May 31, 2000

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

SUBJECT: NRC'S POINT BEACH NUCLEAR PLANT SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION; INSPECTION REPORT 50-266/2000006(DRS); 50-301/2000006(DRS)

Dear Mr. Reddemann:

On May 5, 2000, the NRC completed the first baseline safety system design and performance capability inspection at your Point Beach Nuclear Plant. The results of this inspection were discussed on May 11, 2000, with yourself and other members of your staff. The enclosed report presents the results of this inspection.

The inspection was an examination of design activities as they related to ensuring that the service water system was capable of performing its required post-accident functions, and to verify compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures, calculations, and representative records, independent calculations, and interviews with personnel.

Based on the results of this inspection, NRC identified three issues which were categorized as being of low risk significance and a fourth issue for which no risk categorization was assigned. All the issues involved design control and calculational errors and are considered examples of one Non-Cited Violation. The issues are listed in the summary of findings and are discussed in the report.

If you contest the Non-Cited Violation or its severity level, 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 20555-001, with a copy to the Regional Administrator, Region III, Resident Inspector and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room and will be available at the NRC Public Electronic Reading Room (PERR) link at the NRC home page, http://www.nrc.gov/NRC/ADAMS/index.html.

We will gladly discuss any question you have concerning this inspection.

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

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

Enclosure: Inspection Report 50-266/2000006(DRS);
50-301/2000006(DRS)

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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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-266; 50-301
License Nos:	DPR-24; DPR-27
Report No:	50-266/2000006(DRS); 50-301/2000006(DRS)
Licensee:	Wisconsin Electric Power Company
Facility:	Point Beach Nuclear Plant, Units 1 and 2
Location:	6610 Nuclear Road Two Rivers, WI 54241
Dates:	April 17 - 21; May 1 - 5, 2000
Inspectors:	P. Lougheed, Team Lead J. Gavula, Mechanical Inspector R. Mendez, Electrical Inspector (first week) D. Schrum, Mechanical Inspector R. Winter, Electrical Inspector (second week) R. Quirk, Instrumentation and Controls Contractor
Approved by:	John M. Jacobson, Chief Mechanical Engineering Branch Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	**Radiation Safety**	**Safeguards**
• Initiating Events	• Occupational	• Physical Protection
• Mitigating Systems	• Public	
• Barrier Integrity		
• Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent little effect on safety. WHITE findings indicate issues with some increased importance to safety, which may require additional NRC inspections. YELLOW findings are more serious issues with an even higher potential to effect safety and would require the NRC to take additional actions. RED findings represent an unacceptable loss of safety margin and would result in the NRC taking significant actions that could include ordering the plant to shut down.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. The color for an indicator corresponds to levels of performance that may result in increased NRC oversight (WHITE), performance that results in definitive, required action by the NRC (YELLOW), and performance that is unacceptable but still provides adequate protection to public health and safety (RED). GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, as described in the matrix. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

Point Beach Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-266/2000006(DRS); 50-301/2000006(DRS)

This was an announced biennial baseline inspection of safety system design and performance capability of the service water system. The inspection objective was to verify that the design basis was correctly implemented to ensure that the system can be relied upon to meet its functional requirements.

Cornerstone: Mitigating Systems

- Green. The inspectors identified errors in the calculations providing the uncertainty values for determining the service water inservice testing acceptance criteria. The errors resulted in the inservice testing minimum acceptance criteria being below the required design flow. The risk significance of this was low because, at the time of the inspection, all six pumps had flow rates above the minimum acceptance criteria. This was considered the first example of a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control."

- Green. The inspectors identified errors in the service water temperature uncertainty values. This resulted in the control room temperature indications being non-conservatively low. The risk significance of this was low because, at the time of the inspection, lake temperatures were below the design basis maximum. This was the second example of the Non-Cited Design Control Violation.

- Green. The inspectors identified a fundamental error in calculating pump net positive suction head which basically concluded that the pumps would have adequate suction even if the intake was completely uncovered. The risk significance of this was low because, at the time of the inspection, forebay level was sufficiently high to ensure the pumps were operable. This was the third example of the Non-Cited Design Control Violation.

Problem Identification and Resolution

- No color. The inspectors identified that operability determinations lacked sufficient engineering basis to support continuing operability calls. The licensee was able to show current system operability, given the plant conditions at the time of the inspection.

Cross-Cutting Issue: Human Performance

- No color. The inspectors identified errors in the majority of calculations reviewed. These errors, along with those discussed above, indicated that a human performance issue might exist, relating to the depth and adequacy of engineering reviews. The errors constitute a fourth example of the Non-Cited Violation.

Report Details

1. REACTOR SAFETY

Cornerstone: Mitigating Systems

1R21 Safety System Design and Performance Capability

Introduction

Inspection of safety system design and performance verifies the initial design and subsequent modifications and provides monitoring of the capability of the selected system to perform its design basis functions. As plants age, their design bases may be lost, such that an important design feature may be altered or disabled. The plant risk assessment model is based on the capability of the as-built safety system to perform its intended safety function successfully. This inspectable area verifies aspects of the mitigating systems and barrier integrity cornerstones for which there are no indicators to measure performance.

The objective of this safety system design and performance capability inspection was to assess the adequacy of calculations, analyses, other engineering documents, and operational and testing practices that were used to support the performance of the service water system during normal, abnormal, and accident conditions. The inspection was performed by a team of inspectors that consisted of a team leader, four Region IV specialist inspectors, and a contractor.

The service water system was selected for this inspection, based upon:

- having a high safety significant maintenance rule function;
- having a high risk achievement worth in the probabilistic risk assessment; and
- providing support to multiple mitigating systems.

