May 18, 2004

Mr. Daniel J. Malone
Site Vice President
Palisades Nuclear Plant
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT
NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY
INSPECTION REPORT 05000255/2004003(DRS)

Dear Mr. Malone:

On April 9, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed safety system design and performance capability inspection report documents the inspection findings, which were discussed on April 9, 2004, with Mr. P. Harden and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, this inspection focused on the design and performance capability of the auxiliary feedwater and emergency diesel generator systems to ensure that they were capable of performing their required safety related functions.

Based on the results of this inspection, one NRC-identified finding of very low safety significance (Green) was identified in the report. This finding was determined to involve a violation of NRC requirements. However, because the violation was of very low safety significance and because the issue was entered into your corrective program, the NRC is treating this finding as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades Nuclear facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Julio F. Lara, Chief
Electrical Engineering Branch
Division of Reactor Safety

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 05000255/2004003(DRS)
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
R. Fenech, Senior Vice President, Nuclear
Fossil and Hydro Operations
D. Cooper, Senior Vice President - Group Operations
Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel and Secretary
A. Udrys, Esquire, Consumers Energy Company
Director of Nuclear Assets, Consumers Energy Company
Supervisor, Covert Township
Office of the Governor
Michigan Department of Environmental Quality -
Waste and Hazardous Materials Division
Michigan Department of Attorney General

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	05000255/2004003(DRS)
Licensee:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	March 22, 2004 through April 9, 2004
Inspectors:	S. Burgess, Senior Reactor Analyst G. Hausman, Senior Reactor Inspector, Lead J. Neurauter, Reactor Inspector G. O'Dwyer, Reactor Inspector S. Sheldon, Reactor Inspector H. Walker, Senior Reactor Inspector
Observer:	K. Martin
Approved by:	J. Lara, Chief Electrical Engineering Branch Division of Reactor Safety

Enclosure

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SUMMARY OF FINDINGS

IR 05000255/2004003(DRS); 03/22/2004 - 04/09/2004; Palisades Nuclear Plant; Safety System Design and Performance Capability Inspection.

This report covers an announced biennial safety system design and performance capability inspection. The inspection was conducted by Region III inspectors. The inspection focused on the design and performance capability of the auxiliary feedwater (AFW) and emergency diesel generator (EDG) systems to ensure that the systems were capable of performing their required safety related functions. One Green Non-Cited Violation (NCV) of very low safety significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified for the failure to maintain the design basis configuration (i.e., physical separation) between Auxilliary Feedwater (AFW) system trains. Specifically, the licensee's facility change that converted the spare high pressure safety injection pump into the independent AFW train C was to be physically separated from the AFW trains A and B. However, the AFW trains' A and B common pump discharge header piping was routed through the west safeguards (WESG) room, where the AFW train C pump was located. The primary cause of this finding was that the licensee's facility change provided no engineering evaluation that demonstrated the as-built configuration was acceptable.

  This issue was more than minor because the lack of physical separation between the AFW trains' A and B common pump discharge header piping and the AFW train C pump affected the mitigating systems cornerstone objective. Specifically, a common pump discharge header piping break in the WESG room could potentially cause a failure of the AFW train C pump. As a result, the cornerstone objective of ensuring the availability, reliability, and capability of the AFW system to respond to initiating events was affected. The issue was of very low safety significance because it did not represent an actual loss of a safety function as determined by the licensee's subsequently documented engineering analysis. The issue was a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain the design basis configuration (i.e., physical separation) between AFW system trains. (Section 1R21.2b)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The plant operated at or near full power throughout the inspection period.

1. REACTOR SAFETY

Cornerstones: Mitigating Systems, Barrier Integrity

1R21 Safety System Design and Performance Capability (71111.21)

Introduction: Inspection of safety system design and performance capability verifies the initial design and subsequent modifications and provides monitoring of the capability of the selected systems to perform design basis functions. As plants age, the design bases may be lost and important design features may be altered or disabled. The plant's risk assessment model was based on the capability of the as-built safety system to perform the intended safety functions successfully. This inspectable area verifies aspects of the mitigating systems cornerstone for which there are no indicators to measure performance.

The objective of the 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 selected systems during normal, abnormal, and accident conditions.

The systems and components selected were the auxiliary feedwater (AFW) system and the emergency diesel generator (EDG) system. These systems were selected for review based upon:

- having a high probabilistic risk analysis ranking;
- having had recent significant issues; and
- not having received recent NRC review.

The criteria used to determine the acceptability of the system's performance was found in documents such as:

- applicable technical specifications;
- applicable updated safety analysis report (USAR) sections; and
- the systems' design documents.

The following system and component attributes were reviewed in detail:

System Requirements

Process Medium - water, air, electrical signal;
Energy Source - electrical power, steam, air;

Control Systems - initiation, control, and shutdown actions;
Operator Actions - initiation, monitoring, control, and shutdown; and
Heat Removal - cooling water and ventilation.

System Condition and Capability

Installed Configuration - elevation and flow path operation;
Operation - system alignments and operator actions;
Design - calculations and procedures; and
Testing - level, flow rate, pressure, temperature, voltage, and current.

Component Level

Equipment/Environmental Qualification - temperature and radiation; and
Equipment Protection - fire, flood, missile, high energy line breaks (HELBs), freezing, heating, ventilation and air conditioning.

.1 System Requirements

a. Inspection Scope

The inspectors reviewed the USAR, technical specifications, system descriptions, drawings and available design basis information to determine the performance requirements of the AFW and the EDG systems. The reviewed system attributes included process medium, energy sources, control systems, operator actions, and heat removal. The rationale for reviewing each of the attributes was:

Process Medium: This attribute required review to ensure that the selected systems' flow paths would be available and unimpeded during and following design basis events. To achieve this function, the inspectors verified that the systems would be aligned and maintained in an operable condition as described in the plant's USAR, technical specifications and design bases.

Energy Sources: This attribute required review to ensure that the selected systems motive and/or electrical source would be available and/or adequate and unimpeded during and following design basis events, that appropriate valves and system control functions would have sufficient power to change state when required. To achieve this function, the inspectors verified that the interactions between the systems and their support systems were appropriate such that all components would operate properly when required.

Controls: This attribute required review to ensure that the automatic controls for operating the systems and associated systems were properly established and maintained. Additionally, review of alarms and indicators was necessary to ensure that operator actions would be accomplished in accordance with design requirements.

Operations: This attribute was reviewed because the operators perform a number of actions during normal, abnormal and emergency operating conditions that have the

potential to affect the selected systems operation. In addition, the emergency operating procedures (EOPs) require the operators to manually realign the systems flow paths during and following design basis events. Therefore, operator actions play an important role in the ability of the selected systems to achieve their safety related functions.

