: Biological Assessment

cc w/o encl.: See next page

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

May 5, 2005

Dr. Pao-Tsin Kuo
License Renewal and Environmental Impacts Program
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, District of Columbia 20555-0001

re: Biological Assessment
License Renewal
Point Beach Nuclear Plant, Units 1 and 2
Manitowoc County, Wisconsin

Dear Dr. Kuo:

The U.S. Fish and Wildlife Service (Service) has received your letter dated April 21, 2005, with the Biological Assessment (BA) for the license renewal at Point Beach Nuclear Plant Units 1 and 2 in Manitowoc County, Wisconsin. Your letter includes a revised framework for piping plover monitoring at the property and requests concurrence with the determination of effects of the proposed action on federally-listed species that was included in the BA. We have reviewed the attached information and our comments follow.

In a letter dated January 31, 2005, the Service concurred with your determination of no adverse effects to the bald eagle, Pitcher's thistle, and dwarf lake iris. As no new information has been received regarding these species, our concurrence remains valid. In the revised framework, monitoring of the piping plover would be increased in the event that they are observed on the property, and Service staff would be contacted immediately if nesting is observed. Based on the information provided in your letter, as well as in discussions with Dr. Noel Cutright of WE Energies and Ms. Stacey Imboden of your office, we concur with your determination that the action, as proposed, may affect but would not adversely affect the piping plover. Please note that in accordance with Section 7 of the Endangered Species Act, if birds are repeatedly observed at the project site, consultation with this office should be re-initiated regardless of whether nesting has been confirmed.

While these comments are current as of the date of this letter, please be aware that over time, habitats at or near the project site may be utilized by listed or proposed species not present at this time. Further, fish, wildlife or plant species occurring within the project area may become

federally-listed as threatened or endangered or proposed for listing; it also is possible that critical habitat could be proposed or designated for a species. Therefore, if the project is modified, or if there is a significant lag between plan completion and construction, this office should be contacted for an updated review of the project. Our species/critical habitat list is updated every 6 months.

We appreciate the opportunity to respond. Questions pertaining to these comments can be directed to Ms. Leakhena Au at 920-866-1734.

Sincerely,

Janet M. Smith
Field Supervisor

cc: NRC, Washington, D.C. Attn: Stacey Imboden

From: "Luebke, Paul W." <Paul.Luebke@dnr.state.wi.us>
To: "Stacey Imboden" <SXF@nrc.gov>
Date: 5/25/05 12:15PM
Subject: RE: Point Beach Nuclear Plant-settling pond onsite

Here's some additional information regarding the groundwater at the Point Beach Nuclear Power Plant.
Paul Luebke

Our private water systems specialist here, Liz Heinen, who works with the smaller wells at the site, indicated there haven't been any significant groundwater problems with those wells. That data is available in the DNR Drinking Water System database. Also of note, the Dept. of Health and Family Services conducted an "environmental radioactivity survey" in 2003 for various locations at and by the plant, and it doesn't appear that any significant groundwater problems were identified. That survey is available at http://dhfs.wisconsin.gov/dph_beh/EnvMonitoring/PtBeach/PBK03Survey.htm .

The wastewater pond abandonment project was completed November 1, 2002. The basin engineer, Dave Gerdman, confirmed there are no current groundwater discharges at the power plant site, and neither the power plant or the Department are aware of problems with the water supply. A public water supply inspection was conducted in 2003. However, radioactive material wasn't sampled for, which may be present in the upper aquifer from past discharges. The water supply wells aren't located in the upper aquifer.

-----Original Message-----
From: Luebke, Paul W.
Sent: Tuesday, May 24, 2005 2:05 PM
To: 'Stacey Imboden'
Subject: RE: Point Beach Nuclear Plant-settling pond onsite

Thanks for providing the EPA comment. There's nothing specific with regard to problems with the pond abandonment. EPA believes an evaluation of the groundwater conditions at the site is warranted to evaluate impacts to water supply wells and power plant operation. They want some groundwater quality data to confirm site conditions and that the old pond didn't contaminant groundwater. The fact the pond is abandoned, the potential source of contamination has been removed. I don't believe EPA's comment affects DNR previously stated position on closure of the pond. Paul

-----Original Message-----
From: Stacey Imboden [mailto:SXF@nrc.gov]
Sent: Tuesday, May 24, 2005 12:33 PM
To: Luebke, Paul W.
Subject: RE: Point Beach Nuclear Plant-settling pond onsite

This is an excerpt of the EPA comment:

As part of its July 1, 2004 scoping comments, the U.S. EPA recommended that the draft SEIS describe site hydrogeology, on-site drinking water wells, drinking water quality, and treatment of the drinking water. The U.S. EPA also recommended that NRC evaluate the potential for groundwater contamination under the license renewal period, especially with regard to the abandoned settling pond... it does not seem likely that other plants have the same groundwater regime and configuration of drinking water wells and an abandoned retention pond onsite..the SEIS does not successfully describe the impact of extended plant operation, including management of the abandoned settling pond, on groundwater and drinking water. Therefore, we recommend that the SEIS include an evaluation of ground water conditions and potential impacts of extended plant operation as part of the license renewal SEIS for this site.

The entire EPA comment letter is located in ADAMS on the NRC website (www.nrc.gov) under accession

number ML051160259. I do not have it electronically.

Thanks,
Stacey

>>> "Luebke, Paul W." <Paul.Luebke@dnr.state.wi.us> 05/24/05 12:09PM >>>
I agree with what you've stated is DNR's position in the email you sent me. We consider the abandonment complete. I'm not aware of what EPA's concerns are regarding the abandonment of the wastewater settling pond. Could you please forward to me what their comments are. Thanks.

Paul W. Luebke, PH
Wastewater Specialist
Bureau of Watershed Management
Wisconsin Department of Natural Resources
phone: (608) 266-0234
fax: (608) 267-2800
e-mail: paul.luebke@dnr.state.wi.us

-----Original Message-----
From: Stacey Imboden [mailto:SXF@nrc.gov]
Sent: Tuesday, May 24, 2005 9:52 AM
To: Luebke, Paul W.
Cc: schumannp@lanl.gov; basu3@llnl.gov
Subject: Point Beach Nuclear Plant-settling pond onsite

Paul,

I'm completing NRC's Final Environmental Impact Statement for License Renewal at Point Beach Nuclear Plant. I received a comment from EPA expressing concerns over the abandoned settling pond located onsite. I want to follow up with you just to confirm that WDNR has no concerns regarding the settling pond, as was expressed to Amit Basu (from Lawrence Livermore National Laboratory) during his meeting with you on June 15, 2004.

The Abandonment Plan for the Wastewater Retention Pond at Point Beach was approved by WDNR, per approval letter dated April 30, 2002, stating that WDNR is "approving the abandonment plan ... reviewed for compliance with" the applicable requirements, and that "the report concluded the waters of the state were not adversely impacted by the retention pond."

It is my understanding that settling pond closure, and any groundwater release or contamination issues, have been thoroughly reviewed by WDNR. Based on Amit Basu's discussions with you at WDNR on June 15, 2004, there are no current groundwater issues that WDNR is concerned about at Point Beach Nuclear Plant. After reviewing the new WPDES permit for Point Beach (issued July 1, 2004) it is also my understanding that there are no groundwater monitoring or inspection issues as part of the permit requirements.

Additionally, I understand that there have been no known discharges to groundwater from Point Beach Nuclear Plant since the settling pond was closed.

Is this a correct characterization of WDNR's position? If not, please let me know of any concerns.

Thanks,
Stacey Imboden
U.S. Nuclear Regulatory Commission
Project Manager- Point Beach License Renewal Review

Phone: 301-415-2462
Email: sxi@nrc.gov

CC: "Gerdman, David A" <David.Gerdman@dnr.state.wi.us>

Appendix F

GEIS Environmental Issues Not Applicable to Point Beach Nuclear Plant Units 1 and 2

Appendix F

GEIS Environmental Issues Not Applicable to Point Beach Nuclear Plant Units 1 and 2

Table F-1 lists those environmental issues listed in the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS) (NRC 1996, 1999)[a] and Title 10 of the Code of Federal Regulations (CFR) Part 51, Subpart A, Appendix B, Table B-1, that are not applicable to Point Beach Nuclear Plant Units 1 and 2 (PBNP) because of plant or site characteristics.

Table F-1. GEIS Environmental Issues Not Applicable to PBNP

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
SURFACE WATER QUALITY, HYDROLOGY, AND USE (FOR ALL PLANTS)			
Altered salinity gradients	1	4.2.1.2.2 4.4.2.2	The PBNP cooling system does not discharge to an estuary.
Water-use conflicts (plants with cooling ponds or cooling towers using makeup water from a small river with low flow)	2	4.3.2.1 4.4.2.1	The PBNP cooling system does not use makeup water from a small river with low flow.
AQUATIC ECOLOGY (FOR PLANTS WITH COOLING-TOWER-BASED HEAT-DISSIPATION SYSTEMS)			
Entrainment of fish and shellfish in early life stages	1	4.3.3	This issue is related to heat-dissipation systems that are not installed at PBNP.
Impingement of fish and shellfish	1	4.3.3	This issue is related to heat-dissipation systems that are not installed at PBNP.
Heat shock	1	4.3.3	This issue is related to heat-dissipation systems that are not installed at PBNP.

(a) The GEIS was originally issued in 1996. Addendum 1 to the GEIS was issued in 1999. Hereafter, all references to the "GEIS" include the GEIS and its Addendum 1.

Table F-1. (contd)

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
GROUNDWATER USE AND QUALITY			
Groundwater use conflicts (potable and service water and dewatering; plants that use >100 gpm)	2	4.8.1.1 4.8.2.1	PBNP uses <100 gpm of groundwater.
Groundwater-use conflicts (plants using cooling towers withdrawing makeup water from a small river)	2	4.8.1.3 4.4.2.1	This issue is related to heat-dissipation systems that are not installed at PBNP.
Groundwater-use conflicts (Ranney wells)	2	4.8.1.4	PBNP does not have or use Ranney wells.
Groundwater quality degradation (Ranney wells)	1	4.8.2.2	PBNP does not have or use Ranney wells.
Groundwater quality degradation (saltwater intrusion)	1	4.8.2.1	PBNP uses <100 gpm of groundwater and is not located near a saltwater body
Groundwater quality degradation (cooling ponds in salt marshes)	1	4.8.3	This issue is related to a heat-dissipation system that is not installed at PBNP.
Groundwater quality degradation (cooling ponds at inland sites)	2	4.8.3	This issue is related to a heat-dissipation system that is not installed at PBNP.
TERRESTRIAL RESOURCES			
Cooling tower impacts on crops and ornamental vegetation	1	4.3.4	This issue is related to a heat-dissipation system that is not installed at PBNP.
Cooling tower impacts on native plants	1	4.3.5.1	This issue is related to a heat-dissipation system that is not installed at PBNP.
Bird collisions with cooling towers	1	4.3.5.2	This issue is related to a heat-dissipation system that is not installed at PBNP.
Cooling pond impacts on terrestrial resources	1	4.4.4	This issue is related to a heat-dissipation system that is not installed at PBNP.

