November 13, 2001

Mr. A. C. Bakken III
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107-1395

SUBJECT: D. C. COOK NUCLEAR POWER PLANT
NRC INSPECTION REPORT 50-315/01-15(DRS); 50-316/01-15(DRS)

Dear Mr. Bakken:

On October 19, 2001, the NRC completed a baseline inspection at your D. C. Cook, Units 1 and 2 reactor facilities. The results of this inspection were discussed on October 19, 2001, with Mr. M. Rencheck and other members of your staff.

This inspection was an examination of activities conducted under your license as they related to safety and 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, the inspection focused on the design and performance capability of the component cooling water and essential service water systems to ensure the systems were capable of performing required safety related functions.

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 and its enclosure will be 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/NRC/ADAMS/index.html** (the Public Electronic Reading Room).

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

Sincerely,

/RA by Ronald N. Gardner Acting for/

John M. Jacobson, Chief
Mechanical Engineering Branch
Division of Reactor Safety

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure: Inspection Report 50-315/01-15(DRS);
50-316/01-15(DRS)

cc w/encl: J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Emergency Management Division
MI Department of State Police
D. Lochbaum, Union of Concerned Scientists

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Enclosure: Inspection Report 50-315/01-15(DRS);
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cc w/encl: J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Emergency Management Division
MI Department of State Police
D. Lochbaum, Union of Concerned Scientists

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-315; 50-316
License Nos:	DPR-58; DPR-74
Report No:	50-315/01-15(DRS); 50-316/01-15(DRS)
Licensee:	American Electric Power Company
Facility:	Donald C. Cook Nuclear Power Plant
Location:	1 Cook Place Bridgman, MI 49106
Inspection Dates:	October 1 through 19, 2001
Inspectors:	A. Dunlop, Lead Inspector Z. Falevits, Reactor Inspector M. Farber, Reactor Inspector G. O'Dwyer, Reactor Inspector D. Schrum, Reactor Inspector H. Anderson, Contractor
Approved by:	John M. Jacobson, Chief Mechanical Engineering Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000315-01-15(DRS), IR 05000316-01-15(DRS), on 10/01-19/2001, American Electric Power Company, D. C. Cook Nuclear Power Plant, Units 1 and 2. Safety System Design and Performance Capability.

The inspection was a routine baseline inspection of the design and performance capability of the component cooling water and essential service water systems. It was conducted by regional engineering specialists. No findings of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at **http://www/nrc.gov/NRR/OVERSIGHT/index.html.** Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violations.

Report Details

1. REACTOR SAFETY

Cornerstones: Mitigating Systems and Barrier Integrity

1R21 Safety System Design and Performance Capability (71111.21)

Introduction

Inspection of safety system design and performance verifies the initial design and subsequent modifications and provides monitoring of the capability of the selected system to perform design bases functions. As plants age, the design bases may be lost and important design features may be altered or disabled. The plant risk assessment model is based on the capability of the as-built safety system to perform the intended safety functions successfully. This inspectable area will verify aspects of the mitigating systems and barrier integrity cornerstones 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 component cooling water (CCW) and essential service water (ESW) systems during normal, abnormal, and accident conditions. The inspection was performed by a team of inspectors that consisted of a team leader, four Region III inspectors, and a consultant.

The CCW and ESW systems were selected for review during this inspection. This selection was based upon:

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

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

- applicable technical specifications;
- applicable Updated Final Safety Analysis Report sections; and
- the systems design documents.

a. Inspection Scope

The following system and component attributes were reviewed in detail:

System Needs

Process Medium - water
Energy Source - electrical power
Control Systems - initiation, control, and shutdown actions

Operator Actions - initiation, monitoring, control, and shutdown
Heat Removal - cooling water

System Condition and Capability

Installed Configuration - elevation and flow path operation
Design - calculations and procedures
Testing - flowrate, pressure, temperature, voltage, and current

Components

Four components were selected for detailed review during the inspection. The chosen components were the ESW pumps, ESW pump strainers, CCW pumps, and CCW heat exchangers. The following attributes were reviewed for these components:

Component Degradation
Vibration
Operation
Equipment Protection - flood, missile, and freezing
Component Inputs and Outputs
Industry Operating Experience

b. Findings

Updated Final Safety Analysis Report Change Not in Accordance With 10 CFR 50.59

The inspectors identified an unresolved issue (URI) related to an Updated Final Safety Analysis Report (UFSAR) change that was not in accordance with the requirements of 10 CFR 50.59. In change request UCR-969, the licensee revised the seismic class designation for a portion of the safety-related ESW system from Category I to Category III. The change was made under 10 CFR 50.71(e) as the licensee stated this was a “de facto” change of the UFSAR in that the original plant design was not revised. However, the UFSAR change appeared to meet the requirements to evaluate the change under 10 CFR 50.59 as the licensee was relying on seismic class III system to mitigate the consequences of an accident in the UFSAR, which was different than what the NRC approved in the original Safety Evaluation.

