July 30, 2003

Mr. William O'Connor, Jr.
Vice President
Nuclear Generation
Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48186

SUBJECT: FERMI 2 NUCLEAR POWER STATION
NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY
INSPECTION REPORT 50-341/03-07(DRS)

Dear Mr. O'Connor:

On June 6, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Fermi 2 Nuclear Power Station. The enclosed safety system design and performance capability inspection report documents the inspection findings, which were discussed on June 6, 2003, with you and other members of your staff.

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

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publically 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. 50-341
License No. NPF-43

Enclosure: Inspection Report 50-341/03-07(DRS)

cc w/encl: N. Peterson, Director, Nuclear Licensing
P. Marquardt, Corporate Legal Department
Compliance Supervisor
R. Whale, Michigan Public Service Commission
L. Brandon, Michigan Department of Environmental Quality
Monroe County, Emergency Management Division
Emergency Management Division
MI Department of State Police

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-341
License Nos:	DPF-43
Report No:	50-341/03-07(DRS)
Licensee:	Detroit Edison Company
Facility:	Enrico Fermi 2 Nuclear Power Station, Unit 2
Location:	6400 N. Dixie Highway Newport, MI 48166
Dates:	May 19, 2003 through June 6, 2003
Inspectors:	H. Walker, Engineering Inspector, Lead T. Bilik, Engineering Inspection, Mechanical G. Hausman, Engineering Inspector, Electrical J. Neurauter, Engineering Inspector, Mechanical D. Schrum, Engineering Inspector, Mechanical R. Ely, Jr., Contract Inspector, Mechanical G. Skinner, Contract Inspector, Electrical
Approved by:	Julio F. Lara, Chief Electrical Engineering Branch Division of Reactor Safety

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SUMMARY OF FINDINGS

IR 05000341/2003-007(DRS); Detroit Edison Company; 05/19/03 - 06/06/03; Enrico Fermi Nuclear Power Station, Unit 2; Routine Baseline Inspection Report.

This report covered a three week period of inspection by regional engineering specialists with both electrical and mechanical consultant assistance. The inspection focused on the design and performance capability of the emergency equipment cooling water and the emergency equipment service water systems to ensure that they were capable of performing their required safety-related functions. No findings of significance were identified. The significance of most findings, when identified, are 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: Initiating Events

No findings of significance were identified.

Cornerstone: Mitigating Systems

No findings of significance were identified.

Cornerstone: Barrier Integrity

No findings of significance were identified.

B. Licensee-Identified Violations

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

The Fermi 2 Unit operated at or near full power throughout the inspection period.

1. REACTOR SAFETY

Cornerstone: Mitigating Systems

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 ability of the selected systems to perform design bases 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 for the inspection were the emergency equipment cooling water (EECW) and the emergency equipment service water (EESW) systems. These systems were selected for review based upon:

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

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;
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 EECW and the EESW 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/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/electrical source would be available/adequate and unimpeded during/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.

Cornerstone: Public Safety

.2 System Condition and Capability

a. Inspection Scope

The inspectors reviewed design basis documents and plant drawings, abnormal and emergency operating procedures (EOPs), 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 EECW and EESW 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 EECW and EESW 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

No findings of significance were identified.

.1 Potential Unmonitored Radiation Release Path

Introduction: On June 1, 2003, the inspectors identified a potential for unmonitored release of effluents during a reactor shutdown and during a reactor accident. This finding was considered to be a possible violation of Section 5.5.2 of the Technical Specification.

Description: The Residual Heat Removal (RHR) Heat Exchangers at Fermi could be a potential unmonitored release path for radiation since the heat exchangers had not been eddy current tested since plant construction. The condition of the heat exchanger tubes was unknown and could be thinned or leaking.

The contaminated side of the RHR Heat Exchanger was at a higher water pressure than the service water side. As a result, tube leaks would allow contaminated water to flow into the Service Water System and to the Ultimate Heat Sink (UHS). During a Design Basis Accident (DBA) highly radioactive suppression pool water could be pumped into the three million gallons of water of the UHS. The water was covered with steel grating, which allowed a direct path to the environment. In addition, the UHS cooling towers would evaporate potentially radioactive water to cool the remaining water. These releases could exceed 10 CFR Part 100 offsite release limits and control room radiation limits.

Licensee personnel were required by procedure to perform a monthly sample of the UHS to determine if there had been leakage from plant equipment to the UHS. With this method of testing the leakage water is diluted in the three million gallons of UHS water; it is filtered in the UHS and plates out, or evaporates. It would take a substantial leak during reactor shutdown to be detected by this monthly sample. To resolve inspector concerns, licensee stated that they would perform a sample of the service water during Shutdown Cooling to determine if leakage was present.

The inspectors reviewed modification, "SPC-13682; RHR Service Water Rad Monitor Setpoint Increase; December 2, 1992," and noted that the current sensitivity of the radiation monitor detectors, D11-N401A and D11-N401B, for the RHR Service Water system required nine gallons of leaking RV water before it would alarm. This method of detecting leaks means that it would take a significant leak to indicate a degraded condition of a RHR Heat Exchanger. This could result in a significant amount of radioactive reactor vessel water going undetected to the UHS during Reactor Shutdown.

The licensee radiation monitors for the RHR Service Water were located in the reactor building. As a result, the radiation monitors could be in a continuous alarm condition during a DBA due to high radiation levels. If the radiation monitors were in continuous alarm, useful information would not be provided to Operations for determination of a RHR Heat Exchanger leak. In addition, the radiation monitor sample line must be turned on and primed during a time when personnel might not be able to enter the Reactor Building due to radiation. Also, the installed Residual Heat Removal Service Water (RHRSW) Radiation Monitors are non-safety, non-seismic, Non-EQ qualified, and not redundant for the RHR System. Licensee personnel stated that sampling of the UHS could supplement the monitors during this time. However, sampling takes approximately two hours and would be of limited use to prevent a large release of contaminated water to the UHS. In addition, the sampling would have to be repeated over and over again during a postulated accident.

The significance of a radioactive release would be increased during a design basis accident because iodine would be dissolved in water in the Suppression Pool as long as the pH was above 7. This was accomplished by boron. The release of this water to the UHS (pH 7) could result in large releases of iodine during an accident.

The inspectors had an additional concern that sampling of the water or use of radiation monitors may not be an acceptable method to determine a degraded condition of the RHR Heat Exchangers. There was not a direct relationship between degraded tubes (thinning) to tube failure, which could occur during an accident.