Table F-1. (contd)

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
	HUMAN HEALTH		
Microbial organisms (occupational health) (plants with cooling towers)	1	4.3.6	This issue is related to a heat-dissipation system that is not installed at PBNP.
Microbial organisms (public health; plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river).	2	4.3.6	This issue is related to a heat-dissipation system that is not installed at PBNP.

F.1 References

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

U.S. Nuclear Regulatory Commission (NRC). 1996. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants.* NUREG-1437, Volumes 1 and 2, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1999. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Main Report, Section 6.3, Transportation, Table 9.1, Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants, Final Report.* NUREG-1437, Volume 1, Addendum 1, Washington, D.C.

Appendix G

NRC Staff Evaluation of Severe Accident Mitigation Alternatives (SAMAs) for Point Beach Nuclear Plant Units 1 and 2, in Support of License Renewal Application

Appendix G

NRC Staff Evaluation of Severe Accident Mitigation Alternatives (SAMAs) for Point Beach Nuclear Plant Units 1 and 2, in Support of License Renewal Application

10 CFR 51.53(c)(3)(ii)(L) requires that license renewal applicants consider alternatives to mitigate severe accidents if the staff has not previously evaluated SAMAs for the applicant's plant in an environmental impact statement (EIS) or related supplement or in an environmental assessment. The purpose of this consideration is to ensure that plant changes (i.e., hardware, procedures, and training) with the potential for improving severe accident safety performance are identified and evaluated. SAMAs have not been previously considered for Point Beach Nuclear Plant Units 1 and 2 (PBNP); therefore, the remainder of Appendix G addresses those alternatives.

G.1 Introduction

Nuclear Management Company, LLC (NMC) submitted an assessment of SAMAs for PBNP as part of the Environmental Report (ER) (NMC 2004a). This assessment was based on the most recent PBNP Probabilistic Risk Assessment (PRA) available at that time, a plant-specific offsite consequence analysis performed using the MELCOR Accident Consequence Code System 2 (MACCS2), and insights from the PBNP Individual Plant Examination (IPE) (WEPCO 1993), and Revision 3.02 of the PBNP PRA model. In identifying and evaluating potential SAMAs, NMC considered insights from the plant-specific PRA, as well as industry and NRC documents that discuss potential plant improvements, such as NUREG/CR-5630 (NRC 1991) and NUREG/CR-5575 (NRC 1990). NMC identified 202 potential SAMA candidates. This list was reduced to 65 unique SAMAs by eliminating SAMAs that were not applicable to PBNP or had already been implemented at PBNP. NMC assessed the costs and benefits associated with each of these 65 SAMAs and concluded that none of the candidate SAMAs would be cost-beneficial for PBNP.

Based on a review of the SAMA assessment, the NRC issued a request for additional information (RAI) to NMC by letters dated July 2, 2004 (NRC 2004a) and October 20, 2004 (NRC 2004b). Key questions concerned: dominant risk contributors at PBNP and the SAMAs that address these contributors, the potential impact of uncertainties on assessment results, the impact of human reliability analysis (HRA) modeling changes on the SAMA identification and screening results, and more detail on some specific SAMA candidates. NMC submitted additional information by letters dated August 31, 2004 (NMC 2004b) and November 22, 2004

(NMC 2004c), including tables showing relative core damage frequency (CDF) contributions, a listing of basic events and importance measures, an uncertainty assessment, and additional information regarding human error-related SAMAs. NMC's responses addressed all of the staff's concerns.

Although none of the SAMAs appear cost-beneficial in the baseline analysis, the staff identified one SAMA that could become cost-beneficial when uncertainties or alternative discount rates are taken into account. However, this SAMA does not relate to adequately managing the effects of aging during the period of extended operation. Therefore, it need not be implemented as part of license renewal pursuant to 10 CFR Part 54.

An assessment of SAMAs for PBNP is presented below.

G.2 Estimate of Risk for PBNP

NMC's estimates of offsite risk at PBNP are summarized in Section G.2.1. The summary is followed by the staff's review of NMC's risk estimates in Section G.2.2.

G.2.1 NMC's Risk Estimates

Two distinct analyses are combined to form the basis for the risk estimates used in the SAMA analysis: (1) the PBNP PRA model, and (2) a supplemental analysis of offsite consequences and economic impacts (essentially a Level 3 PRA model) developed specifically for the SAMA analysis. The SAMA analysis is based on the most recent PRA model available at the time of the ER, referred to as Revision 3.02. It contains a Level 1 analysis to determine core damage frequency (CDF) from internally-initiated events and a Level 2 analysis to assess containment performance during severe accidents. The SAMA analysis is based on the Unit 1 PRA model. The CDF for Unit 2 is within 5 percent of the Unit 1 CDF; thus, the results based on the Unit 1 model would be applicable to Unit 2 as well. The scope of the PBNP PRA does not include external events.

The baseline CDF for the purpose of the SAMA evaluation is approximately 3.6×10^{-5} per year, and is based on the risk assessment for internally-initiated events. Based on the Individual Plant Examination of External Events (IPEEE) model (WEPCO 1995), seismic events have a CDF of 1.3×10^{-5} per year, internal fires have a CDF of 5.1×10^{-5} per year, and internal flooding has a CDF of 1.1×10^{-5} per year. In the ER, NMC states that the internal flooding and seismic analyses have not been updated since the original IPEEE submittal. However, the fire analysis has been updated once since the IPEEE submittal, and NMC provides the CDF for fire of 1.2×10^{-5} per year versus the IPEEE reported value of 5.1×10^{-5} per year. Other external events were found to be insignificant contributors to plant risk. NMC did not include the

contribution to risk from external events within the PBNP risk estimates; however, it did account for the potential risk reduction benefits associated with external events by increasing the estimated benefits for internal events by a factor of approximately two. This is discussed further in Section G.6.2.

The breakdown of CDF by initiating event/accident type is provided in Table G-1. As shown in this table, steam generator tube rupture (SGTR) events, transients without the Power Conversion System (PCS) available, loss of Component Cooling Water (CCW), and loss of offsite power are dominant contributors to the CDF.

Table G-1. PBNP Core Damage Frequency for Internal Events

Initiating Event	CDF (per year)	Percent Contribution
SGTR	8.75×10^{-6}	24.4
Transient without PCS	6.40×10^{-6}	17.8
Loss of component cooling	4.39×10^{-6}	12.2
Loss of offsite power (dual unit)	4.13×10^{-6}	11.5
Steam/feed break inside containment	2.76×10^{-6}	7.7
Loss of service water	2.43×10^{-6}	6.8
Steam/feed break outside containment	1.90×10^{-6}	5.3
Medium loss-of-coolant accident (LOCA) (>2 to 6 in.)	1.80×10^{-6}	5.0
Excessive LOCA (vessel failure)	9.90×10^{-7}	2.8
Transient with PCS	6.84×10^{-7}	1.9
Station blackout (SBO)	4.41×10^{-7}	1.2
Small LOCA (3/8 to 2 in.)	3.77×10^{-7}	1.1
Loss of bus D-01	2.76×10^{-7}	0.8
Loss of instrument air	2.27×10^{-7}	0.6
Large LOCA (>6 in.)	1.39×10^{-7}	0.4
Interfacing systems LOCA (ISLOCA)	1.10×10^{-7}	0.3
Loss of bus D-02	6.74×10^{-8}	0.2
Total CDF (from internal events)	**3.59×10^{-5}**	**100**

The Level 2 analysis utilized the containment event tree logic from the IPE and fault tree linking to combine the Level 1 core damage sequence failures with the Level 2 containment safeguards systems fault trees. The fault tree linking method was used to resolve dependencies that occur between the Level 1 core damage sequence failures and containment safeguards system failures. The combined sequences were then mapped into plant damage states using the same method employed in the IPE. Only sequences in which the containment is bypassed or containment isolation has failed were found to have volatile fission product release fractions greater than $1x10^{-4}$. Based on these results, the bypass source term categories of early SGTR, late SGTR, interfacing systems LOCA (ISLOCA), and containment isolation failure were defined. An additional category, "other," was defined to represent all other core melt sequences. The updated fission product release fractions were provided in response to an RAI (NMC 2004c). Based on analyses using the Modular Accident Analysis Program (MAAP) computer code, NMC concluded that late containment failures were so low a probability as to be negligible. Containment leakage was, therefore, the release mechanism considered for all sequences other than SGTR, containment isolation failure, and ISLOCA.

The offsite consequence and economic impact analysis uses the MACCS2 code to determine the offsite risk impacts on the surrounding environment and public. Inputs for this analysis include plant-specific and site-specific input values for core radionuclide inventory, source term and release characteristics, site meteorological data, projected population distribution (within a 80 km [50-mi] radius) for the year 2035, emergency response evacuation modeling, and economic data.

NMC estimated the dose to the population within 80 km (50 mi) of the PBNP site to be approximately 0.0149 person-Sv (1.49 person-rem) per year, based on NMC's response to an RAI (NMC 2004c). This represents a correction to the population dose of 0.0183 person-Sv (1.83 person-rem) per year reported in the ER. The breakdown of total population dose by containment release mode is summarized in Table G-2.

Table G-2. Breakdown of Population Dose by Containment Release Mode

Containment Release Mode	Population Dose (Person-Rem[1] Per Year)	% Contribution
Late SGTR	1.09	73
Early SGTR	0.165	11
Containment Isolation Failure	$8.49x10^{-4}$	<0.1
ISLOCA	0.124	8
Other Core Melt Sequences	0.104	7
Total Population Dose	**1.49**	**100**

[1]One person-Rem = 0.01 person-Sv

G.2.2 Review of NMC's Risk Estimates

NMC's determination of offsite risk at PBNP is based on the following three major elements of analysis:

- The PBNP Level 1 and 2 risk models that form the bases for the 1993 IPE submittal (WEPCO 1993) and 1995 IPEEE submittal (WEPCO 1995).
- Major modifications to the IPE model that have been incorporated in the PBNP PRA, and
- The MACCS2 analyses performed to translate fission product source terms and release frequencies from the Level 2 PRA model into offsite consequence measures.