The issue concerning the seismic classification of the ESW piping was documented by the licensee in CRs P-99-11392 and P-00-08134. The initial CR was to address the seismic classification of the intake tunnels, traveling screens, and the ESW return piping. All of these components were designed to seismic Category III. The licensee developed a white paper and associated addendum titled, “Screenwash/Ultimate Heat Sink System,” which analyzed the seismic capabilities of these components. The majority of the ESW return piping in question was embedded in the seismic Category I turbine building and screen house foundations. There was a portion of exposed Category III ESW piping in the turbine building where it exits the auxiliary building until it was embedded in the turbine building foundation. The licensee stated in the white paper this piping had been analyzed for seismic Category I. This provided the licensee with reasonable assurance that the ESW return piping would support the safe shutdown

of the plant following a design basis event. The second CR identified the seismic classification discrepancy of the ESW piping between Section 2.9 of the UFSAR and the ESW flow diagrams. The CR's condition evaluation section stated that the piping seismic classification issue was part of the initial design of the plant and by the time ESW flow reaches the turbine building, the ESW system has already performed it's safety-related heat removal function. Although this would be true for a pipe break in the turbine building, it does not address the possibility of the pipe pinching during the seismic event, which would prevent ESW flow from performing it's safety-related heat removal function. Since the return pipes for both trains of ESW run parallel to each other in the turbine building (approximately 2 feet apart), there would be the potential to pinch the piping in both trains of ESW such that there would be no or minimal ESW flow to safety-related components. The resolution of the CR was to initiate a UFSAR change request to revise section 2.9 to agree with the ESW flow diagrams.

The UFSAR change request, UCR-969, was considered a "de facto" 10 CFR 50.71(e) change by the licensee because this was the configuration to which the plant was initially licensed. The change request stated there was reasonable assurance that the NRC did not rely on the ESW return lines in the turbine building being seismic Category I in issuing the operating license. However, the original NRC Safety Evaluation stated the ESW system was a Category I system, which appeared to have been used as part of the NRC's basis for approval that the ESW system design was acceptable.

The inspectors considered this issue to have a credible impact on safety because the licensee had not considered the increased risk impact of this Category III piping being pinched during a seismic event, which could prevent or reduce the flow of ESW to safety-related components such as the diesel generators and component cooling water heat exchangers. The licensee initiated CR 01291058, which was evaluating the UFSAR change associated with the seismic classification of the ESW return piping. The licensee's preliminary evaluation indicated that a 10 CFR 50.59 evaluation should have been performed. The issue is being left as an unresolved item (URI 50-315/01-15-01; 50-316/01-15-01) pending the licensee completing their review of the issue and NRC's review of the acceptability for relying on seismic Category III piping to mitigate an accident and support the safe shutdown of the plant following a design basis event. In addition, the Office of Nuclear Reactor Regulation (NRR) will be consulted on the generic aspects of this concern.

4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a selected sample of CRs, associated with the selected systems, to verify an appropriate threshold for identifying issues and to verify the adequacy of corrective actions for the identified issues. In addition, CRs written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problem into the corrective action system.

b. Findings

No findings of significance were identified.

4OA6 Meeting

Exit Meeting

The inspectors presented the inspection results to Mr. M. Rencheck and other members of licensee management and staff at the conclusion of the inspection on October 19, 2001. The licensee acknowledged the information discussed during the exit. No proprietary information was identified.

KEY POINTS OF CONTACT

Licensee

G. Arent, Design Engineer
D. Baker, Manager, Configuration Management
M. Barfelz, Regulatory Affairs
M. Danford, Manager, Corrective Actions
C. Doyel, Principal I&C Engineer
R. Ebright, Manager, Engineering Programs
A. Feliciano, Senior Mechanical Engineer
R. Gaston, Regulatory Affairs
S. Greenlee, Director, Design and Regulatory Affairs
B. Lord, Principal Electrical Engineer
W. McCrory, System Engineer
B. Miller, Mechanical Design
J. Pollock, Plant Manager
M. Rencheck, Vice President, Engineering
E. Ridell, Supervisor, Compliance Programs
R. Smith, Director, Plant Engineering
R. Womack, Engineering Supervisor, IST

NRC

J. Maynen, Resident Inspector
K. Coyne, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-315/01-15-01/ 50-316/01-15-01	URI	UFSAR Change Made Without a 10 CFR 50.59 Evaluation

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agency-wide Documents and Management System
CCW	Component Cooling Water
CR	Condition Report
CFR	Code of Federal Regulations
DRS	Division of Reactor Safety
ESW	Essential Service Water
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PARS	Publically Available Records
SDP	Significance Determination Process
URI	Unresolved Issue
UFSAR	Updated Final Safety Analysis Report

