UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

February 04, 2000

Mr. M. Reddemann
Site Vice President
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241

SUBJECT: POINT BEACH INSPECTION REPORT 50-266/99019(DRP); 50-301/99019(DRP)

Dear Mr. Reddemann:

This refers to the inspection conducted on December 11, 1999, through January 18, 2000, at the Point Beach Nuclear facility.

During this inspection period, your conduct of activities at the Point Beach Nuclear facility was generally characterized by safe operation of the plant. Performance during the Year 2000 transition period was considered to be very good. The inspectors concluded that the facility was adequately prepared for cold weather based upon an annual review conducted during this period. Significant improvements in the material condition of the facade freeze protection system were observed. These improvements notwithstanding, several examples of opportunities for improvement in material condition, procedural control and adequacy, and corrective action implementation in other aspects of the facility's cold weather systems were observed.

Based on the results of this inspection, the NRC has determined that one violation of NRC requirements occurred. This violation is being treated as a Non-Cited Violation (NCV) consistent with Section VII.B.1.a of the Enforcement Policy. This NCV is described in the subject inspection report. If you contest the violation or severity level of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with a copy to the Regional Administrator, Region III, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

IE-01

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Sincerely,

Roger D. Lanksbury, Chief
Reactor Projects Branch 5

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

Enclosure: Inspection Report 50-266/99019(DRP); 50-301/99019(DRP)

cc w/encl:
R. Grigg, President and Chief Operating Officer, WEPCo
M. Sellman, Senior Vice President, Chief Nuclear Officer
R. Mende, Plant Manager
J. O'Neill, Jr., Shaw, Pittman, Potts & Trowbridge
K. Duveneck, Town Chairman Town of Two Creeks
B. Burks, P.E., Director Bureau of Field Operations
J. Mettner, Chairman, Wisconsin Public Service Commission
S. Jenkins, Electric Division Wisconsin Public Service Commission
State Liaison Officer

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Sincerely,

/s/ R. Lanksbury

Roger D. Lanksbury, Chief
Reactor Projects Branch 5

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos.:	50-266; 50-301
License Nos.:	DPR-24; DPR-27
Report No:	50-266/99019(DRP); 50-301/99019(DRP)
Licensee:	Wisconsin Electric Power Company
Facility:	Point Beach Nuclear Plant, Units 1 & 2
Location:	6610 Nuclear Road Two Rivers, WI 54241
Dates:	December 11, 1999, through January 18, 2000
Inspectors:	F. Brown, Senior Resident Inspector R. Powell, Resident Inspector C. Phillips, Senior Resident Inspector, Braidwood J. Adams, Resident Inspector, Braidwood M. Kunowski, Project Engineer
Approved by:	R. Lanksbury, Chief Reactor Projects Branch 5 Division of Reactor Projects

EXECUTIVE SUMMARY

Point Beach Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-266/99019(DRP); 50-301/99019(DRP)

This inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a 5-week inspection period by the resident inspectors.

Operations

- The conduct of operations, including operations during the Year 2000 transition period, were generally good. Inspector identified minor exceptions to the good performance were discussed with the Operations Department (Sections O1.1 and O1.2).

- Licensee attempts to repair a body-to-bonnet leak on an unisolatable primary system pressure boundary valve had been unsuccessful as of the end of the inspection period. The inspectors verified that the repairs were being conducted in accordance with the applicable safety evaluation. Primary system leakage remained well below Technical Specification limits (Section O2.1).

- The licensee made significant progress in addressing the facade freeze protection system deficiencies identified during the previous winter. However, the inspectors identified that improvements had not been made in other aspects of the facility's cold weather preparations. Based upon the inspectors' reviews, the facility was adequately prepared for cold weather, but was still vulnerable to equipment, procedure, and corrective action problems similar to those experienced in January 1999 (Section O2.2).

Maintenance

- The inspectors identified that procedural deficiencies with the work instructions for maintenance on two safety-related pumps (a service water pump and a component cooling water pump) were not appropriately documented or reviewed by the licensee (Sections M1.1 and M1.2).

- The licensee experienced repetitive failures of a steam supply valve for the Unit 1 turbine-driven auxiliary feedwater pump. The failures occurred when solidified foam material in a control cabinet fell into relay contacts. System operability was not affected by the specific contacts that were fouled with foam. The original corrective actions were adequate, but very narrowly focused. Corrective actions for the second failure were prompt, thorough, and comprehensive (Section M1.3).

