

May 3, 2000

Mr. Mark L. Marchi  
Site Vice President  
Kewaunee Plant  
Wisconsin Public Service  
Corporation  
Post Office Box 19002  
Green Bay, WI 54307-9002

SUBJECT: KEWAUNEE INSPECTION REPORT 50-305/2000004(DRP)

Dear Mr. Marchi:

On April 1, 2000, the NRC completed an inspection at your Kewaunee Nuclear Power Plant. The enclosed report presents the results of that inspection.

During the 6-week period covered by this inspection, your staff's conduct of activities at the Kewaunee facility was generally characterized by safety conscious operations. However, during inspections involving Kewaunee's response to Generic Letter 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition," we identified several statements in the response which we determined to be inaccurate. With respect to the concerns discussed within the Generic Letter, we noted that after discussions with the inspectors, Kewaunee personnel revised operations procedures to address the operational concerns.

Based on the results of this inspection, the NRC has determined that three violations of NRC requirements occurred. These violations are being treated as Non-Cited Violations (NCVs) consistent with Section VII.B.1.a of the NRC Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or severity level of the NCVs, 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 copies to the Regional Administrator, Region III, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

M. Marchi

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Sincerely,

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Eric R. Duncan, Acting Chief  
Reactor Projects Branch 2

Docket No. 50-305  
License No. DPR-43

Enclosure: Inspection Report 50-305/2000004(DRP)

cc w/encl: K. Weinhauer, Manager, Kewaunee Plant  
B. Burks, P.E., Director, Bureau of Field Operations  
Chairman, Wisconsin Public Service Commission  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-305  
License No: DPR-43

Report No: 50-305/2000004(DRP)

Licensee: Wisconsin Public Service Corporation

Facility: Kewaunee Nuclear Power Plant

Location: N 490 Highway 42  
Kewaunee, WI 54216

Dates: February 23, 2000 through April 1, 2000

Inspectors: J. Lara, Senior Resident Inspector  
Z. Dunham, Resident Inspector

Approved By: Eric R. Duncan, Acting Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

## EXECUTIVE SUMMARY

### Kewaunee Nuclear Power Plant NRC Inspection Report 50-305/2000004(DRP)

This report includes results of the routine, unannounced inspection by resident inspectors of plant operations, maintenance, engineering, and plant support.

#### Operations

- Operators exhibited good working knowledge of plant equipment. The inspectors identified one instance where reactor operators were not aware that inoperable core exit thermocouples placed the plant in a 72-hour technical specification limiting condition for operation. A contributing factor was a lack of communications between shift management and the reactor operators. (Section O1.1)
- Following the retrieval of surveillance testing data that had been missing since July 27, 1999, the licensee identified that the surveillance results were outside the acceptance criteria which rendered train "B" of the shield building ventilation system inoperable. One non-cited violation was identified. (Section O2.2)
- Total measured steam generator leakage increased following the last reactor startup in November 1998. The licensee planned to revise operations and chemistry procedures to reflect current industry guidelines on steam generator leakage. (Section O2.3)
- Configuration controls were incomplete to address the potential for reactor coolant system drain-down during shutdown conditions as discussed in Generic Letter 98-02. In response to the inspectors' questions, operations procedures were revised to include additional valve position verifications. One non-cited violation was identified regarding inaccurate statements contained in the licensee's response to the Generic Letter. (Section O3.1)

#### Maintenance

- Surveillance testing activities were conducted in an acceptable manner. (Section M1.1)

#### Engineering

- Licensee personnel identified that design controls did not exist to ensure that component operation assumptions, which could impact environmental qualification life, were valid. (Section E2.1)
- The licensee identified two examples where the design application of solenoid operated valves was inadequate. As a result, the number of operational cycles exceeded the design specifications and resulted in failure of the solenoid valves. One non-cited violation was identified. (Section E2.2)

## Plant Support

- The inspectors performed frequent walkdowns of safety-related equipment located within the radiologically controlled area. The inspectors noted that radiation and high radiation areas were posted and controlled in accordance with NRC requirements. (Section R1.1)

## Report Details

### Summary of Plant Status

The unit operated at up to about 97 percent power during the 6-week inspection report period. On February 25, 2000, operators briefly reduced power to perform turbine stop valve and control valve testing.