LIST OF DOCUMENTS REVIEWED

Calculations

Number	Title	Revision or Date
1-E-N-ELCP-4KV-001	U1 4k/600V Load Control Calc.	Revision 1
1-UNC-125-C1	ESW to CCW Heat Exchanger Flow	Revision 0
ECP-1-2-C4-02	Component Cooling Water Heat Exchanger and Reactor Support Temperature and Flow	October 20, 1997
ECP-1-2-C4-04	TSC Safety Inj. and Cent. Charging CCW Low Flow Alarms	December 29, 1987
ECP-1-2-C4-05	CCW Surge Tank Level and Radiation System	March 28, 1983
ECP-1-2-C4-09	CCW Flow Orifice Calculations	June 8, 1998
ECP-1-2-UNC-65	ESW Return Header Flow	March 24, 2000
ECP-1-2-UNC-066	ESW Supply Header Flow	March 21, 2000
ECP-1-2-UNC-125	ESW to CCW Heat Exchanger Flow	December 23, 1998
ECP-1-2-W7-01	ESW Pump Discharge Strainers	September 23, 1991
ECP-1-2-W7-02	ESW Flow Indication	November 2, 1998
ECP-1-WSI-03	CCW Flow from the RHR Heat Exchangers	July 29, 1993
ECP-1-WSI-15	Loop Uncertainty/Setpoint Calc. For CCW Flow to the RHR Heat Exchangers	July 29,1993
ECP-1-2-WSI-16	CCW Flow to/from the Excess Letdown Heat Exchangers	May 12, 1994
EG-IC-012	Application of Instrumentation to IST Pump Testing - Pump 1-PP-7E, 1-PP-7W, 2-PP-7E, 2-PP-7W	Revision 0
ENSM970919AF	CCW Pumps' NPSH	Revision 0
ENSM980327JDJ	Results of Operating the Diesel Generator Lube Oil Cooler and Jacket Water Cooler at Elevated ESW Temperatures	Revision 0
ENSM990305AF	Determine CCW Heat Exchanger UA Value During Recirculation Operation	Revision 0

Calculations

Number	Title	Revision or Date
ENSM990414AF	Determine RHR UA Value During Recirculation Operation	Revision 0
MD-12-AFW-001-N	AFW System Analysis for Loss of AC and Main Steam Line Break	Revision 0
MD-12-CCW-803-N	Post Accident Back-Up Undiluted Liquid Sample Cooler Thermal Performance at the Minimum CCW Flow Rate	Revision 0
MD-12-CCW-807-N	Post Accident Liquid Sample Cooler Thermal Performance at Minimum CCW Flow Rate	Revision 0
MD-12-CCW-808-N	Post Accident Lower Containment Atmosphere Sample Cooler Thermal Performance at the Minimum CCW Flow Rate	Revision 0
MD-12-CCW-815-N	Sizing of CCW Surge Tank and Surge Tank Vacuum Breaker	Revision 0
MD-12-CTS-007-N	CTS Heat Exchanger UA Determination for Containment Integrity Analysis	Revision 1
MD-12-ESW-001-N	Maximum Lake Water Temperature Evaluation	Revision 0
MD-12-ESW-074-N	Maximum Lake Water Supply Temperature to Station Heat Exchanger	Revision 0
MD-12-ESW-076-N	ESW Pump NPSH Available and Submergence	Revision 0
MD-02-ESW-077-N	Unit 2 ESW System Analysis for As Left 3/29/00 Flow Balance Conditions to Determine the Allowable Minimum Operability Requirements	Revision 1
MD-02-ESW-089-N	Reduction in ESW Temperature to Accommodate Reduced Flow Rate to ESW Components	Revision 0
MD-01-ESW-095-N	Failure Analysis of Strainer Basket (CR01242013, CR01245030)	Revision 0
MD-12-MSC-068-N	Tube Plugging Allowances for Safety-Related Heat Exchangers	Revision 1
MD-12-RH-901-N	RHR and CCW Heat Exchanger UA Determination for Cooldown Conditions	Revision 0
PS-TOL-001	GL 89-10 Thermal Overload Sizing	March 17, 1993
SD-010405-001	Structural Qualification of Unit 1 and 2 CCW Heat Exchangers	Revision 0

Calculations

Number	Title	Revision or Date
	Seismic Re-Analysis of Refueling Water Storage Tank	September 5, 1989

Condition Reports Generated Due to the Inspection

P-99-13809 Action 30	Numerous Deficiencies with Safety and Relief Valve Implementation Procedure	October 16, 2001
01275011	CCW Pump HELB Doors	October 2, 2001
01276003	1-SV-15W Failed As-found Set Pressure Test	October 3, 2001
01276008	AR on 1-SV-15W Not Written in Timely Manner	October 3, 2001
01277041	MOL Values Reversed for East and West ESW Pumps	October 4, 2001
01281005	Location of 1-WFA-707 in 1-IHP-6030-IMP-521	October 8, 2001
01289014	Inspectors Questioned the CCW Heat Exchanger's Shell Side Velocity From Calculation ENSM990305AF	October 16, 2001
01289046	Misc. Wiring Diagram Errors	October 16, 2001
01290040	Several Labeling Discrepancies Noted in VI Eng. Safety System Relay Rack Panel "SSR"	October 17, 2001
01290076	Drawing PS-1-94279-10 Contains Incorrect Note and is in Conflict with Field Installed TOL Sizes	October 17, 2001
01291021	Potential Modeling Error Used in the RHR Heat Exchanger Calculation	October 18, 2001
01291022	Drawing Discrepancy Between OP-1-98415-37 and PS-1-92050-15 Concerning Test Switch #6	October 18, 2001
01291058	UCR #969 Used 50.71(e) and Not 10 CFR 50.59	October 18, 2001

