February 18, 2000

Mr. R. P. Powers
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107-1395

SUBJECT: NRC INSPECTION REPORT 50-315/99033(DRS); 50-316/99033(DRS)

Dear Mr. Powers:

On January 5, 2000, the NRC completed an inspection at your Donald C. Cook Nuclear Plant (CNP), Units 1 and 2. The inspection addressed Case Specific Checklist (CSC) Item No. 1, "Programmatic Breakdown in Surveillance Testing," and CSC Item No. 14D, "Emergency Operating Procedures Program Ready for Restart," which were established through the NRC's Manual Chapter 0350, "Staff Guidelines for Restart Approval." Also addressed was Confirmatory Action Letter (CAL) Item No. 4, "ES-1.3 (Switchover to Recirculation Sump) Procedure," established by CAL No. RIII-97-011 dated September 19, 1997. The enclosed report documents the results of the inspection.

Based on our review of CSC Item No. 1, "Programmatic Breakdown in Surveillance Testing," we concluded that; no concerns were identified with the programmatic aspects of the plan; the root causes reviewed appeared adequate; the approach to corrective actions appeared adequate; and, the specific actions to address the corrective actions had been initiated. However, we were unable to review and observe an adequate number of revised/approved surveillance procedures to draw a conclusion as to the overall effectiveness of your corrective actions at this time. Consequently, this inspection was not able to support closure of CSC Item No. 1.

Significant improvements to the emergency operating procedure (EOP) program were noted and no EOP programmatic concerns were identified. However, the majority of EOPs had not been approved by your staff and the NRC was unable to draw a conclusion with regards to EOP program effectiveness at this time. Consequently, this inspection was not able to support closure of CSC Item No. 14D, "Emergency Operating Procedures Program Ready for Restart."

Our review of CAL Item No. 4, "ES-1.3 (Switchover to Recirculation Sump) Procedure," confirmed that revised Procedure 02-OHP 4023.ES-1.3, "Transfer to Cold Leg Recirculation," Draft 6x, which was conditionally approved by the Plant Operations Review Committee on December 5, 1999, provided assurance that there would be adequate sump volume with proper consideration of instrument bias and single failure criteria. As a result, the NRC concluded that corrective actions for CAL Item No. 4 were adequate to support closure of this item.

However, the criteria used in EOPs for determining whether the reactor was shutdown and whether boration was necessary did not appear to be supported by your analyses. We request that you provide the NRC with a written technical justification for the shutdown and boration criteria used in the EOPs within 30 days of this letter.

Based on the results of this inspection, the NRC has determined that two violations of NRC requirements occurred. The first violation occurred when your staff failed to document a condition adverse to quality after an emergency diesel generator was secured to avoid exceeding a maximum bearing temperature procedural limit. The failure to document a condition adverse to quality is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action. The second violation occurred when a setpoint value used in an EOP was not supported by analysis. The incorrect translation of design features into a procedure is a violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control. These Severity Level IV violations are being treated as Non-Cited Violations (NCVs) in accordance with Section VII.B.1.a of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or severity level of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter, the enclosure, and your response to this letter, if you choose to provide one, will be placed in the NRC Public Document Room.

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

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

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

Enclosure: Inspection Report 50-315/99033(DRS);
50-316/99033(DRS)

cc w/encl: A. C. Bakken III, Site Vice President
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

Based on the results of this inspection, the NRC has determined that two violations of NRC requirements occurred. The first violation occurred when your staff failed to document a condition adverse to quality after an emergency diesel generator was secured to avoid exceeding a maximum bearing temperature procedural limit. The failure to document a condition adverse to quality is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action. The second violation occurred when a setpoint value used in an EOP was not supported by analysis. The incorrect translation of design features into a procedure is a violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control. These Severity Level IV violations are being treated as a Non-Cited Violations (NCVs) in accordance with Section VII.B.1.a of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or severity level of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region III; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter, the enclosure, and your response to this letter, if you choose to provide one, will be placed in the NRC Public Document Room.