## I. Operations

### **O1 Conduct of Operations**

#### **O1.1 General Comments (Inspection Procedure (IP) 71707)**

The inspectors conducted frequent reviews of ongoing plant operations. These reviews included observations of control room evolutions, shift turnovers, and log keeping. The inspectors also reviewed the Updated Safety Analysis Report (USAR) Section 12, Conduct of Operations, the facility's Technical Specifications (TS), and operability evaluations completed by the licensee.

The inspectors observed shift turnover meetings and observed discussions regarding the status of plant equipment, planned testing, and maintenance. Operators exhibited good working knowledge of plant equipment. The inspectors identified one instance where reactor operators were not aware that inoperable core exit thermocouples placed the plant in a 72-hour TS limiting condition for operation (LCO). At the time the inspectors questioned the operators, the A train of the thermocouples had been out-of-service for at least 6 hours, work on the system had stopped for the day, and the system was to remain out-of-service until the next day. The inspectors were informed that although the out-of-service status was not identified on the status board, the shift supervisor and control room supervisor were aware of the LCO entry. However, this event indicated a lack of communications between the shift management and reactor operators.

### **O2 Operational Status of Facilities and Equipment**

#### **O2.1 Plant Equipment and System Walkdowns (IP 71707)**

In addition to routine plant inspections, the inspectors examined the material condition and system configuration of selected portions of the emergency diesel generators and support systems. The emergency diesel generators were among the plant's most risk-significant systems. No deficiencies were identified during the walkdowns.

#### **O2.2 Shield Building Ventilation (SBV) System Train B Inoperable**

##### **a. Inspection Scope (IP 71707)**

The SBV system is a safety-related system which collects leakage from the reactor containment vessel penetrations into the annulus of the shield building and discharges it through filters to the containment system vent. On March 9, 2000, the licensee determined that the test data for surveillance procedure (SP) 24-122, which had last

been performed on July 27, 1999, was missing. The licensee initiated a search and found the test data on March 10, 2000. During a review of the test data, the licensee determined that the measured train "B" flow of 5427 cubic foot per minute (cfm) was outside the acceptance range of 5580 cfm to 6820 cfm, which rendered SBV Train B inoperable since July 27, 1999. This condition was reported to the NRC in accordance with 10 CFR 50.72.

The licensee entered the 7-day TS LCO and documented the event in Kewaunee Assessment Process (KAP) 00-00609. On March 11, the licensee re-performed SP 24-122 with satisfactory results and declared SBV Train B operable.

The following documents were reviewed:

- KAP 00-000609, SBV Train B Fan Flow Degraded
- Surveillance Procedure 24-122, "Shield Building Vent Filter Testing," Revision Q
- USAR Section 5.5, Shield Building Ventilation System
- Technical Specification 4.4.c, Shield Building Ventilation System

b. Observations and Findings

The licensee identified several concerns following this event. These concerns included the failure to identify that the as-found data recorded during the test procedure was outside the acceptance criteria, a weakness in the surveillance procedure review process which led to a 7-month delay in identifying the out-of-tolerance data, and a lack of clear instructions to ensure a consistent testing methodology. The licensee established a root cause evaluation team to determine the contributing factors to this event and to address the above concerns. This investigation was in progress at the end of the inspection. The safety significance of the event was minimal since it was likely that an inadequate testing methodology had adversely impacted the previous testing results and, when the test was repeated, the results were well within the acceptance criteria.

Technical Specification 3.6.b.1 required, in part, that with one of the two trains of the SBV system inoperable, reactor operation is permissible only during the succeeding 7 days. The failure to restore both trains of the SBV system to an operable status within 7 days was a violation of TS 3.6.b.1. However, this Severity Level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1.a of the NRC Enforcement Policy (NCV 50-305/2000004-01, Shield Building Ventilation System Train B Inoperable).

c. Conclusions

Following the retrieval of surveillance testing data that had been missing since July 27, 1999, the licensee identified that the surveillance testing results were outside the acceptance criteria which rendered train "B" of the SBV system inoperable. One non-cited violation was identified.

