

December 11, 2003

EA-03-057

Mr. Alfred J. Cayia  
Site-Vice President  
Point Beach Nuclear Plant  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
FINAL SIGNIFICANCE DETERMINATION FOR A RED FINDING AND NOTICE  
OF VIOLATION (NRC INSPECTION REPORT NO. 50-266/02-15(DRP);  
50-301/02-15(DRP))

Dear Mr. Cayia:

The purpose of this letter is to provide you the final results of our significance determination of the preliminary Red finding identified in the subject inspection report. The inspection finding was assessed using the Significance Determination Process and was preliminarily characterized as Red, a finding of high importance to safety that results in increased NRC inspection and other NRC action. This Red finding involved the potential common mode failure of all trains of the auxiliary feedwater (AFW) system due to the susceptibility of the pressure reduction orifices in the AFW pump recirculation lines to become plugged by debris typically found in the plant service water system.

At the request of the Nuclear Management Company, LLC (NMC), a Regulatory Conference was held, on June 6, 2003, to further discuss NMC's views on this issue. A summary of that meeting and a copy of the handout provided by NMC was provided with a letter to Mr. John Paul Cowan of NMC dated June 16, 2003, and is available from the NRC's document system (ADAMS) at Accession No. ML031681102. During the meeting, NMC staff stated that the analysis of the risk from internal events associated with the orifice plugging issue would be completed in about two weeks and that the analysis of the risk from external events, including fire, would be completed in August 2003. This information was submitted to the NRC with letters dated June 27, 2003, and September 18, 2003. The September 18, 2003, letter provided the NRC with the Unit 2 internal and external events risk analysis results, including fire events. Your analysis determined that the total change in core damage frequency due to internal and external events for Unit 2 was in the range of 1.9E-4 to 3.1E-4 (Red), with fire events dominating the results. We understand that the Unit 2 results bounded the Unit 1 results because the Unit 2 turbine-drive AFW pump (TDAFWP) recirculation line orifice was installed much longer than the Unit 1 TDAFWP recirculation line orifice.

After considering the information provided during the June 6<sup>th</sup> Regulatory Conference and a review of the information provided in the June 27<sup>th</sup> and September 18<sup>th</sup> letters, the NRC has concluded that the inspection finding is appropriately characterized for Unit 1 as Yellow, an issue with substantial importance to safety that would normally result in additional NRC inspection, and for Unit 2 as Red, an issue of high importance to safety that would normally result in increased NRC inspection and other NRC action. The difference in significance between the Units is a result of the longer period of time that the AFW recirculation line pressure reduction orifices were installed in Unit 2.

As discussed in the letter dated April 2, 2003, transmitting Inspection Report No. 50-266/02-15 (DRP); 50-301/02-15(DRP), the failure to implement thorough and complete corrective actions for the AFW/instrument air Red inspection finding allowed other design deficiencies, including the use of a nonsafety-related power supply for relays, single electrical bus dependencies for three of the four recirculation line air-operated flow control valves, and the inadequate orifice modification to continue to exist. As a result, the finding associated with the AFW/instrument air issue was determined not to be an old design issue. The AFW/instrument air finding and the AFW orifice plugging finding, which is the subject of this letter, share as a common cause the lack of understanding of the design basis of the recirculation lines. However, the differences in time of occurrence and the failure of corrective actions for the first finding to prevent occurrence of the second finding warranted treating these issues as separate findings. In response to the AFW/instrument air Red inspection finding, the NRC recently conducted an inspection per Inspection Procedure (IP) 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," in accordance with NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program." During this inspection, the inspection team also reviewed NMC's corrective actions for the AFW orifice plugging issue. Based on the results of the IP 95003 supplemental inspection, which are currently under review, the NRC will determine what further regulatory action is warranted. We will notify you, by separate correspondence, of that determination.

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified Unit 1 Yellow finding and the Unit 2 Red finding. Such appeals will be considered to have merit only if they meet the criteria given in NRC Inspection Manual Chapter 0609, Attachment 2.