Condition Reports Reviewed During the Inspection

P-97-02316	Computer Model Developed with the ENSM Section for Heat Transfer Calculations for the CCW Heat Exchanger, Incorrectly Models Heat Exchangers as Counter Flow	August 23, 1997
P-97-02378	CCW Flow Indicators	August 29, 1997

Condition Reports Reviewed During the Inspection

P-99-04817	Calculations for Thermal Expansion of CCW HX Do Not Consider Correct Temperature for Shell	March 9, 1999
P-99-05463	Diesel Generator After Cooler Valves Have a Fail Safe Function	March 15, 1999
P-99-05527	Rigid Mounting of Expansion Joints Restricts Movement and Defeats Design Function	March 12, 1999
P-99-05841	Doc's Missing for ESE Instrumentation Setpoints	March 18, 1999
P-99-06639	Drawing control	March 25, 1999
P-99-06656	Discrepancy with Minimum CCW Flow to the RHR Pump Seal Coolers	March 25, 1999
P-99-07171	Cracking Evident on All Heat Exchanger Pedestals	March 26, 1999
P-99-08237	Acceptability of Operating CCW Pumps Beyond Pump Curve Not Fully Evaluated	April 13, 1999
P-99-08681	Inappropriate Stress Combinations Used to Determine the Acceptability of Some CCW System Piping Nozzles During Seismic Events	April 19, 1999
P-99-10731	DG Vent System Thermal Overload Trip	May 6, 1999
P-99-10973	Discrepancies with CCW System Calculations	May 7, 1999
P-99-11392	Discrepancy in Pipe Classification	May 10, 1999
P-99-13569	Seismic Class III Piping Qualified for Seismic Class I Load	May 26, 1999
P-99-13809	Numerous Deficiencies with Safety and Relief Valve Implementation Procedure	May 26, 1999
P-99-16641	No Testing Exists which Completely Confirms the Capability of ESW Pumps to Meet Response Times	June 24, 1999
P-99-17580	Shared ESW System May Have Configuration Not Reviewed in the UFSAR	July 1, 1999
P-99-18634	Discrepancies with Electrical Protection Evaluations	July 16, 1999
P-99-25793	Foreign Material Found in Heat Exchanger	October 21, 1999
P-00-01079	Supply Air to Valve Actuators Exceeds the Manufacturers Maximum Allowable Casing Pressure	January 20, 2000
P-00-04102	Procedure 2EHP 4030.216.001, CCW Flow Balance Secured at Step 4.1.24	March 14, 2000

Condition Reports Reviewed During the Inspection

P-00-04212	2 EHP 4030.216.001, CCW Flow Balance Step 4.2.12 Flow Acceptance Criteria Not Attained	March 16, 2000
P-00-04433	Engineering Judgement Not Adequately Supported in DIT-B-00889-00 and 01	March 20, 2000
P-00-04464	ESW Strainers Indicate d/p of 77" at High Flow Conditions	March 21, 2000
P-00-04755	The N Train Battery West Exhaust Fan Tripped on TOL	March 27, 2000
P-00-06840	Capability of SR Motors to Perform Their Safety and Accident Mitigation Functions Over the Entire Spectrum of Volt/Freq Range Not Verified	May 12, 2000
P-00-06854	S&L DITs Documented Minimum Operability Limits	May 12, 2000
P-00-08134	Acceptability of Seismic Class III Intake Tunnels, Traveling Screens, and Portions of ESW Return Piping	June 5, 2000
P-00-10928	West ESW Pump 2-PP-7W Found Inoperable	August 4, 2000
00291045	Bearing Material Discovered in the Inboard Pump Bearing Lube Oil During Routine Oil Sampling and Analysis	October 17, 2000
00295037	1-PP-7W-MTR Failed to Start	October 21, 2000
01036057	Essential Service Water Return Flow	February 5, 2001
01044030	Potential Documentation Issue Between the Calculations of Record and DIT-B-00003-06 with Regard to the UA Values for the CCW, CTS, and RHR Heat Exchangers	February 13, 2001
01045048	CR 99-23346 Evaluation of Bowed Divider Plate Was Not Adequate	February 14, 2001
01045053	Calculation MD-12-MSC-068-N, Revision 0, Established Heat Exchanger Plugging Limits Based on Design Thermal Performance Limits, Did Not Consider Design D/P Limits	February 14, 2001
01129088	S&L Study to Resolve 4Kv Swgr Short Ckt. Overduty Concerns was OAR's With Comments	May 9, 2001
01157043	Thermal Overload on ESW Discharge Valve 1-WMO-702 Opened While Valve Attempted to Open	June 6, 2001