## O2.3 Steam Generator Primary to Secondary Leakage

### a. Inspection Scope (IP 71707 and IP 71750)

The inspectors reviewed the status of the combined steam generator leakage. The following documents were reviewed:

- Radiochemistry (RCC) Procedure RCC-88, "Primary to Secondary Leak Rate Data," Revision K
- Operating Procedure A-RC-36D, "Reactor Coolant Leak," Revision Z
- Technical Specification 3.1.d, Leakage of Reactor Coolant

### b. Observations and Findings

Following the last reactor startup in November 1998, the total measured steam generator leakage was about 3 gallons per day. However, following plant power changes performed since the startup, the total measured steam generator leakage had increased to about 8.5 gallons per day at the end of the inspection period. The inspectors noted that the licensee was in the process of revising Procedure RCC-88 to accurately reflect the current Electric Power Research Institute guidelines on steam generator leakage and also planned to revise Procedure A-RC-36D. Operations management issued a night order for correlating the condenser exhaust radiation monitor count rate to steam generator leakage.

### c. Conclusions

The total measured steam generator leakage increased following the last reactor startup. The licensee planned to revise existing operations and chemistry procedures to reflect current Electrical Power Research Institute guidelines on steam generator leakage.

## O3 **Operations Procedures and Documentation**

### O3.1 Temporary Instruction 2515/142, Draindown During Shutdown and Common-Mode Failure (NRC Generic Letter (GL) 98-02)

#### a. Inspection Scope

The inspectors performed reviews of the licensee's response to GL 98-02. The inspectors utilized the guidance contained in Temporary Instruction 2515/142. The following documents were reviewed:

- N-0-01, "Plant Startup from Cold Shutdown Condition to Hot Shutdown Condition," Revision AP
- N-0-05, "Plant Cooldown from Hot Shutdown to Cold Shutdown Condition," Revision AK
- N-ICS-23-CL, "Containment Spray System Prestartup Checklist," Revision Y
- N-SI-33-CL, "Safety Injection System Prestartup Checklist," Revision AC
- N-RHR-34, "Residual Heat Removal System Operation," Revision AL
- N-RHR-34-CL, "Residual Heat Removal Prestartup Checklist," Revision AC

- N-FH-53E, “Reactor Cavity Draining with Fuel or Upper Internals Installed,” Revision H
- Generic Letter 98-02, “Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition”
- Kewaunee Letters to NRC Regarding GL 98-02, dated November 24, 1998 and April 19, 2000.
- USAR Chapter 6

The concerns discussed in the GL pertained to the potential for a loss of reactor coolant inventory and subsequent loss of emergency mitigation functions while in a shutdown condition. The GL requested information from licensees regarding potential pathways for inadvertent RCS drain-down and configuration controls during reactor shutdown cooling. The licensee’s response to the GL discussed whether the facility was susceptible to the GL concerns, and described the features and controls to ensure that drain-down paths would not be inadvertently established during activities with the plant shutdown.

b. Observations and Findings

The licensee determined that the facility was susceptible to the concerns described in GL 98-02 and the response described the administrative controls in place to preclude this event from occurring. Administrative controls included pre-existing configuration and procedural controls to ensure that valves were properly positioned while in hot shutdown. The licensee did not identify plans to establish any additional controls beyond those which already existed.

During the review of the licensee’s response, the inspectors identified the following statements related to system configuration controls which were inaccurate (in italic):

- “...Valve RHR-110 is procedurally closed and its position independently verified after the draining evolution. *It is also procedurally checked and independently verified closed prior to placing RHR in service.*” [Page 2 of Attachment to Kewaunee Response to NRC Regarding GL 98-02, dated November 24, 1998]
- “...The fact that this flow path is only open when RCS temperature is less than 200 degrees Fahrenheit and that *the isolation valve for the flow path is checked and independently verified closed after the draining and before putting RHR in service* minimizes the potential that this flow path will cause a RCS drain-down.” [Page 2 of Attachment to Kewaunee Response to NRC Regarding GL 98-02, dated November 24, 1998]
- “...This flow path is isolated by two parallel path motor operated valves, RHR-400A(B) operated from the control room. *These valves are verified closed by two independent operators prior to putting RHR in service.*” [Page 3 of Attachment to Kewaunee Response to NRC Regarding GL 98-02, dated November 24, 1998]
- “...*The verification and independent verification of RHR-400A(B) position prior to placing RHR in service* provides additional assurance that a valve mis-position

will not occur and cause a flow diversion.” [Page 4 of Attachment to Kewaunee Response to NRC Regarding GL 98-02, dated November 24, 1998]

The inspectors concluded that the valve position verification statements concerning valves RHR-110 and RHR-400A(B) were inaccurate since the valves were not verified to be closed in plant operations procedures prior to placing the RHR system in operation for RCS cooldown.