Each of these analyses was reviewed to determine the acceptability of NMC's risk estimates for the SAMA analysis, as summarized below.

The staff's review of the PBNP IPE is described in an NRC report dated January 26, 1995 (NRC 1995). In that review, the staff evaluated the methodology, models, data, and assumptions used to estimate the CDF and characterize containment performance and fission product releases. The staff concluded that NMC's analysis met the intent of Generic Letter 88-20 (NRC 1988); that is, the IPE was of adequate quality to be used to look for design or operational vulnerabilities. The staff, however, encouraged NMC to strengthen the HRA by improving the pre-initiator event analysis. The staff believed the improved analysis would increase the usefulness of NMC's PRA in other applications. As described below, the HRA was subsequently updated.

In response to a staff RAI about changes in the various PRA versions since the IPE, NMC provided additional details (NMC 2004b). There have been five revisions of the PBNP Level 1 PRA since the IPE was submitted and before the SAMA analysis was completed. A summary of the differences in these revisions is provided in Table G-3.

The CDF values for PBNP are comparable to the CDF values reported in the IPEs for other Westinghouse two-loop plants. As reported in NUREG-1560, the total internal events CDF for these plants range from approximately 3×10^{-5} per year to 2×10^{-4} per year.

Table G-3. Level 1 PRA Summary

Level 1 PRA Revision	Summary of Changes from Prior Revision	CDF (per year)
September 1990	Base model for IPE.	1.15×10^{-4}
December 1993 (PRA-93)	Updated model to reflect plant modifications; added operator-induced auxiliary feedwater system (AFW) failure.	9.74×10^{-5}
June 1996 (PRA-96)	Updated plant-specific data; changed Service Water success criteria; reflected addition of two new diesel generators.	5.77×10^{-5}
December 1999 (Revision 3.00)	Changed logic modeling structure; added provision for alternate electrical feed lineups; updated various system models and data.	4.39×10^{-5}
February 2002 (Revision 3.01)	Reflected modification to motor driven AFW pumps for nitrogen backup supply to mini-recirculation valves.	3.78×10^{-5}
May 2002 (Revision 3.02)	Reflected modification to turbine driven AFW pumps for air accumulator backup supply to mini-recirculation valves.	3.59×10^{-5}

The staff considered the peer reviews performed for the PBNP PRA and the potential impact of the review findings on the SAMA evaluation. Revision 3.00 of the PRA model was reviewed in June 2001 by a Westinghouse Owners Group PRA Peer Review Team. The team concluded that the PRA could be used effectively to support applications involving risk significance determinations supported by deterministic analyses once the items in its report were addressed. A major observation was that the thermal hydraulic bases for system and human action success were largely either conservative design basis analyses or analyses that were not specific to PBNP. These thermal hydraulic bases date from the original IPE PRA. Other observations discussed the shortcomings with the basis and documentation of the common cause failure analysis, a general lack of treatment of miscalibration errors in the model, the need to complete the HRA update, and the need to complete the documentation of the remainder of the model.

The SAMA analysis for PBNP is based on Level 1 PRA Revision 3.02. NMC subsequently updated the PRA to address all of the Significance Level A peer review findings and many of the Significance Level B findings. The majority of the changes relate to the HRA rather than the system models. The revised Level 1 PRA is denoted Revision 3.13. While the total CDF did not change much (3.59×10^{-5} per year in Revision 3.02 to 4.12×10^{-5} per year in Revision 3.13),

the dominant contributors to the CDF did change more significantly. The most significant change was a reduction in the importance of the SGTR event and an increase in the importance of the loss of offsite power (LOOP) and loss of DC power events. The impact of the PRA update on SAMA identification and evaluation is discussed in Section G.3.2.

Given that (1) the PBNP PRA has been peer reviewed and the potential impact of the peer review findings on the SAMA evaluation has been assessed, as described above, (2) NMC satisfactorily addressed staff questions regarding the PRA (NMC 2004b and NMC 2004c), and (3) the CDF is in the range of contemporary CDFs for Westinghouse two-loop plants, the staff concludes that the Level 1 PRA model used for the SAMA analysis is of sufficient quality to support the SAMA evaluation.

NMC submitted an IPEEE by letter dated June 30, 1995 (NMC 1995) in response to Supplement 4 of Generic Letter 88-20. NMC did not identify any fundamental weaknesses or vulnerabilities to severe accident risk in regard to the external events related to seismic, fire or other external events. The NRC provided its review of the PBNP IPEEE in 1999 (NRC 1999). The staff concluded that the licensee's IPEEE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities and, therefore, that the PBNP IPEEE met the intent of Supplement 4 to Generic Letter 88-20.

The IPEEE approach to seismic analysis included extensive seismic walkdowns and modification of the IPE Level 1 logic models and the IPE Level 2 containment events for quantification. The dominant contributors to the seismic CDF were failure of cable trays inside the cable spreading room (62 percent), failure of cable trays outside the cable spreading room (7 percent), and failure of a surrogate element (16 percent). (The surrogate element represented the effects of components that were screened out, e.g., soils, buildings/structures, reactor vessel.) The inside cable spreading room sequences consisted of the seismically induced failure of cable trays leading to loss of control combined with failure to shut down the plant remotely. The outside cable spreading room sequences consisted of the seismically induced failure of cable trays leading to loss of power to all essential equipment. The dominant contributors to the estimated seismic CDF are operator actions (e.g., failure to shut down the plant from the remote shutdown panel, failure to provide service water backup to auxiliary feedwater), seismic faults that lead directly to core damage (e.g., failure of cable trays, surrogate element), and failures of critical equipment (e.g., transformers, 480 V load centers, level transmitter for condensate storage tank) (NRC 1999). In response to an RAI, NMC stated that it has modified cable tray supports, re-anchored the 480 V load centers, and mitigated the impacts of a 4 kV transformer failure with the addition of a third and fourth diesel generator and associated switchgear. Other seismic issues have been addressed through changes in

procedures (NMC 2004b). NMC concluded that no further actions to address seismic events are necessary. The staff notes that it is unlikely that cost-effective SAMAs that address remaining seismic risk contributors will exist, due to the high cost of structural modifications compared to the benefits expected and, therefore, agrees that further analyses of potential SAMAs for seismic events are not warranted.

The IPEEE fire analysis was based on the fire-induced vulnerability evaluation methodology. This methodology employs a graduated focus on the most important fire zones using qualitative and quantitative screening criteria. The fire zones were subjected to several screening stages. In the first stage, a zone was screened out if it did not contain any safety-related equipment. In the later stages, a CDF of 1×10^{-6} per year was used for screening. The licensee used the IPE model of internal events to quantify the CDF resulting from a fire initiating event. The conditional core damage probability was based on the equipment and systems unaffected by the fire. The CDF for each zone was obtained by multiplying the frequency of a fire in a given fire zone by the conditional core damage probability associated with that fire zone. The screening methodology applied by the licensee makes less and less conservative assumptions (e.g., equipment that may survive the fires in the area) until a fire zone is screened out, the results do not indicate a vulnerability, or a vulnerability is identified and addressed. Using this method, the IPEEE fire CDF was estimated to be about 5.1×10^{-5} per year. In the ER, NMC reported that the fire analysis had been updated, and that the CDF has been reduced from 5.1×10^{-5} per year to 1.2×10^{-5} per year.

The staff requested additional information regarding risk reduction measures taken to date for each significant fire area in the IPEEE fire analysis.

In response, NMC described plant modifications and enhancements to procedures and training to further reduce fire risk in the significant fire areas. NMC noted that the addition of two additional diesel generators reduces the fire impact in the gas-fired turbine generator area, the two diesel rooms (G01 and G02), and the switchgear room. NMC also determined that the transformer oil thought to be combustible in the IPEEE analysis would not actually be combustible, thereby reducing the fire risk in the Cable Spreading Room and the Unit 1 and Unit 2 Electrical Equipment Rooms. NMC identified that the Monitor Tank Room Auxiliary Operator's Station has a high fire initiating event frequency due to the large number of cables routed in this compartment and the number of adjacent compartments. Plant personnel are routinely trained to address fires in this area. NMC concluded that no further modifications would be cost-beneficial for any of the fire compartments.

The staff notes that additional SAMAs to reduce the fire risk contributors might be viable at PBNP. However, given that the fire CDF has been reduced by over a factor of four, and that the plant meets 10 CFR Part 50, Appendix R, fire requirements, it is unlikely that further modifications would both substantially reduce risk and remain cost-beneficial.

The risk associated with other external events is small. The CDF due to external floods is about 2.8×10^{-6} per year and the CDF due to high winds is about 3.4×10^{-7} per year. Other external events (e.g., transportation and nearby facility accidents) are insignificant risk contributors based on their low hazard frequencies. Accordingly, the staff finds NMC's consideration of external events to be acceptable.

The staff reviewed the process used by NMC to extend the containment performance (Level 2) portion of the PRA to an assessment of offsite consequences (essentially a Level 3 PRA). This included consideration of the source terms used to characterize fission product releases for the applicable containment release category and the major input assumptions used in the offsite consequence analyses. The MACCS2 code was utilized to estimate offsite consequences. Plant-specific input to the code includes the reactor core radionuclide inventory (the reference core inventory, scaled for the PBNP power level), source terms for each release category, site-specific meteorological data, projected population distribution within a 80-km (50-mi) radius for the year 2035, and emergency evacuation modeling. This information is provided in Appendix F of the ER (NMC 2004a).

Even though NMC used the NRC-approved MACCS2 code and scaled the reference pressurized-water reactor (PWR) core inventory for PBNP plant-specific power level, the staff requested that NMC evaluate the impact on population dose if the core inventory were based on the plant-specific burnup and enrichment. Based on the small impact of the calculated change in baseline dose (an increase of approximately 10 percent in the total costs associated with a severe accident), the staff concludes that the scaling based on the plant-specific power level yields sufficiently accurate and reasonable results for the dose assessment.

NMC characterized the releases for the spectrum of possible radionuclide release scenarios using a set of 5 release categories, defined based on the timing and magnitude of the release. These were early SGTR, late SGTR, ISLOCA, containment isolation failure, and other (defined to bound non-bypass releases). Each end state from the Level 2 analysis is assigned to one of the release categories. In the ER, NMC states that the source terms used for the SAMA evaluation are based on the MAAP 4.0.4 computer code for a power level of 1518 MW(t). A 1.4 percent power uprate was subsequently implemented in 2003. In its response to an RAI (NMC 2004c), NMC also provided a correction to the population dose values reported in the

ER. The correction to population dose is relatively insignificant and does not impact conclusions of the cost-benefit analyses. The staff concludes that the assignment of release categories and source terms is consistent with typical PRA practice and acceptable for use in the SAMA analysis.

