

Reps 10/18

October 12, 1982

Docket No. 50-155
LS05-82-10-031

Mr. David J. Vandewalle
Nuclear Licensing Administrator
Consumers Power Company
1945 W. Parnall Road
Jackson, Michigan 49201

Dear Mr. Vandewalle:

Subject: SEP Topic III-3.C, "Inservice Inspection of Water Control Structures" -
Big Rock Point Plant

Enclosed is our evaluation of SEP Topic III-3.C, Inservice Inspection of Water Control Structures (Enclosure 1) which is based on our contractor's evaluation of the licensee's safety assessment report dated December 31, 1981. A copy of our contractor's Technical Evaluation Report (Enclosure 2) is also provided. The staff has concluded that the present inspection program at the Big Rock Point Plant does not conform with the intent of Regulatory Guide 1.127 and should be modified to incorporate the recommendations identified in the evaluation.

This evaluation will be a basic input to the Integrated Safety Assessment for your facility unless you identify changes needed to reflect the as built conditions at your facility. This assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this subject are modified before the Integrated Assessment is completed.

Sincerely,

Original signed by:

D. M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

8210220233 821012
PDR ADOCK 05000155
G PDR

Enclosures:
As stated

cc: See next page

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DSU USE EX(18)

Add: Gary Staley

JVW

SEP:DL
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DATE	10/5/82	10/16/82	10/7/82	10/7/82	10/12/82	10/12/82

Systematic Evaluation Program Topic Assessment

Topic: III-3.C - Inservice Inspection of Water-Control Structures
Plant Name: Big Rock Point Nuclear Power Plant
Docket Number: 50-155

I. INTRODUCTION

The safety objective of this review is to assure that adequate and timely inspections of water-control structures, systems and components are accomplished to minimize the risk to public health and safety resulting from operation of nuclear power plants. The review specifically pertains to water-control structures (e.g., dams, reservoirs, conveyance facilities) built for use in conjunction with a nuclear power plant and whose failure could cause radiological consequences adversely affecting the public health and safety. In general, to be included under this topic, the structure must have been built, wholly or in part, for the purpose of controlling or conveying water for either emergency cooling operations or flood protection of a nuclear power plant. Such structures may be located on or off the site.

The scope of the review embraces the following subjects which are evaluated using data developed by the licensee and information available from all sources:

- (a) Engineering data compilation;
- (b) Onsite inspection program and reports of these inspections;
- (c) Technical evaluation of inspection results; and
- (d) Frequency of inspections.

II. REVIEW CRITERIA

The criteria which are applicable are (1) 10 CFR Part 50 § 50.36, (2) 10 CFR Part 50, Appendix A including General Design Criteria 1, 2 and 44, (3) 10 CFR Part 100 and (4) 10 CFR Part 100, Appendix A. Pertinent regulatory positions contained in Regulatory Guides 1.27, 1.28, 1.127, 1.132 and 1.38 (Reference 1) also apply. Review procedures as contained in NUREG-0800-July 1981 Standard Review Plan, Sections 2.5.4 and 2.5.5 (Reference 2) are also used where appropriate.

III. RELATED SAFETY TOPICS AND INTERFACES

The slope stability aspect of water-control structures will be reviewed under topic II-4.D. Settlement of water-control structures will be reviewed under topic II-4.F. Other interface topics include: II-4.E, "Dam Integrity"; II-3.A, "Hydrologic Description"; II-3.C, "Ultimate Heat Sink"; III-3.A, "Effects of High Water on Structures"; IX-3, "Station Service and Cooling Water Systems"; III-6, "Seismic Design Considerations"; XVI, "Technical Specifications"; and III-3.B, "Structural and Other Consequences of Failures of Underdrain Systems."

IV. REVIEW GUIDELINES

In general, the method for complying with specific portions of the Commission's rules and regulatory positions as described in Regulatory Guide 1.127 is used in evaluating inservice inspection programs for water-control structures. Pertinent elements of the licensee's program are

evaluated and compared to current criteria and the safety significance of any differences is evaluated. The practices of other public agencies for similar facilities posing similar public risk may also be used for applicable guidance.