Analysis: The inspectors determined that the failure to ensure that the potential leakage from the RHR Heat Exchangers was monitored through design of radiation monitors, with appropriate sensitivity or periodic sampling, was an issue requiring further NRC review. Specifically, further NRC evaluations are necessary to determine if the licensee was complying with NRC requirements including Technical Specification 5.5.2. Section 5.5.2 of the Fermi Technical Specification required, in part, that a program be established to provide controls to minimize leakage from portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. Licensee personnel placed this issue in the corrective action program by initiated CARD 03-11844; however, the issue remains unresolved pending additional NRC review of the issue and the action taken. (URI 50-341/03-07-01)

.2 Undervoltage Relay Timing

Introduction: The inspectors reviewed the reliability and availability of electrical systems used for operation of the EECW and EESW Systems. The 4160V voltage system to assess vulnerabilities due to loss of the preferred offsite source and the standby onsite sources (diesel generators) was also reviewed. In particular, the team evaluated the adequacy of undervoltage protection and vulnerability to spurious separation from the offsite source. To perform this task, single line drawings, load flow calculations, grid stability studies, protective device selection and coordination calculations, setpoint calculations, and design basis documents were reviewed.

The inspectors reviewed the Emergency Diesel Generators (EDGs) with respect to their function as a source of electric power as well as with respect to their requirements for electric power from supporting systems. Diesel electrical loading calculations were reviewed to assess margins with respect to worst case accident loading requirements. AC and DC power requirements for diesel support systems were reviewed to assure that the diesels would be maintained in a ready to start condition, and that control and field flashing power was available for emergency starting. This review included AC load flow calculations, battery sizing calculations, and voltage drop calculations.

The inspectors reviewed electrical elementary diagrams to assure that proper control and protection logic was applied to system equipment and supporting electrical systems. Logic was reviewed for the EECW and EESW Pumps, EECW initiation logic, and EECW MOVs. In addition, the undervoltage protection scheme for the safety related 4160V and 480V buses and control circuits were reviewed for proper operation as described in the licensing and design bases, and for proper isolation and separation to assure the independence of redundant circuits.

The inspectors questioned the adequacy of the time delay settings of the offsite power undervoltage relays. Specifically, the team was concerned that the existing time delays of 41.8 sec. and 46.2 sec. (Division 1) and 20.33 sec. and 22.47 sec. (Division 2) (TS Table 3.3.8.1-1) from the detection of a sustained degraded voltage condition until the vital busses were transferred to the EDGs was longer than the time allowed by the 10 CFR 50.46. Loss of Coolant Accident (LOCA) analysis sequential loading time of <13 sec. (TS Table 6.3.7) following receipt of a LOCA signal.

Description: The inspectors referenced NRC Branch Technical Position PSB-1 Section B.1 which states that a second level of undervoltage protection should be provided with two separate time delays, the first time delay would be of short duration (no longer than a motor starting transient), with a subsequent LOCA signal causing separation from the offsite source. The team believed that the degraded voltage scheme should be suitable to protect safety-related equipment if a LOCA signal initiated at the same time that a degraded voltage condition existed. In addition, the team reviewed an NRC letter dated June 2, 1977 (sent to all operating plants at that time) which stated that the allowable time delay for the degraded voltage protection scheme, including margin, “shall not exceed the maximum time delay that is assumed in the UFSAR accident analysis.”

Licensee personnel were unable to demonstrate that during a LOCA with degraded voltage the 13-second time delay limit cited for the availability of power from the diesel generators could be met. During this delay ECCS pumps might fail to start and the MOVs might fail to move to their required positions. The licensee acknowledged the apparent discrepancy and initiated CARD 03-11847 to reconcile it. The CARD noted that, although Calculation DC-0919 stated that it was not a design basis for the degraded grid protection to function during a LOCA, Fermi's response to PSB-1 stated that Fermi was in compliance with this requirement.

Analysis: The Division 2 time delay of 20.33 sec. and 22.47 sec. was intended to allow sufficient time to start two RHR pumps and two Core Spray pumps without casing separation from the off site source. The Division 1 time delay of 41.8 sec. and 46.2 sec. was intended to allow sufficient time to start two RHR pumps and two Core Spray pumps, and also to allow the automatic load tap changer on transformer S.S. 64 to improve voltage sufficiently to prevent separation from the offsite source.

The inspectors determined that applying a potentially non-conservative acceptance limit for the time delay relay did not assure the availability of the vital buses. The undervoltage relay time delay setpoint requirements, to assure compliance with 10 CFR 50 General Design Criterion 17, needs appropriate evaluations and resolution of the design and licensing basis. This matter is an unresolved item pending further NRC review and evaluation of the licensee position to determine the adequacy of the existing setpoint. (URI 50-341/03-07-02)

.3 Components

a. Inspection Scope

The inspectors performed a field walkdown of the EECW and EESW pump motors, EDGs, 480V MCCs, EECW MOVs and their environs, to assess whether the installed configuration had not significantly degraded and would support system functions under accident conditions. The equipment was cursory inspected for material condition, absence of hazards, conformance of installed components and configurations with design documents. MCCs were inspected for adequacy of component identification, and the status of required enclosure fasteners and latches.

System health reports were reviewed for the EECW and EESW Systems, the 4160V and 480V Systems, DC Systems and Vital Power System to identify possible chronic maintenance problems or impairment of system readiness. Scheduled tasks and procedures for selected electrical systems and components, including 480V switchgear, MOVs, and System Station Transformers were reviewed to assess the timelines and prioritization of maintenance activities.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (PI&R)

.1 Review of Condition Assessment Resolution Documents

a. Inspection Scope

The inspectors reviewed a sample of problems associated with the EECW and the EESW systems that were identified and entered into the corrective action program by licensee personnel. 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 assessment resolution documents 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, Including Exit

.1 Exit Meeting

On June 6, 2003, the inspectors presented the inspection results to Mr. W. O'Connor and members of his staff. The licensee acknowledged the findings presented. The inspectors noted that no materials reviewed or discussed during the inspection were designated or indicated as proprietary. The inspectors discussed the likely content of the inspection report and requested that any proprietary information discussed be identified. Licensee personnel did not indicate any proprietary or possible proprietary information presented.

.2 Interim Exit Meetings

No interim exits were conducted.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
W. O'Connor, Vice President, Nuclear Generation
S. Berry, SSDI Technical Coordinator
D. Cobb, Plant Manager
R. Libra, Director, Nuclear Engineering
W. Miller, Manager Engineering
J. Pendergast, Principal Engineer Licensing
N. Peterson, Manager, Nuclear Licensing
S. Stasek, Director, Nuclear Assessment
E. Stoltz, Systems Engineer

Nuclear Regulatory Commission
S. Campbell, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-341/03-07-02(DRS)	URI	Non-conservative Acceptance Limit for the Time Delay Relay Did Not Assure the Availability of the Vital Buses
50-341/03-07-01(DRS)	URI	Possible Failure to Provide a Program with Controls to Measure and Minimize Leakage of Highly Radioactive Fluids Outside Containment During a Serious Transient or Accident

Opened and Closed

None.