- Through a review of industry operating experience, the licensee identified that the scope of its monthly Technical Specification-required verification of the correct position of emergency core cooling and containment spray valves was too narrowly focused. The licensee subsequently added 19 Unit 1 valves and 21 Unit 2 valves to its surveillance test. A Non-Cited Violation was identified by the inspectors (Section M8.1).

Engineering

- The licensee's safety evaluation for a proposed temporary sealant repair to an unisolatable primary system valve correctly concluded that the repair did not constitute an unreviewed safety question. The safety evaluation was revised after the inspectors identified two technical issues that were incorrectly characterized in the original version (Section E1.1).

- The inspectors concluded that the licensee's test program for the sodium hydroxide addition flow path portion of the containment spray system satisfied the plant's current licensing basis and the applicable regulations (Section E1.2).

Plant Support

- The radiological protection support of the containment entry for repair of a primary system valve was good. General radiological conditions in the radiologically controlled area of the plant were acceptable (Section R1.1).

Report Details

Summary of Plant Status

Both units remained at approximately full power throughout the inspection period.

I. Operations

O1 Conduct of Operations

O1.1 Routine Operations (Inspection Procedure (IP) 71707)

The inspectors observed routine operational activities in the control room and in the plant. Operational activities were generally conducted in a thorough and professional manner. There were several exceptions to the generally good performance, but none of the exceptions had any immediate or direct safety consequence. For instance, some distractions were observed during shift turnovers conducted in the control room. Such distractions were often, but not always, identified and corrected by on-shift supervision. The inspectors also observed one instance where the oncoming Unit 2 reactor operator received a less-thorough than normal turnover from the off-going reactor operator. The inspectors verified that the oncoming reactor operator was aware of plant conditions affecting his unit. The inspectors discussed these observations with the Operations Manager.

O1.2 Operations Activities During the Year 2000 (Y2K) Transition Period (IP 71707)

The inspectors observed the licensee implement Y2K contingency preparations. The inspectors also observed the conduct of operations during the Y2K rollover period. The licensee's preparations were thorough, and the conduct of operations during the rollover were good. There were no unanticipated problems with any safety significant systems, and no problems with power generating or distribution systems.

O2 Operational Status of Facilities and Equipment

O2.1 Primary Leakage (IP 71707 and IP 62707)

Mechanical joint leakage of reactor coolant was experienced on both units during the inspection cycle. The leakage rates remained well below the limits specified in the plant Technical Specifications (TSs). However, the number of identified leaks appeared to be higher than the inspectors had observed in the past. On Unit 1, a principal leak source inside containment was the safety injection (SI) system's core deluge line check valve. This valve had a known body-to-bonnet mechanical joint leak when the unit was restarted in December 1999. The licensee made several attempts to repair the leak by welding the bonnet to the body and subsequently using a sealant (see Section E1.1 for additional details). These repair attempts had not been successful as of the end of the inspection period. The inspectors closely followed the sealant repair process to ensure that industry operating experience was incorporated in the licensee's repair efforts.

Inspection activities included a containment entry to observe one iteration of the attempted repair. The inspectors observed the licensee apply all applicable controls referenced in the final revision of the safety evaluation (SE) for the temporary sealant repair.

O2.2 Cold Weather Preparations

a. Inspection Scope (IP 71714)

The inspectors reviewed the licensee's preparations for cold weather. Special attention was paid to the licensee's corrective actions for significant facade freeze protection system deficiencies discussed in Inspection Report (IR) 50-266/99004(DRP).

b. Observations and Findings

The licensee had made significant progress in upgrading the facade freeze protection system. When checked by the inspectors, there were no facade freeze protection system points in an alarmed condition. Additionally, the inspectors observed some improved response to material condition problems that developed after completion of the cold weather preparation checklist. This was a significant improvement over previous years. Notwithstanding these improvements, the inspectors were concerned by the issues identified below.