Heat Removal: This attribute was reviewed to ensure that there was adequate and sufficient heat removal capability for the selected systems.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

a. Inspection Scope

The inspectors reviewed design basis documents and plant drawings, abnormal and emergency operating procedures, requirements, and commitments identified in the USAR and technical specifications. The inspectors compared the information in these documents to applicable electrical, instrumentation and control, and mechanical calculations, setpoint changes and plant modifications. The inspectors also reviewed operational procedures to verify that instructions to operators were consistent with design assumptions.

The inspectors reviewed information to verify that the actual system condition and tested capability was consistent with the identified design bases. Specifically, the inspectors reviewed the installed configuration, the system operation, the detailed design, and the system testing, as described below.

Installed Configuration: The inspectors confirmed that the installed configuration of the AFW and EDG systems met the design basis by performing detailed system walkdowns. The walkdowns focused on the installation and configuration of piping, components, and instruments; the placement of protective barriers and systems; the susceptibility to flooding, fire, or other environmental concerns; physical separation; provisions for seismic and other pressure transient concerns; and the conformance of the currently installed configuration of the systems with the design and licensing bases.

Operation: The inspectors performed procedure walk-throughs of selected manual operator actions to confirm that the operators had the knowledge and tools necessary to accomplish actions credited in the design basis.

Design: The inspectors reviewed the mechanical, electrical and instrumentation design of the AFW and EDG systems to verify that the systems and subsystems would function as required under accident conditions. The review included a review of the design basis, design changes, design assumptions, calculations, boundary conditions, and models as well as a review of selected modification packages. Instrumentation was reviewed to verify appropriateness of applications and set-points based on the required

equipment function. Additionally, the inspectors performed limited analyses in several areas to verify the appropriateness of the design values.

Testing: The inspectors reviewed records of selected periodic testing and calibration procedures and results to verify that the design requirements of calculations, drawings, and procedures were incorporated in the system and were adequately demonstrated by test results. Test results were also reviewed to ensure automatic initiations occurred within required times and that testing was consistent with design basis information.

b. Findings

Introduction: The inspection team identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” having very low safety significance (Green) for the failure to maintain the design basis configuration (i.e., physical separation) between AFW system trains. Specifically, the licensee’s facility change that converted the spare high pressure safety injection (HPSI) pump into the independent AFW train C was to be physically separated from the AFW trains A and B. However, the AFW trains’ A and B common pump discharge header piping was routed through the west safeguards (WESG) room, where the AFW train C pump was located. The licensee’s facility change provided no engineering evaluation that demonstrated the as-built configuration was acceptable.

Description: The inspectors reviewed the licensee’s documentation for facility change FC-516-2, “Modification to the Auxiliary Feedwater System in Response to NUREG-0737,” dated February 19, 1982. This facility change converted the spare HPSI pump into a third AFW pump (train C). The facility change design bases included guidelines set forth in NUREG-0737, "Clarification of TMI Action Plan Requirements," dated November 1980, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Chapter 10, “Steam and Power Conversion System,” Section 10.4.9, “Auxiliary Feedwater System (PWR),” dated July 1981, and BTP Auxiliary Systems Branch (ASB) 10-1, “Design Guidelines for Auxiliary Feedwater System Pump Drive and Power Supply Diversity for Pressurized Water Reactor Plants,” dated July 1981. The facility change was performed, in part, to minimize the effects of common mode failures and single failures on the existing AFW system. The licensee’s safety evaluation associated with the facility change indicated that “by adding a third auxiliary feedwater pump which is located in a separate room, these single failure modes identified in the study are eliminated, and the system reliability is increased.” The conceptual design associated with the facility change also indicated “separation of discharge lines from each AFW pump.” In a letter to the NRC on November 2, 1981, the licensee stipulated that “this modified design incorporates a third AFW pump in a location which is physically separate from the existing pumps which are to be retained as-is.”

To determine if the lack of AFW train separation in the WESG room had been previously identified as part of the original facility change process, the inspectors reviewed associated correspondence from the licensee to NRR, correspondence from NRR to the licensee, and requested any other documentation that evaluated the lack of physical separation in the WESG room. The licensee could not identify or provide any

engineering evaluation that demonstrated that the lack of physical separation was acceptable. As a result, on April 8, 2004, the licensee initiated CAP041023, "AFW HELB Licensing Issue."

Subsequent to this inspection, the licensee completed a follow-up engineering analysis EA-CAP041023-01, "Documentation of the Design and Licensing Bases for the Auxiliary Feedwater System as it Relates to Train Separation and Potential Piping Failure," dated April 22, 2004. This engineering analysis stated that NUREG-0800, BTP MEB 3-1, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment," classified moderate energy systems as those systems which were "high energy" less than 2 percent of the time the system was in operation or were "high energy" less than 1 percent of the total plant operating time. Although the licensee had not administratively prohibited using AFW trains A and B for startup and shutdown activities, AFW train C had been dedicated historically by the licensee for these activities. The licensee's review of past usage of AFW trains A and B as documented in the engineering analysis confirmed that this subsystem would have met the definition of "moderate energy" based on time used. As a moderate energy subsystem with pipe stress less than the MEB 3-1 acceptance limits, line breaks and cracks of the AFW trains A and B common pump discharge header piping located in WESG room would not need to be postulated for this section of piping. Therefore, based on low past usage of the AFW trains A and B, the licensee concluded that the AFW system would have been operable with the lack of physical separation in the WESG room.

Analysis: The inspection team determined that failing to provide a necessary engineering analysis was a licensee performance deficiency warranting a significance evaluation. The licensee failed to maintain the specified design basis configuration for AFW train separation in the WESG room as demonstrated by not evaluating the lack of physical separation in facility change FC-516-2 for acceptability. The inspection team concluded that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on April 29, 2002, because the potential to affect the AFW system's design basis function (i.e., degradation of decay heat removal during emergency and shutdown operations) affected the mitigating systems' cornerstone objective. Facility change FC-516-2 specified that the new independent AFW pump (train C) was to be physically separated from the AFW trains A and B to increase AFW system reliability from single failures of the existing AFW system. The AFW trains A and B common header discharge piping was routed through the WESG room where the AFW train C pump was located. The impact of this lack of physical separation between the AFW trains was not evaluated to demonstrate acceptance. As a result, the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of the AFW system to respond to initiating events was affected.