NMC used a composite set of site-specific meteorological data, obtained from the plant meteorological tower, the Kewaunee Nuclear Power Plant (3.6 miles north of PBNP), and the Sheboygan County Memorial Airport (39 miles south of PBNP). The data were processed from hourly measurements for the 2000 calendar year as input to the MACCS2 code. Data from these locations and this year were selected because they provided an adequate representation of the PBNP meteorological data. The staff notes that previous SAMA analyses results have shown little sensitivity to year-to-year differences in meteorological data and considers use of the 2000 data to be reasonable.

The population distribution the applicant used as input to the MACCS2 analysis was estimated for the year 2035, based on extrapolation from the census for 1990. The 1990 segment population was obtained by using the SECPOP90 (NRC 1997a) computer program to process block-level census data. The year 1990 segment data were used with the U.S. Census Bureau ratio of the county census growth from 1990 to 2000. Next, the Wisconsin county growth rate data were used to project the 2000 data to the year 2020. Finally, the U.S. Census Bureau state population projections were used to project the 2020 data to 2035. The staff considers NMC's methods and assumptions for estimating population reasonable and acceptable for purposes of the SAMA evaluation.

The emergency evacuation model was modeled as multiple evacuation zones extending out 16 km (10 mi) from the plant. The 0 to 2-mile radius was treated as one 180-degree sector. It was assumed that 100 percent of the population would move at an average speed of approximately 0.715 meters per second (1.6 miles per hour) with a delayed start time of 15 minutes (NMC 2004a). The evacuation assumptions and analysis are deemed reasonable and acceptable for the purposes of the SAMA evaluation.

Much of the site-specific economic data was provided from SECPOP90 (NRC 1997a) by specifying the data for each of the 11 counties surrounding the plant, to a distance of 80 km (50 mi). In addition, generic economic data that are applied to the region as a whole were revised from the MACCS2 sample problem input when better information was available. The agricultural economic data were updated using available data from the 1997 Census of Agriculture (USDA 1998). These included per diem living expenses, relocation costs, value of farm and non-farm wealth, and fraction of farm wealth from improvements (e.g., buildings).

NMC did not perform sensitivity analyses for the MACCS2 parameters, such as evacuation and population assumptions. However, sensitivity analyses performed as part of previous SAMA

evaluations for other plants have shown that the total benefit of the candidate SAMAs would increase by less than a factor of 1.2 (typically about 20 percent) due to variations in these parameters. This change is small and would not alter the outcome of the SAMA analysis.

The staff concludes that the methodology used by NMC to estimate the offsite consequences for PBNP provides an acceptable basis from which to proceed with an assessment of risk reduction potential for candidate SAMAs. Accordingly, the staff based its assessment of offsite risk on the CDF and offsite doses reported by NMC.

G.3 Potential Plant Improvements

The process for identifying potential plant improvements, an evaluation of that process, and the improvements evaluated in detail by NMC are discussed in this section.

G.3.1 Process for Identifying Potential Plant Improvements

NMC generated a list of SAMA candidates by considering plant-specific enhancements and reviewing industry and NRC documents that discuss potential plant improvements. Eighteen sources other than plant-specific sources were identified. Plant-specific sources included basic events having the greatest risk reduction potential. From these sources, 202 SAMA candidates were identified. NMC performed an initial qualitative screening based on two criteria:

- The SAMA is not applicable to PBNP (e.g., because the enhancement is only for boiling water reactors, the Westinghouse AP600 design or PWR ice condenser containments, or it is a plant-specific enhancement that does not apply at PBNP)
- The SAMA has already been implemented at PBNP, or the PBNP design meets the intent of the SAMA.

Based on this initial screening, 137 SAMA items were eliminated, leaving 65 SAMAs subject to the final evaluation process.

For the final evaluation, NMC estimated the cost of implementing the SAMA, as described in Section G.5 below, and the associated potential risk reduction and dollar-equivalent benefit, as described in Sections G.4 and G.6. If the estimated implementation cost was more than the estimated benefit (including the multiplier of approximately two to account for not directly evaluating external events), then the SAMA was not considered to be cost-beneficial.

NMC concluded that there are no SAMA candidates that are cost-beneficial.

G.3.2 Review of NMC's Process

NMC's efforts to identify potential SAMAs focused on areas associated with internal initiating events. The initial list of SAMAs was based on a range of resources, including generic issues, and internal PBNP PRA analyses. In the latter case, the PBNP Level 1 PRA Revision 3.02 importance measures were used to identify the most important basic events, with NMC identifying potential SAMAs that would address these important basic events. The initial list of SAMAs generally addressed the accident categories that are dominant CDF and containment failure contributors, or issues that tend to have a large impact on a number of accident sequences at PBNP.

In order to confirm that the set of SAMAs evaluated in the ER address the dominant risk contributors, the staff requested that NMC provide a cross reference of the dominant PRA contributors to the candidate SAMAs. NMC provided these data (NMC 2004b and NMC 2004c), including a listing of the events with the greatest risk reduction worth importance measure, and the SAMAs that addressed those risk contributors. This table showed that each of the top 52 risk contributors are addressed by at least one candidate SAMA. Based on this additional assessment, the staff concludes that the set of SAMAs evaluated in the ER addresses the major contributors to CDF and offsite dose, and that the review of the top risk contributors does not reveal any new SAMAs.

The staff questioned NMC about lower-cost alternatives to some of the SAMAs evaluated that could achieve much of the risk reduction at a lower cost. In its response (NMC 2004b), NMC stated that it sought low-cost alternatives indirectly, through the identification of plant-specific risk reduction opportunities identified by the PRA results. Examples include SAMAs 161, 162, 164, and 197[a]. These SAMAs all impact AFW reliability. One expensive alternative was SAMA 164, the addition of AFW pump redundancy. SAMA 197 relates to the risk importance of a check valve in the AFW system. The resultant low-cost option was to review the necessity for the check valve and, after investigation, a decision was made to remove the check valve internals.

(a) SAMA 161 - Install manual isolation valves around AFW turbine steam admission valves. SAMA 162- Install accumulators for turbine driven AFW pump flow control valves. SAMA 164 - Add a motor train of AFW to the steam trains. SAMA 197 - Reduce likelihood of check valve in recirculation line from AFW pumps to condensate storage tanks (CSTs) failing to open.

The staff also requested that NMC evaluate several of the SAMAs found to be potentially cost-beneficial in recent SAMA reviews for other plants for applicability to PBNP. Twelve such options were further evaluated by NMC, including:

- Developing procedures for providing temporary ventilation to switchgear and diesel generator rooms in events involving loss of room cooling
- Adding a capability to flash the field on the emergency diesel generator to enhance SBO event recovery
- Providing a portable 120 VAC generator with manual clamps to supply power to the steam generator level instrumentation in SBO events
- Developing procedures to extend the time to refueling water storage tank (RWST) depletion in SGTR events.

NMC's evaluation of these additional SAMAs is discussed in Section G.6.2.

Since PRA Revision 3.13 was not used in the PBNP SAMA analysis, the staff requested that NMC assess the impact of the resolution of the peer review findings (see Section G.2.2) on SAMA identification and evaluation (NRC 2004a). In its response, NMC provided a table of the changes in the CDF and the major contributors to the CDF relative to Revision 3.02. NMC stated that these changes would not have had any impact on the set of SAMAs screened from the cost-benefit analysis, but that it is possible that the operator action to cross-tie 480 VAC power between buses 1B03 and 1B04 may have become one of the more important human actions and would have been included in the SAMAs evaluated. While this event might have been part of the set of operator action SAMAs considered if the screening had been based on PRA Revision 3.13, NMC reported that the actions taken for the other operator action SAMAs (i.e., implementation of procedure mark-offs for SAMAs 181 through 193) have also been implemented for this additional risk-important operator action identified as a result of PRA Revision 3.13, and no other cost-beneficial action is available (NMC 2004c).

NMC reviewed existing SAMAs relative to loss of power to see if they could become more cost-beneficial based on PRA Revision 3.13. Three SAMAs that could be impacted by the PRA revision were identified (SAMAs 63, 66 and 180). Since two of these SAMAs (SAMAs 63 and 66) affect the plant's response to SBO, which represents only a small portion of LOOP, it is expected that these SAMAs would still be eliminated in the screening. SAMA 180 deals with improving the capability for restoring power to the battery chargers following LOOP. NMC

that the Human Error Probability (HEP) for manually restoring power to the battery chargers was directly impacted by the HRA update. NMC concluded in its RAI response (NMC 2004b) that this SAMA would not become cost-beneficial based on PRA Revision 3.13 (see Section G.6.2 for further discussion of this SAMA).

The staff notes that the set of SAMAs submitted is not all-inclusive, since additional, possibly even less-expensive design alternatives can always be postulated. However, the staff concludes that the benefits of any additional modifications are unlikely to exceed the benefits of the modifications evaluated and that the alternative improvements would not likely cost less than the least expensive alternatives evaluated, when the subsidiary costs associated with maintenance, procedures and training are considered.

The staff concludes that NMC used a systematic and comprehensive process for identifying potential plant improvements for PBNP, and that the set of potential plant improvements identified by NMC is reasonably comprehensive and, therefore, acceptable. This process included reviewing insights from the IPE and IPEEE and other plant-specific studies, reviewing plant improvements considered in previous SAMA analyses, and using the knowledge and experience of its personnel. While explicit treatment of external events in the SAMA identification process was limited, it is recognized that the prior implementation of plant modifications for seismic events and the absence of external event vulnerabilities reasonably justifies examining primarily the internal events risk results for this purpose.

G.4 Risk Reduction Potential of Plant Improvements

NMC evaluated the risk reduction potential of the 65 SAMAs that were retained from the initial screening. A majority of the SAMA evaluations were performed in a bounding fashion in that the SAMA was assumed to completely eliminate the risk associated with the proposed enhancement. Such bounding calculations overestimate the benefit and are conservative.

NMC used model re-quantification to determine the potential benefits. The CDF and population dose reductions were estimated using Revision 3.02 of the PBNP PRA. The changes made to the model to quantify the impact of SAMAs are detailed in Section F.2 of Appendix E to the ER (NMC 2004a). Table G-4 provides a summary of the assumptions used to estimate the risk reduction for each of the SAMAs, the estimated risk reduction in terms of percent reduction in CDF and population dose, and the estimated total benefit (present value) of the averted risk as used in the staff's assessment. The determination of the benefits for the various SAMAs is further discussed in Section G.6.