The NRC has also determined that the installation in the AFW recirculation lines of orifices susceptible to plugging by service water-borne debris is a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," as cited in the enclosed Notice of Violation (Notice). In addition to the two AFW recirculation line orifice design control violation examples, a third example of inadequate design control is cited in the Notice. This example involves the failure to assure that the upgraded safety design of the AFW recirculation line air-operated flow control valves relied upon a safety-related power source for a relay associated with the air-operated valves. The circumstances surrounding the violation are described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, NUREG-1600, the Notice of Violation is considered escalated enforcement action because it is associated with a Red finding.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). To the extent possible, your response should not include any personal privacy, propriety, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

*/RA/*

James L. Caldwell  
Regional Administrator

Docket Nos. 50-266; 50-301  
License Nos. DPR-24; DPR-27

Enclosure: Notice of Violation

cc w/encl: R. Kuester, President and Chief  
Executive Officer, WE Generation  
J. Cowan, Executive Vice-President  
Chief Nuclear Officer  
Licensing Manager  
D. Weaver, Nuclear Asset Manager  
Plant Manager  
Regulatory Affairs Manager  
Training Manager  
J. Rogoff, Esquire General Counsel  
D. Cooper, Senior Vice-President  
J. O'Neill, Jr., Shaw, Pittman,  
Potts & Trowbridge  
K. Duveneck, Town Chairman  
Town of Two Creeks  
D. Graham, Director  
Bureau of Field Operations  
A. Bie, Chairperson, Wisconsin  
Public Service Commission  
J. Kitsembel, Electric Division  
Wisconsin Public Service Commission  
State Liaison Officer

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DATE	11/03/03		11/03/03		11/18/03		11/19/03		11/24/03	

  

OFFICE	NRR		NRR		RIII		RIII	
NAME	AVegel for BRuland* (email)		AVegel for SRichards*		SReynolds*		JCaldwell	
DATE	11/21/03		11/21/03		11/26/03		12/11/03	

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FCongel concurred via telecon with J. Dixon-Herrity.  
 SRichards concurred via email from Doug Coe

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## NOTICE OF VIOLATION

Nuclear Management Company, LLC  
Point Beach Nuclear Plant

Docket No. 50-266; 50-301  
License Nos. DPR-24; DPR-27  
EA-03-057

During two NRC inspections conducted between September 23, 2002, and March 24, 2003, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

Criterion III, "Design Control," of 10 CFR Part 50, Appendix B, requires, in part, that design control measures be established to assure that applicable regulatory requirements and the design basis for structures, systems, and components were correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, as of March 24, 2003:

1. The licensee failed to establish adequate measures to assure that the auxiliary feedwater (AFW) system design bases were correctly translated into specifications, drawings, procedures, and instructions (modification packages) for the installation of the pressure reduction orifice in the recirculation line of the Unit 1 turbine-driven AFW pump (1P-29). Specifically, the licensee developed Modification Packages 99-029\*A, B, C, and D in 1999 to install a revised design orifice in the four recirculation lines of the four pumps of the AFW system. By May 2002, the revised design orifices were installed per Modifications Packages 99-029\*A, B, and D in three of the four recirculation lines. Subsequently, the licensee developed Modification Package 02-029, "Safety Upgrade of the AFW System Recirculation Line Air-Operated Flow Control Valve," to change the safety-related design basis of the AFW system to require that the recirculation line, including the pressure reduction orifice, be able to pass flow during all required operating conditions. This modification package was implemented on September 12, 2002. On October 14, 2002, the licensee installed the revised design orifice into the 1P-29 turbine-driven AFW pump recirculation line per Modification Package 99-029\*C. However, the licensee failed to establish adequate measures to assure that the design basis change requiring the safety-related passing of flow during all required operating conditions, approved as part of Modification Package 02-029, was translated into Modification Package 99-029\*C prior to the installation of the revised design orifice.
2. The licensee failed to correctly translate the AFW system design basis recirculation line flow requirements into modification packages. Specifically, service water (SW) strainer mesh size was not considered when the pressure reduction orifice design using 0.125-inch diameter holes and smaller-sized, inscribed flow channels was incorporated into Modification Packages 99-029\*A, B, C, and D. The SW strainer mesh size of 0.125-inch was larger than the smallest limiting flow dimensions of the revised orifice design. Consequently, a common mode failure of all AFW trains could have occurred because debris passing through the SW strainers could plug the holes and flow channels of the AFW recirculation line pressure reduction orifices.

3. The license failed to correctly translate the AFW system design basis power supply requirements into Modification Package 02-029 for the safety classification upgrade of the recirculation line air-operated flow control valve (AOV) in each of the four recirculation lines. Specifically, the licensee did not assure that the upgraded safety design relied only upon a safety-related power source for a relay associated with the AOVs. Instead, the AFW system relied on a single train of nonsafety-related power supply for all trains of the AOV relays. Consequently, a common mode failure could have occurred during a loss of the nonsafety-related power supply.

This violation is associated with a Yellow SDP finding for Unit 1 and a Red SDP finding for Unit 2 (EA-03-057).

Pursuant to the provisions of 10 CFR 2.201, Nuclear Management Company, LLC, is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region 3, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-03-057" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.usnrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will

create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 11<sup>th</sup> day of December 2003.