Condition Reports Reviewed During the Inspection

01163016	1-HV-SGRR-2-MTR Failed While Performing PMT	June 12, 2001
01206039	Calculation ME-12-HV-042-N, Revision 0, "Auxiliary Building Temperature Transient Without CCW Pump Area Ventilation" Contains Significant Errors	July 25, 2001
01234058	Dwg's Show SB1 Switch Configuration Field Installed Switches are SB1O	August 22, 2001
01242013	Silt/Mud Intrusion into U1 and U2 ESW Systems Renders CCW and EDG Inoperable	August 29, 2001
01245030	Deficient Strainer Condition Allowed Large Size Material Intrusion into the ESW System	September 2, 2001
01258012	Unit 1 West CCW Heat Exchanger Has Significant Corrosion on the Turning End Tubesheet and the Interface With the Endbell	September 15, 2001
01258042	Tube Sheet Maps Not Retained for Previous 12-MHP-5030.016.001 on the U1 West CCW Heat Exchanger	September 15, 2001
01262100	The Upper Lip Seal Between the Shaft and Tube Tension Nut is Torn	September 19, 2001
01263057	2-PP-59A Pump Motor Tripped on TOL	September 20, 2001
01263059	2-PP-61B Tripped Motor Thermal Overload When Performing Load Sequence Test	September 20, 2001
01268019	Request for Engineering Evaluation of Valve Actuator Play on ESW Flow	September 25, 2001
01268041	01-EHP-4030-119-241-R2C2, ESW Flow Balance, step 4.8.11, Required Flows for the U1 ESW West Train Could Not Be Achieved for the CCW and CTS Heat Exchangers	September 25, 2001
01271020	2W ESW Pump Motor Tripped on Instantaneous Overcurrent Due to Degraded Power Cable	September 28, 2001
01271007	Debris Found in 2-PP-59A	September 29, 2001

Condition Reports Reviewed During the Inspection

01275031	During U2 ESW Flow Verification Testing, ESW Flow to the U2 West CCW Hx was 30.4 gpm Below the Acceptance Limit of 5520.6 gpm. ESW Flow to the W AFP RM Cooler Had No Margin to the Acceptance Limit	October 2, 2001

Correspondence

Ltr	J. N. Stang to Robert P. Powers	February 3, 2000
Ltr	S. A. Varga to John Dolan	October 4, 1982
AEP-99-466	Containment Integrity Evaluation - Delay Alignment of Full CCW Flow to RHR HX	December 10, 1999
AEP-99-310	Safety Evaluation SECL 99-076, Revision 3 - Containment Modifications Evaluation	September 22, 1999
Internal Memo	Feliciano to Stark, Cook Nuclear Plant Units 1 and 2 CCW Heat Exchanger Heat Transfer Test Review	December 21, 1992

Design Basis Documents

DB-12-ESW	Essential Service Water System	November 24, 1998
DB-12-CCW	Component Cooling Water System	December 22, 1998

Design Change Packages

DCP 1-4631	Train “B” LOOP/LOCA Anti-Pump Reset Modification	Revision 0
DCP 1-4690	250Vdc Fuse Replacement Project	Revision 0
DCP 2-649	Modification of ESW Strainer Backwash System	Revision 0
DCP 2-4392	250Vdc Fuse Replacement Project	Revision 0a
DCP 2-4639	Train “B” LOOP/LOCA Anti-Pump Reset Modification	Revision 0
12-DCP-0174	Increase Design Basis Lake Temperature	Revision 1
12-DCP-231, R0	Change Measurement Range of Selected CCW Flow Indicators and Indicating Alarm Switches	September 17, 1998
12-DCP-855	Revise FSAR for Max. CCW Oper'g Temperature	Revision 0

Design Change Packages

ICP-00566	ESW Discharge Strainer Differential Pressure	May 1, 2000
ICP-00569	ESW Discharge Strainer Differential Pressure	May 1, 2000
ICP-00694	CCW Low Flow Alarms	December 4, 2000

Design Information Transmittal

DIT-B-00003-06	Containment Integrity Analysis	Revision 6
DIT-B-00005-04	Westinghouse Analysis Input Data	Revision 4
DIT-B-00760-03	Design Basis Performance Parameters for the Component Cooling Water Pumps	Revision 3
DIT-B-00760-04	Design Basis Performance Parameters for the Essential Service Water Pumps	Revision 4
DIT-B-00802-03	Unit 1 Restart CCw Flow Balance Procedure Acceptance Criteria	October 11, 2000
DIT-B-00802-06	CCW Flow Balance (EHP 4030.116.248, Revision 0)	October 31, 2000
DIT-B-00802-07	Acceptance Criteria For Unit 2 Cycle 13 CCW Flow Balance Procedure	June 14, 2001
DIT-B-0847-01	CCW Flow Uncertainties/Accuracies	September 28, 2000
DIT-B-00944-04	ESW Flow Balance Test Acceptance Criteria Summary for 01-EHP-4030-119-241	Revision 4
DIT-B-00944-06	ESW Flow Balance Acceptance Criteria Summary for 01-EHP-4030-119-241, Revision 1	Revision 6
DIT-B-00949-01	ESW Process and Flow Element Accuracies	Revision 1
DIT-B-01074-00	ESW Strainer Differential Pressure Switch and Alarm Settings	April 19, 2000
DIT-B-01161-01	ESW Loads - Concurrently Supplying CTS and AFW Suction Supply	May 15, 2000
DIT-B-01809-01	CCW Flow Alarms - Recommended Setpoints for Units 1 and 2	December 7, 2000
DIT-B-02199-01	Evaluation of Unit 1 East and West ESW Flow Balance Acceptance Criteria Discrepancies Associated with 01-EHP-4030-119-241	Revision 1