NMC did not further evaluate the risk reduction benefits for several of the SAMAs because either the implementation cost was expected to exceed the total present dollar value equivalent

associated with completely eliminating all severe accidents at PBNP (SAMAs 71, 72, 158, 166, and 176), or the associated initiating event frequency was extremely small and would result in a benefit far less than the estimated $1M implementation cost for these alternatives (SAMAs 77 and 78).

The staff has reviewed the bases used by NMC for estimating the risk reduction for the various SAMAs and concludes that the rationale and assumptions used for estimating risk reduction are reasonable and generally conservative (i.e., the estimated risk reduction is higher than what would actually be realized). Accordingly, the staff based its estimates of averted risk for the various SAMAs on risk reduction estimates provided by NMC, as discussed in Section G.6.2.

G.5 Cost Impacts of Candidate Plant Improvements

NMC estimated the costs of implementing the 65 candidate SAMAs through the application of engineering judgment, estimates from other licensee submittals for similar improvements, and site-specific cost estimates. The cost estimates conservatively did not include the cost of replacement power during extended outages required to implement the modifications, nor did they include recurring maintenance and surveillance costs or contingency costs associated with unforeseen implementation obstacles. Cost estimates typically included procedures, engineering analysis, training, and documentation, in addition to any hardware.

NMC did not specifically estimate costs for 8 of the 65 SAMAs because:

- Implementation would require plant modifications that would cost significantly more than any obtainable benefit (SAMAs 47, 108, 158, and 176), or

- Procedure step mark-offs have already been implemented and no further improvement could be gained by making further changes to procedures or training (SAMAs 151, 181, 190, and 196).

Related to the last reason, in response to an RAI, NMC indicated that these SAMAs have been implemented at PBNP through the addition of procedure mark-offs (i.e., place-keeping aids) in the associated operating procedures. These changes were implemented subsequent to the PRA revision used in the SAMA analysis (Revision 3.02). Therefore, the calculated benefits reported in the ER represent an over-estimate of the benefits that could be achieved through further procedure changes. In NMC's view, further improvements to procedures or training to address these operator actions are not feasible. NMC notes that full automation of each of these actions could further reduce the CDF; however, full automation would significantly increase the cost of implementation and would not be cost-beneficial.

The ER discussion of cost estimates did not describe how NMC handled the cost of SAMAs for which the implementation costs are incurred once (i.e., on a "per site" basis) but which provide benefits for both units. In response to an RAI, NMC identified 27 SAMAs (14 human error-related and 13 hardware-related) in which the implementation cost for the SAMA on a per unit basis could be conservatively assumed to be one-half the value reported in the ER. The staff adopted these conservative cost estimates for the affected SAMAs.

The staff reviewed the bases for the applicant's cost estimates. For certain improvements, the staff also compared the cost estimates to estimates developed elsewhere for similar improvements, including estimates developed as part of other licensees' analyses of SAMAs for operating reactors and advanced light-water reactors. The staff reviewed these estimates and found them to be consistent with estimates provided in support of other plants' analyses.

It is noted that the estimated implementation cost for SAMA 126, automatic switchover to recirculation on RWST depletion, is greater than $1.0M, and is significantly higher than the $265K estimated for the same SAMA in a license renewal SAMA analysis for another plant. However, in response to an RAI, NMC indicated that a site-specific estimate had been performed for this SAMA and resulted in an implementation cost estimate of $2.4M per unit (NMC 2004b). This site-specific cost estimate is considered reasonable given the associated hardware and engineering-related costs.

The staff concludes that the cost estimates provided by NMC are sufficient and appropriate for use in the SAMA evaluation.

G.6 Cost-Benefit Comparison

NMC's cost-benefit analysis and the staff's review are described in the following sections.

G.6.1 NMC Evaluation

The methodology used by NMC was based primarily on NRC's guidance for performing cost-benefit analysis, i.e., NUREG/BR-0184, Regulatory Analysis Technical Evaluation Handbook (NRC 1997b). The guidance involves determining the net value for each SAMA according to the following formula:

Net Value = (APE + AOC + AOE + AOSC) - COE

where,

APE = present value of averted public exposure ($)
AOC = present value of averted offsite property damage costs ($)
AOE = present value of averted occupational exposure costs ($)
AOSC = present value of averted onsite costs ($)
COE = cost of enhancement ($).

If the net value of a SAMA is negative, the cost of implementing the SAMA is larger than the benefit associated with the SAMA and it is not considered cost-beneficial. NMC's derivation of each of the associated costs is summarized below.

Averted Public Exposure (APE) Costs

The APE costs were calculated using the following formula:

APE = Annual reduction in public exposure (Δ person-rem/year)
x monetary equivalent of unit dose ($2,000 per person-rem)
x present value conversion factor (10.76 based on a 20-year period with a 7 percent discount rate).

As stated in NUREG/BR-0184 (NRC 1997b), it is important to note that the monetary value of the public health risk after discounting does not represent the expected reduction in public health risk due to a single accident. Rather, it is the present value of a stream of potential losses extending over the remaining lifetime (in this case, the renewal period) of the facility. Thus, it reflects the expected annual loss due to a single accident, the possibility that such an

accident could occur at any time over the renewal period, and the effect of discounting these potential future losses to present value. NMC calculated an APE of approximately $32,000[a] for the 20-year license renewal period, which assumes elimination of all severe accidents.

Averted Offsite Property Damage Costs (AOC)

The AOCs were calculated using the following formula:

AOC = Annual CDF reduction
x offsite economic costs associated with a severe accident (on a per-event basis)
x present value conversion factor.

NMC calculated an annual offsite economic risk of about $1,240[b] based on the Level 3 risk analysis. This results in a discounted value of approximately $13,400 for the 20-year license renewal period, which assumes all severe accidents are eliminated.

Averted Occupational Exposure (AOE) Costs

The AOE costs were calculated using the following formula:

AOE = Annual CDF reduction
x occupational exposure per core damage event
x monetary equivalent of unit dose
x present value conversion factor.

NMC derived the values for averted occupational exposure from information provided in Section 5.7.3 of the regulatory analysis handbook (NRC 1997b). Best estimate values provided for immediate occupational dose (3,300 person-rem) and long-term occupational dose (20,000 person-rem over a 10-year cleanup period) were used. The present value

(a) An APE value of $39,308 is reported in the ER based on a population dose of 1.83 person-rem per year. As described in response to an RAI, the correct population dose is 1.49 person-rem per year. The corrected APE value corresponding to elimination of severe accidents is approximately $32,000. The change is insignificant to the results of the SAMA analysis.
(b) An AOC of $27,916 is reported in the ER based on an annual offsite economic risk of $2,594. As described in response to an RAI, the correct annual offsite economic risk is about $1, 240. The corrected AOC value corresponding to complete elimination of severe accidents is approximately $13,400. The change is insignificant to the results of the SAMA analysis.

of these doses was calculated using the equations provided in the handbook in conjunction with a monetary equivalent of unit dose of $2,000 per person-rem, a real discount rate of 7 percent[(a)], and a time period of 20 years to represent the license renewal period. NMC calculated an AOE of approximately $13,700 for the 20-year license renewal period, which assumes all severe accidents are eliminated.

Averted Onsite Costs (AOSC)

Averted onsite costs (AOSC) include averted cleanup and decontamination costs and averted power replacement costs. Repair and refurbishment costs are considered for recoverable accidents only and not for severe accidents. NMC derived the values for AOSC based on information provided in Section 5.7.6 of the regulatory analysis handbook (NRC 1997b).

NMC divided this cost element into two parts – the Onsite Cleanup and Decontamination Cost, also commonly referred to as averted cleanup and decontamination costs, and the replacement power cost.

Averted cleanup and decontamination costs (ACC) were calculated using the following formula:

ACC = Annual CDF reduction
x present value of cleanup costs per core damage event
x present value conversion factor.

The total cost of cleanup and decontamination subsequent to a severe accident is estimated in the regulatory analysis handbook to be $1.5 x 10^9 (undiscounted). This value was converted to present costs over a 10-year cleanup period and integrated over the term of the proposed license extension. NMC's calculation of ACC, which assumes all severe accidents are eliminated, is approximately $416,000 for the 20-year license renewal period.

(a) NRC policy for the preparation and the contents of regulatory analyses is set forth in NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission." Revision 3 of NUREG/BR-0058 (NRC 2000), which was in place at the time the NMC ER was submitted, specifies the use of a 7 percent real discount rate in the base case, and the use of a 3 percent real discount rate for sensitivity purposes. Revision 4 of NUREG/BR-0058 (NRC 2004) was issued after NMC submitted the ER, and states that two sets of base case estimates should be developed, one at 3 percent and one at 7 percent. Since this revision was released after NMC completed and submitted its analysis, the results for a 3 percent discount rate are not specifically reported in this report. However, NMC did provide the 3 percent results as part of its sensitivity analysis of SAMAs.

Long-term replacement power costs (RPC) were calculated using the following formula:

RPC = Annual CDF reduction
x present value of replacement power for a single event
x factor to account for remaining service years for which replacement power is required
x reactor power scaling factor

NMC based its calculations on the value of 564 MW(e). Therefore, NMC applied a power scaling factor of 564 MW(e)/910 MW(e) to determine the replacement power costs. NMC's calculation of RPC, which assumes all severe accidents are eliminated, is approximately $176,000 for the 20-year license renewal period.

NMC calculated an AOSC of approximately $592,000 for the 20-year license renewal period, which assumes all severe accidents are eliminated.

Using the above equations, NMC estimated the total present dollar value equivalent associated with completely eliminating all severe accidents at PBNP to be about $651,000[(a)].

NMC's Results

Total benefits associated with each of the 65 SAMAs were evaluated by NMC. These values were determined based on the above equations for the various averted costs, together with the estimated annual reductions in CDF and population dose for each SAMA. In order to account for the contribution of external events, NMC increased the estimated benefits for internal events by a factor of approximately two. As a result, all SAMAs that were evaluated were eliminated because the cost was expected to exceed the estimated benefit. The cost-benefit results for the individual analysis of the 65 SAMA candidates are presented in Table G-4 and include the multiplying factor to account for external events. If the calculated cost of implementation of the SAMA is greater than the calculated benefit, the SAMA would not be considered cost-beneficial.

Based on these results, NMC identified no cost-beneficial SAMAs.

(a) A total present dollar value equivalent of $673,000 is reported in the ER. Based on corrections to the annual population dose and annual offsite economic risk described in an RAI response, the corrected total present dollar value equivalent associated with eliminating all severe accidents is approximately $651,000. The change is insignificant to the results of the SAMA analysis.