Acceptance criteria used to determine the system's performance included:

- applicable site technical specifications;
- applicable sections of the Updated Safety Analysis Report;
- licensee responses and commitments to generic communications; and
- the system design basis document.

a. Inspection Scope

The following system and component inspection attributes were reviewed in detail:

System Needs

Process Medium - water
Energy Source - electrical power

Control System - initiation, control, and shutdown actions
Operator Actions - initiation, monitoring, control, and shutdown

System Condition and Capability

Installed Configuration - elevation and flowpath
Operation
Design - calculations and procedures
Testing - flowrate, pressure, temperature, voltage, and current

Components

Two components were chosen for detailed review: the service water pumps and the containment fan coolers. The service water pumps were chosen due to their high risk achievement worth in the licensee's probability risk assessment. The containment fan coolers were chosen based upon their design basis impact on the service water system's heat removal capability. The following attributes were reviewed for both of the chosen components:

Component Degradation
Equipment/Environmental Qualification - temperature (containment fan coolers) and vibration (service water pumps)
Equipment Protection - flood, missile and freezing (service water pumps)
Component Inputs and Outputs
Industry Operating Experience

b. Issues and Findings

During review of design calculations, the inspectors identified a Non-Cited Violation with multiple examples of design control deficiencies.

Service Water Pump Instrumentation Uncertainty Errors

During review of calculation 96-0246, “Minimum Inservice Test Acceptance Criteria for Service Water Pumps,” Revision 2, the inspectors identified that non-conservative instrument drift values were used in calculating the instrument uncertainty applicable to the minimum inservice test acceptance criteria for the service water pumps. As a result, the acceptance criteria used in the quarterly pump inservice test performance tests were non-conservative.

The licensee had defined a method for calculating instrument uncertainties in its design guide, DG-I01, “Instrument Setpoint Methodology." Revision 1 of the design guide was in effect when calculation 96-0246 was approved. In Section 3.3.4.3, “Drift,” the licensee listed three sources of information to use, in decreasing preference, for determining instrument uncertainties: statistical analysis of as-found/as-left calibration error, vendor drift data, and, when no other information was available, default values provided in DG-I01 Section 3.3.3.15. When vendor supplied drift values were used, they were to be linearly extrapolated for the nominal calibration period plus 25 percent.

Due to a lack of statistical data or vendor information at the time the calculation was prepared, the inspectors determined that the licensee should have used the DG-I01 default drift values for the pump discharge pressure, forebay level and service water flow instrumentation. The default values required to be used were 2.0 percent and 1.0 percent of full scale respectively, for transmitters and rack mounted equipment. However, based on an unsupported calculation assumption, calculation 96-0246, Revision 2, only used 0.5 percent of full scale. For the flow indicating transmitters, FIT-4459A/B, vendor data was available that supported drift values of ±0.25 percent of full scale for six months. When extrapolated for the one year calibration periodicity and adding 25 percent, the drift should have been ±0.625 percent of full scale, rather than the 0.5 percent used.

The licensee acknowledged the drift values used in the calculation were in error and initiated condition report 00-1404 to address this problem. The licensee provided evidence collected since the time the calculation was performed which demonstrated that the drift of the pump discharge pressure gages, installed in the 1998 time frame, was better estimated at 1.0 percent of full scale rather than the default procedural value of 2.0 percent. Analysis using the 1.0 percent gage drift value as well as empirical flow transmitter drift values resulted in an uncertainty of approximately 340 gallons per minute (gpm), significantly greater than the 228 gpm analyzed in the approved calculation. This raised the minimum acceptable flow rate from approximately 4500 gpm to slightly over 4600 gpm and resulted in the lower inservice test acceptance criteria being non-conservative. The inspectors confirmed that the latest inservice test results were sufficiently above the inservice testing minimum acceptance criteria to remain operable when the additional uncertainty was taken into account.

Since the pumps remained operable, the significance was low and this finding screened out as having very low risk significance (Green). However, the inspectors noted that the inservice testing acceptance criteria would have permitted operation with flows below the corrected minimum values. Therefore, the inspectors considered the fact that all six pumps were operable to be fortuitous. The inspectors noted that all six service water pumps were required by the licensee's probability risk assessment; failure of the service water pumps causes failure of other systems to achieve their safety function (such as auxiliary feedwater, two of the four diesel generators, and component cooling water). Therefore, the inspectors deemed that the uncertainty error could have resulted in a risk significant condition.

The failure to properly include instrument drift effects in the calculation of instrument uncertainty for instruments used to determine service water pump IST acceptance criteria is an example of a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." The violation is not minor because the failure to properly account for instrument drift was not isolated and potentially was of risk significance. However, because the licensee entered the issue into its corrective action program, this issue will not be cited in accordance with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-266/2000006-01a; 50-301/2000006-01a).

Service Water Temperature Uncertainty Errors

The inspectors noted other instrument drift related errors in calculations 98-0086, “Service Water and Circulating Water Inlet Temperature Indication Loop 1(2)T-3510 Instrument Uncertainty Calculation,” Revision 0, and 98-0100, “Service Water and Circulating Water Inlet Temperature Indication Instrument Uncertainty Calculation,” Revision 0. The instrument uncertainty values were used to calibrate a main control room temperature recorder and in a plant heat balance recorder located in the plant computer room. The latter instrument was used by the mechanical engineering design organization to justify operability of the service water system at elevated temperatures. Due to the small safety margins in the service water thermal-hydraulic analysis, an increase in temperature uncertainty would significantly impact system operability determinations.

Both of these calculations included assumptions that the digital equipment, including multiplexer and demultiplexers, plant process computer system, and recorders in the instrument loops had negligible drift because they were digital. This was invalid because the drift of the analog-to-digital and digital-to-analog converters was not considered. The licensee concurred that the calculations were incorrect and initiated condition report 00-1478 to address the issue. Preliminary licensee re-analysis of the calculations changed the uncertainty from ±1.78°F to ±4.5°F and from ±1.14°F to ±2.5°F, respectively. Based on the relatively cool service water inlet temperatures at the time of the inspection, the licensee concluded the service water system remained operable. However, the inspectors noted that lake temperatures have approached or exceeded the design maximum during previous warm weather seasons and that the incorrect uncertainty values impacted the licensee's ability to increase the design value due to the limited system margin available to accommodate the reduction in heat removal.