- The inspectors questioned whether the SI pipe between the containment sumps and the primary auxiliary building was protected from freezing. This pipe would provide the suction source for the residual heat removal pumps during the recirculation phase of a postulated accident. There was approximately 11 feet of pipe (for each train on each unit) exposed to open air in the containment tendon galleries. The tendon galleries were approximately 10 feet below ground. This pipe contained water as a result of the quarterly stroke surveillance test of the downstream motor-operated valve. The pipe was neither insulated nor heat-traced. The tendon galleries were maintained open to the facade (an unheated area open to the environment). After the inspectors raised the issue, the licensee initiated temporary heating controls for the area and also initiated a formal evaluation of the potential for these lines to freeze. An evaluation had not previously been performed because the Engineering Department staff had not identified the pipe as being in the facade, and the Operations Department staff considered the tendon gallery to be adequately heated by the surrounding earth. Based upon verbal information provided to the inspectors by the Operations Department staff, there did not appear to be a credible potential that this pipe had ever been frozen, and thus inoperable. However, the inspectors believed that a formal technical evaluation of the need for freeze protection was appropriate given the function of the pipe and the experience with a frozen SI system minimum flow line the previous winter. This issue is documented in Condition Report (CR) 00-0089.

- The cold weather checklist used for both safety-related and nonsafety-related portions of the plant was classified as a nonsafety related and non-TS procedure. The inspectors observed that the cold weather checklist could not be

performed as written. Typical of the problems observed were problems with the instructions to adjust thermostats in the emergency diesel generator building. The procedure specified a setpoint for all the thermostats; however, some of these thermostats could not be adjusted because they were contained in sealed cases. In each such case, the observed thermostat setting was greater (conservative) than the value specified in the checklist. In addition, other thermostats were adjustable, but no temperature scale was associated with the adjustment. These were set to energize the heaters at a reasonable room temperature. Operators informed the inspectors that similar problems had been encountered during previous uses of the cold weather checklist, but the licensee had not updated the checklists to reflect actual plant conditions. While not a violation of regulatory requirements, the use of inaccurate procedures for establishing cold weather conditions was considered to be a poor practice. The licensee acknowledged the problem and stated that it would be corrected.

- The licensee identified that the heaters for each unit's safety-related refueling water storage tank (RWST) and nonsafety-related reactor make-up water tank were degraded. These conditions were documented in CR 99-2654. The licensee's evaluation of the degraded heaters concluded that sufficient heating capacity remained to prevent freezing of the RWSTs or reactor make-up water tanks. The evaluation further stated that the heaters (purchased in 1972) had far exceeded the vendor's recommended service life (20 years). Finally, the evaluation stipulated that the heaters should be replaced during the next refueling outage for each unit (two winters away for Unit 1). Replacement of the heaters was to be performed in accordance with a routine priority corrective maintenance work order. The technical evaluation and planned corrective action had been reviewed and approved by an Engineering Department manager. The inspectors determined that there was no control room indication of, or alarm for, RWST temperature. The auxiliary building operator was required to verify, once a day, that the RWST was at or above 45 degrees Fahrenheit. While it appeared somewhat unlikely that the RWST would completely freeze or freeze enough to affect safety-related system operability within 24 hours if the heaters failed, this could not be ruled out. Given the degraded condition and age of the heaters, some compensatory action (or more thorough evaluation of the risk of RWST freezing) appeared appropriate. Additionally, the inspectors were concerned that the replacement of the degraded heaters might not receive adequate priority to actually be scheduled and worked during the next refueling outage for each unit. These concerns were discussed with the licensee.

- During the previous year's review of cold weather preparations, the inspectors observed that there were no specific status or configuration controls (such as required procedures) for the ventilation systems and local heaters used to prevent freezing in areas containing safety-related and nonsafety-related equipment. This concern is documented in IR 50-266/98021(DRP); 50-301/98021(DRP). During this inspection period, the licensee identified two instances where turbine building ventilation dampers had been changed from their cold weather settings. Each instance led to problems with nonsafety-related equipment that was exposed to unexpectedly cold conditions. At the

conclusion of the inspection period, the licensee did not have specific status or configuration controls for freeze protection systems.

Based upon the inspectors' reviews, the facility was adequately prepared for cold weather, but was still vulnerable to equipment, procedure, and corrective action problems similar to those experienced when the SI pump minimum flow line froze in January 1999.

c. Conclusions

The licensee had made significant progress in addressing the facade freeze protection system deficiencies identified during the previous winter. However, the inspectors identified that improvements had not been made in other aspects of the facility's cold weather preparations. Based upon the inspectors' reviews, the facility was adequately prepared for cold weather, but was still vulnerable to equipment, procedure, and corrective action problems similar to those experienced in January 1999.