The inspection team processed the finding through Phase I of the NRC's significance determination process. The inspectors concurred with the licensee's operability position that with the lack of AFW subsystem separation in the WESG room that the AFW system would have performed its safety function. The historical usage of the AFW trains A and B met the criteria for a "moderate energy" system, and the maximum piping stress was less than MEB 3-1 acceptance limits. The inspectors determined that line

breaks and through wall cracks for the AFW trains A and B common discharge header piping inside the WESG room need not be postulated for the system operability determination. The inspectors concluded that the finding was a performance deficiency that did not represent an actual loss of a safety function of a safety-related system. Therefore, this finding screened out and was considered to be of very low safety significance (Green).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from 1982 until April 22, 2004, the design basis of the AFW system was not correctly maintained, in that, the physical separation of the AFW trains' A and B common discharge header piping from the AFW train C pump was not maintained and the acceptability of this configuration was not demonstrated in facility change FC-516-2. As a result, the potential existed for AFW system operability concerns due to a failure of the AFW trains' A and B common discharge header piping in the WESG room. The licensee subsequently implemented appropriate corrective actions to address this violation. The licensee performed an analysis of the AFW system to demonstrate that the existing configuration was acceptable, notwithstanding the physical separation between redundant AFW trains. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program (CAP041023), this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy.
(NCV 05000255/2004003-01(DRS))

.3 Components

a. Inspection Scope

The inspectors examined the AFW and EDG systems' associated pumps, heat exchangers and instrumentation to ensure that component level attributes were satisfied.

Equipment/Environmental Qualification: This attribute verifies that the equipment was qualified to operate under the environment in which it was expected to be subjected to under normal and accident conditions. The inspectors reviewed design information, specifications, and documentation to ensure that the AFW and EDG systems were qualified to operate within the temperatures and radiation fields specified in the environmental qualification documentation.

Equipment Protection: This attribute verifies that the AFW and EDG systems were adequately protected from natural phenomenon and other hazards, such as HELBs, floods or missiles. The inspectors reviewed design information, specifications, and documentation to ensure that the systems were adequately protected from those hazards identified in the USAR, which could impact the systems ability to perform their safety function.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

.1 Review of Condition Reports

a. Inspection Scope

The inspectors reviewed a sample of problems associated with the AFW and EDG systems that were identified and entered into the corrective action program by the licensee. The inspectors reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions related to design issues. In addition, condition reports written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problem into the corrective action system. The specific corrective action documents that were sampled and reviewed by the team are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. P. Harden and other members of licensee management at the conclusion of the inspection on April 9, 2004. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

No interim exits were conducted.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
G. Baustian, Training Manager
J. Broschak, Design Engineering Manager
R. Brzezinski, I&C/Electrical Design Supervisor
M. Carlson, Engineering Director
E. Chatfield, Performance Improvement Supervisor
M. Coddington, Design Engineering (Shadow)
B. Dotson, Regulatory Compliance
D. Fitzgibbon, Balance of Plant Supervisor (Shadow)
E. Halverson,Design Engineering
B. Hamm, Electrical Design
P. Harden, Director Plant Operations
G. Hettel, Plant General Manager
G. Higgs, Maintenance Manager
D. Kennedy, Design Engineering (Shadow)
J. Kingseed, Engineering Programs Manager
L. Lahti, Regulatory Affairs Manager
D. Malone, Regulatory Compliance Supervisor
R. Margol, Chemistry Supervisor
S. Oakley, Operations (Shadow)
B. Rash, System Engineering Manager
R. Remus, Assistant Plant General Manager
J. Schepers, Nuclear Oversight
T. Steffler, Operations (Shadow)
A. Stover, Nuclear Oversight Manager
D. VandeWalle, Assistant Operations Manager
B. VanWagner, Reliability Supervisor
S. Wawro, Asset Manager (Consumers Energy)
R. Werdann, Scheduling Manager
D. Wilson, Vice President Nuclear Assessment

Nuclear Regulatory Commission
J. Lennartz, Senior Resident Inspector
M. Garza, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000255/2004003-01(DRS)	NCV	Failure to Maintain AFW Design Basis Physical Separation (Section 1R21.2b)

Closed

05000255/2004003-01(DRS)	NCV	Failure to Maintain AFW Design Basis Physical Separation (Section 1R21.2b)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

CALCULATIONS

Number	Title or Description	Date or Revision
001-AS95-C-005	Palisades Best Estimate AFW Design Bases Analysis Using PC Based Computer Code	0
AUXF-001	AFW System Postulated Break Points Calculation Using Mechanistic Approach	0
AUXF-002	First Level Structural Evaluation of Pipe Rupture Targets Assoc with AFW System	0
Bechtel Letter	EDG Room HVAC Evaluation Containing M-001, EDG Room HVAC, Revision 0	March 20, 1992
E48-EMA-3	Auxiliary Pump Environmental Qualification	June 23, 1998
EA-A-NL-92-121-01	EDG Min Run Time Belly/Day Tank Oil Supply	0
EA-A-PAL-94-095	AFW Pumps Net Positive Suction Head	0
EA-AFW-CA016278	Analysis of AFW System Parameters When Cross-Connected to the FPS Using Pipe-Flo	1
EA-AIR-92-036-01	Dynamic Response of EDGs to Simultaneous Start of the Two Largest Motors	0
EA-BWH-97-001	Evaluation of P-8A/B/C Full Flow Data and Establishment of P-8A/B IST Reference Values/Acceptance Limits	0
EA-C-PAL-95-0053B-01	Incorporate Higher AFW Pump Low Suction Pressure Trip Setpoint into T-2/T-81 Inventory Calcs Using RETRAN Program	2