With respect to RHR-110, licensee personnel stated that the valve was only opened to drain the refueling cavity following refueling operations and at that time it was independently verified closed. These verifications were required by operations procedures. Additional verifications or administrative controls were not required during maintenance since maintenance on the valve could not be performed unless it was isolated by an upstream and downstream valve. As a result, the inspectors did not consider the inaccurate statements regarding RH-110 to be material.

With respect to RHR-400A(B), the licensee subsequently initiated revisions to Procedure N-RHR-34 to ensure these valves were verified closed prior to placing the RHR system into service. The licensee initiated KAP 00-000709 to document the potentially inaccurate statements. The inspectors concluded that the inaccurate information regarding RHR-400A(B) was material to the GL response since the omission of these valves from the operations procedures was inadequate to address the event described in Generic Letter 98-02.

Licensee personnel stated that the term “in service”, as discussed in the November 24, 1998, letter was ambiguous and could be interpreted to be synonymous with the term “operable”, i.e., valves were verified to be closed prior to declaring the RHR system operable. However, the inspectors pointed out that the concerns discussed in the GL pertained to shutdown cooling operation and requested information which ensured that prior to or during the shutdown cooling mode of operation, sufficient configuration controls were established to prevent inadvertent drain-down of the RCS. The GL did not discuss configuration controls to establish system operability.

Section 50.9 of 10 CFR Part 50 requires, in part, that information provided to the NRC shall be complete and accurate in all material respects. The inaccurate statements in the response to GL 98-02 contained in a letter dated November 24, 1998, was an example where the requirements of 10 CFR 50.9 were not met and was a violation. However, this Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy (NCV 50-305/2000004-02, Inaccurate Licensee Statements in Response to Generic Letter).

The controls described in the licensee’s response to the GL, as revised by the inclusion of valves RHR-400A(B) in procedure N-RHR-34, were determined to be acceptable.

c. Conclusions

Configuration controls to address the potential for RCS drain-down during shutdown conditions as discussed in Generic Letter 98-02 were incomplete. In response to the inspectors’ questions, operation procedures was revised to include additional valve position verifications. One non-cited violation was identified regarding inaccurate statements contained in the licensee’s response to Generic Letter 98-02.

## **O8 Miscellaneous Operations Issues (IP 92700 and IP 92901)**

### **O8.1 (Closed) Violation 50-305/98006-02(DRS): Failure to Document and Maintain the Results of Medical Qualification Data.**

The inspectors reviewed the licensee's response to the violation and had no further concerns. The licensee tracked this issue as Commitment 99-070.

### **O8.2 (Closed) Licensee Event Report (LER) 305/99003-00: Seismic Monitor Calibration Procedures Do Not Ensure Technical Specification Requirements are Fulfilled Since System Installation in 1986 - Cause Indeterminate.**

The details of this issue and an associated NCV were documented in Inspection Report 50-305/99010, Section O1.3. The inspectors reviewed the licensee's short-term and long-term corrective actions and did not identify any additional concerns.

### **O8.3 (Closed) LER 305/990005-00: Internal Power Supply for Radiation Monitor R-19 Results in Steam Generator Blowdown Isolation.**

The details of this issue and an associated NCV were documented in Inspection Report 50-305/99010, Section O2.3. The inspectors reviewed the licensee's corrective actions and did not identify any additional concerns.

### **O8.4 (Closed) LER 305/990006-00: Both Trains of Control Room Post-Accident Recirculation Inadvertently Removed From Service.**

The details of this issue and an associated minor violation were documented in Inspection Report 50-305/99013, Section O2.2. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. No additional concerns were identified.