O8 Miscellaneous Operations Issues

O8.1 (Closed) Licensee Event Report (LER) (50-301/1999-004-00): Failure to Enter Containment Penetration Limiting Condition for Operation. The issue associated with this LER was discussed and dispositioned in IR 50-266/990016(DRP); 50-301/99016(DRP).

II. Maintenance

M1 Conduct of Maintenance

M1.1 Observation of Bearing Replacement Activities on Service Water (SW) Pump P-32D

a. Inspection Scope (IP 62707)

The inspectors reviewed all or portions of the following documents:

- Work Order 9911288, "Replacement of Upper Motor Bearing for Service Water Pump P-32D";
- Design Change Package MR-97-095, "Service Water Pump Upper Bearing Modification";
- Calculation Review and Approval Package 97-0195, "Service Water Pump Motor Upper Bearing Life Calculation For Set of SKF QJ230N2MA and SKF 7230BCB";
- Revised Drawing SK-MR-97-095, Sheet 1 of 4;
- Peerless Technical Manual CI-00098;

- CR 00-0078, "SK-MR-97-0095 Drawing Error";
- Electrical Maintenance Turnover from January 5 and 6, 2000, (night shift); and
- Nuclear Power Business Unit Procedure (NP) 8.4.10, "Exclusion of Foreign Material From Plant Components and Systems."

The inspectors observed pre-job briefings for the replacement of the P-32D SW pump upper motor bearings, the disassembly of the P-32D SW pump motor, the implementation of foreign material exclusion practices, and a shift turnover briefing from day shift to night shift. The inspectors discussed the maintenance activity with the electrical maintenance personnel and with component and system engineers.

a. Observations and Findings

On January 4, the inspectors observed the pre-job briefing for the replacement of the pump upper motor bearings. The bearings were being replaced to complete modification MR-97-095. The electrical maintenance foreman assigned to the activity led the briefing, which was attended by the electrical maintenance personnel involved in the bearing replacement. The inspectors determined that the briefing provided the necessary information to safely perform the work.

Following the pre-job briefing, the inspectors observed the disassembly of the pump motor. The SW pumps are safety-related components identified as important in the licensee's risk analysis. During the motor disassembly, the inspectors noted that electrical maintenance personnel properly implemented foreign material exclusion practices in accordance with NP 8.4.10. Electrical maintenance personnel followed the work plan instructions closely, established a staging area away from the SW pumps and other safety-related and seismically qualified components, and properly controlled transient combustibles. The electrical maintenance personnel completed the removal of the upper motor bearing runner assembly from the motor without any observed problems.

Prior to the removal of the old bearings, electrical maintenance personnel conducted a turnover with the night shift personnel. The inspectors observed the turnover and the pre-job briefing of the night shift crew and noted no problems with either the turnover or the briefing. However, during the review of the work plan instructions, electrical maintenance personnel were instructed to install the bearings on the runner assembly in accordance with Drawing SK-MR-97-095, page 1 of 4. The inspectors compared the sketch of the bearing runner assembly to the actual assembly and determined that the sketch did not accurately represent the proper bearing orientation. The inspectors notified the electrical maintenance foreman of this problem following the pre-job briefing. The inspectors then asked one of the electricians assigned to the bearing replacement activity to describe the proper bearing configuration. The electrician correctly described the proper orientation of the bearings on the runner. The sketch of the assembly was subsequently corrected and placed in the work plan.

The inspectors also reviewed a written turnover from the night shift (January 5-6, 2000, from 4 p.m. to 2 a.m.) to the day shift. The turnover stated that there had been some

confusion about the correct method for bearing installation. The work plan made reference to three acceptable methods for bearing installation and for one of those methods, Step 26 of the work plan, specified bearing installation per Drawing SK-MR-97-095, page 1 of 4. However, because of problems with separating the inner race of the four-point-contact bearing (the lower of the two bearings to be installed on the runner assembly), electrical maintenance personnel chose to install the bearings according to one of the other methods, one at a time as specified in the procedural note preceding Step 25 of the work plan.

