

Docket File

PDR

SEP 16 1974

Daniel K. Muller, Assistant Director for Environmental Projects, L

REVIEW OF APPLICANT'S PROPOSED ENVIRONMENTAL TECHNICAL SPECIFICATIONS
FOR THE MONTICELLO NUCLEAR GENERATING PLANT

PLANT NAME: Monticello Nuclear Generating Plant
LICENSING STAGE: OL
DOCKET NUMBER: 50-263
RESPONSIBLE BRANCH: Environmental Projects Branch No. 4
PROJECT MANAGER: Roby Bevan
DATE REQUEST RECEIVED BY LSB: August 26, 1974
REQUESTED COMPLETION DATE: September 12, 1974
DESCRIPTION OF RESPONSE: Tech Specs unacceptable as proposed; recommended
changes enclosed as detailed comments.
REVIEW STATUS: Environmental Specialists Branch - Complete

As requested, we have reviewed the Environmental Technical Specifications as proposed by the applicant. The results of the review have indicated a number of deficient areas within the specifications which make them unacceptable as proposed. Specific wording changes have been made and these are enclosed as detailed comments. In making these changes, we have kept the intent of each specification consistent to the extent practicable with the approach taken in the recently developed (4/74) Environmental Technical Specifications for the Prairie Island Nuclear Generating Plant. This plant is also operated by the applicant and is located on the same river, although approximately 75-80 miles downstream.

A number of other deficiencies, in the form of missing specifications, have been noticed. These are listed below. The applicant should be questioned on these subject areas and, where applicable, the applicant should prepare a specification and monitoring program, or special study for inclusion in the revised submission of Environmental Technical Specifications.

1. How will the cooling towers be kept clean, free from scale and protected from corrosion or biological attack? Chemical usage (types), application frequency, discharge concentrations, rate, and releases should be provided.
2. What corrosion inhibitors and amounts will be used in the primary coolant system? Estimate the leakage rate to the secondary coolant system, the expected concentrations, evaluation of effects and propose a control on usage as either

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a maximum concentration to be monitored or a chemical inventory record to be maintained with calculated concentrations to serve as a control.

3. A complete listing of all chemical types and amounts used in the plant should be prepared for staff review.
4. Provide a special study, of limited duration, for mapping the thermal plume of the plant. The results of this program may lead to reduced sampling of other biological parameters once the position of the plume is known under various conditions.

This review was conducted by John C. Lehr.

Original signed by Ronald L. Ballard

Ronald L. Ballard, Chief
Environmental Specialists Branch
Directorate of Licensing

Enclosure:
As stated

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COMMENTS ON PROPOSED MONTICELLO NUCLEAR GENERATING PLANT
ENVIRONMENTAL TECHNICAL SPECIFICATIONS

Section 1.0 Definitions

A. Onsite

Add "which is contiguous with the plant structures".

H thru M

Delete the present definitions and replace with:

Week: A calendar period commencing on Sunday and extending through the following Saturday.

Month: Each of the twelve calendar periods designated as January, February, March, April, May, June, July, August, September, October, November, and December.

Year: The calendar period commencing January 1 and extending through December 31.

Any other needed definitions of time periods should be defined in terms of those listed above.

Section 2.0 Protection Conditions

2.1.1 Max ΔT Across Condenser

In the Objective, add "during open cycle operation" to the end of the sentence.

Change the Specification to read: "During open cycle operation, the ΔT across the condenser shall not exceed 35°F for more than 48 hours. The

yearly mean ΔT based on open cycle operating days shall not exceed 27°F".

Change the Basis to read: "The plant will operate in the closed cycle mode to the maximum extent practicable. The number of organisms likely to be lost in this mode due to repeated mechanical and thermal stress is relatively low due to reduced appropriation of water. Open cycle operation is likely during winter months where, due to lower organism concentration, impact is expected to be acceptable. The protection condition will provide a reasonable period of time for the repair of a defective pump."

2.1.2 Maximum Discharge Temperature

Change the Objective to read: "To limit the maximum temperature of the discharge water to protect the indigenous aquatic biota."

2.2 Hydraulic

2.2.1 Flow Rate Restrictions

Change the Objective to read: "To limit the amount of water appropriated for plant use, thereby minimizing the impact on aquatic biota through entrainment and minimizing the heat released to the river."