Design Information Transmittal

DIT-B-02214-00	Evaluation of Unit 2 East and West ESW FLow Balance Acceptance Criteria Discrepancies Associated with 02-EHP-4030-219-241	Revision 0
DIT-S-00503-06	Instrument Inaccuracy Adjustment for Pump Minimum Operability Limits	Revision 6

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8504-243506	Comb. Shell and Channel Details	Revision D
1-984341-1	Essential Service Water Flow and Press. Instrument System No. 1 Elementary Diagram	July 5, 1994
12-5637A-6	Screen House Instrument Rack Details Instrument Metering and 20#, 50#, 85# Air Supplies	August 31, 1999
12-ESW-X-1	Screen House (Sheet 1)	May 30, 2001
12-ESW-X-1	Screen House (Sheet 2)	November 23, 1993
C-14ALV86X51	General Component Cooling Water Pump Drawing	February 11, 1971
1-2-AEP-EFIN-BEU-B-15586	Tube Sheet Layout and Bundle	Revision 0
1-2-AEP-John-H-4193-D	Johnston Essential Service Water Pump	Revision 1
1-AEP-I48840-0	CCW System Ingersoll-Rand Co. Pump Curve #48840 AEP Pump No. 1-PP-10E	Revision 0
1-AEP-I48841-0	CCW System Ingersoll-Rand Co. Pump Curve #48841 AEP Pump No. 1-PP-10W	Revision 0
1-AEP-JTC1774-0	ESW System Johnston Pump Co. Pump Curve #TC-1774 AEP Pump No. 1-PP-7E	Revision 0
1-AEP-JTC1775-0	ESW System Johnston Pump Co. Pump Curve #TC-1775 AEP Pump No. 1-PP-7W	Revision 0
2-AEP-I48842-0	CCW System Ingersoll-Rand Co. Pump Curve #48842 AEP Pump No. 2-PP-10E	Revision 0
2-AEP-I48843-0	CCW System Ingersoll-Rand Co. Pump Curve #48843 AEP Pump No. 2-PP-10W	Revision 0
2-AEP-JTC1773-0	ESW System Johnston Pump Co. Pump Curve #TC-1773 AEP Pump No. 2-PP-7E	Revision 0

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2-AEP-JTC1776-0	ESW System Johnston Pump Co. Pump Curve #TC-1776 AEP Pump No. 2-PP-7W	Revision 0
12-AEP-Y69G22615A	Containment Spray Heat Exchanger Tube Layout Units 1 and 2, Sheet 1	Revision 0
OP-1-12001-62	Main Auxiliary One-Line Diagram Bus “A” and “B” Engineered Safety System (Train “B”)	Revision 62
OP-1-12002-50	Main Auxiliary One-Line Diagram Bus “C” and “D” Engineered Safety System (Train “A”)	Revision 50
OP-1-5104E-8	Flow Diagram Alt. Emerg. Shutdown and Cooldown System	Revision 8
OP-1-5113-70	Flow Diagram Essential Service Water	Revision 70
OP-1-5135-40	Flow Diagram CCW Pumps and CCW Heat Exchangers	Revision 40
OP-1-98405-25	Component Cooling System (East) Sheet 1 of 3 Elementary Diagram	Revision 25
OP-1-984051-9	Component Cooling System West Sheet 2 of 3 Elementary Diagram	Revision 9
OP-1-98415-37	Essential Service Water System East Sheet 1 Elementary Diagram	Revision 37
OP-1-984151-14	Essential Service Water System West Sheet 1 Elementary Diagram	Revision 14
OP-1-98108-3	CCW Flows from RCP #1, #2, #3, and #4 and ESW Pumps Disch Press - Functional Diag	March 5, 1998
OP-2-12001-30	Main Auxiliary One-Line Diagram Bus “A” and “B” Engineered Safety System (Train “B”)	Revision 30
OP-2-12002-27	Main Auxiliary One-Line Diagram Bus “C” and “D” Engineered Safety System (Train “A”)	Revision 27
OP-2-5104E-9	Flow Diagram Alt. Emerg. Shutdown and Cooldown System	Revision 9
OP-2-5113-63	Flow Diagram Essential Service Water	Revision 63
OP-2-5118-0	Flow Diagram CO_2 and H_2 Gas Systems Generator Unit No 2	Revision 0
OP-2-5135-35	Flow Diagram CCW Pumps and CCW Heat Exchangers	Revision 35