CALCULATIONS

Number	Title or Description	Date or Revision
EA-CAP041023-01	Documentation of the Design and Licensing Bases for the AFW System as it Relates to Train Separation and Potential Piping Failure	April 22, 2004
EA-CPCo/PAL-JWC-95-01	Acceptability of Removing the AFW System MOVs from the GL89-10 Program	1
EA-CPCo/PAL-M00748-01	Thrust/Torque Calculations for AFW System MOV MO-0748	0
EA-CPCo/PAL-WLAAUXFW-01	Determine Maximum Allowed Thrust for AFW MOVs MO-0748, 0754, 0755, and 0759	0
EA-CPCo/PAL-WLAAUXFW-02	Determine Maximum Allowed Thrust for AFW MOVs MO-0743, 0753, 0798, and 0760	0
EA-D-PAL-83-217	Determine EDG Total Day Tank Capacity	December 22, 1983
EA-D-PAL-93-272F-0	Engineered Safeguards Room Heatup Following LOCA in Conjunction with a LOOP	14
EA-DTE-797-01	Mobil DTE-797 Degradation Related to Loss of Ventilation in AFW Pump Room	0
EA-E-PAL-89-011-01	Evaluate EDG Load Profile After An Accident	1
EA-E-PAL-91-016J	Determine EDG Room Heat Load/Rejection	October 9, 1991
EA-E-PAL-92-40-1	Environmental Review of EDG Components	June 24, 1992
EA-ELEC-LDTAB-005	EDG 1-1 and 1-2 Steady State Loadings	7
EA-F-AFW-870220	Expected Runout Flowrate from P-8A to a Depressurized Steam Generator	March 13, 1987
EA-FC-789-01	Theoretical Flow Conditions for AFW Flow Control Bypass Valves	0
EA-FC-954-02	LP Suction Trip on AFW Setpoint Change	3
EA-FC-954-03	AFW Pump Minimum Intake Submergence Requirements and Suction Line Hydraulic Losses Using Pipe-Flo	0
EA-FC-958-04	Size and Provide Instrument Levels for Diesel Fuel Oil Tank T-10 Replacement (T-10A)	2
EA-FC-966-05	Overpressure Protection of K-8 Turbine Driver with Relief Valves RV-0521A and B	1
EA-GAW-89-EQ-1	Instrument Loop Error Evaluations for EEQ Listed Transmitter Loops	1
EA-GFP-96-01	Owners Review ABB/CE AFW Design Bases Analysis 001-AS95-005	0
EA-A-NL-92-337-01	EDG Fuel Oil Requirements for DBA	2
EA-PIPEFLO-AFW-01	AFW System Hydraulic Model	0
EA-SC-86-032-02	AFW Isolation Valve Stem Stress	1
EA-SC-90-083-01	Change K-8 Turbine to Class II (675psi/650°F)	1
EA-SC-91-107-02	EDG Air Start Motor Changeout Qualification	0
EA-SC-92-127-01	Engineering Considerations for Removal of Control Transfer Relays for AFW System	1
EA-SC-96-051-01	Fuel Oil Transfer Pump P18A/B Replacement	2

CALCULATIONS

Number	Title or Description	Date or Revision
EA-SC-96-051-02	T-25A & B Fuel Oil Day Tank Vent Piping Overflow Pressure vs Tank Design Pressure	1
EA-SP-03342-001	AFW Discharge Piping	1
EA-SP-05904-001	Pipe Stress Analysis for AFW Piping	4
EA-SP-07003-001	K6A and K6B Exhaust Piping	1
EA-T-343-01	Determine Fuel Consumption Rate for EDGs	0
EA-T-343-03	Determine Fuel Oil Transfer Pump Rates to EDG Day Tanks	0
EMF-2845	Palisades Loss-of-Normal FW Flow Analysis	0
M2(Q)	HPI Pump Application for AFW NPSH	1
SS-218	AFW Nozzle	October 16, 1981

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED DURING INSPECTION

Number	Title or Description	Date or Revision
CAP040752	SOP-12 FW System Incorrectly Identifies AFW Discharge Pressure Indicator	March 25, 2004
CAP040765	Attachments Missing from Microfilmed Calculation (RFI-96)	March 25, 2004
CAP040774	Thermocouple Conduit Connection Loose on EDG K-6A (RFI-101)	March 25, 2004
CAP040775	Error in NRC SDP for Palisades (RFI-82)	March 25, 2004
CAP040777	Error Discovered in EA-C-PAL-95-1526-01; Revision 2; Internal Flooding Evaluation (RFI-97)	March 25, 2004
CAP040792	FSAR Incorrectly Referenced in Surveillance Test QO-21 Basis Document	March 26, 2004
CAP040800	Discrepancy Noted in Fuel Oil Storage Tank T-10A Indicated Level (RFI-76)	March 26, 2004
CAP040810	Evaluate Supporting Design Criteria for AFW Pump Discharge Piping Not Found (RFI-115)	March 26, 2004
CAP040841	Unresolved Questions Identified in Work Order Summary Notes	March 29, 2004
CAP040842	WO Steps May Have Been Performed in Non-Preferred Sequence	March 29, 2004
CAP040848	AFW Pumps Low Suction Setpoints in EA-FC-954-02 Is Different from IPI Cal Sheet (RFI-112)	March 29, 2004
CAP040905	Calculations Related to ESF Room Heatup Not Linked in RecTrack or CalcXRef (RFI-116)	April 1, 2004
CAP040918	Enhancements to Calibration of AFW Suction Pressure Transmitters (RFI-105)	April 2, 2004
CAP040932	Transient Conditions in DG Room HVAC Calculations Not Identified (RFI-126)	April 5, 2004
CAP040945	RT-8C/8D Do Not Adequately Test Load Shed Contacts Assoc with Blocking IA Compressors	April 5, 2004

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED DURING INSPECTION

Number	Title or Description	Date or Revision
CAP040957	Special Instructions in SOMS Not Supported Within Operating Instructions (RFI-126)	April 6, 2004
CAP040962	Misleading and Incorrect FSAR Statement (RFI-125)	April 6, 2004
CAP040963	DBD Historical Reference Calculation Not Reviewed or Approved (RFI-138)	April 6, 2004
CAP040972	EA-SC-86-032-02 Revision 1 Status Should Be Changed to Historical (RFI-55)	April 6, 2004
CAP040987	EDG Day Tank Level Gauges Have Unapproved Tags (RFI-143)	April 7, 2004
CAP041002	Technical Specification Surveillance Test Missed	April 7, 2004
CAP041011	Room Temperature May Limit Personnel Access to AFW Room During Station Blackout (RFI-156)	April 8, 2004
CAP041014	Effects of Max EDG Electrical Load Not Accounted for in EDG HVAC Design Basis Calculations (RFI-151)	April 8, 2004
CAP041021	Loose Items Noted in ESF Rooms During Walkdown Contrary to Admin 1.01 (RFI-157)	April 8, 2004
CAP041023	AFW HELB Licensing Issue (RFI-162)	April 8, 2004
CAP041031	Failure to Consider EA-E-PAL-92-044 in Operability Determination OPR000055 (RFI-160)	April 9, 2004

