FEB 17 1972

Docket No. 50-305

Mr. E. W. James, Vice President
Power Generation and Engineering
Wisconsin Public Service Corporation
P. O. Box 1200
Green Bay, Wisconsin 54305

Dear Mr. James:

A site visit to the Kewaunee Nuclear Power Plant was made on January 24-25, 1972, by a team from our Division of Radiological and Environmental Protection (REP) and Argonne National Laboratory to review environmental factors related to the construction and operation of the plant.

While some of the agenda items identified in my letter to you were disposed of by observations and receipt of clarifying information at the site, it became apparent to the REP Project Leader during the site visit that additional information would be required to continue our review of the subject facility. Accordingly, please submit the information requested by REP as identified in the enclosure to this letter. Your request should consist of three signed originals and 297 additional copies as a sequentially numbered supplement to your Environmental Report.

Sincerely,

(s)

Richard C. DeYoung, Assistant Director
for Pressurized Water Reactors
Division of Reactor Licensing

Enclosure:
Request for add'l information

cc: Steven E. Keane, Esq.
Foley & Lardner
735 North Water Street
Milwaukee, Wisconsin 53203

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	SURNAME ▶	WHRegan:th	JKeppler	GABlanc	RCDeYoung		
	DATE ▶	2/9/72	2/15/72	2/15/72	2/ /72		

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1971 -446 -154

REQUEST FOR ADDITIONAL INFORMATION RELATED

TO EVALUATION OF ENVIRONMENTAL IMPACT

WISCONSIN PUBLIC SERVICE CORPORATION

DOCKET NO. 50-305

I.A. Need for Power

1. Please provide exchanges of information with the Federal Power Commission regarding composition and trend of system power demand and sensitivity of demand to recent price increases (in the last four years), if any.

2. Please provide data and projections for 1971-1977 of peak demand, installed capacity, net additions and reserve margin for the Wisconsin Power Pool.

II.C. The Site - Regional Demography and Land Use

1. What is the peak and average annual use of State Highway 42?

II.F. Ecology of State and Environs

1. Please supply names of trees, grasses, forbes, shrubs, etc. on the site and adjacent areas.

2. What terrestrial birds (permanent and transient) are characteristic of the Kewaunee site and adjacent areas in addition to partridge and pheasant?

3. Are there any plant or animal species in the area that are threatened?

4. What positive or negative data are available on radioactive or toxic chemical contamination of biota on the Kewaunee site?

5. What is the economic and sport (recreational) value of Lake Michigan fish and wildlife in the site area?

6. What terrestrial species populations of interest or concern would be affected by construction and/or operation of the plant? Indicate the species that were considered in developing the answer to the above question.

7. Do the applicants intend to leave the site ecology, other than that required for industrial operations (power generation) essentially as is? E.g., will the woodlots remain undisturbed?

8. What plans are made for post-operational monitoring of terrestrial biota in regard to radioactivity and power plant chemical effluents?

III.C. The Plant - Reactor and Steam Electric System

1. What other nuclear stations are similar to Kewaunee?

2. Describe bubble screen on condenser-cooling-water inlet.

III.D. The Plant - Effluent Systems

1. Please present plots of 1°, 2°, and 3°F Δ T isotherms for cooling water discharge. Give enclosed areas.

2. State capacity of sanitary waste treatment facility in gal/day and in nominal personnel.

3. Describe outfall of sanitary waste and results of analysis prior to entry into lake.

4. State maximum residual free chlorine in discharged condenser cooling water in terms of concentration and time period at rated flow.

5. Describe method of measurement and control of residual free chlorine in discharged cooling water.

6. Provide tabular summary of nonradioactive chemicals in liquid waste covering these items:

   a. lb/year of specific chemical compounds;

   b. mode of primary release, rate as flow or batch, together with volume and concentration;

c. dilution before entry into lake, or other means of handling;

d. applicable standards;

e. include all demineralizer, ion-exchange, and blowdown wastes.

7. Provide similar tabular summary for solid wastes, with disposition.

8. Please assess the cost of using full condenser coolant flow during the winter months.

9. Furnish yearly average flow rates of primary coolant through
   a. the mixed bed demineralizers in the CVCS system;

   b. the cation demineralizer in the CVCS system,
   and the decontamination factors for the various isotopes in each.