Change the Specification to read: "The plant cooling water system will be operated in the closed cycle mode to the maximum extent practicable. During this operational mode, appropriation of river water is limited to makeup for evaporative losses and a maximum daily average blowdown of 36 cfs. When operating in open or helper cycles, appropriation of river water will not exceed 645 cfs when river flow is greater than 860 cfs at the

intake. When river flow is less than 860 cfs at the intake, the maximum allowable river water appropriation will not exceed 75% of the river flow at the intake."

Change the Basis to read: "Operation of the plant cooling water system in the closed cycle mode whenever weather conditions permit will greatly reduce the entrainment of aquatic biota. Open cycle operation is most likely to occur during cold weather when aquatic biota concentrations are relatively low. The specified restrictions on water appropriation will protect the aquatic biota during periods of low flow."

2.3 Chemical

2.3.1 Chlorine

Change the Objective to read: "To regulate the release to the environment of total residual chlorine used to clean the condenser and service water system."

Change the Specification to read: "Chlorination of plant systems shall be limited to a total of two hours per day. During chlorination periods, the total residual chlorine concentration at the point of discharge to the river shall not exceed 0.05 mg/l. If chlorination is carried out for 30 minutes or less per day, the total residual chlorine concentration at the point of discharge to the river shall not exceed 0.1 mg/l. Corrective action shall be taken if the protection condition is exceeded. If chlorination of other plant elements is required, the same total time limitation and discharge concentrations apply."

2.3.2 Retention Basin Effluent Chemicals

In the Specification, delete the word "added" after "30 mg/l" and before "Jackson Turbidity Units (JTU's)." Add: "No other chemicals will be released."

2.3.3 pH

Change the Objective to read: "To limit the pH range of the effluent of the chemical retention basin."

Change the Specification to read: "The pH of the water released to the discharge canal from the retention basin shall be no lower than 6.5 nor greater than 8.5."

3.0 Monitoring Requirements

3.1 Thermal

3.1.1 Maximum Change in Temperature Across the Condenser

Add to the Objective: "...to insure that the ΔT does not exceed the protection condition."

Add to the first sentence in the Specification: "...during open cycle operation." Also add to the Specification: "During periods of deicing of the intake, the ΔT shall be determined as the difference in temperature between the condenser outlet temperature and the ambient river water temperature unaffected by heated recirculated plant water. The sensors will be accurate to at least $\pm 0.5^\circ\text{F}$."

Change the Basis to read: "Hourly measurement of temperature change between ambient water and condenser outlet water will provide sufficient information to make any needed changes to plant operation to assure compliance with the protection condition."

3.2 Hydraulic

3.2.1 Flow Rate Restrictions

Change the Specification to read: "During closed cycle operation, the discharge structure will be adjusted such that the daily average blowdown will not exceed 36 cfs. The river flow at the intake and the amount of water appropriated will be recorded determined and recorded daily."

3.3 Chemical

3.3.1 Chlorine

In the Objective, Specification, and Basis, replace "free chlorine" with "total residual chlorine." After the fourth sentence in the Basis, add: "This testing will be carried out daily until the feed rate curves for the season are established."

3.3.3 pH

Change the Objective to read: "To measure the pH level of the retention basis effluent prior to release to the discharge canal."

Change the Specification to read: "The pH value of the retention basin effluent will be determined prior to each release. The pH will be brought to within the protection condition limits prior to release."

Change the Basis to read: "Measurement of the retention basin effluent prior to each release will provide assurance of compliance with the protection condition."

4.0 Environmental Surveillance and Special Studies

4.1 Biological

A. General Ecological Study

In paragraph #1 in the Basis, add to the last sentence: "...as determined by the Regulatory staff."

General Comments on the various proposed studies are as follows:

Periphyton - the single sampling locations should be replaced by transects across the width of the river (with the exception of the station at the end of the discharge canal). The control station does not include both flow paths of the river above the plant. Another control transect should be established in the other flow channel. There should be a minimum of three sampling locations along each transect.

Benthic Macroinvertebrates - the same comment may be made about the control transect in this study as in the periphyton study.

Fish - the general location for fish sampling and the frequency of sampling should be indicated in the description.

Physical and Chemical Water Quality Parameters - all quarterly frequencies should be changed to monthly. The downstream sampling should be done along a transect (with a minimum of three sampling points), not at a single point and all sampling should be done at three depths, i.e., sub-surface, mid-depth, and bottom.

B. Impinged and Entrained Fauna

3. Entrainment - the monthly sampling frequency should be increased to weekly or daily during periods of high populations as indicated either by the control stations or by the experimental stations.