

December 16, 1987

Docket Nos. 50-266  
and 50-301

Mr. C. W. Fay, Vice President  
Nuclear Power Department  
Wisconsin Electric Power Company  
231 W. Michigan Street, Room 308  
Milwaukee, Wisconsin 53201

Dear Mr. Fay:

Enclosed is a copy of an "Environmental Assessment and Finding of No Significant Impact" for your information. This assessment relates to your application dated July 14, 1987, as supplemented August 6, and October 8, 1987, for approval of a procedure for disposal of certain low level radioactive waste at the Point Beach Nuclear Plant.

The assessment has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original Signed By:

David H. Wagner, Project Manager  
Project Directorate III-3  
Division of Reactor Projects

Enclosure:  
Environmental Assessment

cc: w/enclosure  
See next page

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Mr. C. W. Fay  
Wisconsin Electric Power Company

Point Beach Nuclear Plant  
Units 1 and 2

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSION  
WISCONSIN ELECTRIC POWER COMPANY  
POINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-266 AND 50-301  
ENVIRONMENTAL ASSESSMENT  
AND FINDING OF NO SIGNIFICANT IMPACT

The U. S. Nuclear Regulatory Commission (the Commission or staff) is considering approval of a procedure to dispose of certain very low level radioactive waste pursuant to 10 CFR 20.302 as requested by Wisconsin Electric Power Company (the licensee) for Point Beach Nuclear Plant, Units 1 and 2, located in Manitowoc County, Wisconsin.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The proposed action would approve the periodic removal and on-site disposal of slightly radioactive sludge. The materials involved in this sludge disposal are the residual solids remaining in solution upon completion of the aerobic digestion sewage treatment process at Point Beach Nuclear Plant (PBNP). Wash basins located in the controlled area of the plant are believed to be the source of the very small quantity of radionuclides observed in the sludge. Six sites surrounding PBNP and owned by the licensee would be used for disposal of the sludge. The sludge would be plowed, disked, injected or otherwise incorporated into the surface soil layer. The proposed action is more fully discussed in the licensee's letter dated July 14, 1987 as supplemented by letters dated August 6 and October 8, 1987.

Need for Proposed Action: The waste involved in this disposal process consists of the residual solids remaining in solution upon completion of the aerobic digestion sewage treatment process utilized in PBNP. The PBNP sewage treatment plant is used to process waste water from the plant sanitary and potable water systems. These systems produce nonradioactive waste streams with the possible exception of wash basins located in the radiologically controlled area of the plant. These wash basins are believed to be the primary source of the extremely small quantities of radionuclides in the sludge. The sewage sludge generated at PBNP is allowed to accumulate in the sewage plant digester and aeration basin. Two to four times annually, depending on work activities and corresponding work force at PBNP, the volume of the sludge in the digester and aeration basin needs to be reduced to allow continued efficient operation of the treatment facility. The total volume of sludge removed during each disposal operation is typically on the order of 15,000 gallons. The maximum capacity for the entire PBNP treatment facility and hence the maximum disposal volume is about 30,000 gallons. In the case of a maximum capacity disposal, doses would not necessarily increase in proportion to the volume, since more than one disposal site may be used.

Trace amounts of radionuclides have been identified in PBNP sludge currently being stored awaiting disposal. The radionuclides identified and their concentrations in the sludge are summarized below:

<u>NUCLIDE</u>	<u>CONCENTRATION (microcurie/cc)</u>
Co-60	2.33E-07
Cs-137	1.50E-07

The total activity of the radionuclides in the stored sludge, based on the identified concentrations and a total volume of 15,000 gallons of sewage sludge, are as follows:

<u>NUCLIDE</u>	<u>ACTIVITY (microcuries)</u>
Co-60	13.2
Cs-137	8.5

These concentrations and activities are representative of past and future values of concentrations and activities of radionuclides in the sludge which has been or is to be land spread.

Environmental Impacts of the Proposed Action:

The rate of sewage sludge application on each of the six proposed sites will be monitored to insure doses are maintained within applicable limits. These limits require doses to the maximally exposed member of the general public to be maintained less than 1 mrem/year due to the disposal material. In addition, NRC guidance requires doses of less than 5 mrem/year to an inadvertent intruder.

Specifically, the radionuclide concentrations in the sludge shall be determined prior to each disposal by obtaining three representative samples from each of the sludge storage tanks. The samples shall be counted utilizing a GeLi detector and multichannel analyzer with appropriate geometry. The detection system is routinely calibrated and checked to ensure the lower limits of detection are within values specified in the Radiological Effluent Technical Specifications (RETS).