10. What is the yearly letdown of coolant from the Reactor Coolant System to the CVCS system? How much of this is returned to the Reactor Coolant System after treatment in the CVCS system? How much will be let down to the Waste Disposal System for treatment and how much of that letdown to the Radwaste System will be released to the environment after treatment there? What treatment?

11. What mass of primary coolant is expected to reach the Waste Disposal System yearly via aerated drains? What treatment will this receive in the Waste Disposal System? What decontamination factors will apply for the various isotopes in the demineralizer there?

12. What delay time is applicable for liquids moving from the Reactor Coolant System through the Radwaste System to the environment?

13. What is the anticipated yearly volume of blowdown from the steam generators?

14. What is the estimated make up water requirement for the plant? How much of this will go to the Reactor Coolant System?

15. What effect will the proposed "design objectives" of 10 CFR 50 have on levels of activity to be released? Will monitors and alarm set points be changed? Will water management in the plant be changed? How? Will processing of liquid wastes be changed, e.g., increased use of evaporators? Will a single evaporator with 2 gpm capacity be adequate? What if it fails?

16. What will be the frequency of sampling for radioactivity in the circulating water discharge? What procedures will be done? Will analysis for tritium be included? What discharge limits will be observed? Will the water monitor (R24) be sensitive enough to detect these levels?

17. Identify all release points for gaseous effluents and their heights above grade. What are the total volume flow rates of gases exhausted through:
    a. the containment vent?

    b. the auxiliary building vent?

    c. the turbine building vent?

    d. the condenser air ejector?

    What are the exit velocities (or vent diameters) at each vent? What will be the exhaust gas temperatures in each case?

18. How is the air ejector offgas handled if a radiation level above the monitor set point is indicated?

19. What is the volume of air processed by the Special Ventilation System?

20. Furnish the following information about purging:
    a. the number of partial and complete purges per year;

    b. volume exhausted in each type of purge;

    c. activity levels in the containment before and after a partial purge;

d. details concerning use of Containment Cleanup System and the purge (or vent) filters during purging;

e. holdup afforded for noble gases.

21. What holdup for noble gases is afforded by charcoal filters in the auxiliary building ventilation and special ventilation systems?

22. On what basis will the operator exercise the option to return gas from a decay tank to the CVCS system rather than discharge it to the atmosphere? How frequently can this be done? What analyses are done on the contents of a decay tank before it is discharged? What formal procedures will assure that the analyses have indeed been done? At what activity level will discharge be permitted? What happens if the operator fails to select a new backup tank (FSAR 11.1-8)? Will gas decay tanks normally be exhausted through charcoal filters? Where do relief valves on Radwaste System tanks vent?

23. Proposed Technical Specification 3.9.C.1 limits the annual release of gaseous wastes according to:

$$1.2 \times 10^{-6} \sum_i (Qi/MPC_i) \leq 1.$$

This implies that a 500 Mrem/yr dose is permitted at the Boundary ($X/Q = 1.2 \times 10^{-6} \frac{Sec}{M^3}$). Will this limit be revised in view of the proposed Appendix I to 10 CFR 50?

24. What volume of solid wastes will be shipped offsite each year? How many barrels? How many shipments? Approximate activity shipped?

25. The Robert E. Ginna plant has reported levels of radioactive waste discharges higher than those predicted for Kewaunee by about a factor of 10 for gross beta in liquids and by about a factor of 3 in gases (on a μCi/MWe-hr basis). (Reported in U.S. Environmental Protection Agency Publication ORP/SID 71-1, "Radioacitive Waste Discharges to the Environment from Nuclear Power Facilities, Addendum 1.")

Will there exist differences in the Radwaste System equipment or management practices for Kewaunee that will account for such a difference?

III.E. Transport

1. Describe assurance for availability of local roads for anticipated fresh and spent fuel shipments.

IV. Environmental Impacts of Site Preparation and Plant Construction

1. What was the peak work force for the plant construction, and when did it occur? When was the peak reached for the Point Beach station?