Table G-4. SAMA Cost/Benefit Screening Analysis

	SAMA	Assumptions	Percent Risk Reduction		Total Benefit[1] ($)	Estimated Cost ($)
			CDF	Population Dose		
4.	Install tornado protection on gas turbine generator to reduce tornado-induced SBO.	Eliminated tornado-induced LOOP.	14	1	$181,200	>$500,000[2]
32.	Install MG set trip breakers in control room to reduce anticipated transient without scram (ATWS) CDF.	Eliminated all ATWS events.	2	0	$29,000	>$100,000
45.	Procedural guidance for use of cross-tied CCW or service water (SW) pumps. Reduces the frequency of loss of either system.	Eliminated all small LOCA events, including reactor coolant pump (RCP) seal LOCA.	1	0	$13,000	>$30,000
47.	Provide self-cooled emergency core cooling system (ECCS) seals. Reduces failure frequency of ECCS pumps currently cooled by CCW.	Eliminated the cooling requirement for ECCS pump seals.	< 1	0	$0	>> benefit
48.	Provide centrifugal charging pump. Current charging pumps are positive displacement pumps.	Eliminated the common cause failure of the charging pumps.	< 1	0	$300	>$500,000
50.	Install a containment vent large enough to remove ATWS decay heat. Assuming injection is available, reduces likelihood of decay heat removal failure in ATWS.	Eliminated all ATWS events.	2	0	$29,000	>$5,000,000
52.	Add redundant and diverse limit switch to each containment isolation valve. Enhances isolation valve position indication, reducing frequency of containment isolation failure and ISLOCAS.	Eliminated all isolation failures.	< 1	0	$200	>$50,000 per valve
53.	Self-actuating containment isolation valves. Reduces likelihood of isolation failure.	Eliminated all isolation failures.	< 1	0	$200	>$100,000
54.	Provide containment isolation design per General Design Criteria and Standard Review Plan. Reduces likelihood of isolation failure.	Eliminated all isolation failures.	< 1	0	$200	>$100,000
55.	Add penetration valve leakage control system. Enhance capability to detect/control leakage from penetration valves.	Eliminated all isolation failures.	< 1	0	$200	>$100,000

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
62.	Provide additional DC battery capability during SBO, reducing frequencies of long term SBO sequences.	Eliminated all station blackout events.	1	0	$15,100	$75,000[2]
63.	Use fuel cells instead of lead-acid batteries to extend DC power availability in SBO.	Eliminated all LOOP events.	14	1	$181,200	>$1,000,000
66.	Replace batteries to improve DC power reliability.	Eliminated all LOOP events.	14	1	$181,200	>$500,000
71.	Install a filtered containment vent to remove decay heat.	Not evaluated due to high cost.	Not evaluated	Not evaluated	Not evaluated	>$20,000,000
72.	Install an unfiltered hardened containment vent.	Not evaluated due to high cost.	Not evaluated	Not evaluated	Not evaluated	>$5,000,000
77.	Prevent tornado damage to RWST.	Not evaluated due to extremely small initiating event frequency.	Not evaluated	Not evaluated	Not evaluated	>$1,000,000
78.	Protection for tanks or switchgear in Turbine Building from tornados.	Not evaluated due to extremely small initiating event frequency.	Not evaluated	Not evaluated	Not evaluated	>$1,000,000
89.	Upgrade feedwater digital control to reduce likelihood of main feedwater (MFW) loss following plant trip.	Eliminated all transients with loss of power conversion system.	4	0	$52,300	>$250,000
93.	Provide Auxiliary building Vent/Seal structure to enhance building ventilation.	Eliminated all ISLOCA events.	< 1	0	$13,600	>$100,000[2]
96.	Install pressure or leak monitoring instruments between first two pressure isolation valves on low-pressure injection, residual heat removal (RHR) suction, and high pressure injection lines to reduce ISLOCA frequency.	Eliminated all ISLOCA events.	< 1	0	$13,600	>50,000 per line
97.	Increase frequency of valve leak testing to decrease ISLOCA frequency.	Eliminated all ISLOCA events.	< 1	0	$13,600	>$100,000
98.	Improve operator training on ISLOCA coping to decrease ISLOCA impact.	Eliminated all ISLOCA events.	< 1	0	$13,600	>$25,000[2]
100.	Revise emergency operating procedures (EOPs) to improve ISLOCA identification to ensures LOCA outside containment would be observed.	Eliminated all ISLOCA events.	< 1	0	$13,600	>$15,000[2]

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
101.	Ensure all ISLOCA releases are scrubbed (e.g., plug drains in the break area so the breakpoint would cover with water).	Eliminated all ISLOCA events.	< 1	0	$13,600	>$100,000
102.	Secondary side guard pipes up to main steam isolation valves (MSIVs) to prevents secondary side depressurization should a steam line break occur upstream of the MSIVs. Would also guard against or prevent consequential multiple SGTRs following a main steam line break.	Eliminated all steam line break events.	13	1	$170,800	>$1,000,000
103.	Upgrade large break LOCA instrumentation to identify symptoms/precursors (leak before break) to reduce likelihood of large break LOCA.	Eliminated all large break LOCA events.	< 1	0	$4,800	>$100,000
108.	Improve SGTR coping abilities by improving instrumentation to detect SGTR, or additional systems to scrub fission product releases to reduce consequences of SGTR.	Eliminated all SGTR events.	29	79	$565,000	>>benefit
119.	Independent reactor coolant pump (RCP) seal injection with dedicated diesel adds redundancy to RCP seal cooling, reducing CDF from loss of CCW, SW, or SBO.	Eliminated small LOCA events, including RCP seal LOCA.	1	0	$13,000	>$500,000[2]
126.	Automatic switchover to recirculation on RWST depletion.	Eliminated human error of failure to switchover to recirculation on RWST depletion.	30	48	$531,400	>$2,400,000 per unit[3]
127.	Improve RHR sump reliability by eliminating debris in sump as common mode failure.	Eliminated failure due to sump clogging.	< 1	0	$1,100	>$100,000
130.	Upgrade chemical and volume control system to decrease CDF due to small LOCAs.	Eliminated small LOCA events, including RCP seal LOCA.	1	0	$13,000	>$1,000,000
137.	Install additional high pressure injection pump with independent diesel.	Perfectly reliable safety injection pumps.	< 1	0	$4,100	>$500,000[2]

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
138.	Install independent AC high pressure injection system to provide make-up and feed and bleed capabilities during SBO.	Perfectly reliable safety injection pumps.	< 1	0	$4,100	>500,000[2]
140.	Prevent charging pump flow diversion from the relief valves to reduce frequency of loss of RCP cooling.	Eliminated small LOCA events, including RCP seal LOCA.	1	0	$13,000	>$50,000
142.	Use firewater pumps as a backup seal injection and high-pressure makeup to reduce RCP seal LOCA frequency and SBO core damage frequency.	Eliminated small LOCA events, including RCP seal LOCA.	1	0	$13,000	>$500,000[1]
148.	Install nitrogen bottles as backup gas supply for safety relief valves (SRVs) to extend operation of SRVs during SBO.	Removed the air supply dependency to the power operated relief valves.	< 1	0	$0	>$50,000[2]
149.	Install redundant spray system to depressurize primary system during SGTR to enhanced depressurization ability during SGTR.	Eliminated all human errors related to depressurization.	17	52	$305,800	>$1,000,000
150.	Create/enhance reactor coolant system (RCS) depressurization ability. Low RCS pressure alleviates some concerns about high-pressure melt ejection.	Eliminated all human errors related to depressurization.	17	52	$305,800	>$1,000,000
151.	Make procedural changes only for the RCS depressurization option to reduce RCS pressure without cost of new system.	Eliminated all human errors related to depressurization.	17	52	$305,800	No relevant HEP improvement found.[4]
153.	Relief valve system to prevent equipment damage from pressure spike during ATWS.	Eliminated all ATWS events.	2	0	$29,000	>$1,000,000
154.	Consider other SGTR features: a. Highly reliable (closed loop) steam generator shell-side heat removal system b. System that returns the discharge from steam generator relief back to the primary containment c. Increased pressure capability on the steam generator shell-side corresponding increase in safety valve setpoints.	Eliminated all SGTR events.	29	79	$565,000	>$10,000,000

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
155.	Increase secondary side pressure capacity such that a SGTR would not cause relief valves to lift eliminating pathway to release from SGTR.	Eliminated all SGTR events.	29	79	$565,000	>$100,000,000
157.	Revise maintenance practice to inspect 100 percent of tubes in steam generator to reduce frequency of SGTR.	Eliminated all SGTR events.	29	70	$565,000	$5,000,000[6]
158.	Create passive secondary side coolers that passively removes heat. Would reduce CDF from loss of feedwater.	Not evaluated as design and installation at an existing plant is not feasible.	Not evaluated	Not evaluated	Not evaluated	Not evaluated
165.	Perform surveillance on manual valves used for backup AFW pump suction (firewater system).	Eliminated failure of firewater valves to open.	< 1	0	$0	>$10,000
166.	Either replace old CST with larger tank, or install a backup to increase AFW system reliability.	Not evaluated due to excessive cost.	Not evaluated	Not evaluated	Not evaluated	>$500,000[2]
169.	Provide portable generators to be hooked up to turbine driven AFW after battery depletion.	Removed the dependency of AFW on DC power.	8	0	$98,400	>$100,000[2]
176.	Replace reactor vessel with stronger vessel.	Not evaluated due to excessive cost of implementing on existing plant.	Not evaluated	Not evaluated	Not evaluated	Not evaluated.
177.	Provide additional SW pump to reduce likelihood of SW system failure.	Eliminated all SW pump failures.	< 1	0	$6,600	>$2,500,000[2]
180.	Provide automatic re-powering of battery chargers following a loss of offsite power event.	Always successful reloading battery chargers.	9	1	$120,400	>$200,000
181.	Provide procedural improvements and training to improve operator performance for feed and bleed cooling without safety injection (SI).	Reduced operator error likelihood in related scenarios by a factor of 3.	8	0	$102, 500	Not evaluated: Procedure step mark-off implemented after PRA 3.02 and considered adequate.
184.	Provide procedural improvements and training to improve operator performance for manually controlling AFW after loss of instrument air.	Reduced operator error likelihood in related scenarios by a factor of 3.	2	0	$23,100	>$15,000[2] Implementation same as 181