To insure the samples are representative of the overall concentration in the storage tanks, the radionuclide concentration determination for each of the three samples shall be analyzed to insure each sample is within two

standard deviations of the average value of the three samples. If this criteria is not met, additional samples will be obtained and analyzed to insure a truly representative radionuclide concentration is utilized for dose calculations and concentration limit determinations. The average of all statistically valid concentration determinations will be utilized in determining the storage tank concentration values.

The radionuclides identified in the sludge, along with their respective concentrations, will be compared to concentration limits prior to disposal. The methodology discussed in Appendix F of the licensee's October 8, 1987 letter will be used in determining compliance with the proposed concentration limit. The total activity of the proposed disposal will be compared to the proposed activity limit as described in Appendix F.

If the concentration and activity limit criteria are met, the appropriate exposure pathways (as described in Appendix D of the licensee's October 8, 1987 letter) will be evaluated prior to each application of sludge. These exposures will be evaluated to insure the dose to the maximally exposed individual will be maintained less than 1 mrem/year and the dose to the inadvertent intruder is maintained less than 5 mrem/year. The exposures will be calculated utilizing the methodology used in Appendix E of the licensee's October 8, 1987 letter, including the current activity to be landspread along with the activity from all prior disposal. The remaining radioactivity from prior disposals will be corrected for radiological decay prior to performing dose calculations for the meat, milk, and vegetable ingestion pathways, the inhalation of resuspended radionuclides, and all pathways associated with a release to Lake Michigan. The residual radioactivity will be corrected for radiological

decay and, if appropriate, the mixing of the radionuclides in the soil by plowing prior to performing external exposure calculations.

To assess the doses received by the maximally exposed individual and the inadvertent intruder, six credible pathways have been identified for the maximally exposed individual and four credible pathways for the inadvertent intruder. The identified credible pathways are described in Appendix D of the licensee's October 8, 1987 letter.

Calculations detailed in Appendix E of the licensee's October 8, 1987 letter demonstrate the disposal of the currently stored PBNP sewage sludge would result in exposures below these limits. The total annual exposure to the maximally exposed individual based on the identified exposure pathways is equal to 0.072 mrem. The dose to a hypothetical intruder assuming an overly conservative occupancy factor of 100% is calculated to be 0.115 mrem/year. By definition, the inadvertent intruder would not be exposed to the processed food pathways (meat and milk).

The calculational methodology used in determining doses for the proposed disposal of sludge stored at PBNP shall be utilized prior to each additional land application to insure doses are maintained less than those proposed by NRC. This calculation will include radionuclides disposed of in previous sludge applications. The activity from these prior disposals will be corrected for radiological decay prior to performing dose calculations for the meat, milk, and vegetable ingestion pathways, the inhalation of resuspended radionuclides, and all pathways associated with a potential release to Lake Michigan. The residual radioactivity will be corrected for radiological decay and, if applicable, the mixing of radionuclides in the soil prior to performing external exposure calculations. In addition, the dose to a farmer potentially leasing

more than one application site will be addressed by summing the doses received from the external exposure from a ground plane source and resuspension inhalation pathways for each leased site. In addition, the maximum site-specific dose due to the other pathways identified in Appendix D to the licensee's October 8, 1987, letter will be utilized in the total exposure estimation.

The licensee's letter dated October 8, 1987 includes an analysis and evaluation of pertinent information as to the nature of the environment, including topographical, geological, meteorological and hydrological characteristics; usage of ground and surface waters in the general area; the nature and location of other potentially affected facilities; and procedures to be observed to minimize the risk of unexpected or hazardous exposures.

Based on a review and evaluation of the licensee's application, the staff concludes that the possible radiation risks to members of the general public as a result of such disposal would be well below regulatory limits.

Alternatives to the Proposed Action: The "no action" alternative is to deny the licensee's request for approval; namely, that other, more costly alternatives for disposal of the sludge would be necessary to support continued plant operation. This would entail packaging the sludge for transport to and disposal in a licensed waste burial site. The "no action" alternative also entails increased risks during transportation associated with offsite shipments, whereas transport for the proposed action is for very short distances across licensee-owned property.

Agencies and Persons Consulted: The staff reviewed the licensee's request and has not consulted other agencies or persons.



FINDING OF NO SIGNIFICANT IMPACT

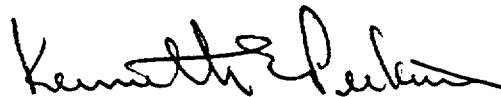
The Commission has determined not to prepare an environmental impact statement for the proposed action.

Based upon this environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the licensee's application dated July 14, 1987, as supplemented on August 6 and October 8, 1987, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D.C., and at the Joseph P. Mann Library, 1516 Sixteenth Street, Two Rivers, Wisconsin.

Dated at Bethesda, Maryland, this 16 day of December 1987.

FOR THE NUCLEAR REGULATORY COMMISSION



Kenneth E. Perkins, Director  
Project Directorate III-3  
Division of Reactor Projects