2. Please describe the soil stabilization and landscaping program.

V.B. Operation - Water and Air Use

1. Describe procedures for monitoring and handling fish trapped in inlet forebay and on travelling screens.

2. Describe reporting procedure to Wisconsin DNR, including reporting of incidents showing impact on biota, of either natural or plant effects.

V.C. Operation - Biological Impact

Aquatic Environment (Lake Michigan)

1. Please supply names of geese, ducks, and other aquatic birds (permanent and transient) that may be found near the Kewaunee plant on the lake.

2. What algae (green, blue-green, etc.) have been identified near the site? Please supply copies of References Nos. 28, 29, 30 through 39, and 55 from the E.R.

3. What data are available on the vertical distribution of the various species of cladocerans and copepods? What diurnal changes occur in, e.g., surface samples within, e.g., 0.5 mile of the reactor?

4. Fish spawning areas. Have any been identified (or looked for) in the area of Lake Michigan around (± 10 miles) the Kewaunee site?

5. What is the species composition and periodic abundance of larval fishes along the shore, e.g., within 5 miles N. and 5 miles S.?

6. Have any studies been made to determine the content of toxic chemicals or radioactivity in the fish that are present at or near the Kewaunee site?

7. What evidence of sea lamprey is available near the Kewaunee plant?

8. Are any of the benthic organisms radioactive?

9. Have any leeches been found in the lake bottom near the site?

10. How will commercial and sport fishing be affected by the operation of this plant?

11. What natural concentrations of fish or other biota are expected at the water inlet? What will be done to prevent fish and other organisms from entering the cooling water intake system? Will this aspect be monitored?

12. What will the highest concentration of free chlorine be in the aqueous effluent to the lake assuming maximum demand in the system?

13. What will the cooling water transit time be from the condenser inlets to the open lake water?

14. What fraction of the various biota that pass through the 3/8 inch traveling screen mesh will be damaged or killed due to mechanical and thermal stress?

15. What annual value can be placed, direct and indirect, on the destruction of biota entrained in the intake water?

16. Please provide data on fecal coliform and streptococcus counts in Lake Michigan water near the Kewaunee site.

V.D. Operation - Radiological Impact

1. Where are the results of preoperational environmental monitoring reported?

2. How will the environmental monitoring/sampling program after startup differ from the preoperational program?

3. What would be the effect of environmental releases of radioactivity at levels just below the set points of the various monitors?

4. Estimate the number of pounds of fish caught annually in Lake Michigan and landed within 50 miles of the plant. What fraction is consumed by humans?

5. Using the same format as for human population (Figs 2.3-2 and 2.3-4), estimate the quantity of milk produced for human consumption as fresh milk. For what fraction of the year are the milk-producing cattle fed on fresh fodder?

X.A. Alternatives

1. Please review considerations of alternatives with reference to the specific design of the intake and outfall facilities of the once-through condenser-cooling system. Indicate the balance between impact on the environment and cost.

2. Please review consideration of alternatives with reference to the specific designs of the monitoring and study programs. Include provisions for local and general impact on the environment, on short- and long-term (time) aspects, and the bearing of these programs on furnishing public assurance that any present lack of detailed knowledge of ecosystems will not result in any significantly adverse effect to be manifested.

3. Indicate consideration of siting and land-use provisions as related to cooperative and/or interactive aspects of the region around the plant. These might include, for example, soil stabilization at the lake shore, local agricultural productivity, appearance of transmission lines, water supply and sanitary waste treatment of nearby communities, local roads, and lake transport facilities and other future development of local counties.

X.B. Benefit/Cost Analysis

1. Table 2.5-6, p. 2.5-52 appears to state that the impact on the aquatic environment is two-fold higher for a once-through system than for a closed-cycle natural-draft cooling system. Since the quantity of heat and water is typically a factor of 16 higher for once-through cooling, explain the numbers in the Table.

2. Ibid. The Table indicates that water consumption is ten-fold higher for closed-cycle cooling than for once-through. Since about 50% of heat entering the lake is balanced by evaporative losses, explain how cooling-tower water consumption rates are as high as ten.