Closed

None.

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the Fermi 2 Safety Systems Design and Performance Capability 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. Inclusion of a document in this list does not imply NRC acceptance of the document, unless specifically stated in the inspection report.

CALCULATIONS

Document Number	Title or Description	Revision or Date
----------	Reactor Tritium Activity Calculation	April 3, 2003; May 9, 2003; May 23, 2003; & June 2, 2003
DC-0182, Vol I	RHRSW Mechanical Draft Cooling Towers - Post LOCA Analysis of UHS	April 25, 1996
DC-0182, Vol III	RHRSW Mechanical Draft Cooling Towers - Heat Load After HELB	April 25, 1996
DC-0213, Vol I	Sizing of 130/260 Volt Batteries	Q
DC-0632, Vol I	I & C Instrument Racks	C
DC-0762, Vol I	Stress Analysis - EECW MU Tank Interface Piping	D
DC-0762, Vol III	EECW Makeup Tank Interface Piping	0
DC-0835	System Voltage Study	E
DC-0919	Undervoltage Relay Setpoints	D
DC-2945, Vol III	Piping Stress Report EECW-05	0
DC-2950, Vol IV	Emergency Equipment Cooling Water System, Subsystem EECW-12	0
DC-2951, Vol II	Emergency Equipment Cooling Water System, Subsystem EECW-13	0
DC-2955, Vol II	Piping Stress Report EECW-18	0
DC-2956, Vol II	Stress Analysis of EECW Div II Piping Supply to New Plate and Frame Heat Exchanger	A
DC-2957, Vol II	Piping Stress Report EECW-20	A
DC-2958, Vol III	Stress Analysis of EECW Div I Piping Supply to New Plate and Frame Heat Exchanger	0
DC-2959, Vol II	Piping Stress Report EECW-22	A
DC-3231, Vol I	Fermi 2 Class 1E Equipment Qualification Review Emergency Equipment Cooling System	D
DC-3305, Vol I	Capability of One Drywell Cooler Following Loss of Power	A
DC-3766, Vol I	Qualification Review Of Mechanical Equipment Of Emergency Equipment Cooling Water System P44	E
DC-4388	Protective Relay Settings for 13.2kV, 4.16kV, and 480V Auxiliary Equipment	D
DC-5003	Emergency Diesel Generator	E

CALCULATIONS

Document Number	Title or Description	Revision or Date
DC-5264	Operability Eval of Electrical Equipment During System Transient Due to LPCI & LPCS Initiation Following DBA - LOCA with Degraded Grid	A
DC-5268	Electrical Loading, Short Circuit Currents and Running Voltages for 4.16kV and 480V System	F
DC-5271, Vol I	Resistance and Reactance Calculation for Power and Control Cables at EF2	D
DC-5349, Vol I	AC Control Cable Drop Calculation for QA1, Div I	F
DC-5426	PBOC - High and Moderate Energy Line Break Eval.	B
DC-5573	Starting Torque at Elevated Temperature	D
DC-5589	Reactor Building Environmental Response for HELB and LOCA Conditions	B
DC-5678, Vol I	Eval. of VOTES Hdw Installation on GL89-10 MOV's	0
DC-5719	Minimum Required Target Voltage Thrust (MRTT for GL89-10 Gate, Globe, and Butterfly Valves (Torque)	J
DC-5760, Vol I	EESW/EECW Hydraulic/N_2 Supply to EECW MU Tk	June 7, 2000
DC-5805, Vol II	EESW Design Basis Requirements	December 17, 1999
DC-5806, Vol I	EECW Design Basis Requirements	May 2, 1999
DC-5806, Vol II	EECW Design Basis Requirements	January 5, 2000
DC-5806, Vol IV	EECW Design Basis Requirements	September 25, 2002
DC-5842, Vol I	Stress Analysis of 8" RBCCW Supplemental Cooling Piping for Dwgs M-5762-1, 5760, 5758, 5763 and 5756-1 Per EDP-28140	0
DC-5843, Vol I	Stress Analysis of 8" Drywell Cooling for Dwgs. M-5755-1, 5757, 5761, 5759 Per EDP-28140	A
DC-5844, Vol I	Stress Analysis of 8" Supplemental Cooling Chilled Water Piping for Dwgs. M-5752-1, 5753-1 Per EDP-28140	0
DC-6024, Vol IA	EECW Hydraulic Transient Analysis - Div I	March 1, 1999
DC-6024 Vol II	EECW Hydraulic Transient Analysis - Div I	January 6, 2000
DC-6025 Vol IA	EECW Hydraulic Transient Analysis - Div II	March 1, 1999
DC-6025 Vol II	EECW Hydraulic Transient Analysis - Div II	January 6, 2000
DC-6033, Vol I	Impacts on Proto-Flo Model from EDPS 29805 and 29792	December 12, 1999
DC-6137, Vol I	Stress Analysis of EECW MU Pump, Div I, Bleed and Test Lines 6WM-P44-5870/-5872/-5874/-5876	A
DC-6138, Vol I	Stress Analysis of EECW MU Pump, Div II, Bleed & Test Lines 6WM-P44-5871/-5873/-5875/-5877	0
DC-6138, Vol II	Add Break Flanges at Check Valve F625B and Identify Material Type for PCVF201B	0
International Transmission Rpt	Review of Analysis of Dynamics in the Fermi Area	March 30, 2002
SL-R8, Vol IV	Final Load Verification of RHR Heat Exchanger Platforms	0

CALCULATIONS

Document Number	Title or Description	Revision or Date
SL-R8, Vol V	Final Load Verification of RHR Heat Exchanger Platforms	0
SL-R8, Vol VI	Final Load Verification of RHR Heat Exchanger Platforms	0
SL-R8, Vol VII	Final Load Verification of RHR Heat Exchanger Platforms	0