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
185.	Provide procedural improvements and training to improve operator performance for providing alternate water source for AFW following low CST level.	Reduced operator error likelihood in related scenarios by a factor of 3.	13	7	$178,500	>$15,000[2] Implementation same as 181
186.	Provide procedural improvements and training to improve operator performance for manually starting gas turbine generator.	Reduced operator error likelihood in related scenarios by a factor of 3.	2	0	$22,500	>$15,000[2] Implementation same as 181
187.	Provide procedural improvements and training to improve operator performance for opening valve for RWST charging.	Reduced operator error likelihood in related scenarios by a factor of 3.	7	0	$82,900	>$15,000[2] Implementation same as 181
188.	Provide procedural improvements and training to improve operator performance for the task of diagnosing SGTR	Reduced operator error likelihood in related scenarios by a factor of 3.	2	2	$36,900	>$15,000[2] Implementation same as 181
189.	Provide procedural improvements and training to improve operator performance for feed and bleed cooling with SI	Reduced operator error likelihood in related scenarios by a factor of 3.	2	0	$25,500	>$15,000[2] Implementation same as 181
190.	Provide procedural improvements and training to improve operator performance for isolating service water header.	Reduced operator error likelihood in related scenarios by a factor of 3.	2	0	$19,200	Not determined. Implementation same as 181
191.	Provide procedural improvements and training to improve operator performance for opening instrument air valves to containment. This item and #193 are an action/recovery pair	Reduced operator error likelihood in related scenarios by a factor of 3.	1	5	$23,100	>$15,000[2] Implementation same as 181
192.	Provide procedural improvements and training to improve operator performance for opening instrument air valves to containment.	Reduced operator error likelihood in related scenarios by a factor of 3.	1	4	$22,500	>$15,000[2] Implementation same as 181
193.	Provide procedural improvements and training to improve operator performance for opening SW valve following a SI signal.	Reduced operator error likelihood in related scenarios by a factor of 3.	2	7	$26,500	>$15,000[2] Implementation same as 181
195.	Improve running reliability of motor driven AFW pumps.	Motor driven AFW pumps perfect while running.	2	7	$159,700	>$500,000[2]

	SAMA	Assumptions	Percent Risk Reduction CDF	Percent Risk Reduction Population Dose	Total Benefit[1] ($)	Estimated Cost ($)
196.	Reduce likelihood of RHR full flow test lines being left open.	Reduce operator error likelihood by a factor of 3 in related scenarios.	4	4	$49,900	Not evaluated[5].
197.	Improve reliability of check valve in AFW recirculation line to CSTs.	Check valve failure probability equal to zero.	1	1	$18,300	>$11,000[2] Implemented by removal of check valve internals.
199.	Improve reliability of power supply to Bus 1B03	Bus is perfectly reliable.	4	0	$49,400	>$300,000.

Table Notes:

1. Benefit values are based on NMC's estimated benefits and include a multiplier of approximately 2 to account for additional benefits in external events.
2. Cost reported in ER has been reduced by a factor of two to account for shared cost between Unit 1 and Unit 2, per NMC response to an RAI (NMC 2004b).
3. Revised value provided by an RAI response (NMC 2004c).
4. Procedure step mark-offs have been implemented. NMC was not able to identify any further improvement that would substantially reduce the HEP for this accident.
5. The probability for this pre-initiator human error used in PRA Revision 3.02 was a screening value of $1x10^{-3}$. Because there were actually two valves in series in these lines that are both independently verified and locked closed, both would need to be left open for this event to become important. A more correct value of $6.4x10^{-6}$ essentially eliminates this event from further consideration.
6. Value based on an estimated cost of $500,000 per outage (NMC 2004a) for 10 outages.

G.6.2 Review of NMC's Cost-Benefit Evaluation

The cost-benefit analysis performed by NMC was based primarily on NUREG/BR-0184 (NRC 1997b) and was conducted in a manner consistent with this guidance.

In order to account for external events, NMC multiplied each SAMA benefit by an amount equal to the ratio of the sum of the internal and external event CDF to the internal event CDF. This ratio is approximately two. Given that the CDF from internal fires, seismic events, and internal flooding as reported by NMC (NMC 2004a) is approximately the same as the CDF for internal events, the staff agrees that the use of this multiplier was appropriate for NMC's cost-benefit analyses.

Fifteen of the final list of 65 SAMAs involve improvements to plant procedures and/or operator training to improve operator performance. Several of these SAMAs appear to be cost-beneficial (or very close to cost-beneficial) in the baseline analysis, specifically, SAMAs 181, 184-193, and 197. One of the factors that contribute to the positive cost-benefit for these SAMAs is the assumption that the implementation costs would be incurred at one unit, but would benefit the second unit at no additional cost. In response to an RAI, NMC indicated that these SAMAs have been implemented at PBNP through the addition of procedure mark-offs (i.e., place-keeping aids) in the associated operating procedures. These changes were implemented subsequent to the PRA revision used in the SAMA analysis (Revision 3.02). The use of such mark-offs improves the overall performance of the operator by maintaining a positive indication of the operator's location in the procedure, eliminating the need for the operator to locate his position by reviewing previously completed steps. In NMC's view, further improvements to procedures or training to address these operator actions are not feasible. NMC notes that these actions are still very important to plant risk and that degradation of operator performance on these actions must be avoided. NMC notes that full automation of each of these actions could further reduce the CDF; however, full automation would significantly increase the cost of implementation and would not be cost-beneficial. The staff agrees that for these operator actions, the potential for further, significant risk reduction through additional procedure and training enhancements is limited due to the implementation of the procedure mark-offs, and that hardware alternatives are not likely to be cost-beneficial.

SAMA 197, improve reliability of check valve in AFW recirculation line to CSTs, also is potentially cost-beneficial in the baseline analysis. In response to an RAI, NMC indicated that this SAMA has effectively been implemented at PBNP. A low-cost approach was taken to eliminate AFW system check valve failures by removing the check valve internals rather than the entire check valve. The staff agrees with NMC that this modification essentially eliminates the risk of these failures.

In response to a staff request, NMC also evaluated several of the SAMAs found to be potentially cost-beneficial in recent SAMA reviews for other plants. Twelve such options were evaluated by NMC, including:

- Developing procedures for providing temporary ventilation to switchgear and diesel generator rooms in events involving loss of room cooling
- Adding a capability to flash the field on the emergency diesel generator to enhance SBO event recovery
- Providing a portable 120 VAC generator with manual clamps to supply power to the steam generator level instrumentation in SBO events
- Developing procedures to extend the time to RWST depletion in SGTR events.

All but two of these alternatives were determined to be either not applicable to PBNP or already implemented at PBNP. The remaining two alternatives (adding a capability to flash the field on the emergency diesel generator to enhance SBO event recovery, and providing a portable 120 VAC generator with manual clamps to supply power to the steam generator level instrumentation in SBO events) were each estimated to have a benefit of approximately $5,000 and an implementation cost of greater than $30,000 for the PBNP site. On the basis of this evaluation, NMC concluded that none of the additional SAMAs would be cost-beneficial for PBNP.

Based on its review of NMC's SAMA evaluation, the staff concluded in the draft SEIS that two SAMAs could be cost-beneficial when uncertainties, alternative discount rates, or broader implementation options were taken into account. Specifically, these two SAMAs are a lower cost alternative to SAMA 126, automatic switchover to recirculation on RWST depletion, and SAMA 169, provide a portable generator to power the AFW turbine after battery depletion. These SAMAs are discussed further below.

The staff concluded that SAMA 126, automatic switchover to recirculation on RWST depletion, is not cost-beneficial, but that a less extensive modification involving only addition of an automatic pump trip on low RWST level could be cost-beneficial. This alternative SAMA would reduce a portion of the risk associated with failures of switchover by tripping the pumps prior to failures due to low net positive suction head or cavitation. This would provide additional time for operators to complete the manual switchover. As noted in the draft SEIS, the alternative modification would still involve costs for the engineering, hardware, and training associated with changes to safety-related systems and components, and there would still be potential for operator error in performing the actual switchover.

Subsequent to the draft SEIS, NMC provided additional information regarding the costs associated with installing an automatic pump trip on low RWST level at PBNP (NMC 2005). NMC estimates that the costs would approach $1M, and would include adding a third channel of level instruments to provide for the required 2 out of 3 logic, re-routing cables to avoid certain fire-vulnerable areas, and preparing a license amendment regarding the new pump trip. NMC also noted that the HEP associated with switchover to recirculation does not include the action to trip pumps as a critical action because there is so much time available to complete the action. Accordingly, the HEP would not be substantially reduced by addition of an automatic trip function. Based on the additional information provided by NMC, the staff concludes that the addition of an automatic pump trip is not likely to be cost-beneficial at PBNP given its substantial implementation costs and limited benefits.

For SAMA 169 (provide a portable generator to power the AFW turbine after battery depletion), the benefit is estimated to be $98,400 and the cost is estimated to be greater than $100,000 (which accounts for the fact that the cost is shared between the two PBNP units). Based on cost estimates developed previously for similar modifications at another plant, the staff estimates that the costs associated with providing a portable generator would be approximately $100,000 to $200,000 per unit[(a)]. Also, the fact that when either uncertainty in the CDF mean (a factor of two between the mean and the 95th percentile) or a lower discount rate are considered, the SAMA could have a positive net value (e.g., a 3 percent discount rate changes the benefit to $178,000). Therefore, the staff concludes that this SAMA could be cost-beneficial if uncertainties or alternative discount rates were taken into account.

In response to an RAI, NMC considered the uncertainties associated with the internal event CDF and the impact of uncertainties on the SAMA analysis results. Information regarding the uncertainty distribution of the internal events CDF is summarized in Table G-5 (NMC 2004b). The 95th percent confidence level for internal events CDF is approximately 2.0 times the best estimate CDF. If the 95th percentile values of the CDF were used in the cost-benefit analysis instead of the mean CDF value used in the baseline analysis, the estimated benefits of the SAMAs would increase by about a factor of two in addition to the multiplier already included in the baseline benefit estimates to account for external events (NMC 2004a).

(a) The cost associated with providing a portable generator to provide power to steam generator level instrumentation was estimated at less than $100,000 per unit in the SAMA evaluation for another plant. The cost to provide a portable generator for backup power to hydrogen igniters was estimated as $200,000 per unit as part of the resolution of Generic Safety Issue 189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure From Hydrogen Combustion During a Severe Accident" (NRC 2002).

Table G-5. Uncertainty in the Calculated CDF for PBNP

Percentile	CDF (per year)
5th	1.58×10^{-5}
50th	3.09×10^{-5}
mean	3.62×10^{-5}
95th	7.21×10^{-5}

Based on information provided in the ER, three additional SAMAs (98, 100, and 180) also appear to be potentially cost-beneficial based on the upper bound benefit. However, in response to an RAI, NMC provided sufficient justification to show that the modeling assumptions used to calculate the benefit for these three SAMAs were extremely conservative, i.e, the SAMAs were assumed to completely eliminate the affected sequences or human errors (NMC 2004b). Further, NMC stated that the HEP for the human error event (SAMA 180) changed from 4.2×10^{-3} to 2.1×10^{-3} in PRA Revision 3.13, reducing the importance of this SAMA from the original estimates in the ER. The staff concludes that, based on more realistic risk reduction estimates, these SAMAs would not be cost-beneficial.