During a review of the bearing installation methods, the inspectors noted problems with the installation instructions referenced in Step 26 of the work plan and provided on Drawing SK-MR-97-095, page 1 of 4. These problems were caused by the licensee not changing the sequence of the bearing installation steps when the sketch of the runner assembly on the drawing was revised. Criterion III, "Design Control," of 10 CFR Part 50, Appendix B, required, in part, that measures be established to assure that applicable regulatory requirements and the design basis for those structure systems, and components to which this appendix applied are correctly translated into specifications, drawings, procedures, and instructions. Additionally, the criterion stated that design changes, including field changes, be subject to design control measures commensurate with those applied to the original design. The errors in the sketch of the upper motor bearing runner assembly and the bearing installation instructions contained on Drawing SK-MR-97-095 were examples of a violation of 10 CFR Part 50, Appendix B, Criterion III, in that a change to the design of the SW pumps upper motor bearings was not correctly translated into drawings and instructions. However, based on the understanding of proper bearing configuration exhibited by the electrician, visual verification that the bearings were correctly installed, and the entry of the condition into the licensee's corrective action program with CR 00-0078, the violation met the criteria for a minor violation and was not subject to formal enforcement action.

On January 5, the inspectors checked the status of pump P-32D and were told by the licensee that the lower motor bearing had failed during the post-maintenance test and a work plan was being prepared to replace it. On January 6, electrical maintenance personnel removed the upper motor bearing runner assembly to gain access to the failed lower motor bearing. The inspectors visually verified that the upper bearings had been installed in the correct orientation with respect to the bearing runner. Due to the presence of some metallic flakes observed in the upper bearing oil reservoir on disassembly of the motor, the licensee decided to replace the upper motor bearings again.

The inspectors met with the electrical maintenance manager, the electrical maintenance supervisor, a component engineer, and a work planning supervisor to discuss the identified problems with Drawing SK-MR-97-095 and the associated installation instructions. At this meeting, they told the inspectors that the modification (MR-97-095) had been completed on the five other SW pump motors using the inaccurate drawing. The inspectors asked the licensee if the use of this drawing to replace the SW pump upper bearing could be related to the three SW pumps with vibration levels in the alert range, and if the bearings were installed per the drawing, had a mechanism for a common cause failure been introduced into the SW pumps. The licensee acknowledged the question but was not able to answer it.

That SW pump motors P-32A, B, C, E, and F were modified with an inaccurate drawing referenced in the work plan may be of more than minor concern in that a mechanism for a common cause failure may have been introduced into the safety-related and risk important SW system. The inspectors determined that additional information would be necessary to resolve this issue. This issue will be tracked as an Unresolved Item (URI) (URI 50-266/99019-01(DRP); 50-301/99019-01(DRP)).

b. Conclusions

The inspectors observed that pre-job briefings and turnovers were conducted when needed, provided the necessary information to safely perform the assigned work, and were led and attended by the appropriate personnel. During the execution of the work, electrical maintenance personnel properly implemented foreign material exclusion practices, followed the work plan instructions, remained sensitive to the proximity of other safety-related and seismically qualified equipment, and properly controlled the use of combustible materials.

The inspectors concluded that the drawing and instructions provided in the work plan and in the modification approval package contained errors. Based on visual inspection of the as-found configuration of the installed bearings by the inspectors, the upper bearings were found to have been properly installed. No consequences were experienced as a result of the errors with respect to the work performed on SW Pump P-32D. However, the inspectors concluded that the licensee had failed to address the potential consequences introduced by the modification of SW pump motors P-32A, B, C, E, and F with errors in their respective work plans. Additional information is necessary to resolve this issue and a URI was opened.

M1.2 Failure To Write A CR For Unsatisfactory Bearing Clearance During Maintenance On 2B Component Cooling Water Pump, 2P-011B

a Inspection Scope (IP 62707)

On January 10, 2000, the licensee replaced the inboard and outboard bearings and mechanical seals on pump 2P-011B. The inspectors reviewed completed work order Routine Maintenance Procedure (RMP) 9006-2, "Component Cooling Water Pump Mechanical Seal Overhaul," Revision 6.

b. Observations and Findings

Work order Procedure RMP 9006-2, Step 7.2.27, required the measurement of a clearance between the outboard bearing inner bore and the outer diameter of the pump shaft. The acceptance criterion as stated in the procedure was a clearance of .0001 to .0012 inches. The actual clearance, as recorded in Step 7.2.27, was .0000 inches. The clearance measurement was recorded as unsatisfactory. Step 7.2.34.a stated that an operability determination was generated to resolve the unsatisfactory clearance condition. No CR or operability determination for this nonconforming condition was generated.