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

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

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

Enclosure: Inspection Report 50-315/99033(DRS);
50-316/99033(DRS)

cc w/encl: A. C. Bakken III, Site Vice President
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

DOCUMENT NAME: G:\DRS\DCC99033.WPD
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	RIII		RIII		RIII		RIII	
NAME	GHausman:sd		GShear		DPassehl for AVegel		JGrobe	
DATE	02/17/00		02/17/00		02/17/00		02/18/00	

Distribution:
RRB1 (E-Mail)
WES (E-Mail)
JFS2 (Project Mgr.) (E-Mail)
J. Caldwell, RIII w/encl
B. Clayton, RIII w/encl
SRI D. C. Cook w/encl
DRP w/encl
DRS w/encl
RIII PRR w/encl
PUBLIC IE-01 w/encl
Docket File w/encl
GREENS
IEO (E-Mail)
DOCDESK (E-Mail)

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-315/99033(DRS); 50-316/99033(DRS)

Licensee: Indiana Michigan Power Company

Facility: Donald C. Cook Nuclear Plant

Location: 1 Cook Place
Bridgman, MI 49106

Dates: December 6, 1999 - January 5, 2000

Inspectors: G. Hausman, Senior Reactor Inspector (Team Leader), Region III
R. Langstaff, Reactor Inspector, Region III
E. Lea, Reactor Inspector, Region II
G. McCoy, Reactor Inspector, Region II

Approved by: Gary L. Shear, Chief, Plant Support Branch
Division of Reactor Safety

TABLE OF CONTENTS

EXECUTIVE SUMMARY

D. C. Cook, Units 1 and 2
NRC Inspection Report 50-315/99033(DRS); 50-316/99033(DRS)

By NRC letter dated September 17, 1999, the NRC transmitted the updated Case Specific Checklist (CSC) for the Donald C. Cook Nuclear Plant (CNP), which identified specific issues requiring resolution prior to restart of CNP. This inspection focused on the licensee's corrective actions for resolution of Confirmatory Action Letter (CAL) Item No. 4, ES-1.3 (Switchover to Recirculation Sump) Procedure and the following CSC items:

Item No.	Description
1	Programmatic Breakdown in Surveillance Testing," which consisted of
1A	Inadequate Instructions in Surveillance Tests
1B	Acceptance Criterion Lack Sufficient Margin to Analysis Limit
1C	Failure to Meet Technical Specification Requirements
1D	Preconditioning of Equipment Prior to Surveillance Testing
1E	Failure to Assess and Control the Quality of Contractors Performing Surveillance Testing
14D	Emergency Operating Procedures Program Ready for Restart

The standard applied to evaluate the acceptability for resolution of these CSC items was that described in paragraphs C.1.1 "Root Cause Determination," C.1.2 "Corrective Action Development," and C.1.3 "Corrective Action Plan Implementation and Effectiveness," of Enclosure (2) of the NRC letter transmitting the CSC. Based on this inspection CSC Item No. 1, "Programmatic Breakdown in Surveillance Testing," and CSC Item No. 14D, "Emergency Operating Procedures Program Ready for Restart," were determined to require additional inspection effort and will remain open pending further review by the NRC.

Open items identified in NRC inspection reports and Licensee Event Reports (LERs) requiring inspection/resolution prior to restart of CNP have been identified in the Restart Action Matrix (RAM) approved by the NRC Manual Chapter 0350 Oversight Panel. In the RAM, open items were identified with a higher inspection priority. The sixteen RAM items identified in Section O8.1b were categorized as low priority inspection issues. A sample of these lower priority inspection issues received a more in-depth review during this inspection (see Sections O8.2 through O8.10. Based on adequate corrective actions for resolution of items selected for the more in-depth review, reasonable assurance exists that corrective actions for the similar lower inspection priority issues are adequate. The intent of selecting a sample of items for more in-depth review was to improve NRC efficiency in assessing the restart readiness of CNP and to ensure appropriate focus on the issues most important from a safety and probabilistic risk perspective.