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED DURING INSPECTION

Document Number	Title or Description	Revision or Date
03-11842	DBD P45, Missed Text Which State RHRSW or DGSW must Operate	May 21, 2003
03-11844	FOS M-5729-1 Not Consistent with Plant System	May 21, 2003
03-11845	Equipment Cart on AB-1 Not Secured per MMA10	May 22, 2003
03-11846	Level 3 CARD Closed to Level 4 CARD in Violation of MQA11	May 22, 2003
03-11847	Determine If Fermi 2 Is Required to Take a LOCA Concurrent with a Degraded Grid Condition as Part of the the Plants Licensing Basis	May 22, 2003
03-11848	MOV Degraded Voltage Calculations Assume a Single MOV Start Rather That Multiple MOV Starts	May 23, 2003
03-11849	Determine If CARD 02-15135 Level Is Appropriate	May 22, 2003
03-11866	Incorporation of As-Builts (5) in DBD P44-00	May 19, 2003
03-11870	Design Basis Document P45-00, Revision A, Page 16, must Be Revised to Refer to the Updated Tech Spec Number	May 21, 2003
03-11877	Deficiencies Associated with DC-5760 (EESW Cross-Tie Design Calculation)	June 2, 2003
03-11878	Typographical Errors Identified During NRC SSDI	June 5, 2003
03-11882	Process of Changing PM Critical Dates Through the PM Deferral Process Can Hide the Fact That the PM on Plant Equipment Has Been Postponed	June 4, 2003
03-11884	Potential Release Path Not Accounted for in Offsite Dose Calculation Manual (ODCM)	June 5, 2003
03-11885	Design Calculation Fails to Address Valve Stroke Time Change	June 5, 2003
03-11894	No Retrievable Documentation of the Design Temperature and Cooling Water Requirements for RHR and Core Spray Pump Seals	June 6, 2003
03-11895	Specification 3071-128-EO, MOV Quicktest Cable Was Installed by Issuing ABN-26583-1	June 6, 2003
03-11896	Periodic Verification of Grid Adequacy Event AG80 Results Could Be Improved	June 6, 2003

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED DURING INSPECTION

Document Number	Title or Description	Revision or Date
03-11901	Investigate the Licensing Basis and Acceptability of the Time Delays for the Div I and II Secondary Undervoltage Relays	June 9, 2003
03-11907	Cover Sheet of DC-6025 Vol IA Includes Div I in the Title Instead of Div II	June 10, 2003
03-11935	Verify That Only Qualified Instrumentation Triggers Operator Actions for Barrier Integrity Protection	June 5, 2003
03-11936	ELMS-AC Calculation the Assumed Bounding Case for Degraded Grid Conditions Might Not Be Bounding for All Conditions	May 23, 2003
03-11961	ELMS AC Design Calculation for Electrical Load Monitoring for AC Loads Is Not Listed as a Reference in DC-5719, Vol I, GL89-10 MOVs Torque/Thrust Calculation	May 30, 2003
03-11962	No Specific Guidance Describing When Design Calculations Are Necessary	June 3, 2003
03-12075	EESW Hydraulic Model Includes Additional Piping Resistance	May 21, 2003
03-12077	Check Valve Functions Credited in MELB Calculations but the Valves Were Not Tested	June 5, 2003
03-12086	Potential Inadequate 50.59 for EDP-29805 (EESW Heat Exchanger Replacement)	May 29, 2003
03-16675	Typographical Error in DC-5573, Vol I, Starting Torque at Elevated Temperature	May 30, 2003
03-16682	Update Vendor Manual VME5-18 to Incorporate the Attached Pages from Micron and Osborne Control Transformer	June, 6, 2003
03-16683	Update DC-0213, Vol I to Incorporate the Inrush Current of the Breaker Charging Motor	June 5, 2003
03-17862	North RBCCW Pump Suction Strainer dp Indicator Indicating dp with Pump Shutdown	May 21, 2003
03-17864	Cable Strung in the Plant per PDC 12966	May 22, 2003
03-17865	Drawing/ CECO Discrepancies	May 22, 2003
03-17879	Existing PM Event Z325, Perform Inspection and Testing of SS64 Transformer, Does Not Call out the Settings Required for the Load Tap Changer	May 30, 2003
03-18031	Evaluate RHRSW Chemistry Sampling for Potential Enhancements for Monitoring Heat Exchanger Tube Leakage	May 29, 2003
03-18033	Evaluate Revising Procedure 23.626, Process Liquid Radiation Monitoring, to Enhance RHR Heat Exchanger Leak Detection	May 29, 2003

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED DURING INSPECTION

Document Number	Title or Description	Revision or Date
03-18038	PIS R1600S148 (Subcomponents 1 and 2) Were Not Incorporated into EQ Design Calculation DC-3232 During the Last Revision E Issued 12/10/2002	June 4, 2003
03-18041	The EQ Analysis for EQ1-EF2-237 Incorrectly Defines the Peak Humidity as 84%	June 5, 2003
03-18042	Clarification Required on Exxon-Mobil Nebula EP Replacement with Crompton Long Life Lubricant Documentation	June 5, 2003
03-18044	Investigate the Synergistic Effects of VOTES Test Equipment Added Inside EQ Limit Switch Compartments	June 6, 2003
03-18291	Items Not Secured per MMA10, Plant Housekeeping	May 22, 2003
03-18292	Extension Cords in Plant Without Labels	May 22, 2003
03-18293	Review Technical Requirements and PM for Equipment Serviced by System Maintenance	June 5, 2003
03-18294	Painting Specification 3071-055 Requires Revision	June 5, 2003

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED PRIOR TO INSPECTION

Document Number	Title or Description	Revision or Date
98-10695	NRC Information Notice 98-07: Offsite Power Reliability Challenges from Industry Deregulation	March 4, 1998
99-16580	SOER 99-001 Loss of Grid	August 31, 1999
00-20263	Incorporate the Following Information into LP-OP-315-0158, 0258 and ST-CP-315-0058-001	October 27, 2000
00-20264	Develop Scenario for Degraded Voltage per SOER 99-1	October 27, 2000
01-11949	EECW HX Performance Is at the Operability Limit for Projected Heat Transfer Capability - Div II	June 28, 2001
01-13045	DC-5931 Assumptions Potentially Impacting EECW	May 18, 2001
01-13222	Current Calibrated Div II EECW Hydraulic Model May Not Accurately Predict Div II EECW Flows	July 23, 2001
01-15339	Indiction of Failed Motor T/C for Div I EESW Pump	June 12, 2001
01-15434	Need to Establish Equivalent Replacement for Nebula EP1 Grease	June 25, 2001
01-15435	MOV Experienced Locked Rotor Closing and Has Severe Actuator Binding	June 27, 2001
01-15713	As Found Data Out-of-Tolerance	September 24, 2001
01-16060	Div I & Div II EECW Flow Instruments Not Working	June 21, 2001
01-16463	EECW Flow Measured During 24.207.08.092601 Lower than Expected Analytical & Historical Range	October 3, 2001
01-16927	EESW Pump dp Below Acceptable Range - Div I	September 25, 2001
01-17789	EECW N_2 Cylinders Depressurized (0 psig) - Div II	November 4, 2001
01-17896	N_2 Bottles Found Valved in and Empty	November 11, 2001