The requirements of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," specify that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. The licensee's established method for ensuring conditions adverse to quality are promptly identified and corrected was delineated in NP 5.3.1, "Condition Reporting System," Revision 14. Section 4.2.1 of NP 5.3.1 stated, "Anyone who identifies a condition that appears to meet the criteria for initiation of a CR should submit a completed CR (See Attachment A for additional guidance)." Section 8 of Attachment A of NP 5.3.1 gives guidance that a CR should be written for any, "potentially inoperable or inoperable safety-related structures, systems, or components." The unsatisfactory bearing clearance had the potential to make 2P-11B inoperable. This inspector-identified violation was of minor significance and is not subject to formal enforcement action because the licensee later determined that the unsatisfactory bearing clearance to be acceptable and would not impact the pumps operability. The licensee acknowledged the concern that a condition report was not written for the initially unsatisfactory bearing clearance and took appropriate corrective action.

c. Conclusions

The inspectors identified that the licensee failed to write a CR and perform an operability determination for an unsatisfactory condition found during maintenance on the 2B component cooling water pump. This failure resulted in the return to service of the pump prior to the evaluation of the unsatisfactory condition (inadequate bearing clearance) and an inadequate corrective action. A subsequent licensee evaluation concluded that the bearing clearance was satisfactory. The inspectors identified a minor violation.

M1.3 Response to Abnormal Operation of Unit 1 Auxiliary Feedwater (AFW) Steam Inlet Valve, 1MS-2020

a. Inspection Scope (IP 62707)

On January 12, 2000, Unit 1 AFW Steam Inlet Valve 1MS-2020 failed to open during the performance of Inservice Testing Procedure IT-08A, "Cold Start of Turbine Driven AFW Pump and Valve Test." The inspectors observed the licensee's troubleshooting and repair efforts and assessed the licensee's corrective actions.

b. Observations and Findings

The troubleshooting and repair efforts for the January failure were timely and thorough. The immediate cause of the failure was a small piece of foreign material (foam insulation) that had fallen into a switch contact spring in the control circuit for 1MS-2020. The foam insulation came from material used to seal the conduit that led into the control circuit junction box. The licensee replaced the contact and removed other pieces of loose insulation from the junction box. The valve was cycled successfully and returned to service.

An identical problem with loose foam insulation obstructing contact operation on the same valve in the same junction box in a different circuit contact was identified on December 2, 1999. The foreign material had been removed from the contact, but the source of the loose insulation had not been removed from the junction box. Further, an extent-of-condition evaluation had not been conducted to assess foreign material conditions in other control circuitry junction boxes with similar foam.

The inspectors concluded that a violation of the requirements of 10 CFR Part 50, Appendix B, Criterion XVI, did not exist because the original corrective actions were reasonable, though narrow in scope, and the foreign material did not create a significant condition adverse to quality. The condition was not considered significant because the foreign material fortuitously impacted a contact that did not affect the operability of the AFW system. The second occurrence was entered into the licensee's corrective action program.

c. Conclusions

The licensee experienced repetitive failures of a steam supply valve for the Unit 1 turbine-driven AFW pump. The failures occurred when solidified foam material in a control cabinet fell into relay contacts. System operability was not affected by the specific contacts that were fouled with foam. The original corrective actions were adequate, but very narrowly focused. Corrective actions for the second failure were prompt, thorough, and comprehensive.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Housekeeping and Control of Transients in the Primary Auxiliary Building (IP 71707, IP 62707, and IP 71750)

During tours of the primary auxiliary building, the inspectors noted several instances of poor housekeeping and several instances of poor control over transient combustible materials in safe shutdown areas of the plant. A safe shutdown area was defined, by the licensee, as an area containing safety-related equipment or other equipment required to bring a unit to a safe shutdown condition. The inspectors did not consider any of the observed conditions to be safety significant. Each observation was discussed with the licensee, and appropriate corrective actions were taken to address each concern. Licensee management considered plant performance in the control of transient materials and housekeeping to be on a declining trend, and directed plant staff to focus on arresting this trend.