V. TOPIC EVALUATION

The NRC staff's consultant, Franklin Research Center (FRC), has evaluated the submittal from the licensee (References 3, 4) and prepared a Technical Evaluation Report (TER) entitled "Inservice Inspection of Water-Control Structures" dated June 23, 1982 (Enclosure 2). The licensee has adequately identified the safety-related water-control structures and the features to be inspected. In addition, the draft TER for SEP Topic II-3.B "Flood Potential and Protection Requirements" states that, at present, there are no flood protection structures at the BRP site which would require inspections under this program. However, this TER also states that there is a potential for flooding the plant as a result of local flooding from local drainage into the Unnamed Basin situated west of the plant (Reference 5). Any flood protection structure constructed in the future, as a remedy for this flooding potential, should be included in this inspection program for water-control structures.

The staff after the review of its consultants TER has the following recommendations and comments on the licensee's assessment of the scope of inspections of the water-control structures for the Big Rock Point plant.

1. The licensee has proposed to inspect the offshore intake structure once every five years. The staff finds this acceptable. However,

in addition to the inspection of the integrity of both wooden vanes and the steel structure, the staff recommends that:

- a) The offshore intake structure should be inspected for settlement and tilt, and
 - b) The interior of the offshore intake structure should be inspected for deterioration and damage or structural integrity.
2. The licensee has proposed a bi-hourly inspection of water level in the forebay to determine siltation or blockage of the offshore intake line. The staff finds this acceptable. Additionally, the staff recommends that the offshore intake line be inspected internally for damage, siltation and buildup of sand and debris at least once every five years.
 3. The trash rack and travelling screens are safety-related features and should be inspected in addition to the bi-hourly surveillance of the water level in the forebay of the screenhouse.
 4. The licensee has proposed to inspect the forebay of the screenhouse once every five years. The staff finds this acceptable. Additionally, the staff recommends that this inspection include an inspection for siltation.
 5. The licensee has proposed to inspect the Traveling Screens and Components for accumulation of loose objects annually. The staff finds this acceptable.

6. The discharge canal need not be inspected.
7. The screenhouse should be inspected for excessive settlement, cracks, and structural integrity.

The licensee has stated that most of the required inspection items are inspected on an informal basis. In order to conform to the Regulatory Guide 1.127, we and our consultant find that the licensee's inspection program should be formalized.

VI. CONCLUSIONS

In order for the inservice inspection of water-control structures at the Big Rock Point site to conform to Regulatory Guide 1.127, the licensee needs to take the following actions:

1. The Licensee should formalize an inspection program for water-control structures incorporating the staff's comments and recommendations mentioned above.
2. In our consultants TER #C5257 (Enclosure 2), Table 3.2.1-A identifies the water control structures for the Big Rock Point Plant. The licensee should define an appropriate inspection frequency for those structures for which an inspection frequency has not been proposed. The proposed inspection frequency should take into consideration the consequences of failure of these structures and the frequency of the events which jeopardize the integrity of these structures.

3. The Licensee should develop comprehensive report forms to convey inspection information obtained by the field inspector to the appropriate inspection manager. The reports should be available at the plant.
4. The Licensee should define the criteria by which "special inspections" are initiated for the purpose of ascertaining the integrity of structures jeopardized by extreme environmental events such as surges, high winds or earthquakes.
5. Inspections should be conducted under the supervision of a qualified engineer.
6. Draft TER by the consultant for SEP Topic II-3.B "Flood Potential and Protection Requirements" states that there is a potential for flooding all of the plant site. If any flood protection structures are built in the future at this site, such structures should be included in the inspection program for water-control structures.

VII. REFERENCES

1. U.S. Nuclear Regulatory Commission Regulatory Guides:
 - a. 1.27, "Ultimate Heat Sink for Nuclear Power Plants"
 - b. 1.28, "Quality Assurance Program Requirement (Design and Construction)".
 - c. 1.127, "Inspection of Water-Control Structures Associated with Nuclear Power Plants"
 - d. 1.132, "Site Investigation for Foundation of Nuclear Power Plants,"
 - e. 1.138, "Laboratory Investigations of Soils for Engineering Analysis and Design of Nuclear Power Plants".
2. U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, "Standard Review Plan," NUREG-0800, July 1981.
3. Letter from Robert Vincent of Consumers Power Company to Dennis Crutchfield of NRC, dated December 21, 1981, Subject - Big Rock Point, SEP Topic III-3.C, Inservice Inspection of Water-Control Structures.
4. Big Rock Point FSAR, Consumers Power Company, November 14, 1961.
5. Franklin Research Center, 1982, "Draft Technical Evaluation Report - Hydrological Considerations (SEP Topics II-3.A, B, B.1, C; III-3.B), Big Rock Point Nuclear Power Plant, Charlevoix, Michigan.