The licensee instrumentation and control (I&C) design supervisor stated the corrected service water temperature instrument uncertainty would be used in the ongoing re-analysis of the overall service water system. The supervisor also noted that the use of the plant heat balance recorder for determining service water temperature in operability determinations was not appropriate because it was not located in the control room and the operators did not use it.

The failure to properly calculate instrument uncertainty for the service water temperature is considered another example of a 10 CFR Part 50, Appendix B, Criterion III, "Design Control," violation. Because the system remained operable, the issue was determined to be of low risk significance (Green.) However, as above, this finding was of very low risk significance only because of the conditions that existed at the time of the inspection. Had the issue been identified during a time period when lake temperatures were higher, the risk significance would have been greater. Therefore the violation is not considered to be minor. Because the licensee entered the issue into its corrective action program, this issue will not be cited in accordance with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-266/2000006-01b; 50-301/2000006-01b).

Pump Net Positive Suction Head Error

During review of calculation P-89-037, "Minimum Recommended Service Water Pump Discharge Pressure to Prevent Cavitation," Revision 1, the inspectors noted that the methodology used to determine service water pump cavitation limits (net positive suction head) was fundamentally incorrect. The basic equation used to determine the available net positive suction head incorrectly concluded that the velocity head term and the pressure head term were independent of each other, rather than one decreasing as the other increased. This resulted in the available net positive suction head varying with pump flow rate, rather than remaining constant, as it should. The calculation appeared to conclude that the pumps would continue to operate even if the pump suctions were completely uncovered.

The licensee entered this issue in their corrective action program through condition report 00-1369 and performed an operability determination which concluded that there was sufficient level in the pump forebay to ensure adequate net positive suction head. Based on forebay level at the time of the inspection and the fact that service water pumps were running without cavitation, the inspectors confirmed that the pumps were operable and, therefore, the risk significance was very low (Green). However, the inspectors noted that forebay levels have previously decreased to the procedurally defined minimum level. When combined with the fundamental misapplication of a basic fluid flow equation, the inspectors believed that a credible potential to impact safety could exist. Therefore, this issue was determined to be more than minor and constituted a third example of a 10 CFR Part 50, Appendix B, Criterion III, "Design Control," violation. Because the licensee entered the issue into its corrective action program, this issue will not be cited in accordance with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-266/2000006-01c; 50-301/2000006-01c).

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed condition reports concerning service water design issues to verify that the licensee had an appropriate threshold for identifying design issues. The inspectors also evaluated the effectiveness of the corrective actions to the identified issues, including the engineering justification for operability, if applicable.

b. Issues and Findings

Condition Report 99-2628, Revision 1: The documentation in the operability determination did not provide sufficient information to allow verification of the operability bases. The operability determination stated that, “continuing review of this issue has concluded that at least 1.5 feet of conservatism is inherent in the manner currently used to account for service water pump inservice test uncertainty.” No further discussion was provided in the operability determination regarding the source of this conservatism, and when directly questioned, the preparer of the operability determination did not recall the specific basis for the statement. The preparer offered several plausible alternatives during discussion with the inspectors, but could not provide the explicit information. During this inspection, the inspectors identified errors in the licensee's uncertainty calculation methodology such that the conservatism might not have existed. Although the inspectors assessed that no operability concern existed, given the forebay levels at the time of the inspection, the licensee's basis for operability of the service water system was inadequately documented.

<u>Condition Report 00-0718, Revision 0</u>: The documentation in the operability determination did not provide sufficient information to allow verification of the operability bases. The operability determination stated that the AIRCOOL computer program was re-run using the cited larger outside diameter of the containment fan cooler tubes, and the heat transfer rate decreased in all cases but remained above the minimum design requirement. The referenced AIRCOOL runs were not attached to the operability determination, and the preparer of the operability determination stated that the runs had not been saved and had been overwritten in the computer files. Based on inspector questions, the licensee performed AIRCOOL runs using nominal and the larger tube sizes for the bounding cases of no tube fouling and extreme tube fouling. These runs contradicted the statement in the operability determination in that, for the case of extreme fouling, the heat transfer capability was greater with larger tubes than with nominal tubes. Additionally, the operability determination was done without consideration that the system was in a degraded condition at the time the issue was discovered, due to an isolated coil. The operability determination did not discuss the effects of actual versus nominal tube size on the previous operability determination. However, the isolated coil was repaired towards the end of the inspection and, therefore, did not require any further evaluation.

The inspectors also noted that both the original condition report runs and the confirmatory runs used a nominal flow rate, which was above the design minimum flow. To evaluate the impact of this greater flow, the inspectors reviewed the results of calculation 98-00172, "Containment Fan Cooler Service Water Acceptance Criteria," Revision 1, which contained runs at limiting flows and temperatures, and applied a five percent decrease to the most limiting heat transfer rates. This confirmed the operability determination conclusion that the heat transfer remained above the design basis minimum in all cases. Although the inspectors determined that no operability concern existed due to use of nominal tube sizes, the licensee's basis for this determination was inadequately documented.

<u>Condition Report 00-0746, Revision 0</u>: The documentation in the operability determination did not provide sufficient information to allow verification of the operability bases. The operability determination evaluated two different conditions: uninsulated piping and plugged tubes potentially above the allowable. Immediate operability was assured by lake temperatures being significantly below the design value and longer term operability by flushing the blocked tubes. However, the engineering evaluation that was performed contained some errors. For example, in evaluating the tube plugging issue, the operability determination erroneously interpreted an Institute of Electrical and Electronics Engineers (IEEE) standard methodology for calculating remaining qualified life if equipment was operated above its lifetime qualification temperature. The

operability determination reversed this method to claim an unrealistic increase in operating life for continuous operation below the qualification temperature.

The above problems are all examples where insufficient documentation existed to support the engineering basis for operability. Although the significance of each case was low because initial operability was obtained through the low lake temperatures, they displayed a pattern where the licensee appeared to be making operability determinations without sufficient engineering evidence to support the conclusions. When combined with the limited margin that apparently existed on the system, the lack of documentation to support the engineering basis increased the potential for the system being unable to meet its design basis function. The inspectors noted that, at the end of the inspection, the licensee entered a planned maintenance outage to repair a leaking containment fan cooler coil, which would regain some system margin.