M8 Miscellaneous Maintenance Issues

M8.1 (Closed) LER 50-266/1999-003-00; 50-301/1999-003-00: Technical Specification Surveillance Test Requirement for Emergency Core Cooling and Containment Spray Not Fully Implemented. This LER described a licensee-identified failure to perform some aspects of the periodic valve position verification surveillance test required by TS 15.4.5.II.B.2, which required that the licensee verify every 31 days that each manual, power-operated, and automatic valve necessary to ensure system operability in the

emergency core cooling and containment spray systems that was not locked, sealed or otherwise secured in position, was in the correct position. Specifically, the licensee determined that 19 Unit 1 valves and 21 Unit 2 valves had not been verified as being in their proper position because of a narrow interpretation of the TS requirements. All the valves were subsequently verified to be properly positioned and the appropriate surveillance test procedures were revised to include verification of the position of those valves. The identification of this event (on April 6, 1999) resulted from a licensee review of an industry operating event and a subsequent re-evaluation by the licensee of its corresponding surveillance test scope. This failure is being treated as a Non-Cited Violation (NCV 50-266/99019-02(DRP); 50-301/99019-02(DRP)), consistent with Section VII.B.1.a of the NRC Enforcement Policy. The LER documents the licensee's corrective actions and is tracked in the licensee's corrective action program.

III. Engineering

E1 Conduct of Engineering

E1.1 Engineering Review of Temporary Sealant Repair to a Class 1 Component

a. Inspection Scope (IP 37551)

The inspectors reviewed the licensee's preparations to install a temporary sealant repair on the SI system core deluge check valve (SI-853C). The licensee utilized the services of Furmanite company in the performance of this repair. The following documents were reviewed:

- 10 CFR 50.59 SE 1999-0133, "TM [temporary modification] 99-060, Furmanite of 1SI-0853C," Revisions 0 and 1;
- Procedure N-99290, "Clamp Installation Procedure, Inject through Clamp," Revision 0;
- Work Order Work Plan 9919175, "Install Temporary Modification to Furmanite Body to Bonnet Leak," no Revision;
- NRC Information Notice 93-90: "Unisolatable Reactor Coolant System Leak Following Repeated Applications of Leak Sealant"; and
- NMAC [Nuclear Maintenance Application Guidance Center] Document NP-6523-D, "On-Line Leak Sealing."

b. Observations and Findings

The proposed furmanite repair to SI-853C involved placing a split clamp over the body-to-bonnet joint and filling the joint with a highly viscous sealant. Because of the sealant's high absolute viscosity, considerable pressure had to be applied by the

injection instrument to force the sealant to flow into the joint cavity. This pressure was in excess of fluid (primary coolant) pressure that normally acted against the bonnet.

The inspectors compared the licensee's SE and work instructions for the SI-853C repair to the NRC's operating experience and industry guidance for leak repairs using sealant. The inspectors identified two concerns that were discussed with the licensee. First, the work procedures allowed the use of peening (deforming the metal surfaces using a hammer or other tool) to close the gap between the valve and collar. Inappropriate peening had caused the failure of a safety-related fastener at another facility. The SE did not address peening on SI-853C. Second, the SE stated that the load on the SI-853C studs was limited to the forces applied by system pressure because the sealant could not transfer load. This did not appear to be correct because the installation procedure specified holding the furmanite injection pressure in a potentially static condition. Even highly viscous fluids transfer applied forces to system boundaries under static conditions.

The inspectors discussed the above concerns with the licensee's technical staff. The licensee staff agreed that the use of peening should be appropriately addressed in the SE and should be procedurally controlled. The licensee staff also concluded that the SE was not correct in stating that the sealant did not transfer loads to the SI-853C bonnet and studs. The industry guidance for on-line leak sealing stated that localized loads on valve fasteners were expected during sealant injection. This discrepancy was documented in CR 99-3300. The licensee revised the SE and work instructions prior to performing the sealant repair to SI-853C. The inspectors did not consider either issue to be significant enough to create an unreviewed safety question. The inspectors considered the failure of the licensee to identify the potential effects of sealant induced hydraulic forces and peening induced mechanical forces on the valve studs to be an isolated case of insufficient engineering rigor and management review. For these reasons, no formal enforcement action is being taken for the inaccurate SE.

c. Conclusions

The licensee's SE for a proposed temporary sealant repair to an unisolatable primary system valve correctly concluded that the repair did not constitute an unreviewed safety question. The SE was revised after the inspectors identified two technical issues that were incorrectly characterized in the original revision.