NMC also performed a sensitivity analysis that addressed variations in discount rate. The use of a three-percent real discount rate (rather that seven percent used in the baseline) results in an increase in the SAMA benefits of approximately 75 percent. The results of the sensitivity study are bounded by the uncertainty assessment, which considered an increase of a factor of two.

NMC assessed the impact of other factors on the analysis results, such as the use of a plant-specific core fission product inventory and substantially (100 percent) higher offsite doses and economic impacts. The staff notes that accounting for each of these factors would tend to increase the benefit as compared to the baseline case analysis. However, the impact on the SAMA benefits is small and more than offset by the conservatisms in the risk reduction and cost estimates assumed in the baseline analysis.

The staff concludes that, with the exception of the one SAMA noted above, the costs of all of the SAMAs assessed would be higher than the associated benefits.

G.7 Conclusions

NMC compiled a list of 202 SAMA candidates using NRC and industry documents discussing potential plant improvements, and insights from the IPE, IPEEE and current PRA. A qualitative screening removed candidates that (1) were not applicable to PBNP due to design differences

or (2) had already been implemented at PBNP. A total of 137 SAMA candidates were eliminated based on these criteria, leaving 65 SAMA candidates for further evaluation.

Using guidance in NUREG/BR-0184 (NRC 1997b), the current PRA model, and a Level 3 analysis developed specifically for SAMA evaluation, a maximum attainable benefit of about $651,000, representing the total present dollar value equivalent associated with completely eliminating severe accidents at PBNP, was derived. For the 65 remaining SAMA candidates, a more detailed assessment and cost estimate were developed. To account for external events, NMC increased the estimated benefits for internal events by a factor of approximately two before comparing to the cost estimate. NMC concluded in the ER that none of the SAMAs evaluated would be cost-beneficial for PBNP because their implementation costs would exceed their estimated benefits.

The staff reviewed the NMC analysis and concluded that the methods used and the implementation of those methods were sound. The unavailability of a seismic and fire PRA model precluded a detailed quantitative evaluation of SAMAs specifically aimed at reducing risk of these initiators. However, improvements have been realized as a result of the IPEEE process at PBNP that would minimize the likelihood of identifying further cost-beneficial enhancements in these areas, and NMC accounted for the potential impact of external events by increasing the estimated benefits for internally-initiated events by a factor of approximately two.

Although none of the SAMAs appear cost-beneficial in the baseline analysis, one SAMA could become cost-beneficial when uncertainties or alternative discount rates are taken into account. This SAMA involves providing a portable generator to power the AFW turbine after battery depletion (SAMA 169). Based on the small difference between the cost and benefit of SAMA 169, and considering the uncertainty in the PRA together with the possibility of a lower discount rate (3 percent versus 7 percent, as used in the baseline analysis), the staff concludes that SAMA 169 could be cost-beneficial.

Based on its review of the NMC SAMA analysis, the staff concurs that none of the candidate SAMAs are cost-beneficial, except as noted above. This is based on conservative treatment of cost and benefits. This conclusion is consistent with the low residual level of risk indicated in the PBNP PRA and the fact that PBNP has already implemented all of the plant improvements identified from the IPE and IPEEE process. The staff did conclude that SAMA 169 could be cost-beneficial when uncertainties or alternative discount rates are taken into account. However, this SAMA does not relate to adequately managing the effects of aging during the period of extended operation. Therefore, it need not be implemented as part of license renewal pursuant to 10 CFR Part 54.

G.8 References

Wisconsin Electric Power Company (WEPCO). 1993. Letter from Bob Link, to Document Control Desk, Subject: Generic Letter 88-20 (TAC NOS. 74452 and 74453) "Summary Report on Individual Plant Examination for Severe Accident Vulnerabilities, Point Beach Nuclear Plant, Units 1 and 2", dated June 30, 1993.

Wisconsin Electric Power Company (WEPCO). 1995. Letter from Bob Link, to Document Control Desk, Subject: Generic Letter 88-20 (TAC NOS. 74452 and 74453) "Summary Report Examination of External Events for Severe Accident Vulnerabilities Point Beach Nuclear Plant, Units 1 and 2", June 30, 1995.

Nuclear Management Company, LLC. (NMC). 2004a. *Point Beach Nuclear Plant Operating License Renewal Application Environmental Report.* Two Rivers, Wisconsin.

Nuclear Management Company, LLC (NMC). 2004b. *Response to Request for Additional Information Regarding the Point Beach Nuclear Plant License Renewal Application (TAC Nos. MC2099 and MC2100),* Two Rivers, Wisconsin. August 31, 2004.

Nuclear Management Company, LLC (NMC). 2004c. *Follow-up Response to Request for Additional Information Regarding the Point Beach Nuclear Plant License Renewal Application (TAC Nos. MC2099 and MC2100),* Two Rivers, Wisconsin. November 22, 2004.

Nuclear Management Company, LLC (NMC). 2005. Email correspondence from J. Knorr to S. Imboden, NRC, regarding cost of pump trip on low RWST level. June 14, 2005.

Chanin, D. I., et al, 1997. *Code Manual for MACCS2: Volume 1, User's Guide,* Sandia National Laboratory, SAND97-054, March 1997.

U.S. Department of Agriculture (USDA). 1998. 1997 Census of Agriculture, national Agriculture Statistics Service, 1998., Available online at: http://www.nass.usda.gov/census97/volume1/vol1pubs.htm.

U.S. Nuclear Regulatory Commission (NRC). 1990. NUREG/CR-5575, *Quantitative Analysis of Potential Performance Improvements for the Dry PWR Containment*, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1991. NUREG/CR-5630, *PWR Dry Containment Parametric Studies*, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1995. "Review of Individual Plant Examination Submittal for Internal Events - Point Beach Nuclear Plant, Units 1 and 2," (TAC Nos. M74452 and M74453)," Washington, D.C., January 26, 1995.

U.S. Nuclear Regulatory Commission (NRC). 1997a. NUREG/CR-6525, *SECPOP90: Sector Population, Land Fraction, and Economic Estimation Program*, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1997b. NUREG/BR-0184, *Regulatory Analysis Technical Evaluation Handbook*, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1999. "Point Beach Nuclear Plant, Units 1 and 2 Review of Individual Plant Examination of External Events (IPEEE) Submittal (TAC Nos. M83661 and M83662)," Washington, D.C., September 15, 1999.

U.S. Nuclear Regulatory Commission (NRC). 2000. NUREG/BR-0058, *Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission, Revision 3*, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2002. Memorandum from Ashok C. Thadani, RES, to Samuel J. Collins, NRR, Subject: RES Proposed Recommendations for Resolving Generic Safety issue 189: "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion During a Severe Accident," Washington, D.C., December 17, 2002.

U.S. Nuclear Regulatory Commission (NRC). 2004a. Letter from Stacey Imboden, NRC, to Dennis L. Koehl, NMC, Subject: Request for Additional Information (RAI) Regarding Severe Accident Mitigation Alternatives for Point Beach Nuclear Plant, Units 1 and 2, (TAC NOS. MC2049 and MC2050), Washington, D.C., July 2, 2004.

U.S. Nuclear Regulatory Commission (NRC). 2004b. Letter from Stacey Imboden, NRC, to Dennis L. Koehl, NMC, Subject: Request for Additional Information (RAI) Regarding Severe Accident Mitigation Alternatives for Point Beach Nuclear Plant, Units 1 and 2, (TAC NOS. MC2049 and MC2050), Washington, D.C., October 20, 2004.

U.S. Nuclear Regulatory Commission (NRC). 2004. NUREG/BR-0058, *Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission, Revision 4*, Washington, D.C.

NRC FORM 335
(9-2004)
NRCMD 3.7

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

1. REPORT NUMBER
(Assigned by NRC, Add Vol., Supp., Rev., and Addendum Numbers, if any.)

NUREG-1437, Supplement 23

2. TITLE AND SUBTITLE

Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 23
Regarding Point Beach Nuclear Plant Units 1 and 2
Final Report

3. DATE REPORT PUBLISHED

MONTH	YEAR
August	2005

4. FIN OR GRANT NUMBER

5. AUTHOR(S)

See Appendix B of report.

6. TYPE OF REPORT

Technical

7. PERIOD COVERED *(Inclusive Dates)*

8. PERFORMING ORGANIZATION - NAME AND ADDRESS *(If NRC, provide Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)*

Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

9. SPONSORING ORGANIZATION - NAME AND ADDRESS *(If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.)*

Same as 8 above.

10. SUPPLEMENTARY NOTES

Docket No. 50-266 and 50-301

11. ABSTRACT *(200 words or less)*

This Final supplemental environmental impact statement (SEIS) has been prepared in response to an application submitted to the NRC by Nuclear Management Company, LLC (NMC) to renew the operating licenses for Point Beach Nuclear Plant Units 1 and 2 for an additional 20 years under 10 CFR Part 54. This Final SEIS includes the NRC staff's analysis that considers and weighs the environmental impacts of the proposed action, the environmental impacts of the alternatives to the proposed action, and mitigation measures available for reducing or avoiding adverse impacts. It also includes the staff's recommendation regarding the proposed action.

The NRC staff's recommendation is that the Commission determine that the adverse environmental impacts of license renewal for Point Beach Nuclear Plant Units 1 and 2 are not so great that preserving the option of license renewal for energy-planning decision makers would be unreasonable. The recommendation is based on (1) the analysis and findings in the GEIS; (2) the Environmental Report submitted by NMC; (3) consultation with Federal, State, Tribal, and local agencies; (4) the staff's own independent review; and (5) the staff's consideration of public comments.

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

Point Beach Nuclear Plant Units 1 and 2
Point Beach
Pt. Beach
Supplement to the Generic Environmental Impact Statement
GEIS
National Environmental Policy Act
NEPA
License Renewal

13. AVAILABILITY STATEMENT

unlimited

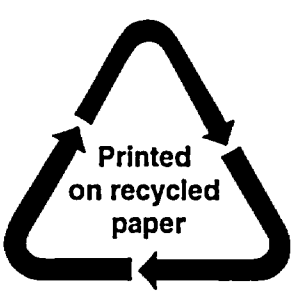
14. SECURITY CLASSIFICATION

(This Page)
unclassified

(This Report)
unclassified

15. NUMBER OF PAGES

16. PRICE



Federal Recycling Program

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

OFFICIAL BUSINESS