4OA4 Cross-Cutting Issues

Human Performance Problems

a. Inspection Scope

The inspectors reviewed a number of calculations associated with service water system design parameters discussed in Section 1R21.

b. Issues and Findings

The inspectors found errors in the majority of design basis calculations reviewed. The most significant are discussed in Section 1R21, above. Others, that appeared to be attributable to deficiencies in the level of detail applied during the preparation and review process, included: (a) using the wrong insulation conductivity in calculation 98-00172 revised in April 2000; (b) obtaining an average temperature that was higher than all of the input temperatures in calculation TIN 2000-1061 performed in March 2000; (c) using the wrong pressure value for calculating a differential pressure in calculation N-92-087 revised in June 1999; and (d) using an incorrect water viscosity for the given temperature in calculation 97-0219 in February 1999. Because of the limited margin between design and operating conditions in the service water system, the licensee concluded that the errors could have a cumulative effect on the system operability that was not evaluated as part of the inspection. Each error was individually entered into the licensee's corrective action program and the licensee also wrote a combined condition report to evaluate the cumulative effects of the errors. The errors are considered another example of the 10 CFR Part 50, Appendix B, Criterion III, "Design Control," Non-Cited Violation (NCV 50-266/2000006-01d; 50-301/2000006-01d).

These deficiencies were of concern because they were present in a number of the calculations reviewed, and, along with the knowledge deficiencies discussed in Section 1R21 and the documentation deficiencies discussed in Section 4OA2, indicated a potential cross-cutting human performance issue. The issue pertained to the depth and adequacy of the review performed on calculations and other engineering documents, and to the licensee's ability to detect fundamental engineering misapplications.

4OA5 Other

.1 (Closed) Unresolved Item (URI) 50-266/96008-03; 50-301/96008-03: Design Basis Questions for Containment Integrity Analysis and the Service Water System. This unresolved item was opened due to a question regarding dose assumptions in a licensee 10 CFR 50.59 evaluation. The concerns were forwarded to the Office of Nuclear Reactor Regulation (NRR), who reviewed them as part of a pending license amendment request. NRR issued the license amendment in July 1997. This item is closed.

.2 (Closed) Inspection Followup Item (IFI) 50-266/96013-01; 50-301/96013-01: Containment Integrity Evaluation of Reduced Fan Coolers and Containment Spray Performance. This inspection followup item was opened to track a task interface agreement which requested that NRR review the issues discussed in the inspection report as part of a pending license amendment request. NRR issued the license amendment in July 1997. This item is closed.

.3 (Closed) URI 50-266/97002-02; 50-301/97002-02: Pre-Loss of Coolant Accident Containment Pressure Task Interface Agreement. This unresolved item was opened due to a question regarding the maximum containment pressure assumed in the licensee's accident analysis. The concern was forwarded to NRR, who reviewed it as part of a pending license amendment request. NRR issued the license amendment in July 1997. This item is closed.

.4 (Closed) Violation 50-301/97010-08: American Society of Mechanical Engineers (ASME) Code Qualification of Steam Generator Girth Weld Procedure. This violation was issued because the licensee had failed to use a Code qualified procedure when performing the girth welds on the replacement steam generators. In Inspection Report 97010, the inspectors concluded that, although originally the procedure was unqualified for this weld, the subsequent qualification weld and Charpy impact testing showed the weld procedure to be Code qualified. Therefore, this violation is closed.

.5 (Closed) Violation 50-301/98005-04: Failure to Maintain Accurate Permanent Plant Records. The violation concerned inaccurate plant weld records relating to the Unit 2 steam generator replacement project. The weld records were corrected and the licensee issued letter NPL 98-0598 on July 15, 1998, to document the review and correction of the records. The issue of inaccurate records resulted from the licensee's lack of control over the steam generator welding program; this generic issue was discussed in Inspection Report 50-266/99005; 50-301/99005 and the licensee wrote a condition report at that time. Therefore, this violation is closed.

.6 (Closed) URI 50-266/99012-01; 50-301/99012-01: Stroke Time Testing of Active Power Operated Valves in Both Directions. The unresolved item was opened to address a concern with valves having safety functions in both the open and closed position which the licensee only tested in one direction. The licensee submitted the question to the ASME Code Committee, which ruled that the valves did not have to be tested in both directions (ASME File OMI 99-07). The inspectors discussed the Code committee ruling with the cognizant regional motor operated valve inspector, who determined that no further action was necessary. This item is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. M. Reddemann, and other members of licensee management and staff, in an exit meeting on May 11, 2000. The licensee acknowledged the information and findings presented. The inspectors identified the proprietary information reviewed during the inspection and questioned the licensee as to whether proprietary information had been retained. The inspectors also discussed the potential for proprietary information to be included in the inspection report. The licensee confirmed that no proprietary information was retained at the completion of the inspection. The licensee concurred that the proposed inspection report content would not compromise any proprietary information.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Armstrong, Manager, Design Engineering
A. Cayia, Manager, Site Services & Assessment
C. Dresche, Electrical Engineer
F. Flentje, Senior Regulatory Compliance Specialist
V. Kaminskas, Maintenance Manager
J. Knorr, Manager, Regulation & Compliance
T. Kendall, Team Leader, Mechanical Analysis
B. O'Grady, Operations Manager
T. Martens, Mechanical Engineer
C. Peterson, Director, Engineering
L. Peterson, Manager, Engineering Processes
M. Reddemann, Site Vice President
M. Rosseau, Supervisor, I&C Design
D. Schoon, Manager, System Engineering
J. Schroeder, System Engineer, Service Water

NRC

F. Brown, Senior Resident Inspector
R. Powell, Resident Inspector
M. Kunowski, Project Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Opened and Closed During this Inspection