Operations

- The inspectors concluded that for CSC Item No. 1, “Programmatic Breakdown in Surveillance Testing;” no concerns were identified with the programmatic aspects of the plan; the root causes reviewed appeared adequate; the approach to corrective actions appeared adequate; and, the specific actions to address the corrective actions had been initiated. However, for numerous surveillance procedures, the licensee had not incorporated condition report corrective actions and completed the revision/approval process at the time of the inspection. Therefore, the inspectors were unable to review and observe an adequate number of revised/approved surveillance procedures to draw a conclusion as to the effectiveness of the corrective actions at this time. Consequently, this inspection was not able to support closure of CSC Item No. 1 (Section O1.1).

- Inspectors observed the performance of three surveillance procedures. Inspectors noted during the observed surveillances that the instructions were adequate and the operators were able to perform the procedures as written. A Non-Cited Violation (NCV) was identified when the operators failed to document and properly identify a condition adverse to quality during the performance of the Diesel Generator Operability Test (Train B) Slow Speed Start (Section O1.2).

- The emergency operating procedures (EOPs) were sufficiently comprehensive to provide adequate EOP program guidance. The Plant Operations Review Committee’s (PORC’s) review of EOPs was conducted with appropriate questioning and probing. Sufficient administrative controls were in place to ensure outstanding items relating to EOPs would be appropriately addressed prior to final procedure approval. Operators were able to perform the revised EOPs expeditiously without confusion. The EOP project team was responsive to operator comments and concerns. One Unresolved Item (URI) was identified concerning the licensee’s justification for the EOP shutdown and boration criteria. Although no programmatic EOP concerns were identified during this inspection, an insufficient number of EOPs had been approved to permit a conclusion with regards to program effectiveness. Consequently, CSC Item No. 14D will remain open pending review of additional completed EOPs (Section O3.1).

- Procedure ES-1.3 provided assurance that there would be adequate sump volume with proper consideration of instrument bias and single failure criteria. Procedure ES-1.3 satisfied the conditions specified by CAL Item No. 4 and CAL Item No. 4 is closed. One NCV was identified because an EOP setpoint value was inconsistent with the supporting analysis (Section O3.2).

Report Details

Background

In a letter dated July 30, 1998, and updated on October 13, 1998, the Nuclear Regulatory Commission (NRC) informed American Electric Power (AEP) that a restart oversight panel had been established in accordance with NRC Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval." The MC 0350 Panel issued a checklist of activities that the NRC considered necessary for AEP to address prior to restarting the Donald C. Cook Nuclear Plant (CNP). On September 17, 1999, the NRC provided an updated Case Specific Checklist (CSC) for the CNP.

The licensee in Restart Action Plan (RAP) Number 001, "Programmatic Breakdown in Surveillance Testing," dated November 2, 1999, identified the actions necessary to correct deficiencies relative to CNP's Technical Specification Surveillance Program and to address the NRC's MC 0350, CSC Item No. 1. In the "Operations Leadership Plan," dated October 29, 1999, the licensee identified the actions necessary to correct deficiencies relative to CNP's Emergency Operating Procedures Program and to address MC 0350, CSC Item No. 14D, "Emergency Operating Procedures Program Ready for Restart." In these documents the licensee specified root cause acceptance criteria/contributing factors, corrective action items and effectiveness measures to address the programmatic deficiencies identified by the NRC and licensee audits and self-assessments.

The NRC, in Confirmatory Action Letter (CAL) No. RIII-97-011 dated September 19, 1997, established the actions necessary for the licensee to take prior to the start up of either unit at the CNP. The CAL listed specific items that the licensee would resolve prior to restart. For CAL Item No. 4, "ES-1.3 (Switchover to Recirculation Sump) Procedure (AEP)," the licensee was to implement changes to the emergency procedure used for switchover of the emergency core cooling and containment spray pumps to the recirculation sump. These changes were to provide assurance that there would be adequate sump volume, with proper consideration of instrument bias and single failure criteria. In addition, the licensee was to ensure that the revised procedure was validated and all licensed operating crews were trained on its use.