E2 Engineering Support of Facilities and Equipment

E2.1 Containment Spray System Testing (IP 92903)

a. Inspection Scope

The inspectors reviewed the licensee's program for ensuring the operability of the sodium hydroxide addition portion of the containment spray system. During an earlier review, documented in IR 50-266/98009(DRP); 50-301/98009(DRP), the inspectors had been concerned that the licensee test program for this portion of the system did not

provide reasonable assurance of operability over the long term life of the plant. A URI had been opened to track further NRC review of the adequacy of the test program.

b. Observations and Findings

Sodium hydroxide would be injected into the containment spray flow path during a design basis accident to remove radioactive iodine from the containment atmosphere and to control containment sump acidity. These are safety-related functions. During the earlier review of the containment spray system, the inspectors had been concerned that portions of the sodium hydroxide addition flow path were not tested or inspected for flow obstructions. Following the earlier inspection, the NRC reviewed the plant licensing basis to determine the required level of testing for the sodium hydroxide portion of the containment spray system. The NRC concluded that the licensee was required to develop and implement a test program to demonstrate the operability of the safety-related containment spray system over the entire life of the facility. This test program was required to demonstrate known and credible failure mechanisms. The test program did not necessarily have to include actual flow testing for all portions of the system. Specifically, where flow testing was impracticable, alternate test methodologies may have been appropriate. Flow testing of the sodium hydroxide portion of the containment spray system was considered impracticable. This was because of the chemical incompatibility of sodium hydroxide and the normal containment spray test discharge point (the refueling water storage tank).

During this inspection period, the inspectors performed another review of the licensee's test program for the sodium hydroxide addition portion of the containment spray system. The inspectors reviewed known and credible failure mechanisms for this portion of the system, and verified that the licensee performed tests or inspections that adequately addressed these mechanisms. The inspectors did not identify any unaddressed failure mechanisms. The licensee's test program for the sodium hydroxide addition portion of the containment spray flow path was therefore adequate to satisfy the plant's current licensing basis and the applicable regulations.

c. Conclusions

The inspectors concluded that the licensee's test program for the sodium hydroxide addition flow path portion of the containment spray system satisfied the plant's current licensing basis and the applicable regulations.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) URI 50-266/98009-01; 50-301/98009-01: Evaluation of the adequacy of containment spray system testing. The issues associated with this URI are addressed in Section E2.1 of this report.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiological Support of Activities (IP 71750)

The radiological protection support of the containment entry for temporary repairs on valve SI 853C was good. General radiological conditions in the radiologically controlled area of the plant were acceptable.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on January 18, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Wisconsin Electric Power Company

A. J. Cayia, Regulatory Services and Licensing Manager
R. P. Farrell, Radiation Protection Manager
V. M. Kaminskas, Maintenance Manager
R. G. Mende, Plant Manager
B. J. O'Grady, Operations Manager
C. R. Peterson, Director of Engineering
M. E. Reddemann, Site Vice President
J. G. Schweitzer, System Engineering Manager

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 62707:	Maintenance Observations
IP 71707:	Plant Operations
IP 71714:	Cold Weather Preparations
IP 71750:	Plant Support Activities
IP 92903:	Followup - Engineering

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-266/99019-01(DRP) 50-301/99019-01(DRP)	URI	Failure to address the concern that service water pump motors were modified with an inaccurate sketch referenced in the work plan.
50-266/99019-02(DRP) 50-301/99019-02(DRP)	NCV	Failure to perform some aspects of the periodic valve position verification surveillance required by TS.

Closed

50-301/1999-004-00	LER	Failure to enter containment penetration limiting condition for operation.
50-266/1999-003-00 50-301/1999-003-00	LER	Technical Specification surveillance test requirement for emergency core cooling and containment spray not fully implemented.
50-266/99019-02(DRP) 50-301/99019-02(DRP)	NCV	Failure to perform some aspects of the periodic valve position verification surveillance required by TS.
50-266/98009-01(DRP) 50-301/98009-01(DRP)	URI	Evaluation of the adequacy of containment spray system testing.

Discussed

None

LIST OF ACRONYMS USED

AFW	Auxiliary Feedwater
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NP	Nuclear Power Business Unit Procedure
NRC	Nuclear Regulatory Commission
RWST	Refueling Water Storage Tank
SE	Safety Evaluation
SI	Safety Injection
SW	Service Water
TS	Technical Specification
URI	Unresolved Item
Y2K	Year 2000