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED PRIOR TO INSPECTION

Number	Title or Description	Date or Revision
ACE002899	EDG Failed to Shutdown When Overspeed Actuated	January 27, 2003
ACE003065	Failure of PS-0706 Power Supply to AFW Sensor Channel SCB-187B	May 16, 2003
APAL0200351 (OTH003077)	DBD 4.02 Enhancement (125Vdc System)	May 16, 2002
CA019669	Update MSLB Containment Response Analysis to Increase Operator Action Time to Isolate AFW from 10 to 30 Minutes	May 12, 2003
CA019783	AFW HELB DBD and EA Updates	May 16, 2003
CA020849	Create PPAC's to Inspect and Replace Diesel Engine Instrumentation Hoses	August 22, 2003
CA022932	2" AFW Pump P-8A and B Recirc Piping Not Analyzed	February 9, 2004
CA022950	2" AFW Pump P-8A and B Recirc Piping Not Analyzed	February 10, 2004
CA023519	Pre-NRC SSDI HELB Analysis and AFW Room	March 16, 2004
CAP029175	Reset of EDG 1-2 Annunciator Panel Causes Start Circuit Breaker 72-407 Trip	March 23, 2002
CAP030948	Auto Test Function Not Operating on AFW Actuation System	August 17, 2002
CAP032454	Evaluation for Potential AFW Pump Recirc Line Blockage	December 12, 2002
CAP033090	EDG Failed to SD When Overspeed Actuated	January 24, 2003

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED PRIOR TO INSPECTION

Number	Title or Description	Date or Revision
CAP033333	K-6A Cylinder 9L Is Making Different Noise than Other Cylinders	February 7, 2003
CAP033503	Licensing Basis Requirements of HELB Outside Containment	February 19, 2003
CAP033959	Pipe Blockage of FPS to AFW System Cross-Tie	March 13, 2003
CAP034101	Pipe Blockage of FPS to P-8A/B AFW Cross-Tie	March 17, 2003
CAP034157	Pipe Blockage of SW System to P-8C AFW System Cross-Tie	March 18, 2003
CAP034160	AFW Instrumentation B/U P/S-0727A Failed Test	March 18, 2003
CAP034212	Power Supply from Storeroom Failed Testing	March 19, 2003
CAP035716	Failure of PS-0706 Power Supply to AFW Sensor Channel SCB-187B	May 15, 2003
CAP036767	Damaged Wire Found During Troubleshooting EDG	July 24, 2003
CAP036771	EDG K-6A Jacket Water Hose Failure	July 24, 2003
CAP036974	Failure to Perform ATWS Steam Driven AFW Pump Test RPS-I-10	August 6, 2003
CAP037132	EDG Local Volt Meter EVI-1107L Reads 75V Low	August 19, 2003
CAP038697	Expected Overcurrent Alarm Not Received During RO-128-2	November 19, 2003
CAP037405	Human Factors for Manual Operation AFW CV-0522B	September 7, 2003
CAP039184	P-8B AFW Pump Maintenance Effect on P-8A	December 22, 2003
CAP039537	No PM Done for Coupling Alignment P-905A/B	January 20, 2004
CAP039864	2" AFW Pump P-8A and B Recirc Piping Not Analyzed	February 6, 2004
CAP040182	Weaknesses Found in Evaluation of Point Beach AFW Recirc Line Fouling	February 25, 2004
CAP040318	Pre-NRC SSDI HELB Analysis and AFW Rm	March 2, 2004
CAP040319	Pre-NRC SSDI HELB Analysis and Line Break Clarity	March 2, 2004
CAP040320	Pre-NRC SSDI DBD 7.08 Clarity of AFW Room Ground Water in Leakage	March 2, 2004
CAP040321	Pre-NRC SSDI SW NPSH Lineup to AFW	March 2, 2004
CAP040322	Pre-NRC SSDI EOP Supplement 19 Enhancement	March 2, 2004
CAP040323	Pre-NRC SSDI Special Report #6 Updates	March 2, 2004
CAP040324	Pre-NRC SSDI EEQ MEL Changes/Equipment Database Discrepancies	March 2, 2004
CAP040325	Pre-NRC SSDI R%B Spray PH Considerations	March 2, 2004
CAP040326	Pre-NRC SSDI AFW Room Temperatures	March 2, 2004
CAP040327	Pre-NRC SSDI AFW Room Classification Documentation	March 2, 2004
CAP040328	Pre-NRC SSDI Installation Standards/AFW Sump Pump	March 2, 2004
CAP040329	Pre-NRC SSDI MLSB Assumptions and Operating Practices	March 2, 2004
CAP040330	Pre-NRC SSDI SOP-12 Consistencies	March 2, 2004

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED PRIOR TO INSPECTION

Number	Title or Description	Date or Revision
CAP040331	Pre-NRC SSDI DBD Not Reflecting Current Operating Practices	March 2, 2004
CAP040332	Pre-NRC SSDI EDG 24 Hour Overloading Documentation	March 2, 2004
CAP040333	Pre-NRC SSDI FSAR/DBD EDG Rating vs Vendor Specification	March 2, 2004
CAP040335	Pre-NRC SSDI FSAR Clarity of Fuel Transfer System Controls	March 2, 2004
CAP040336	Pre-NRC SSDI FSAR Statements and Procedure Guidance	March 2, 2004
CAP040337	Pre-NRC SSDI AFW Pump Lubricant Qualification Documentation	March 2, 2004
CAP040338	Pre-NRC SSDI FSAR/DBD EDG Rating vs Vendor Specification	March 2, 2004
CAP040348	Pre-NRC SSDI EDG Overload Capacity Documentation	March 3, 2004
CAP040351	Agastat Relay Test Failure During Diesel Control Circuit Calibrations	March 3, 2004
CAP040404	Pipe Hanger Possibly Missing	March 5, 2004
CAP040777	Error Discover in EA-C-PAL-95-1526-01	March 25, 2004
CE002858	Eval for Potential AFW Pump Recirc Line Blockage	December 13, 2002
CE003788	Licensing Basis Requirements of HELB of AFW Outside Containment	February 21, 2003
CE004173	Pipe Blockage of FPS to AFW System Cross-Tie	March 16, 2003
CE004356	Pipe Blockage of SW System to P-8C AFW System Cross-Tie	March 20, 2003
CE008794	2" AFW Pump P-8A & B Recirc Piping Not Analyzed	February 9, 2004
CE009153	Pre-NRC SSDI AFW Room Temperatures	March 3, 2004
CE009174	Pre-NRC SSDI HELB Analysis and AFW Rm	March 3, 2004
CPAL9400500	Fuel Oil Analysis Not Implemented in Procedures	July 5, 1994
CPAL9600725	Day Tank Level Alarm Setpoint Calculation in Error	July 3, 1996
CPAL9600837	Fuel Oil System Documentation Errors	July 29, 1996
CPAL9701309	FSAR Clarification	September 24, 1997
CPAL0201167	Local Frequency Indication on EDG 1-2 Failed	March 23, 2002
CPAL0201722 (CAP030097)	Class 3 Boundary on PID-208-1A Does Not Match EGAD-ISI-01	May 1, 2002
CPAL0201724 (CAP030197)	Incorrect Q-List Interpretation for Instrument Air Compressor Cooling Valves	May 1, 2002
CPAL0201725 (CAP030483)	IST Database Does Not Contain Class 3 Valves SV-0801 and SV-0803	May 1, 2002
CPAL0201732 (CAP030518)	Equipment Oil Level Monitoring Standard Lacks Detail	May 2, 2002
CPAL0201738 (CAP016514)	Wrong Procedure Referenced in SOP-15	May 2, 2002