I. Operations

O1 Conduct of Operations

O1.1 CSC Item No. 1 - Programmatic Breakdown in Surveillance Testing

a. Inspection Scope (40500, 61700, 61701, 61725)

The inspectors reviewed licensee actions taken to address CSC Item No. 1, "Programmatic Breakdown in Surveillance Testing." The inspection activities were performed to determine the adequacy of the licensee's corrective action programs which were initiated to address the programmatic breakdown in their surveillance testing program. Case Specific Checklist Item No. 1 consisted of the following:

CSC Item	Description
1A	Inadequate Instructions in Surveillance Tests
1B	Acceptance Criterion Lack Sufficient Margin to Analysis Limit
1C	Failure to Meet Technical Specification Requirements
1D	Pre-conditioning of Equipment Prior to Surveillance Testing
1E	Failure to Assess and Control the Quality of Contractors Performing Surveillance Testing

Applicable documentation was reviewed and appropriate licensee personnel were interviewed to evaluate the licensee's corrective action program to:

- improve work instructions contained in surveillance procedures;
- ensure that surveillance procedures had an acceptance criterion which contained sufficient margin from the analysis limit to account for measurement uncertainties;
- ensure that surveillance procedures meet the requirements of the TS;
- address pre-conditioning of equipment prior to surveillance testing; and
- address the control of contractors and the quality of contractor's work while performing surveillance testing.

b. Observations and Findings

b.1 General Observations and Findings

The inspectors determined, by review of the documentation presented, that the licensee had initiated program improvements that should correct the problems identified with their surveillance testing program. However, at the time of this inspection, numerous surveillance procedures were still in the revision, review and approval process. Consequently, the inspectors were not able to review an adequate number of revised/approved surveillance procedures to draw a conclusion as to the effectiveness of corrective actions at this time.

b.2 CSC Item No. 1A - Inadequate Instructions in Surveillance Tests

The inspectors determined that the licensee's Work Control Surveillance Group (WCSG) performed a systematic review of all surveillance test procedures. The WCSG was a team in the Work Control Division tasked with the monitoring of all Technical Specification (TS) required surveillances. The inspectors reviewed a sample of completed checklists from this review and determined that the review checked that the procedures contained explicit instructions and the surveillance procedure completely

satisfied the requirements of the TS. The inspectors also interviewed personnel involved in the WCSG review process and determined that these personnel addressed the adequacy of the instructions and the ability to meet TS requirements during their review.

A review to determine the technical adequacy of the instructions in each surveillance test was also a part of the licensee's cross-disciplinary review performed during the Expanded System Readiness Review (ESRR). The inspectors reviewed procedure PMP-7200.RST.004, "Expanded System Readiness Review," Revision 9, Figure 1 Addendum, and verified that the ESRR teams were tasked to review the surveillance procedures for adequate methodology. Inspectors also interviewed system engineers for the Diesel Generator and Essential Service Water systems concerning the topics covered during the ESRRs. These interviews determined that the surveillance procedures were reviewed on a step-by-step basis to determine that the procedures could be accomplished as written as well as to verify that they accomplished the requirements. The interviews also revealed that these reviews were performed by a cross-disciplinary team including Engineering, Maintenance, and Operations personnel.

The instruction which governs the creation and modification of procedures was modified to ensure that all surveillance procedures developed in the future will continue to meet the same standards. The modified procedure required a WCSG review for all new or modified surveillance procedures. Inspectors reviewed procedure PMP-2010.PRC.001, "Procedure Correction, Change, and Review," Revision 0, and verified that this procedure contained requirements for a WCSG review of all new or modified procedures. The inspectors also noted that the same checklist was used for this review as was used for the initial WCSG review of all surveillance procedures as described above.