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OP-2-98387-22	Solid State Reactor Protection and Safeguard System Safeguard Actuation Signal Train B - Elem Diagram	April 27, 2000
OP-2-98405-28	Component Cooling System (East) Sheet 1 of 3 Elementary Diagram	Revision 28
OP-2-984051-10	Component Cooling System (West) Sheet 2 of 3 Elementary Diagram	Revision 10
OP-2-98415-45	Essential Service Water System East Sheet 1 Elementary Diagram	Revision 45
OP-2-984151-12	Essential Service Water System West Sheet 1 Elementary Diagram	Revision 12
OP-2-98721-7	Equipment Heating Sheet 1 Elementary Diag	Revision 7
OP-12-5118A-32	Flow Diagram Sodium Hypochlorite Units 1 and 2 Sheet 2 of 3	Revision 32
OP-12-5119-50	Circulating Water, Priming System and Screen Wash Units 1 and 2	Revision 50
PS-1-95111-7	Essential Service Water System Wiring Diag	June 6, 2001
PS1-92009-5	Non Essential Serv. Wtr. Eng. Safety Sys. Essential Serv. Wtr. Cont. Pnls. NSW and ESW Wiring Diagram	November 10, 1999
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PS-1-92010-5	Eng. Safety System Component Cooling Water and ESW Cong. Panel CCW and ESW Wiring Diagram	April 22, 2000
PS-1-92026-13	Eng. Safety System Relay Rack Panel “SSR” Sheet 1 Wiring Diagram	October 9, 2000
PS-1-92050-15	Station Auxiliary Panel “SA” Sheet 5 Wiring Diagram	May 31, 2001
PS-1-92084-6	Turbine Rear Panel “TRD” Wiring Diagram	October 23, 2000
PS-2-92132-11	Hot Shutdown Panel HSDI Wiring Diagram Sheet 1	November 21, 2000
PS-2-92137-4	Hot Shutdown Panel HSDI Wiring Diagram	January 13, 1999

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PS-1-92325-18	Emerg. Diesel Gen Sub-Panel DGCD Sheet 3 Wiring Diagram	October 6, 2000
PS-1-92461-9	React. Prot. And Safeguards Actuation-Tr. A "RPS-A" Cab (output) Wiring Diagram	September 30, 2000
PS-1-92468-11	Reactor Prot and Safeguards Act. Train B RPSX-B Wiring Diagram	November 5, 2000
PS-1-93048-8	4 KV Aux Bus TIID ACB's TIID3 and TIID4 Wiring Diagram	October 15, 2000
PS-1-93051-5	4KV Aux Bus ACB's TIIID9 and TIIDI0 Wiring Diagram	October 25, 2000
PS-1-94279-10	600VAC Aux Bus 11A MCC 1-AM-A (ESS) Rear Wiring Diagram	August 14, 2001
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QD-12847	49" Channel	Revision A
QH 31603-1-T	Bundle Details	Revision B
SOD-01600-001	Component Cooling Water System	Revision 1
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W-16ALV500X17	Sectional Assembly Component Cooling Water Pump Drawing	August 27, 1957

Final Expanded System Readiness Reports

	Essential Service Water System - Unit 2	April 3, 2000
	Essential Service Water System - Unit 1 Addendum	September 29, 2000
	Component Cooling Water System - Unit 2	May 16, 2000
	Component Cooling Water System - Unit 1 Addendum	August 24, 2000

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01263057	2-PP-59A Thermal Overloads Tripping	September 22, 2001
01163016	1-HV-SGRR-2 Motor Failed While Performing PMT	June 12, 2001

Lesson Plans

SD-01600	Component Cooling Water System	July 13, 2001
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Miscellaneous Documents

DCR 00-0480	Revise Drawings per C/R 00-09818	January 4, 2001
MDS-607	Heat Exchanger Plugging Standard	Revision 2
DCCNE-101-QCN	General Seismic Requirements for Equipment in D. C. Cook Nuclear Plant	August 18, 1970
DCCNS-103-QCN	General Seismic Requirements for Equipment Systems and Structures in D. C. Cook Plant	January 19, 1995
MDS-601	Instrumentation Tubing/Piping Analysis and Support Design Criteria	January 4, 1999
SS/SE 2000-1234-01	UFSAR Change Request UCR 99-UFSAR-1315	June 5, 2000
	Safety Evaluation of the Donald C. Cook Nuclear Plant Units 1 and 2	September 10, 1973
99-UFSAR-1315	Revise UFSAR Table 9.8-5, ESW Minimum Flow Requirements per Train (GPM)	June 1, 2000
Document D00001	Investigation by Proto-Power into Effects of Lower Shell Side Velocities on Calculated Heat Transfer Rates for D. C. Cook CCW Heat Exchanger	October 17, 2001
	Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Section 7, Vertical Tanks	Revision 2, Corrected February 14, 1992
	Screening Evaluation Work Sheet - Condensate Storage Tank	October 26, 1995
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Miscellaneous Documents