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED PRIOR TO INSPECTION

Document Number	Title or Description	Revision or Date
01-19274	Instrumentation Found Out-of-Tolerance Condition	September 25, 2001
01-21956	Flows to EECW Throttled Loads Outside Required Bands	December 11, 2001
01-21959	EECW Flow to T4100B019 Was Found Lower Than Design (D2 RHR Room Cooler)	December 11, 2001
02-11729	Maintenance Procedures Need Revision To Reflect Lubricant Change	April 15, 2002
02-11730	Maintenance And Planner Training Needed To Reflect Lubricant Change	April 15, 2002
02-14415	Degraded Thermocouple Cables Between the RHR and the Relay Room Panel HIP867	March 23, 2002
02-15135	Evaluate Purchasing New Flow Meters (M&TE)	May 31, 2002
02-15397	EECW MU Tank A Level High (1D92) Came in Early	June 25, 2002
02-16602	Flows to Div II EECW Throttled Loads Outside Required Bands	December 11, 2002
02-19239	Decreasing Div II EECW Alternate N_2 Supply Bottle Pressure to Head Tank	November 26, 2002
02-19263	EECW Flow to T4100B019 Was Left Lower Than Design (Div II RHR Room Cooler)	December 11, 2002
02-19413	EESW / EECW Cross-Tie MU Low Flow Condition - Div I	September 25, 2002
02-19674	Eval of Elevated Corrosion Rates	September 24, 2002
02-19698	Eval Treatment Chemicals for RBCCW/EECW/ SCS	October 29, 2002
03-12037	Sargent & Lundy Technical Alert TA 2003-0006; KITTY and WTRCOIL Program Error Overestimates Room Cooler Performance at Low Water Flow Rates	April 16, 2003
03-12801	Multiple Repeat Calibration Failures of Panametrics 868 Ultrasonic Flow Meters	March 7, 2003
03-14510	Change Procedure 23.307	April 15, 2003
03-14537	Surveillance 24.707.01 Revision 38 Lists Incorrect Max Allowed Valve Stroke Time	April 23, 2003
03-14451	Corroded Bolts on RHRSW Pump A Column Flanges	April 5, 2003
03-14619	Damaged Replacement Injection Pump	February 28, 2003
03-14757	Improperly Prepared Work Requests	April 7, 2003
03-14975	Need to Establish Low EDG Jacket Coolant Temperature	April 2, 2003
03-14980	Changes to EDG SOP, 23.307	April 4, 2003
03-14981	Refurbish EDG Generator to Engine Coupling	April 2, 2003
03-16148	EDG Unavailability During 28.502.08-11	April 22, 2003
03-16149	EDG 14 Speed Oscillations at Idle	April 19, 2003
03-16374	Recommend Paralleling EDG 13 Generator Voltage at ~ 50V Greater than Bus Voltage from Local Control Panel (When Paralleling Is Needed)	April 22, 2003

CONDITION ASSESSMENT RESOLUTION DOCUMENTS ISSUED PRIOR TO INSPECTION

Document Number	Title or Description	Revision or Date
03-16375	Misc. Errors And/or Trends Found During Review of SST/SPF's Surv's	April 20, 2003
03-16379	Procedure Inconsistency Which Calls out Acceptance Criteria Steps Which Are Not Supported by Tech Specs (24.307.01-.04)	April 25, 2003
03-16380	Core Spray Logic Relay KIGB May Need Replacement Due to 9 Sec vs 5 Sec Delay of CS Pump B Starting During EDG 13 LOP/LOCA Testing	May 1, 2003
03-16381	Minor Typo's Found in 34.307.001, EDG Inspection and PM Procedure	May 5, 2003
03-16395	Wrong Critical Due Dates Entered into New PM Events for EDG Starting Air Check Valves	May 23, 2003
03-16681	Engineering First Team Request an Eval to Determine the Impact of Trimming the Breakout on Raychem Splice NMCKV-4	April 17, 2003
03-16709	Disc Guides Deteriorated (EDG 13 SW Outlet Valve)	April 13, 2003
03-16755	Consider Performing 24.307.41, .42, .43 and .44	April 10, 2003
03-16757	Procedure Clarification	April 8, 2003
03-16765	23.307, Revision 76 Lacks a Step to Place Rated/Idle Switch to Rated When Placing the EDG in Standby	April 8, 2003
03-16805	Missing PIS Label	April 8, 2003
03-16977	EDG Watt Transducer to IPCS Are Not Being Periodically Calibrated	April 29, 2003
03-17121	Fuses in Panel Reversed	April 18, 2003
03-17194	24.307.01 and .02 Procedure Enhancements	April 26, 2003
03-17219	Typo in EDG Surveillances	April 21, 2003
03-17233	As-Found Flow for EDG 11/12 SW less than Acceptable Band	April 25, 2003
03-17268	Procedure Change	May 7, 2003
03-17272	Operated Pump with Discharge Valve Closed	May 8, 2003
03-17426	Change DGSW Computer Point Resolution	May 20, 2003
03-17427	Evaluate Industry Concern with Stock Codes 610-8229 & 684-6129	May 16, 2003
03-17491	EDG 14 Frequently Hunts	May 1, 2003
03-17492	24.307.04 Enhancements	May 1, 2003
03-17631	Flow Meter Accuracy Questionable Due to Susceptibility to Static Charge	May 14, 2003
03-17689	Need T Handle 5/8" Socket for EDG Pet-Cocks	May 15, 2003
03-18096	Trip of EDG 12 FOTP A	May 8, 2003

DESIGN BASIS DOCUMENTS

Document Number	Title or Description	Revision or Date
A31-00	Valves	F
D11-00	Process Radiation Monitoring System	August 1, 2000
P44-00	Emergency Equipment Cooling Water System	C
P45-00	Emergency Equipment Service Water System	A
P45-00	Change Pages Initiated by EDP-30844	0
RXX-00	ESS Electrical System	0
XXX-02	Design Basis Event Combinations	A

DRAWINGS

Document Number	Title or Description	Revision or Date
4I721-2440-01	Logic Diagram EECW & EESW Systems Auto-Manual Control Unit 2	F
4I721-2440-02	Logic Diagram Emergency Equipment Cooling Water System Pump A & B Unit 2	A
4I721-2440-04	Logic Diagram Emergency Equipment Cooling Water System Valves - Auto Close	J
4I721-2440-05	Logic Diagram Emergency Equipment Cooling Water System Valves – Auto Open - Div II Unit 2	F
5I721-2440-06	Logic Diagram Emergency Equipment Cooling Water System Valves Div I - Auto Open	D
4I721-2440-07	Logic Diagram Emergency Equipment Cooling Water System Valve - Div II	B
4I721-2440-08	Logic Diagram Emergency Equipment Cooling Water System Valve - Auto Close Div II	B
4I721-2440-09	Logic Diagram Emergency Equipment Cooling Water System Valve - Div I	B
4I721-2440-10	Logic Diagram Emergency Equipment Cooling Water System Valve - Auto Close Div I	C
5I721-2440-11	Logic Diagram Emergency Equipment Cooling Water System Valves Div I & II Remote Manual	A
5SD721-2581-12	Wiring Diagram S.S. Transformer 64 - Unit 2 Overvoltage Relay Panel	B
6I721-2440-012	EECW & EESW “A” System Auto-Manual Control	P
6I721-2440-013	EECW & EESW “B” System Auto-Manual Control	M
6I721-2440-014	EECW & EESW “B” System Auto-Manual Control	M
6I721-2440-018	Battery Room A/C & Penetra. Area CIG H_2O Inlet Valves V8-3057 & V8-3058 Unit 2	E
6I721-2440-20	Return From Drywell Isolation Valves P4400F615 & P4400F616	M
6I721-2441-01	EECW System Pump A (P4400C001A)	R
6I721-2441-02	EECW System Pump B (P4400C001B)	Q
6I721-2441-03	EECW Sys EECW Return To RBCCW & RBCCW To EECW Stop Valves	K