The inspectors noted during the observation of three surveillances, as discussed in Section O1.2, that the instructions in the procedures were adequate to support the completion of the surveillance. Inspectors also reviewed two instructions; 01-OHP-4030.STP.007E, "East Containment Spray System Operability Test," Revision 13, Change 3, and 2-IHP-4030.SMP.209, "Pressurizer Level Protection Set II Functional Test and Calibration," Revision 0, and noted that the instructions were adequate to support the completion of the surveillance, with one minor administrative error. Step 4.27 of procedure 01-OHP-4030.STP.007E referenced a future step in the procedure, 4.48 when it actually meant to reference step 4.54. Because of the flow of the work described, this error would have been obvious to anyone performing the actions of this procedure.

The inspectors reviewed the documentation provided by the licensee for RAP 001. Although the licensee had not completed all of the RAP 001 documentation packages (approximately 60 percent were completed), the inspectors reviewed the packages provided and interviewed appropriate licensee personnel to evaluate the licensee's corrective action program to improve work instructions contained in surveillance procedures. The inspectors determined that no concerns were identified with the programmatic aspects of the plan.

b.3 CSC Item No. 1B - Acceptance Criterion Lack Sufficient Margin to Analysis Limit

One of the steps performed by the WCSG during their surveillance procedure review ensured that there was an adequate allowance between the analysis limit and the acceptance criteria value used in the surveillance procedure. Inspectors noted that this step was incorporated into the review checklist of PMP-2010.PRC.001, "Procedure Correction, Change, and Review," Revision 0. Interviews with WCSG personnel confirmed that their review included identification of this allowance.

The amount of tolerance between surveillance limits and analysis limits was also being addressed by Restart Action Plan Item No. 3C. This plan would address the failure to consider instrument uncertainties, setpoints and/or instrument bias and would include surveillance procedures.

b.4 CSC Item No. 1C - Failure to Meet Technical Specification Requirements

Licensee management created the WCSG to create a single point of contact for the maintenance of the plant's surveillance program. Procedure PMI-4030, "Surveillance Requirement Program," Revision 21a, specifically tasked this group with the management of the surveillance program. In the same procedure, the Unit Supervisor was required to review all completed surveillances and ensure that the surveillance was properly completed. The WCSG set plant due dates for surveillances based on a 28 day month vice a 31 day month in the TS such that a given surveillance would be performed at a slightly reduced interval as compared to the TS requirements. Procedure PMI-4030 also discouraged the use of the grace period. The extension of a surveillance past the plant due date required the approval of the plant manager. Management performance tools tracked the number of surveillances in the grace period so that any trends would be easily identified. These tools ensure that surveillances are performed before they are due and that the number of surveillances which are extended into the grace period are minimized. Inspectors' observations of three surveillances in the plant, confirmed the review of the completed procedure by the Unit Supervisor. The inspectors' review of the licensee's surveillance database verified that the surveillances were planned on the basis of a 28 day month.

Inspectors reviewed the WCSG database containing the surveillance requirements and noted that the database was structured so that the WCSG could easily track the completion of surveillances, determine the next date that a surveillance was required, and identify what surveillances would be required for any period or mode shift.

The inspectors were able to determine that: (1) the licensee has developed a database which contained a comprehensive matrix to document the implementing procedure for each technical surveillance requirement; (2) the database of surveillance requirements contained event initiated surveillances; (3) the Surveillance Program Administrator managed the Technical Specification Surveillance Program, and tasked the WCSG with the monitoring of the surveillance process; (4) the old scheduling tool had been replaced with a new system based on the surveillance requirements database developed by the WCSG; and, (5) an effectiveness review had been performed by the WCSG, which concluded that the current efforts to improve the surveillance program were effective because no surveillances had been missed in the past three months.

b.5 CSC Item No. 1D - Pre-Conditioning of Equipment Prior to Surveillance Testing

The licensee submitted closure package 1D, which documented the failure of the licensee to identify the pre-conditioning of equipment prior to performing surveillance testing. The package contained Condition Reports (CRs) 98-0591, 98-1022 and identified other CRs, which identified problems associated with equipment pre-conditioning and corrective actions to prevent pre-conditioning during the performance of future surveillance testing. The actions taken as a result of the pre-conditioning of equipment also addressed the global issue of the programmatic breakdown in surveillance testing.