## **II. Maintenance**

### **M1 Conduct of Maintenance**

#### **M1.1 Maintenance and Surveillance Test Observations (IP 61726 and IP 62707)**

The inspectors observed and reviewed all or portions of the following surveillance test and maintenance activities:

- SP 23-100, "Containment Spray Pump and Valve Test - IST [Inservice Test]," Revision AH
- SP 34-099, "RHR Pump and Valve Test - IST," Revision AM
- Reactor Engineering Procedure RE-22, "Receipt and Inspection of New Fuel," Revision K
- SP 47-062B, "Reactor Protection Logic Train B Test," Revision M
- SP 55-155A, "Engineered Safeguards Train A Monthly Logic Channel Test," Revision K
- Work Request 00-000528-000, Replace SOV [Solenoid-Operated Valve] for Valve SW1006C

- Work Request 99-217857-00, Perform Diagnostic Testing on Valve SI-351B
- Work Request 99-215990-00, Perform Diagnostic Testing on Valve AFW-10B

The inspectors also reviewed the surveillance procedure and the appropriate USAR sections. The licensee performed work in accordance with the prescribed work instructions. In general, the technicians were knowledgeable of their assigned tasks and work document requirements. No deficiencies were identified.

## **M8 Miscellaneous Maintenance Issues (IP 92700)**

- M8.1 (Closed) LER 305/98006-00: Turbine Driven Auxiliary Feedwater Pump Automatic Start Logic Not Tested In Accordance With Technical Specifications.

The issue discussed in the LER was identified during the licensee's review of GL 96-01, "Testing of Safety-Related Logic Circuitry" and details of this issue were documented in Inspection Report 50-305/98005, Section M2.1. This failure constitutes a technical specification violation of minor significance and is not subject to formal enforcement action. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. No additional concerns were identified.

- M8.2 (Closed) LER 305/98007-00: Safeguard Buses Source Breaker Trip Logic Not Tested In Accordance With Technical Specifications.

The issue discussed in the LER was identified during the licensee's review of GL 96-01, and details of this issue were documented in Inspection Report 50-305/98005, Section M2.1. This failure constitutes a technical specification violation of minor significance and is not subject to formal enforcement action. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. No additional concerns were identified.

- M8.3 (Closed) LER 305/98009-00: Failure to Test a Segment of the Internal Containment Spray Actuation Circuit in Accordance With Technical Specifications.

The issue discussed in the LER was identified during the licensee's review of GL 96-01, and details of this were documented in Inspection Report 50-305/98008, Section M2.3. This failure constitutes a technical specification violation of minor significance and is not subject to formal enforcement action. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. No additional concerns were identified.

- M8.4 (Closed) LER 305/98010-00: Containment Spray Test Switch Contacts Not Tested in Accordance With Technical Specifications.

The issue discussed in the LER was identified during the licensee's review of GL 96-01, and details of this issue were documented in Inspection Report 50-305/98011, Section M2.1. This failure constitutes a technical specification violation of minor significance and is not subject to formal enforcement action. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. No additional concerns were identified.

- M8.5 (Closed) LER 305/98015-00: Intergranular Attack and Intergranular Stress Corrosion Cracking of Tubes in Both Steam Generators Results in Category C-3.

The details of this issue were reviewed during the inservice inspection documented in Inspection Report 50-305/98020. No new issues were revealed by the LER. This LER is closed.

- M8.6 (Closed) LER 305/98016-00: Reactor Coolant Pump 1B Underfrequency Trip Relay Inadvertently Disconnected in 1982 During Modification Installation.

The issue discussed in the LER was identified during the licensee's review of GL 96-01, and details of this issue were documented in Inspection Report 50-305/98018, Section M2.1. The inspectors reviewed the licensee's corrective actions as stated in the LER and determined that they were appropriate. An NCV was previously issued in Inspection Report 50-305/98018-05. No additional concerns were identified.

- M8.7 (Closed) LER 305/99004-00: Contrary to Technical Specification Requirements Non-Automatic Containment Isolation Valves Have Been Opened for Testing.

The details of this issue and an associated NCV were documented in Inspection Report 50-305/99010, Section M2.2. The inspectors reviewed the licensee's short-term and long-term corrective actions. As part of the corrective actions, the licensee submitted TS amendment request 165 to the NRC. The TS amendment request included the addition of LCOs and allowed outage times for containment isolation devices. At the end of the inspection period, the TS amendment request was being reviewed. No additional concerns were identified.