CORRECTIVE ACTION PROGRAM (CAP) DOCUMENTS ISSUED PRIOR TO INSPECTION

Number	Title or Description	Date or Revision
CPAL0201740 (CAP029211)	SSD and PC Inspection Identifies Bent Instrument Tubing Associated with BS-1318 Delta P Switch	May 2, 2002
CPAL0201744 (CAP030054)	DBD 1.02 SW System Flow Rate Totals Incorrect in 2 Tables	May 2, 2002

DRAWINGS

Number	Title or Description	Date or Revision
3821-1004 Shts 1-3	Sensor SCA, SCB, SCC, SCD Wiring Diagram	A
3821-1005 Sht 1	Actuation ACA, ACB Wiring Diagram	A
3821-1005 Shts 2-3	Actuation ACA, ACB Wiring Diagram	B
3821-1005 Sht 4	Actuation ACA, ACB Wiring Diagram	5
E-1 Sht 1	Single Line Meter & Relay Diagram 480V MCC - Warehouse	BS
E-3 Sht 1	Single Line Meter and Relay Diagram 2400V System	49
E-136 Sht 1	Schematic Diagram 2400V and 4160V Bus Transfer	29
E-136 Sht 1A	Schematic Diagram 2400V and 4160V Bus Transfer	5
E-136 Sht 2	Schematic Diagram 2400V and 4160V Bus Transfer	29
E-137 Sht 1	Schematic Diagram 2400V and 4160V Bus UV and Load Shedding	25
E-137 Sht 2	Schematic Diagram 2400V and 4160V Bus UV Load Shedding	20
E-137 Sht 2A	Schematic Diagram 2400V and 4160V Bus UV and Load Shedding	6
E-139 Sht 1	Schematic Diagram EDG Breakers	34
E-196 Sht 1	Schematic Diagram Motor Driven AFW Pump	14
E-196 Sht 2	Schematic Diagram Motor Driven AFW Pump	10
E-196 Sht 3	Schematic Diagram Motor Driven AFW Pump	4
E-209 Sht 2	Schematic Diagram Safety Injection and Sequence Loading Circuit No 1	30
E-209 Sht 2A	Schematic Diagram Safety Injection and Sequence Loading Circuit No 2	3
E-209 Sht 3	Schematic Diagram Safety Injection and Sequencer Loading Circuits	25
E-209 Sht 3A	Schematic Diagram Safety Injection and Sequencer Loading Circuits	30
E-209 Sht 4	Schematic Diagram Safety Injection and Sequence Loading Circuits	30
M-205 Sht 2	P&ID Main Steam and Auxiliary Turbine Systems	64

DRAWINGS

Number	Title or Description	Date or Revision
M-207 Sht 2	P&ID AFW System	34
M-214 Sht 1	P&ID Lube Oil, Fuel Oil and EDG Systems	68
M-220 Sht 1	P&ID Make-Up Domestic Water and Chemical Injection Systems	81
M-398 Sht 34	Diesel Oil Storage Tank T-10A Level Settings	7
VEN-M-12 Sht 98(1)	Schematic Diagram Engine Control EDG 1-1	29
VEN-M-017-0041	AFW Mini Flow Valves RO-0783A and B	B
VEN-M-035-0001	Straight Thru Sinlex Strainer Multi-Basket Type	3
VEN-M-101-2716	Stress Isometric AFW Discharge	2
VEN-M-101-2761	Stress Isometric 03356 AFW Pump Suction	6
VEN-M-101-2939	AFW Mod Auxiliary Building	8
VEN-M-101-2977-1	Phase II Mod Discharge Line from AFW Pumps P-8A and B	12
VEN-M-101-2978-2	Phase II Mod Suction Line for AFW Pump P-8C	11
VEN-M-101-5564	Phase II Mod Suction Line for AFW Pump P-8C	3
VEN-M-101-5582	Phase II Mod Discharge Line for AFW Pump P-8C	3
VEN-M-101-5583	Phase II Mod Discharge Line for AFW Motor (P-8A) and Turbine (P-8B) Driven Pumps	3
VEN-M-101-5584	Phase II Mod Discharge Line for AFW Motor (P-8A) and Turbine (P-8B) Driven Pumps	3
VEN-M-101-5585	Phase II Mod Discharge Line for AFW Motor (P-8A) and Turbine (P-8B) Driven Pumps	3

Engineering Action Requests (EARs)

Number	Title or Description	Date or Revision
EAR-2001-0117	Flood Barriers Between Diesel Generator Rooms	September 5, 2001
EAR-2001-0545	Perform Study of ECC Motor Acceleration Times Based on Current Configuration	November 8, 2001
EAR-2002-0308	Component Inadequate for System Pressure	October 10, 2003

MODIFICATIONS

Number	Title or Description	Date or Revision
EAR-2000-0553	Install Cubicle Extensions and CR Springs Charged Indicator (White) Lights for Busses 1C and 1D to Support Installation of Vacuum Circuit Breakers	0
EAR-2004-0054	Replace Current Transformer in 152-213 Cubicle	0
FC-274	Revise Steam Supply CVs for AFW Pump Turb	May 13, 1976
FC-516-2	AFW System Mod in Response to NUREG-0737	February 19, 1982
FC-737	Replace Existing Sequencers with SSPCs	1
FC-789	Install 1" Remotely Operated Valve as a Bypass	July 7, 1986
FC-842	AFW P-8A, B, and C Control System Upgrade	0
FC-940	Mods for EDG Brks and Prot Trip Logic Upgrade	August 24, 1992

MODIFICATIONS

Number	Title or Description	Date or Revision
FC-954	Change P8B Control from CV-0521 to CV-0522A	1
FC-966	AFW Steam Supply to K-8 Turbine Driver Mod	0
MOD-2003-001	Inadequate Light Bulb Protection in EDG Panels	October 9, 2003
SC-91-107	Replace Air Start Motors on EDGs	0
SC-92-168	Replacement of AFW Flow Controllers	0