266/2000006-01 301/2000006-01	NCV	Multiple Examples of Design Control Issues

Previous Items Closed

266/96008-03 301/96008-03	URI	Design Basis Questions for Containment Integrity Analysis and the Service Water System
266/96013-01 301/96013-01	IFI	Containment Integrity Evaluation of Reduced Fan Coolers and Containment Spray Performance
266/97002-02 301/97002-02	URI	Pre-Loss-of-Coolant-Accident Containment Pressure Task Interface Agreement

301/97010-08	VIO	American Society of Mechanical Engineers (ASME) Code Qualification of Steam Generator Girth Weld Procedure
301/98005-04	VIO	Failure to Maintain Accurate Permanent Plant Records
266/99012-01 301/99012-01	URI	Stroke Time Testing of Active Power Operated Valves in Both Directions

Previous Items Discussed

None

LIST OF ACRONYMS USED

ASME	American Society of Mechanical Engineers
gpm	Gallons per Minute
IEEE	Institute of Electrical and Electronics Engineers
I&C	Instrumentation and Controls

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort.

<u>Calculations</u>

I&C Calc Book 5.3.2	Service Water Pressure Instrumentation Uncertainty Calculation, July 12, 1996
0870-018-002	Reactor Containment Fan Cooler Service water Outlet Temperature, May 17, 1991
96-0021	Service Water System Design Limitations, December 4, 1996
96-0059	Service Water Model Input Deck Updates, June 30, 1999
96-0059-03-A	Service Water Model Input Deck Updates, May 20, 1999
96-0059-03-B	Service Water Model Input Deck Updates, July 1, 1999
96-0059-04-A	Service Water Model Input Deck Updates, July 29, 1999
96-0059-04-B	Service Water Model Input Deck Updates, July 29, 1999
96-0117-02-B	Service Water Model Runs - Three Pump, Injection Phase, June 30, 1999
96-0103	Cooling of Recirculation Flow by Residual Heat Removal Heat Exchangers Post Loss of Coolant Accident, September 3, 1996
96-0143	Containment Fan Cooler Desired Flow v.s. Differential Pressure, July 12, 1996
96-0225	Minimum Service Water Flow Rate to One Spent Fuel Pool Heat Exchanger For Maintenance, October 10, 1996
96-0246	Minimum Inservice Testing Acceptance Criteria For Service Water Pumps, November 10, 1997
96-0261	Service Water System Design Limitations, December 4, 1996
97-0091	Hot-Smart-Short Over-Voltage Motor Operated Valve Stem Thrust & Torque, May 14, 1999
97-0126	Service Water System Limiting Conditions for Operation - Recirculation Phase, July 15, 1999
97-0219	Service Water Flow Orifice Sizing, February 16, 1999
98-0020	Containment Recirculation Fan Motor Cooler Service Water Flow Versus Temperature Requirements for Normal and Accident Modes of Operation, July 6, 1998
98-051	Heat Exchanger HX-55A/B Flow Requirements, December 16, 1998
98-0051-01-A	Service Water System Heat Exchanger HX-55A/B Flow Requirements, May 18, 1999
98-0051-01-B	Heat Exchanger HX-55A/B Flow Requirements, June 30, 1999
98-0086	Service Water and Circulating Water Inlet Temperature Indication Loop 1(2)T-03510 Instrument Uncertainty Calculation, March 8, 1998
98-0100	Service Water and Circulating Water Inlet Temperature Indication Instrument Uncertainty Calculation, July 7, 1998
98-0133	Service Water Containment Fan Cooler Flow Loop Uncertainties, Low Flow Alarm Setpoint, and Temperature Effect, September 29, 1998

98-0172	Containment Fan Cooler Service Water Acceptance Criteria, April 11, 2000
99-0032	Application of Uncertainty to Hydraulic Modeling of the Service Water System, June 7, 1999
99-0040	Thermal Expansion and Relief Valve Capacity for the Spent Fuel Pool, March 17, 1999
99-0052	Maximum Service Water System Pressures, May 12, 1999
99-0101	Operability Evaluation of Service Water Pump Column Intermediate Connections, October 7, 1999
FAI 96-88	Assessment of One Component Two-Phase Flow in the Point Beach Fan Cooler Service Water Flow, September 1996
FAI 98-55	Methodology for Determining Adequate Containment Fan Cooler Flow, June 15, 1998
N-91-016	Diesel Generator Loading Analysis, June 19, 1997
N-92-087	Service Water Computer Model Validation, June 23, 1999
N-92-100	Battery D-D05, D06, D105, D106, D305, 1D-205 & 2D-205 DC System Sizing Voltage Drop and Short Circuit Calculations, November 23, 1998
N-93-040	Estimation of Leak Rates in Non-Seismic Portions of the Service Water System, July 30, 1993
N-93-056	Battery D-D05 DC System Sizing Voltage Drop and Short Circuit Calculations, November 23, 1998
N-94-047	Emergency Diesel Generator - G01, 19G02 - Hx055A/B Service Water Flow Versus Temperature Requirement, May 4, 1994
N-95-059	Containment Cooling water Heat Exchanger HX-012A-D Service Water Flow Versus Temperature Requirement, April 28, 1999
N-94-064	Containment Fan Cooler Heat Exchanger HX-105A/B Service Water Flow Versus Temperature Requirement, May 26, 1994
P-89-009	Service Water Pump Motor Upper Bearing Life Calculation, March 9, 1989
P-89-037	Minimum Recommended Service Water Pump Discharge Pressure to Prevent Cavitation, July 7, 1992
P-90-0017	Motor Operated Valve Under-voltage Stem Thrust and Torque, May 14, 1999
P-92-030	Service Water Pump Bowls, December 21, 1992
P-94-004	Motor Operated Valve Overload Heater Evaluation, December 3, 1999
PB 89-031	Voltage Drop Across Motor Operated Valve Power Lines, January 10, 2000
TIN 2000-1061	Containment Air Recirculation Heat Exchanger 2HX-15D Thermal Performance Test Data Evaluation and Uncertainty Analysis, March 3, 2000
TIN 2000-1062	Containment Air Recirculation Heat Exchanger 1HX-15D Thermal Performance Test Data Evaluation and Uncertainty Analysis, March 3, 2000