Sections 2 and 3	Safe Shutdown Capability Assessment, Revision 5	March 15, 2000
WCAP-14285	Donald C. Cook Nuclear Plant Unit 1 Steam Generator Tube Plugging Program Licensing Report, May 1995	Revision 1
1-TDB-Figure 1-19.8	Technical Data Book Unit 1-Figure 1-19.8, Safety Related Throttled Valves	Revisions 14, 15, and 16
2-TDB-Figure 2-19.8	Technical Data Book Unit 2-Figure 2-19.8, Safety Related Throttled Valves	Revisions 21 and 22
1-TDB-Figure 1-15.1	Technical Data Book Unit 1, Figure 1-15.1, Safety Related Pump Inservice Test Hydraulic Reference	Revision 71
2-TDB-Figure 2-15.1	Technical Data Book Unit 2, Figure 2-15.1, Safety Related Pump Inservice Test Hydraulic Reference	Revision 55
UCR 969	UFSAR Change for Seismic Classification of ESW Return Piping	April 19, 2001
White Paper	Screen Wash/Ultimate Heat Sink System	May 2, 2000
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	CCW and ESW Risk Achievement Worth Values	September 11, 2001
	Work History for Unit 1and 2 Essential Service Water Pumps, East and West (1/1/00 to 11/01)	October 2001
	Third Ten Year Interval Inservice Test Plan Valve Table - ESW	
	Inservice Test Hydraulic and Vibration Data for CCW and ESW Pumps	

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EHI-5010	Seismic Qualification Utility Group (SQUG) Generic Implementation Procedure	December 17, 1999
1-IHP-6030-IMP-521	West ESW Pump Header Pressure and Flow Alarm and Indication Calibration	August 16, 2000
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12-MP-5030-016-001	Component Cooling Water Heat Exchanger Inspection, Cleaning, and Tube Plugging	Revision 3
01-OHP-4021-001-004	Plant Cooldown From Hot Standby to Cold Shutdown	Revision 33
01-OHP-4021-016-001	Filling and Venting the Component Cooling Water System	Revision 11b, Change 3
01-OHP-4021-016-002	Interchanging the Spare Component Cooling Water Pump with the East or West Component Cooling Water Pump	Revision 11
01-OHP-4021-016-003	Operation of the Component Cooling Water System During System Startup and Power Operation	Revision 15a
01-OHP-4022-016-001	Malfunction of the CCW System	Revision 2
01-OHP-4022-016-003	CCW In-Leakage	Revision 7, Change 1
01-OHP-4022-016-004	Loss of Component Cooling Water	Revision 6
01-OHP-4022-019-001	ESW System Loss/Rupture	Revision 2
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02-OHP-4021-016-003	Operation of the Component Cooling Water System During System Startup and Power Operation	Revision 12
02-OHP-4021-016-005	CCW Surge Tank Safety Valve Replacement	Revision 0
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Surveillances (completed)

01-EHP-4030-116-248	CCW Flow Balance	Revision 0, Change 1 November 15, 2000
01-EHP-4030-119-241	ESW Flow Balance	Revision 2 September 26, 2001
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02-EHP-SP.114	Component Cooling Water Pump Performance Test	March 7, 2000
01-OHP-4030.STP.020E	East Component Cooling Water Loop Surveillance Test	July 12, 2001
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02-OHP-4030-STP-022E	East Essential Service Water System Test	September 13, 2001
02-OHP-4030-STP-022W	West Essential Service Water System Test	September 1, 2001

System Descriptions

SD-12-CCW-100	Component Cooling Water System	February 3, 1998
SD-12-ESW-100	Essential Service Water System	February 3, 1998

Technical Specifications

Table 3.6.1	Containment Isolation Valves	Revision 95
3/4.7.3	Component Cooling Water System	Revision 243
3/4.7.4	Essential Service Water System	Revision 164
3/4.7.3	Component Cooling Water System - Bases	Revision 131
3/4.7.4	Essential Service Water System - Bases	Revision 131

Updated Final Safety Analysis Report Sections

Section 2.5	Engineering Seismology	Revision 17
Section 2.9	Plant Design Criteria for Structures and Equipment	Revision 17
Table 6.1-1	Net Positive Suction Heads for Post-DBA Operational Pumps	Revision 17
Table 7.8-4	Type “D” Variables Provided the Operator for Manual Functions During and Following an Accident	Revision 17
Section 8.4	Emergency Power System	Revision 17
Section 9.0	Auxiliary and Emergency Systems	Revision 17
Section 9.1	General Design Criteria	Revision 17
Section 9.5	Coolant Cooling System	Revision 17
Section 9.8.3	Service Water Systems	Revision 17
Table 11.3-1	Radiation Monitoring System Channel Sensitivities, and Detecting Medium	Revision 17
Section 14.0	Safety Analysis [Unit 1]	Revision 16.6
Section 14.2.5	Rupture of a Steam Pipe	Revision 17

Vendor Technical Manuals

VTM--MLKI-0001 NRM	Vendor Technical Manual for MLW-Worthington Heat Exchangers Unit 1 and 2.	Revision 1
VTM-WEST-0002 NRM	Vendor Technical Manual for Westinghouse Auxiliary Heat Exchangers Unit 1 and 2.	Revision 3
VTD-MLWI-003	MLW-Worthington Operating and Maintenance Manual for Component Cooling Water Heat Exchangers.	Revision 1
VTM-WEST-0002	Westinghouse Instruction Manual for Auxiliary Heat Exchanger	Revision 2