October 15, 1982

Docket No. 50-409
LS05-82-10-051

Mr. Frank Linder
General Manager
Dairyland Power Cooperative
2615 East Avenue South
LaCrosse, Wisconsin 54601

Dear Mr. Linder:

Subject: SEP Topic III-3.C, Inservice Inspection of Water Control Structures - LaCrosse Boiling Water Reactor

Enclosed is our evaluation of SEP Topic III-3.C, Inservice Inspection of Water Control Structures (Enclosure 1) which is based on our contractors evaluation of the licensee's safety assessment report dated January 29, 1982. 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 LaCrosse Boiling Water Reactor (LACBWR) 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

Enclosures:
As stated

cc: See next page

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OFFICIAL RECORD COPY

Mr. Frank Linder

cc
Fritz Schubert, Esquire
Staff Attorney
Dairyland Power Cooperative
2615 East Avenue South
La Crosse, Wisconsin 54601

O. S. Heistand, Jr., Esquire
Morgan, Lewis & Bockius
1800 M Street, N. W.
Washington, D. C. 20036

Mr. John Parkyn
La Crosse Boiling Water Reactor
Dairyland Power Cooperative
P. O. Box 275
Genoa, Wisconsin 54632

Mr. George R. Nygaard
Coulee Region Energy Coalition
2307 East Avenue
La Crosse, Wisconsin 54601

Dr. Lawrence R. Quarles
Kendal at Longwood, Apt. 51
Kenneth Square, Pennsylvania 19348

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Rural Route #1, Box 276
Genoa, Wisconsin 54632

Town Chairman
Town of Genoa
Route 1
Genoa, Wisconsin 54632

Chairman, Public Service Commission
of Wisconsin
Hill Farms State Office Building
Madison, Wisconsin 53702

U. S. Environmental Protection
Agency
Federal Activities Branch
Region V Office
ATTN: Regional Radiation Representative
230 South Dearborn Street
Chicago, Illinois 60604

James G. Keppler, Regional Administrator
Nuclear Regulatory Commission, Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Mr. Ralph S. Decker
Route 4, Box 190D
Cambridge, Maryland 21613

Charles Bechhoefer, Esq., Chairman
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. George C. Anderson
Department of Oceanography
University of Washington
Seattle, Washington 98195

Systematic Evaluation Program Safety Evaluation Report

Topic: III-3.C - Inservice Inspection of Water Control Structures
Plant Name: LaCrosse Boiling Water Reactor (LACBWR)
Docket Number: 50-409 (TAC No. 41558)

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, 1.138 and 1.16 (Ref. 1) also apply. Review procedures as contained in NUREG 0800 Standard Review Plan Sections 2.5.4 and 2.5.5 (Ref. 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, "Safety Related Water Supply (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 consultant, Franklin Research Center (FRC) has evaluated the Safety Assessment Report submittal from the licensee, Dairyland Power Cooperation (Ref. 3) and prepared the Technical Evaluation Report, "Hydrologic Consideration, Inservice Inspection of Water Control Structures (SEP III-3.C)" dated July 22, 1982 (Enclosure 2) for the LaCrosse Boiling Water Reactor (LACBWR) site.

The licensee has stated in paragraph V.5 of the submitted Safety Assessment Report (SAR) (Ref. 3) that a formal inspection program for water control structures employing the methodology set forth in Regulatory Guide 1.127 has not been established for the site to date. Furthermore, a commitment by the licensee to establish such a program was not presented in the licensee's submitted SAR. The licensee did, however, identify, in the SAR, the necessary elements of a proposed program for inspections, to be accomplished when such a program is formulated. The staff considers the

content of the submitted SAR to be generally adequate; however, the staff recommends that the licensee commit to establishing and implementing a program of inspections in accordance with Regulatory Guide 1.127.

Paragraph V-3 of the Safety Assessment Report (Ref. 3) lists water control structures and components requiring surveillance in accordance with Regulatory Guide 1.127. The NRC staff concurs that the structures and components identified are appropriate. The intake and discharge structure form an integral part of the cooling water system necessary for providing cooling water to the reactor under normal operating conditions; the staff is aware that they also form a part of the Alternate Core Spray System (Ref. 5) and thus would be considered a part of the normal supply of service water during emergency conditions, when available to support that system. Therefore, the intake and discharge structures should be maintained in the listing of LACBWR water control structures requiring surveillance.

It is the staff's and our consultant's conclusion (Ref. 4) that a fixed frequency of inspection of every two years for all identified structures and components as proposed by the licensee in Paragraph V-7 of the submitted SAR may not be appropriate. Rather, a frequency of inspection for each structure and component should be established independently based upon the existing condition of the structure or component and the anticipated functional degradation expected due to operational, environmental, and aging characteristics of each item.

VI. CONCLUSIONS

The staff concludes that the present inspection program for water control structures at the LaCrosse Boiling Water Reactor does not conform with the intent of Regulatory Guide 1.127. In order for the licensee's proposed inservice inspection program to conform to current criteria the program needs to be modified to incorporate the following:

1. Establish and implement a formal program for inservice inspection of water control structures employing the methodology set forth in Regulatory Guide 1.127 at the LACBWR site as soon as possible.

2. Maintain the listing of water control structures requiring surveillance, identified in paragraph V-3 of the SAR (Ref. 3), including the LACBWR service water intake and discharge structures.

3. Develop an onsite file of engineering drawings pertaining to all structures and components requiring inspection to establish the as-constructed and/or current modified condition of each item to be inspected.

4. Establish a detailed checklist for inspection of water control structures and components conforming to the Regulatory Guide 1.127 and including appropriate elements of Reference 6 as soon as possible.

5. Modify the proposed two year inspection frequency for structures and components, as appropriate, taking into consideration the specific requirements for, and condition of, each structure or component to be inspected.

VII. REFERENCES

Documents marked with an asterisk are available for inspection and copying for a fee in the NRC Public Document Room, 1717 H St. N.W. Washington D.C. 20555 (PDR). They are also available for purchase from the NRC/GPA Sales Program, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 and from the National Technical Information Service, Springfield Virginia 22161.

1. U.S. Nuclear Regulatory Commission, Office of Standards Development, 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 Investigations for Foundations of Nuclear Power Plants."

   e. 1.138 "Laboratory Investigations of Soils for Engineering Analysis and Design of Nuclear Power Plants."

   f. 1.16 "Reporting of Operating Information Appendix A Technical Specifications".

2. U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, "Standard Review Plan," NUREG-0800, July 1981.

3. F. Linder, Dairyland Power Cooperative to D. Eisenhut, NRC, "LaCrosse Boiling Water Reactor (LACBWR) SEP Topic III-3.C Inservice Inspection of Water Control Structures," January 29, 1982.

4. Franklin Research Center, "Technical Evaluation Report, Hydrologic Considerations, Inservice Inspection of Water Control Structures, (SEP III-3.C)", July 22, 1982.

5. D. Crutchfield, NRC to F. Linder, Dairyland Power Cooperative, "Evaluation Report of SEP Topic IX-3, "Station Service and Cooling Water Systems - LaCrosse Boiling Water Reactor" July 20, 1982.

6. ACI Committee 201 ACI Journal Proceedings, Vol 65, No. 11 "Guide for Making a Condition Survey of Concrete in Service," November, 1968.

7. F. Linder, Dairyland Power Cooperative to D. Eisenhut, NRC, LaCrosse Boiling Water Reactor (LACBWR) SEP Topic II.3.C - Safety Related Water Supply (Ultimate Heat Sink - UHS). June 26, 1981.