OPERABILITY RECOMMENDATIONS

Number	Title or Description	Date or Revision
OPR000031	Pipe Blockage of FPS to AFW Cross-Tie	March 14, 2003
OPR000032	Pipe Blockage of SW to P-8C AFW Cross-Tie	March 19, 2003
OPR000047	2" AFW P-8A and B Recirc Piping Not Analyzed	February 6, 2004
OPR000050	Weaknesses Found in Evaluation of Point Beach AFW Recirc Line Fouling	February 26, 2004
OPR000055	RT-8C/D Do Not Adeq Test Load Shed Contacts Associated With Blocking IA Compressors	April 5, 2004

PROCEDURES

Number	Title or Description	Date or Revision
Admin Proc 1.01	Material Condition Standards and Housekeeping Responsibilities	15
Admin Proc 9.12	Environmental Qualification of Electrical Equipment	10
ARP-1	Turbine Condenser and FW Scheme EK-01 (C-11)	52
ARP-3	Electrical Auxiliaries and EDG Scheme EK-05 (EC-11)	58
ARP-20	EDGs 1-1 (1-2) Schemes EK-20 (EK-30)	53
ARP-36	AFW System Status Arrays Scheme EK-16 (C-11)	4
DWO-1	Operators Daily/Weekly Items Modes 1, 2, 3, and 4	67
DWO-2	Operators Daily/Weekly Items Modes 5 and 6	2
EM-20	Performance Monitoring Program	September 18, 2003
EM-20-01	EDG Reliability Program	August 7, 2002
EM-22-07	Circuit Breaker Reliability Program	April 5, 2003
EM-30-02	Vibration Monitoring Program	December 30, 2002
EOP-7.0	Loss of All FW Recovery	13
EOP Supplement 19	Alternate AFW Methods	6
EOP Supplement 31	Supply AFW Pumps from Alternate Sources	7
EPS-E-1	Replace and Calibrate EDG EGA Control Box	17
FP-E-SE-01	Conduct of System Engineering	October 15, 2003
FP-PA-ARP-01	Action Request Process	December 15, 2003
MC-17	Fuel Oil Sampling	July 23, 2003
MSM-M-43	Permanent Maintenance Procedure: Scaffolding	8
ONP-2.1	Loss of AC Power	12
ONP-3	Loss of Main FW	19
ONP-20	Diesel Generator Manual Control	20

PROCEDURES

Number	Title or Description	Date or Revision
PAP-9.11	Engineering Analysis	15
QO-21	IST Surveillance Procedure AFW Pumps	24
SOP-12	FW System	44
SOP-22	Emergency Diesel Generators	35
SQAP-039	DBA/NSD Sequencers	0

REFERENCES

Number	Title or Description	Date or Revision
2691 1415 through 2691 1418	CPCo Letter (Johnson) to NRR (Crutchfield); Additional Information AFW System Mod	August 11, 1982
2707 0578 through 2707 0580	CPCo Letter (Johnson) to NRR (Crutchfield); Additional Information AFW System Modification	September 20, 1982
Amendment No 83	NRC Letter (Paulson) to CPCo (VandeWalle); TS Changes Related to ECCS Design Features	June 19, 1984
Amendment No 96	NRC Letter (Wambach) to CPCo (Berry); AFW TS	January 30, 1986
BTP ASB 10-1	Design Guidelines for AFW System Pump Drive and Power Supply Diversity for PWR Plants	2
DBD 1.03	Design Basis Document: AFW System	6
DBD 7.01	Electrical Equipment Qualification Program	4
E-PAL-92-044	Simultaneous Start of DBA Sequencer Loads Due to Delayed Containment HP Signals to Containment Spray Pumps P54A, B, and C	December 14, 1993
FSAR Section 5.6	Dynamic Effects of Pipe Rupture	24
FSAR Section 9.7	AFW System	24
FSAR Section 14.13	Loss of Normal FW	24
LS05-82-02-078	NRC Letter (Wambach) to CPCo (VandeWalle); SEP Topic III-5B, Break Outside Containment	February 19, 1982
LS05-83-06-008	NRC Letter (Wambach) to CPCo (VandeWalle); IPSAR Section 4.28, Ventilation Systems	June 3, 1983
NUREG-0737	Clarification of TMI Action Plan Requirements	November 1980
NUREG-0800	Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants	----------
NUREG-0800 BTP MEB 3-1	Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment	1
NUREG-0800 Section 3.6.1	Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment	2
NUREG-0800 Section 3.6.2	Determination of Rupture Locations and Dynamic Effects with the Postulated Rupture of Piping	1
NUREG-0800 Section 10.4.9	AFW System (PWR)	2
OC0385-0162A-NL04	CPCo Letter (Bordine) to NRR; Proposed TS Change Request AFW Pump Discharge Valves	May 31, 1985

REFERENCES

Number	Title or Description	Date or Revision
OC0483-0002A-NL02	CPCo Letter (VandeWalle) to NRR (Crutchfield); Proposed TS Change Request - ECCS	August 29, 1983
OC0685-0224-NL04	CPCo Letter (Bordine) to NRR; Additional Information TS Change Request - AFW System	June 21, 1985
OC0984-0008-NL02	CPCo Letter (DJ VandeWalle) to NRR; Proposed TS Change Request - AFW System	September 17, 1984
OC1085-0308-NL04	CPCo Letter (Berry) to NRR; Consolidation of Previous TS Change Request - AFW System	October 28, 1985
RAV 81-23	CPCo Letter (Vincent) to NRR (Crutchfield); SEP Topic III-5B, Effects of Pipe Breaks on SSCs Outside Containment	August 25, 1981
TS Section 3.7.5	AFW System	Amendment 200
TS Section B3.7.5	AFW System	Amendment 200

SAFETY EVALUATIONS

Number	Title or Description	Date or Revision
FC-516-2	AFW System Phase II - Stage II Modification to AFW System in Response to NUREG-0737	February 19, 1982

SURVEILLANCES

Number	Title or Description	Date or Revision
MO-7A-1	EDG 1-1	February 8, 2003
MO-7A-2	EDG 1-2	November 22, 2002
MO-7A-2	EDG 1-2	December 21, 2002
MO-29	Engineered Safety System Alignment	February 25, 2003
QI-39	AFW Actuation System Logic Test	August 27, 2002
QI-39	AFW Actuation System Logic Test	November 5, 2002
QI-39	AFW Actuation System Logic Test	February 11, 2003
QO-21	IST Procedure AFW Pumps (P-8A)	January 28, 2003
QO-21	IST Procedure AFW Pumps (P-8C)	October 9, 2003
QO-21	IST Procedure AFW Pumps (P-8B)	January 14, 2004
QO-21	IST Procedure AFW Pumps (P-8A)	February 9, 2004
RE-131	EDG 1-1 Load Reject	February 21, 2003
RE-132	EDG 1-2 Load Reject	August 5, 2003
RE-139-1	Test Starting Time of EDG 1-1	April 7, 2003
RE-139-2	Test Starting Time of EDG 1-2	April 5, 2003
RI-95A	AFW Flow FT-0727 Instrument Loop Calibration	July 30, 2002
RI-102	AFW Low Suction Pressure Switch Calibration	September 5, 2002
RO-97	AFW System Automatic Initiation Test Procedure	January 16, 2002
RO-127	AFW System 18 Month Test Procedure	January 27, 2003
RO-128-1	EDG 1-1 24 Hour Load Run	March 9, 2003
RO-128-2	EDG 1-2 24 Hour Load Run	November 19, 2003
RT-8C	Engineered Safeguards System Left Channel	April 7, 2003