DRAWINGS

Document Number	Title or Description	Revision or Date
6I721-2441-04	EECW Sys EECW Return To RBCCW & RBCCW To EECW Stop Valves	N
6I721-2441-05	RBCCW To Drywell Equip Sump Hx Inlet Valve P4400F608	L
6I721-2441-06	EECW MU Tk B Outlet & EECW To Drywell Equip Stop Valves	K
6I721-2441-07	RBCCW To Reat Equip Sump Hx B Inlet & RBCCW To Cntrl Rod Drive PU VA	H
6I721-2441-08	EECW Return From Drywell & RBCCW To Reactor Bldg Equip Sump Hx A Inlet Vlvs	I
6I721-2441-09	EECW System Drywell Supply Iso & EECW Drywell Return Iso Valves P4400F606A & P4400F607A	P
6I721-2441-12	EECW & EESW A System Auto Manual Control	P
6I721-2441-13	EECW & EESW B System Auto Manual Control	M
6I721-2441-14	Clg H_2O Outlet Valve Steam Tunnel Coolers A & B Stop Valves Unit 2	E
6I721-2441-15	Clg H_2O Inlet Valve Steam Tunnel Coolers A & B Stop Valves Unit 2	D
6I721-2441-18	Battery Room A/C & Penetra Area Clg H_2O Inlet Valves V8-3057 & V8-3058 Unit 2	C1
6I721-2441-20	Return From Drywell Isol Valves P4400F615 & P4400F616	M
6I721-2441-21	EECW System EECW MU TK A Outlet Valve P4400F602A	D
6I721-2441-22	EECW TCV, EESW PCV and Moore Controller Replacement	0
6I721-2520-78	Local Instrument Rack: Rack No. H21P472 Second Floor (El. 613' - 6") Reactor Building	W
6I721-2520-79	Local Instrument Rack: Rack No. H21P472 Second Floor (El. 613' - 6") Reactor Building	E
6I721-2520-80	Local Instrument Rack: Rack No. H21P473 Second Floor (El. 613' - 6") Reactor Building	U
6I721-2520-81	Local Instrument Rack: Rack No. H21P473 Second Floor (El. 613' - 6") Reactor Building	G
6I721-2525-12	Local Instrument Rack: Rack No. H21P447 & H21P448 Reactor Building – Unit 2	U
6I721-2572-28	4.16kV ESS Bus 64B & 64C Load Shedding Strings	O
6I721-2572-55	4.16kV ESS Bus 64B (R1400S001B) Position B6	O
6I721-2573-44	480V ESS Bus 72E & 72F Load Shedding Strings	M
6I721-2578-05	Relay and Metering Diagram 4.16kV ESS Bus 64B	O
6I721-2581-2	Tap Changer Circuit 4.16kV S.S. Transformer 64	B
6I721-2581-3	Tap Changer Circuit 4.16kV S.S. Transformer 64	D
6I721-2581-5	Annunciator Circuit 4.16kV S.S. Transformer 64	D
6I721N-2524-3	Mounting Details of Level Sensors & Thermocouples RHR Complex	J

DRAWINGS

Document Number	Title or Description	Revision or Date
6I721N-2854-01	Instrument Location & Tubing Installation Grade, Floor Plan - El. 590' - 0", Div I - RHR Complex	K
6I721N-2854-04	Instrument Location & Tubing Installation Grade, Floor Plan - El. 590' - 0", Div II - RHR Complex	L
6M721-5357	Emergency Equipment Cooling Water - Div II	AW
6M721-5444	Emergency Equipment Cooling Water - Div I	BD
6M721-5706-3	RHRSW Makeup Decant, and Overflow Systems Functional Operating Sketch	U
6M721-5727	RBCCW Functional Operating Sketch	T
6M721-5727-1	RBCCW Functional Operating Sketch	0
6M721-5729-1	EECW Functional Operating Sketch - Div I	AQ
6M721-5729-2	EECW Functional Operating Sketch - Div II	AI
6SD721-2500-01	One Line Diagram 4.16kV & 480V System Service Unit 2	AB
6SD721-2501-95	Wiring Diagram 4.16kV Switchgear Devices Developments	C
6SD721-2510-01	480V E.S.S. Bus 72b, 72C, 72E, & 72F	V
29.100.01 Sh 1	RPV Control	9
29.100.01 Sh 1A	RPV Control - ATWS	7
29.100.01 Sh 2	Primary Containment Control	8
29.100.01 Sh 3	RPV Flooding, Emerg Depress, & Steam Cooling	6
29.100.01 Sh 3A	RPV Flooding & Emerg Depress - ATWS	8
29.100.01 Sh 4	Primary Containment H_2/O_2 Control	8
29.100.01 Sh 5	Secondary Containment and Rad Release	7
29.100.01 Sh 6	Curves, Cautions and Tables	8
Alfa Laval Thermal AB Dwg 32299-1862	Fermi 2 EECW Plate Heat Exchanger, MX25-BFD, Design and Arrangement Drawing	1
Dragon Valves Dwg 13050	Instrument Valve Model 670N, Nuclear 900 Class	0
Dragon Valves Dwg 14373	Valve, Angle, Nuclear Model 670N 900 Class	B
Dragon Valves Dwg 14372	Valve, Globe, Nuclear Model 670N 900 Class	E
Flowserve Dwg DWG004680	1K 1.5 x 1 - 82 Mark III Process Pump Outline, EECW MU Pumps	A

ENGINEERING CHANGE REQUESTS

Document Number	Title or Description	Revision or Date
ECR-29805-14	Resolution of As-Built Configuration of EECW/SW Piping and Supports	0
ECR-30844-1	EECW MU Enhancement	A
ECR-30844-2	EECW MU Enhancement	0
ECR-30844-3	EECW MU Enhancement Field Implementation	B
ECR-30844-5	Hot Tap Information	0

EVALUATIONS (10 CFR 50.59)

Document Number	Title or Description	Revision or Date
96-0034	ECP-28251, EESW / EECW Cross-Connect	3
SE 99-0009	EEC Heat Exchanger Replacement	0