<u>Condition Reports Generated From the Inspection</u>

00-1256	Error Identified in Calculation TIN 2000-1061 for Containment Fan Cooler Thermal Performance Test, April 19, 2000

00-1257	Modification Related Schematic Drawings Classified as Permanent Plant Drawings Were Not Updated for Subsequent Plant Modifications, April 18, 2000
00-1290	Schematic and Wiring Drawings for SW-2930A Does Not Show Revised Wiring from Modification MR-88-188*H, April 25, 2000
00-1369	Error Identified in Calculation P-89-037 for Service Water Pump Net Positive Suction Head Available, April 28, 2000
00-1404	Service Water Pump Inservice Test Acceptance Criteria Calculation Errors, May 4, 2000
00-1409	Error Identified in Calculation N-92-087 for Service Water Model Validation, May 4, 2000
00-1427	Errors in Flow Orifice Sizing Calculation, May 04, 2000
00-1478	Service Water Temperature Instrument Uncertainty Calculation Errors, May 10, 2000

Condition Reports Reviewed During the Inspection

96-0671	Repetitive Valve Failures
97-0914	Specified and Installed Equipment Does Not Match for Environmental Qualification Testing
97-1260	Temporary Modification Safety Evaluation Does Not Support Configuration
97-3766	Nonconservative Assumption Used in Inservice Testing Calculation 96-0246
98-0437	Service Water Orifice Plate Calculation Error
98-1533	Procedure and Calculation Assumptions Do Not Match
99-0971	Unit 1 Condenser Anomalies, April 5, 1999
99-1425	Biofouling Inspection Discrepancies Identified in Response to Generic Letter 89-13, Action 1, May 26, 1999
99-1672	Flow Restriction at Spent Fuel Pool Radiation Monitor Flow Indicator, July 1, 1999
99-1863	Service water Temperature Approached 75 Degree Limit, August 2, 1999
99-2081	Zebra Mussels Found in 1RE216, September 7, 1999
99-2085	Vacuum Control Tank Vacuum Low Alarms, September 7, 1999
99-2088	Zebra Mussels Found in Heat Exchanger HX-99, Safety Injection Pump Area Cooler, September 7, 1999
99-2089	Unit 1 Containment Fan Cooler Service Water Flow Was Found Low Out of Specification, September 7, 1999
99-2090	Service Water Cooling Flow to the 1P-29 Slightly Blocked, September 7, 1999
99-2102	Unit 1 Containment Fan Cooler Tubes Blocked, September 8, 1999
99-2103	Tube Blockage Due to Zebra Mussel Shells, September 8, 1999
99-2115	Procedural Noncompliance for Operability Determination, September 10, 1999
99-2138	Zebra Mussels Cause Foreign Material Exclusion Problem in Service Water System, September 13, 1999
99-2159	Pump 1P-41 Tripped Due to Zebra Mussels, September 19, 1999

99-2248	Ultrasonic Testing Flow Readings of Unit 2 Containment Fan Coolers Result in Safety and As-Low-As-Reasonably-Achievable Concerns, September 27, 1999
99-2250	Zebra Mussels Found Unexpectedly After Flush of Auxiliary Feedwater Pump Service Water Inputs, September 27, 1999
99-2256	Zebra Mussels Found in Vacuum Priming Pumps Drain Lines and Duo Check Valve, September 27, 1999
99-2492	Analysis Request for Accident Availability of Lake as Ultimate Heat Sink, October 22, 1999
99-2528	Reactor Trip Setpoint Nonconservative to Service Water Design Basis
99-2628	Service Water Flow Analysis Assumptions For Lowest Bay Level is Non-Conservative
99-2575	Zebra Mussel Buildup on Service Water Suction Piping, October 28, 1999
99-2628	Potentially Nonconservative Service Water Flow Analysis, November 1, 1999
00-0041	Incorrect Assumption on Lowest Possible Pump Bay Level Used for Operability Review of Zebra Mussel Attachment, January 05, 2000
00-0124	Service Water Pump Room Heat Load Assumptions in Error, January 10, 2000
00-0210	Emergency Diesel Generator Transient Calculation Not Reviewed and Approved in a Timely Manner
00-0267	Significant Amount of Silt in Seal and Baseplate Leakage, January 25, 2000
00-0718	Containment Fan Cooler Tube Dimensions Different than Analyzed, March 2, 2000
00-0739	Service Water Valve Open - Normally Locked Shut, March 03, 2000
00-0746	Operability of Motor Cooler Heat Exchangers Questioned, February 29, 2000
00-0824	Diesel Generator Heat Exchangers G-01 and G-02 Tube Plugging Limit, March 10, 2000
00-0848	Operability of Containment Fan Coolers Questioned with Respect to Two-Phase Flow, March 13 2000
00-0890	Ambiguous Licensing Basis for Containment Fan Coolers, March 16, 2000
00-1096	Operation of Service Water Overboard Valves Questioned - Probability Risk Assessment Concern
00-1120	Inconsistencies Between Calculation M-09334-301-SW, Revision 0, Calculation M-09334-301-SW, Revision 1, and the Operability Determination for Condition Report 96-478, Revision 4, April 5, 2000
00-1129	Service Water Flow to Diesel Generator Heat Exchanger G-01 May Be Less than Predicted by Flow Model, April 5, 2000
00-1348	Inappropriate Scheduling of IWP 98-024W Safety Injection Signal Removal from Unit 2 Turbine Hall Service Water Supply Valve SW-2880
00-1389	Safety Monitor Program Does Not Include Some Service Water Isolation Valves

<u>Correspondence to Licensee</u>

Fauske & Associates	Containment Fan Cooler Acceptance Criterion Methodology, September 20, 1999
Internal Memo	Zebra Mussel Treatment Plan - Status and Open Items, April 25, 2000
NRR	Safety Evaluation Related to Amendment Nos. 174 and 178, July 9, 1997
Westinghouse	Containment Analysis Assuming Reduced Fan Cooler Performance (WEP-97-522), May 29, 1997