SURVEILLANCES

Number	Title or Description	Date or Revision
RT-129	Functional Test of Bus 1C UV Relays	April 7, 2003
RT-130	Functional Test of Bus 1D UV Relays	April 5, 2003
RT-711	AFW Class 2 and 3 System Functional Inservice/Test	April 28, 2002
T-186	AFW Turbine K-8 Overspeed Trip Test & Governor Setting	May 14, 2003
T-345	AFW Pumps P-8A/B Firemain Backup Line Flush	April 1, 2003
T-FC-966-01	AFW System Pre and Post FC-966 Installation Test	December 9, 1996
T-FC-966-02	AFW System Post FC-966 Installation Low Steam Pressure Test	December 19, 1996
T-FC-966-03	AFW System Post FC-966 Installation Intermediate and High Steam Pressure Test	December 23, 1996

VENDOR DOCUMENTS

Number	Title or Description	Date or Revision
5935-M-35-DS-1	Basket Strainer Data Sheet	2
VTD-0207-0032	Fairbanks Morse ALCO Power Operating Instruction for Diesel Engine in Emergency Standby AC Generator Service	File M00120043
VTD-0691-0089	Fischer Controls Instruction Manual for 4195KA, B, and C Series Gauge Pressure Controllers	December 1990
VTD-1083-0022	Moore Products Service Instructions Model Series 74 Valve Positioner & Motion Transmitter	12
VTD-1309-0195	Consumers Power Ladder Lister	August 10, 1988
VTD-2008-0004	Automation Industries for AFW Actuation System	1
VTD-2871-0001	GEMS 36000 Tank Level Indicating Transmitter	2

WORK DOCUMENTS

Number	Title or Description	Date or Revision
288513	ST-0520 Trap Discharging Excessive Stm/Cnd	April 12, 2000
296123	CV-0522B Perform Maint Procedure RPS-I-10	October 6, 2003
305027	Conduit Sagging Above Generator End on EDG 1-1	March 25, 2004
WO24114079	K-8 PM for Governor/Trip Valve Linkage	November 28, 2001
WO24114449	ST-0520 Inspect and Repair	December 27, 2001
WO24211111	EDG 1-2 DC Control	March 23, 2002
WO24212763	K-8/P-8B Insp Coupling/Overspeed Trip PM	July 15, 2002
WO24213235	AFW Actuation System Cabinet	August 27, 2002
WO24213328	AFW Actuation System Cabinet	February 11, 2003
WO24214370	K-8 PM for Governor/Trip Valve Linkage	December 12, 2002
WO24320155	AFW Pump P-8A Automatic Start	January 16, 2003
WO24320516	AFW Actuation System Cabinet	October 21, 2003
WO24320671	Steam Generator E-50B LP Circuit 3	March 5, 2003
WO24322189	AFAS Panel Power Supplies Test	October 23, 2003
WO24323092	PM-EDG Prelube Heater (K-6B) Clean and Test	February 2, 2004

WORK DOCUMENTS

Number	Title or Description	Date or Revision
WO24324165	K-8 PM for Governor, Trip Valve Linkage and NDE Examination of Resetting Lever	October 21, 2003
WO24324372	EDG Check/Collector Ring PM cleaning and Checks to Insure Reliability of EDG Collector Ring, Perform Generator Wedge Inspection, and Change Gov Oil	April 17, 2004
WO24420910	AFW Pumps P-8A and P-8B Low Suction	April 1, 2004

LIST OF ACRONYMS USED

AC or ac	Alternating Current
ADAMS	Agency-Wide Document Access and Management System
AFW	Auxiliary Feedwater
ASB	Auxiliary Systems Branch
ATTN	Attention
BTP	Branch Technical Position
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CPCo	Consumers Power Company
CR	Control Room
CV	Control Valve
DBA	Design Basis Accident
DBD	Design Basis Document
DC	District of Columbia
DPR	Demonstration Power Reactor
DRS	Division of Reactor Safety
EA	Engineering Analysis
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EEQ	Electrical Equipment Qualification
EOP	Emergency Operating Procedure
ESF	Engineered Safeguard Features
FC	Facility Change
FPS	Fire Protection System
FW	Feedwater
FSAR	Final Safety Analysis Report
gov	Goverment
HP	High Pressure
HELB	High Energy Line Break
html	Hypertext Markup Language
http	Hypertext Transfer Protocol
HVAC	Heating, Ventilation, Air Conditioning
I&C	Instrumentation and Control
IA	Instrument Air
IL	Illinois
IMC	Inspection Manual Chapter
IPSAR	Integrated Plant Safety Assessment Report
IR	Inspection Report
IST	Inservice Test
k	kilo
LLC	Limited Liability Company
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
LP	Low Pressure
MCC	Motor Control Center
MEB	Mechanical Engineering Branch
MI	Michigan

MOV	Motor Operated Valve
MSLB	Main Steam Line Break
NCV	Non-Cited Violation
NPF	Nuclear Power Facility
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NUREG	NRC Technical Report Designation
OA	Other Activities
OD	Operability Determination
ONP	Off Normal Procedure
P&ID	Piping and Instrumentation Diagram
PARS	Publically Available Records System
PM	Preventative Maintenance
PWR	Pressurized Water Reactor
RETRAN	Computer Program for Transient Thermal-Hydraulic Analysis of Complex Fluid Flow Systems
RFI	Request for Information
RM	Room
SD	Shutdown
SDP	Significance Determination Process
SOP	System Operating Procedure
SOMS	Shift Operations Management System
SSCs	Structures, Systems, and Components
SSDI	Safety System Design and Performance Capability
SSPC	Solid State Programmable Controller
SW	Service Water
TMI	Three Mile Island
USAR	Updated Safety Analysis Report
UV	Undervoltage
V	Volt
WESG	West Safeguards
WO	Work Order
wpd	WordPerfect Document
www	World Wide Web