MODIFICATIONS

Document Number	Title or Description	Revision or Date
ABN-26583-1	Revise Design Specification 3071-128-EO, Revision 0 to Provide Instruction for All MOV's VOTES Testing Quicktest Cable Sensors	A
EDP-11938	Replacement of Motor and Overload Heaters for MOV P4400F601B	0
EDP-13687	The Installation of Four 6" Drywell Manual Isolation Valves Outboard of P4400F606A, 607A, 606B, 607B, Removal of the Tie-In Tees for Future Chilled Water Connections That Were Added Per Revision A	B
EDP-27064	MOV P4400F601B Motor Replacement	0
EDP-28180	RHR Complex Pumps Freeze Protection	0
EDP-28251	EECW MU Water Tank Modification / EESW to EECW MU Tank	0
EDP-28988	EECW Check Valve Replacement	A
EDP-29805	Replacement of EECW Heat Exchangers	October 26, 1999
EDP-29794	Installation of Manual Test Valves at EECW / RBCCW Interface	0
EDP-30844	EECW MU Enhancement	0
EDP-31341	Motor and Operator Replacement for P4400F603B	0
SPC-13682	RHRSW Rad Monitor Setpoint Increase	December 2, 1992
SPC-13682	RHRSW Rad Monitor Setpoint Increase	December 18, 1992
TSR-29429	Replace Obsolete Parts in MCC Compartments	March 11, 1999
TSR-29725	Equivalent Part/Alternative Item Eval for Valve Models & ASME Class Changes	A

OPERABILITY RECOMMENDATIONS

Document Number	Title or Description	Revision or Date
Attachment to CARD 02-16602	CARD 02-16602 Past Operability	March 27, 2003

PROCEDURES

Document Number	Title or Description	Revision or Date
29.ESP.08	Drywell Cooling Water Restoration	6
35.304.001	480V Unit Substation	27
35.304.005	480V Switchgear General Maintenance	29
35.306.001	480V Switchgear Breaker and Relay Control Testing	31

PROCEDURES

Document Number	Title or Description	Revision or Date
35.306.003	Limitorque Motor Operator – Periodic Inspection for DCR# 02-1953, dated March 26, 2003	48
35.318.003	Power Shield 480V Circuit Breaker Solid State Trip Testing	31
35.318.009	Inspection and Testing of ITE Ground and Overcurrent Protection Relays	24
35.318.017	Inspection and Testing of Multi-Contact Auxiliary Relays	37
35.LIM.007	SMB Style Limitorque Operator Removal/Installation Inspection for DCR 03-0083, dated March 26, 2003	27
42.000.02	Thermal Overload Relay Calibration	35
42.302.07	Calibration and Functional Test of Div I 4.16kV Bus 64B Undervoltage Relays	29
47.306.01	Signature Analysis of Motor Operated Valves	32
ARP 1D87	EECW North Pump Diff Press High/Low - Div I	18
ARP 1D91	EECW Service H_2O Flow Control Valve Open - Div I	9
ARP 1D96	EECW MU Tank a Pressure High/Low	13
ARP 2D17	EECW South Pump Diff Press High/Low - Div II	17
MES01	Engineering Support Conduct Manual Introduction	28
MES02	Design Configuration Management	4
MES07	Review, Approval, and Control of Vendor Design Documents	5
MES15	Design Calculations	13
MES17	Conduct of Design Verification	13
MES19	Preparation and Control of Engineering Design Packages	15
MES21	Incorporation of Changes into Design Documentation	12
MES27	Verification of System Operability	9
MES33	Conduct of the Environmental Qualification Program	7
MES41	Instrument Calibration Specification Sheets	1
MES42	Equivalent Replacement Process	7
MQA11	Condition Assessment Resolution Document	8

PROCEDURE CHANGES

Document Number	Title or Description	Revision or Date
DCR 02-1201 for 29.ESP.08	Revised Steps 1.13, 1.18, and 2.14 to Minimize Transients on the System	6

REFERENCES

Document Number	Title or Description	Revision or Date
----------	GE Type LR-65, Load Tap Changing Equipment	May 1970
----------	Offsite Dose Calculation Manual (Revision 14)	May 1, 2000
----------	Proposed License Amendment for Implementation of Alternative Radiological Source Term Methodology	February 13, 2003

REFERENCES

Document Number	Title or Description	Revision or Date
----------	Chemistry Gamma Spectroscopy Analysis Report for Reactor	March 29, 2003
----------	Answers to Request for Information (RFI) 23 and RFI 65 of NRC Inspection 50-341/01-05 (D.S.)	June 2, 2003
----------	Maintenance History of Emergency Equipment Cooling Water Heat Exchangers	May 22, 2003
3071-128-EO	MOV Quicktest Cable	A
ARP 1D92	EECW MU Tank A Level High/Low	14
ARP 2D18	EECW MU Tank B Level High/Low	14
BTP PSB-1	Adequacy of Station Electrical Distribution Voltages	0
Cooper Bussmann Data Sheet 1071	Fusetron Dual Element Time Delay Fuses Class RK5 –600V, FRS-R 1/10 – 60A	October 2, 2002
DECo Purchase Order #NR-329515	Micron Transformer Data Sheets for Transformer Selection Process	----------
Design Report T-N-990901-1	Alfa Laval Thermal AB: EECW System Plate and Frame Heat Exchangers	1
Design Spec 3071-545	Detroit Edison Specification for EECW System Plate and Frame Heat Exchangers	B
DSN-ME-131	Certified Seismic Analysis Report of Crane-Deming Horiz Split Case Pump, Fig 5063, Size 8x6x14½	November 23, 1973
EDP-26942	Engineering Design Input For ITT Barton dp Switch	August 20, 1994
EDP-31341	RBCCW/EECW Div II Supply Isolation Motor Operated Valve P4400F603B	0
EF2-53888	Detroit Edison Letter, Amended Response PSB-1 Adequacy of Station Electrical Distribution Voltage	June 26, 1981
EF2-54643	Detroit Edison Letter: Basis For The Fermi-2 Max Abnormal Environmental Condition In The Drywell	September 4, 1981
EFA P44-02-005	Related to CARD 01-13045	A
EFA P44-03-007	Related to CARD 01-13222	0
EFA T41-03-004	Related to CARD 03-12037	May 4, 2003
EQ0-EF2-018	Summary Of Environmental Parameters Used For Fermi 2 EQ Program	H
EQ1-EF2-107	EQ Report For ITT Conoflow I/P Transducer	C
EQ1-EF2-280	EQ Document MM-9112 Class 1E Medium AC Motors (Outside Containment) dated January 15, 1982	0
EQ1-EF2-237	Engineering Analysis For ITT Barton Differential Pressure Switch Models 580A & 581A	D
ERE 31955	Replacement Of Nebula EP With MOV Long Life Grease	0
ERE 32092	MOV Lubrication Change	B
Flowserve Report SR-0950	Design Calculations and Seismic Analysis, EECW MU Pumps, Pump Size BG1.5X1-82	1
Generic Letter	Degraded Voltage	June 2, 1977