Design Basis Document

DBD-12	Service Water System, Revision 1

Design Change Notice (Issued Due to Inspection)

2000-0975	Correct Service Water Pump Schematic Drawing Error, April 18, 2000

Drawings

Elementary Diagrams

ESK-6SWP01	480V Service Water Isolation Motor Operated Valves, Revision 4

Elementary Wiring Diagrams

499B466-60	Switch Development, Revision 5
499B466-303	480V Under-voltage Scheme, Revision 14
499B466-304	480V Under-voltage Scheme, Revision 12
499B466-311	480V Under-voltage Scheme, Revision 12
499B466-312	480V Under-voltage Scheme, Revision 12
499B466-342	1B03 Safeguard Sequence Bus Trips, Revision 13
499B466-357	Auxiliary Building Motor Control Center 1B31 [B43], Revision 9
499B466-358	Containment Fans 1W1A1 [1W1D1], Revision 18
499B466-359	Containment Fans 1W1B1 [1W1C1], Revision 18
499B466-364	Service Water Pumps P-032A, P-032B, and P-032C, Revision 19
499B466-394	Service Water Pumps P-032D, P-032D, and P-032F, Revision 18
499B466-577A	Containment Cooling Fan 1W-1A2, Revision 0
499B466-741	Spent Fuel Pool Heat Exchanger HX-13A Inlet SW-2927A, Revision 3
499B466-742	Spent Fuel Pool Heat Exchanger HX-13A Inlet SW-2927B, Revision 4
499B466-803A	Containment Recirculation Heat Exchanger HX 15A/D Emergency Flow Control Valve 1SW-2907, Revision 1
499B466-803B	Containment Recirculation Heat Exchanger HX 15A/D Emergency Flow Control Valve 1SW-2908, Revision 1
499B466-803C	Containment Recirculation Heat Exchanger HX 15A/D Emergency Flow Control Valve 2SW-2907, Revision 2
499B466-803D	Containment Recirculation Heat Exchanger HX 15A/D Emergency Flow Control Valve 2SW-2908, Revision 1
499B466-804A	Turbine Building Cooler Service Water Inlet 2SW-2880, Revision 3
499B466-804B	Turbine Building Cooler Service Water Inlet 2SW-2880, Revision 2
499B466-804C	Water Treatment Area Cooling Coil HX-79 Inlet SW-2817, Revision 4

499B466-804D	Service Building Air Conditioning HX-28A Chiller Inlet SW-2816, Revision 6
499B466-804E	Water Treatment Area Cooling Coil Inlet SW-4478, Revision 0A1
499B466-804F	South Service Building Chiller Inlet SW-4479, Revision 0
499B466-805A	South Header to Header SW-2870, Revision 2
499B466-805B	North Header to Header SW-2869, Revision 2
499B466-805C	South Header to North Header SW-2891, Revision 2
499B466-805D	North Header to South Header SW-2890, Revision 2
499B466-806	Diesel Generator G-01 Coolant Heat Exchanger HX-55A1/A2 Outlet Control SW-2839-S, Revision 13
499B466-818	Auxiliary Feedwater Pump Suction From Service water AF-4006, Revision 8
499B466-836A	Spent Fuel Pool Pit Heat Exchanger HX-13A Outlet SW-2930A, Revision 1
499B466-836B	Spent Fuel Pool Pit Heat Exchanger HX-13B Outlet SW-2930B, Revision 3
499B466-861A	Containment Recirculation Heat Exchanger 2HX-15A-D Emergency Flow Control Valve 2SW-2907, Revision 2
499B466-861B	Containment Vent Cooling Water Return, Revision 1
499B466-862	Service Water System Valves & Indicators 2CV-2838 & 2CV-2839, Revision 9

Flow Diagrams

SW1 - SW5	Service Water Flow Model, Revision 1

Logic Diagram

883D195-8	Safeguard System Logic Diagram, Revision 15

One-Line (Single Line) Drawings

541F143-1	480V One Line Diagram Unit 1, Revision 17
541F143-2	480V One Line Diagram Unit 2, Revision 18
6118 E-1	Station Connection, Revision 15
6118 E-5-1A	Turbine Building Ventilation Motor Control Center 1B11, Revision 2
6118 E-5-1B	Primary Auxiliary Building Motor Control Center 1B31, Revision 3
6118 E-5-2A	Primary Auxiliary Building Motor Control Center 1B32, Revision 3
6118 E-5-2B	Primary Auxiliary Building Motor Control Center 1B42, Revision 4
6118 E-5-3A	Turbine Building Ventilation Motor Control Center 1B41, Revision 1
6118 E-5-4B	Water Treatment Area 480 V Motor Control Center B22, Revision 2
6118 E-5-5A	Primary Auxiliary Building Motor Control Center B33, Revision 0
6118 E-5-5B	Primary Auxiliary Building Motor Control Center B43, Revision 1
6118 E-2005-2A	Primary Auxiliary Building Motor Control Center 2B32, Revision 6
6118 E-2005-2B	Primary Auxiliary Building Motor Control Center 2B42, Revision 5

Piping and Instrumentation Drawings (P&IDs)

M-207-1	Service Water Revision 52

M-207-1A	Service Water, Revision 14
M-207-2	Service Water, Revision 36
M-207-3	Service Water, Revision 47
M-207-4	Service Water, Revision 19
M-212-1	Circulating Water, Revision 54
M-212-2	Circulating Water, Revision 13
M-2009	Equipment Location Plan, Sections H-H & K-K
M-2207-1	Service Water, Revision 51
M-2207-2	Service Water, Revision 6
M-2207-4	Service Water, Revision
M-2212	Circulating Water, Revision 51