### **III. Engineering**

#### **E2 Engineering Support of Facilities and Equipment**

##### **E2.1 Potentially Inoperable Containment Isolation Valve Due to Not Being Environmentally Qualified**

###### **a. Inspection Scope (IP 37551)**

The inspectors reviewed the circumstances involving the licensee's identification of equipment rendered inoperable due to exceeding its environmentally qualified life. The following documents were reviewed:

- Equipment Qualification Evaluation Review File 5.2
- Environmentally Qualified Maintenance/Surveillance Review Form for Valve LD-4A

###### **b. Observations and Findings**

On March 29, 2000, the licensee documented in KAP 00-000782, that the solenoid pilot valve for letdown system containment isolation valve LD-4A was potentially installed beyond its environmentally qualified life. The licensee identified that the 5.6 year valve coil replacement frequency was based on the assumption that it would not be

continuously energized, but alternatively operated with containment isolation valve LD-4B to equalize the energized time. However, engineering personnel identified that this assumption was not translated into appropriate operations procedures and the valve was almost continuously energized. As a result, the qualified life of the solenoid valve was reduced to about 3 years. In addition, since the solenoid valve was installed in October 1996, it should have been replaced in October 1999. Upon identifying this condition, the licensee declared containment isolation valve LD-4A inoperable, closed and de-energized the valve, and opened containment isolation valve LD-4B to satisfy Technical Specification requirements.

Based on additional environmental qualification test data, the licensee extended the qualified life of the solenoid valve by several years. The inspectors reviewed the associated documentation. No deficiencies were identified. However, the licensee identified that appropriate design controls did not exist to ensure that environmental qualification assumptions were verified or validated. Licensee management stated that KAP 00-000782 would address this issue.

c. Conclusions

Licensee personnel identified that design controls did not exist to ensure that component operation assumptions, which could impact environmental qualification life, were valid.

E2.2 Inadequate Design Controls for Solenoid Operated Valves

a. Inspection Scope (IP 37551)

On February 8, 2000, the licensee identified that pilot solenoid valve SV 33836 chattered when it re-positioned service water control valve SW 1016A associated with safety-related auxiliary building fan floor fan coil Unit A. The licensee isolated the instrument air to the control valve to place the valve in the open position. On February 29, solenoid valve SV 33837 associated with Unit B auxiliary building fan floor fan coil unit flow service water control valve SW1016B also chattered and leaked air out of its vent port. On March 2, KAP 00-000504 was written to request that a root cause analysis be performed on the solenoid valve failures.

b. Findings and Observations

The inspectors questioned the licensee whether the solenoid valve failures could be attributed to a common mode and therefore reportable to the NRC in accordance with 10 CFR 50.73 requirements. Licensee personnel stated that this issue was currently under review as part of the root cause evaluation and would address potential failures modes. Engineering reviews indicated that the failure of the solenoid valves was due to excessive cycling. These valves had been installed in an application where engineering personnel did not recognize that the respective service water valves cycled frequently and therefore exceeded the operational and design limits of the solenoid assemblies (40,000 cycles). The licensee subsequently replaced both solenoid valves and a third valve which had been installed for an extended period of time.

10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established for the selection and review for suitability of application of materials,

parts, equipment, and processes that are essential to the safety-related functions of structures, systems, and components. The failure to adequately consider whether solenoid valves SV 33836 and SV 33837 were suitable for their application was a violation. However, this Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy (NCV 50-305/2000004-03, Failure to Adequately Consider Solenoid Valve Cycling in Design).

c. Conclusions

The licensee identified two examples where the design application of solenoid operated valves was inadequate. The number of operational cycles exceeded the design specifications and resulted in the failure of the valves. One non-cited violation was identified.

**E8 Miscellaneous Engineering Issues (IP 92700)**

E8.1 (Closed) LER 305/97005-00: Design Review of Auxiliary Feedwater System Identifies Inconsistencies with Main Steam Line Break and Anticipated Transients Without Scram Analyses.

The events detailed in this LER arose during licensee followup to issues identified during the system operational performance inspection conducted in January 1997 and documented in Inspection Report 50-305/97002. The licensee received a Severity Level III violation due to the issues identified during the inspection. The issues discussed in the LER are considered to be part of the same root cause identified in the violation. No additional concerns were identified. This LER is closed.