REFERENCES

Document Number	Title or Description	Revision or Date
GL 89-13, Supplement 1	Service Water System Problems Affecting Safety-Related Equipment	April 4, 1980
H21P625	Central Component Database Component Information	June 3, 2003
H21P632	Central Component Database Component Information	June 3, 2003
IE Bulletin No. 80-10	Contamination of Non-Radioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment	May 6, 1980
IST Eval 99-087	ASME Valve Stroke Time Acceptance Criteria, Second Ten Year Interval	0
IST Eval 02-057	New Reference Stroke Times for MOVs Based on CECO Limits Changes in the MVL	0
Memorandum	Service Water System Review Inspection Observation Action Item 162	February 14, 1996
MES05, Enclosure C	Electrical Lead Design Document Indexes	12
MES05, Enclosure D	I & C Lead Design Document Indexes	12
MWC02, Enclosure B	Assigning A Work Request Priority	26
MLEA Document No.: 89029-003	Technical Eval and Material Assessment for VOTES Hardware Installed on MOV in Nuclear Power Plants	3
MOV Test Summary	Thrust Margin for P4400 MOVs	May 23, 2003
NE-6.6-EQMS.001	EQ Maint & Surveillance Requirement File Index	April 1, 1985
NRC Letter	DECo Request for an Emergency Amendment to the Fermi-2 Tech Spec Regarding the Degraded Grid Voltage Setpoints	June 13, 1996
NRC Letter	Issuance of Amendment No. 4 to Facility Operating License No. NPF-43, Fermi-2	August 22, 1986
NRC Memo	Temperature/Pressure Profiles For Fermi - 2	September 29, 1981
P1-16367	EECW MU Pump Motor EQ Report	May 5, 2003
Presentation Slides	Emergency Equipment Cooling Water	May 19, 2003
Project Spec 3071-088	EECW System Heat Exchangers for Reactor Building	A
R1600S148	Central Component Database Component Information	June 3, 2003
R3-580A-29	ITT Barton Volumes I & II, Nuclear Qualification Test Program Report For Models 580A, 581A, & 583A Mild Environment dp Switch Instruments	March 2, 1987
Spec 3071-85	Emergency Equipment Cooling Water Pumps	January 6, 1972
SwRI Project No. 01-1901-433-a	Investigation of Surface Burning Characteristics of Amercoat 3144	August 3, 1988
Tech Spec 3.7.2	EECW/EESW System & Ultimate Heat Sink	Amendment No. 134
Tech Spec B 3.7.2	EECW/EESW System & Ultimate Heat Sink	1

REFERENCES

Document Number	Title or Description	Revision or Date
UFSAR Section 6.3	Emergency Core Cooling Systems	11
UFSAR 6.3.2.2.6	Emergency Equipment Cooling Water System	9
UFSAR 9.2.1	General Service Water System	10
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VP-86-0076	Detroit Edison Letter, Request for Exigent Amendment to the Fermi 2 Technical Specifications Governing ECCS Actuation Instrument Setpoints (Degraded Grid Relay Setpoints)	July 2, 1986
VP-86-0094	Detroit Edison Letter, Basis for Exigent Processing of the Amendment to the Fermi 2 Technical Specifications Governing ECCS Actuation Instrument Setpoints	July 15, 1986
VP-86-0110	Detroit Edison Letter, Response to NRC Request for Additional Information, Degraded Grid Voltage	July 24, 1986
Westinghouse DSN: EQ1-EF2-280	Qualification Eval Report: EECW System Pump Motors, Model 444US-TBDP	A

SURVEILLANCE PROCEDURES

Document Number	Title or Description	Revision or Date
24.207.07	EECW/EESW Actuation Functional Test - Div II	34
24.207.08	EECW Pump and Valve Operability Test - Div I	55
24.207.09	EECW Pump and Valve Operability Test - Div II	19
24.207.11	EECW Miscellaneous Valve Operability Test - Div II	1
47.207.01	EECW Heat Exchanger Performance Test - Div I	31

SYSTEM HEALTH REPORTS

Document Number	Title or Description	Revision or Date
R1400	4.16kV and 480V Switchgear	4th Quarter 2002
R3100	Vital Power	4th Quarter 2002
R3200	DC Systems	4th Quarter 2002
P44/P45	EECW/EESW	4th Quarter 2002

WORK DOCUMENTS

Document Number	Title or Description	Revision or Date
000Z011966	Reprogram P44K800A per SPC 31155	November 9, 2001
000Z013900	Reprogram P44K800A per CSCCD-P44K800A	November 21, 2001
000Z014113	Reprogram P44K800B per CSCCD-P44K800B	December 11, 2001
000Z020325	Manual Lever for MOV Will Not Remain Engaged	September 24, 2002
000Z020987	Unusual Motor Current Trace	April 15, 2003
000Z971186	Dedicated Shutdown Panel H21P625 and H21P632 Operability Test	April 21, 1997

WORK DOCUMENTS

Document Number	Title or Description	Revision or Date
Event Number Q581	Perform Test on 480V Breaker 72EB-2C (Test Power Shield)	May 20, 2003
Event Number Q842	Perform Test on 480V Breaker 72C-3D (Test Power Shield)	May 20, 2003
Event Number R980	Inspect and Test 489V (Unit Substation Bus 72E, Regulator and Transformer)	May 20, 2003
Event Number R989	Inspect and Test 489V (Unit Substation Bus 72F)	May 20, 2003
Event Number Z230	Perform Inspection and Testing of SS64 Protective Relaying and Control	May 20, 2003
Event Number Z235	Perform Inspection & Testing of SS64 Transformer	May 20, 2003

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agency-wide Document Access and Management System
CARD	Condition Assessment Resolution Document
CFR	Code of Federal Regulations
DBA	Design Basis Accident
DC	Direct Current
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedures
EQ	Environment Qualificatedl
IMC	Inspection Manual Chapter
NCV	Non-Cited Violation
EECW	Emergency Equipment Cooling Water (EECW) and
EESW	Emergency Equipment Service Water (EESW)
EOP	Emergency Operating Procedure
EQ	Environmental Qualification
LOCA	Loss Of Coolant Accident
MCC	Motor Control Center
MOV	Motor Operated Valve
NCV	NonCited Violation
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculatiom
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
SDP	Significance Determination Process
UHS	Ultimate Heat Sink
URI	Unresolved Item
USAR	Updated Safety Analysis Report