Schematic Diagrams

110E163-4B	Engineered Safety Feature Systems Train B SI Logic, Revision 3
110E163-7A	Engineered Safety Feature Systems Train A SI Logic, Revision 14
110E163-7B	Engineered Safety Feature Systems Train B SI Logic, Revision 11
110E163-12A	Engineered Safety Feature Systems Train A SI Logic, Revision 16
110E163-12B	Engineered Safety Feature Systems Train B SI Logic, Revision 13
110E163-2-7A	Engineered Safety Feature Systems Train A SI Logic, Revision 7
110E163-2-7B	Engineered Safety Feature Systems Train B SI Logic, Revision 9
110E163-2-10A	Engineered Safety Feature Systems Train A SI Logic, Revision 6
110E163-2-10B	Engineered Safety Feature Systems Train B SI Logic, Revision 5
110E163-2-12A	Engineered Safety Feature Systems Train A SI Logic, Revision 6
110E163-2-12B	Engineered Safety Feature Systems Train B SI Logic, Revision 6
12137 ESK-11A	Service Water Valves SW-LW-61 & -62, Revision 17
12703-ESK-6SWP01	Service Water Isolation Valves MOV 2930A & MOV 2930B, Revision 4

Modifications

97-081*A	Spent Fuel Pool HX-13A/B Isolation Valves SW-652/653 Modification
97-081*B	Addition of Safety Injection Logic to Spent Fuel Pool Heat Exchanger Inlet Motor Operated Valves SW-2927A/B
98-024*U	Modify Safety Injection Logic for Non-Essential Service water Load Isolation Valves
98-024*W	Disable Unit 2 Four-out-of-Six Service Water Isolation Logic

Operability Determinations

99-2180A	Containment Fan Cooler Tube Plugging Allowance Non-conservative with Respect to Two-phase Flow Licensing Requirements, March 13, 2000
99-2180B	Unit 2 "A" and "C" Fan Coolers Exceed Plugging Allowance (Originally 99-2083), September 03, 1999
99-2180C	Unit 2 Maximum Allowed Plugged Containment Fan Cooler Tubes (Originally 99-2086), September 04, 1999
99-2180D	Unit 1 Maximum Allowed Plugged Containment Fan Cooler Tubes (Originally 99-2102), September 04, 1999
99-2180E	Unit 2 Containment Fan Cooler Tube Leak (Originally 99-2210), September 21, 1999

99-2180F	Unit 1 Containment Fan Cooler Tube Leak (Originally 99-2186), September 18, 1999
99-2180G	Unit 1 Containment Fan Cooler Tube Leak (Originally 99-2235), September 30, 1999
99-2180H	Containment Fan Cooler Tube Leaks in Three Different Coolers (Originally 99-2269), September 27, 1999
99-2492	Potential for Simultaneous Closure of Circulating Water Valves 1CW-02 and 2CW-02, October 22, 1999
99-2628	Operation with One Intake Exceeds Minimum Forebay Level Assumption, November 2, 1999
00-0267	Significant Amount of Silt in Seal and Baseplate Leakage, January 28, 2000
00-0718	Containment Fan Cooler Tube Dimensions Different than Analyzed, March 2, 2000
00-0746	Operability of Motor Cooler Heat Exchangers Questioned, March 17, 2000

Probability Risk Assessment

Ranking of Systems by Fussell-Vesely, March 2000
Ranking of Components by Fussell-Vesely, March 2000
Ranking of Components by Risk Achievement Worth, March 2000

Procedures

AOP 9A	Service Water System Malfunction, July 12, 1999
AOP 13A	Circulating Water System Malfunction, September 29, 1997
DG-CO2	Nuclear Power Business Unit Design and Installation Guidelines, Important Flood Mitigation Features, Page 12, June 18, 1998
DG-I01	Instrument Setpoint Methodology, Revision 1 and Revision 2
EOP 0	Reactor Trip or Safety Injection, March 27, 2000
EOP 1.3	Transfer to Containment Sump Recirculation, March 27, 2000
ICP 6.42	Lake water Intake Surge Chamber Level Channels, March 3, 2000
MI 18.6	Instructions for Heater Element Selection For Westinghouse Motor Starters, January 12, 1989
OI 70	Service Water System Operation, February 25, 2000
OI 156(A, B, C, D)	Rydlyme Treatment of Unit 1 HX-15 (A, B, C, D) Containment Fan Cooler Coils, April 3, 2000
OI 157(A, B, C, D)	Rydlyme Treatment of Unit 2 HX-15 (A, B, C, D) Containment Fan Cooler Coils, April 3, 2000

Root Cause Evaluation

00-007	Unit 1 Manual Trip Due to Decreasing Fore Bay Level Root Cause Investigation (Condition Report 00-213) March 1, 2000

Surveillances

IT 07A	Service Water Pump P-32A (Quarterly), February 23, March 12, March 13, April 6, June 22, September 15, 1999 and February 16, 2000
IT 07C	Service Water Pump P-32C (Quarterly), January 21, April 7, June 22, September 15, 1999 and March 3, 2000
ORT 3A	Safety Injection Actuation with Loss of Engineered Safeguards AC Power (Train A) Unit 1, Revision 32 (November 23, 1999 test)
ORT 3B	Safety Injection Actuation with Loss of Engineered Safeguards AC Power (Train B) Unit 1, Revision 30 (November 23, 1999 test)
ORT 3C	Auxiliary Feedwater System and AMSAC Actuation, Unit 1, Revision 2 (November 18, 1999 test)
PC 24	Containment Inspection Checklist (Monthly) January through April 2000
TS-81	Emergency Diesel Generator G-01 (Monthly) Revision 57 (April 18, 2000 test)

Technical Specifications

15.3.3	Emergency Core Cooling System, Auxiliary Cooling Systems, Air Recirculation Fan Coolers, and Containment Spray, Amendments 180/190

Test Reports

WEP 246	Fan Cooler Motor Unit Test, Westinghouse, April 1972

Updated Final Safety Analysis Report Sections

6.3	Containment Air Recirculation Cooling System
7.3	Engineered Safety Features Actuation System
8.5	480 Volt AC Electrical Distribution System
8.6	120VAC Vital Instrument Power (Y)
8.8	Diesel Generator System
9.1	Component Cooling water
9.6	Service Water System