**IV. Plant Support**

**R1 Radiological Protection and Chemistry Controls**

R1.1 General Comments (IP 71750)

The inspectors performed frequent walkdowns of safety-related equipment located within the radiologically controlled area. The inspectors noted that radiation and high radiation areas were posted and controlled in accordance with NRC requirements.

**V. Management Meetings**

**X1 Exit Meeting Summary**

On April 6, 2000, the inspectors presented the inspection results to the plant manager and members of his staff. 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

### Wisconsin Public Service Corporation

D. Braun, Assistant Plant Manager - Operations  
D. Cole, Manager, Assessments  
K. Evers, Manager, Nuclear Support Services  
J. Hannon, Superintendent, Plant Instrument and Control  
K. Hoops, Plant Manager, Kewaunee Plant  
G. Harrington, Plant Licensing Supervisor  
B. Koehler, Manager, Plant Quality Programs  
M. Marchi, Vice President - Nuclear  
J. Mortonson, Assistant Plant Manager - Maintenance  
M. Reinhart, Superintendent, Radiation Protection  
J. Schweitzer, Manager, Engineering and Technical Support  
J. Stoeger, Superintendent, Operations  
T. Webb, Nuclear Licensing Director  
K. Weinhauer, General Manager, Kewaunee Plant

## INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering  
IP 61726: Surveillance Observations  
IP 62707: Maintenance Observation  
IP 71707: Plant Operations  
IP 71750: Plant Support Activities  
IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities  
IP 92901: Followup - Operations

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-305/2000004-01	NCV	Shield building ventilation system train B inoperable
50-305/2000004-02	NCV	Inaccurate licensee statements in response to Generic Letter 98-02
50-305/2000004-03	NCV	Failure to adequately consider solenoid valve cycling in design

### Closed

50-305/2000004-01	NCV	Shield building ventilation system train B inoperable
50-305/2000004-02	NCV	Inaccurate licensee statements in response to Generic Letter 98-02
50-305/2000004-03	NCV	Failure to adequately consider solenoid valve cycling in design
50-305/97005-00	LER	Design review of auxiliary feedwater system identifies inconsistencies with main steam line break and anticipated transients without scram analyses
50-305/98006-02	VIO	Failure to document and maintain the results of medical qualification data
50-305/98006-00	LER	Turbine driven auxiliary feedwater pump automatic start logic not test in accordance with Technical Specifications
50-305/98007-00	LER	Safeguard buses source breaker trip logic not tested in accordance with Technical Specifications
50-305/98009-00	LER	Failure to test a segment of the internal containment spray actuation circuit in accordance with Technical Specifications

50-305/98010-00	LER	Containment spray test switch contacts not tested in accordance with technical specifications
50-305/98015-00	LER	Intergranular attack and intergranular stress corrosion cracking of tubes in both steam generators results in Category C-3
50-305/98016-00	LER	1B Reactor coolant pump underfrequency trip relay inadvertently disconnected in 1982 during modification installation
50-305/99003-00	LER	Seismic monitor calibration procedures do not ensure technical specifications requirements are fulfilled since system installation in 1986 - cause indeterminate
50-305/99004-00	LER	Contrary to Technical Specification requirements non-automatic containment isolation valves have been opened for testing
50-305/99005-00	LER	Internal power supply for radiation Monitor R-19 results in steam generator blowdown isolation
50-305/99006-00	LER	Both trains of control room post-accident recirculation inadvertently removed from service

Discussed

None

## LIST OF ACRONYMS USED

cfm	cubic feet per minute
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
GL	Generic Letter
IP	Inspection Procedure
IST	Inservice Test
KAP	Kewaunee Assessment Process
LCO	Limiting Condition for Operation
LER	Licensee Event Report
NCV	Non-Cited Violation
PERR	Public Electronic Reading Room
RCC	Radiochemistry
RCS	Reactor Coolant System
RHR	Residual Heat Removal
SBV	Shield Building Ventilation
SOV	Solenoid Operated Valve
SP	Surveillance Procedure
SW	Service Water
TS	Technical Specification
USAR	Updated Safety Analysis Report
VIO	Violation