Condition Report 98-0591 specifically addressed pre-conditioning that occurred while performing OHP40303.STP.013A (B), "Electric Hydrogen Recombiner Functional Test," Revision 6. These procedures were performed to satisfy technical specification surveillance requirement identified in TS section 4.6.4.2. Pre-conditioning occurred because the licensee failed to identify the requirement to assure that the recombiner temperature was below 150 degrees Fahrenheit prior to starting a second recombiner surveillance test. The corrective actions which resulted from the pre-conditioning of the recombiner included revising the procedure to reflect the temperature requirement and the initiation of a design change package (DCP). The DCP was initiated to install instrumentation that would allow verification that the hydrogen recombiner temperature was in an acceptable range to proceed with additional recombiner surveillance testing; therefore, avoiding pre-conditioning.

Other CRs identified in closure package 1D were initiated to address efforts to determine if pre-conditioning existed in other procedures and to prevent recurrence of pre-conditioning of equipment during the performance of future surveillance testing. Many of the CRs and their corrective actions were initiated following a root cause investigation that was performed by the licensee following the identification of the programmatic breakdown in the surveillance testing program. The results of the root cause investigations were documented in CRs 98-1181 and 99-030. From the review of associated documentation and interviews of licensee personnel, the inspectors found that the licensee had documented concerns associated with the pre-conditioning of equipment in other CRs. The inspectors determined that for each of the CRs initiated, the licensee identified corrective actions. The CRs identified both immediate and long term corrective actions intended to prevent pre-conditioning.

Actions to prevent recurrence of pre-conditioning problems included reviews of existing procedures, establishment of procedure requirements to determine if both existing and new procedures are structured correctly to avoid pre-conditioning (Pre-conditioning question identified in data sheet 4, Surveillance Test Procedure Criteria, of P.P.-2010.PRC.002, "Procedure Corrections and Review," Revision 3; located in closure package Item No. 1A-1, Volume 1), and personnel training on pre-conditioning and surveillance performance. At the conclusion of this inspection, the inspectors determined that the licensee had implemented several of the corrective actions while others were identified for future implementation. Training items were among the corrective actions that had been identified as not being completely implemented.

The licensee identified the need for a surveillance familiarization training program. As of December 15, 1999, the surveillance familiarization training had been provided to 107 onsite engineering and supervisory type personnel. Documentation indicated that familiarization training will be provided to applicable personnel up to the time in which Unit 2 approaches Mode 4. The licensee also identified the need for continued training in the area of surveillance following startup. The effectiveness of the corrective actions can only be assessed over a period of time following the performance of the new/revised surveillance procedures.

b.6 CSC Item No. 1E - Failure to Assess and Control the Quality of Contractor's Performing Surveillance Testing

Problems associated with the quality of contractor controls and contractor work quality while performing surveillances were documented in NRC inspection reports 50-315/98005; 50-316/98005 and 50-315/98007; 50-316/98007. As a result of the problems identified, the licensee initiated an investigation/evaluation to assess the issues. The licensee identified programmatic problems among the causes which contributed to their failure to access and control the quality of contractor's performance while performing surveillance testing. As for each restart action plan, an initial root cause investigation was conducted under CRs 98-1181 and 99-0930. Issues that were identified as a result of the licensee's investigation were also documented in CRs 98-0388, 98-0721, 98-1058, 98-1077 and 99-15581.

During a review of the CRs the inspectors found that, when applicable, the licensee had performed a root cause evaluation and identified corrective actions. Several procedure changes and procedure reviews resulted from the corrective actions identified in the CRs. The inspectors reviewed procedure PMI-5080, "Administration of Contractors," Revision 7, and found that the licensee had implemented changes to the procedure, as identified in several CRs. The procedure addressed specific guidance on contractor expectations and oversight of contractor personnel. The procedure also discussed skill level and training requirements for contract personnel. Procedure PMI-4030, "Technical Specification Surveillance Test Program," Revision 22, and PMI-3030.EXE.001, "Conduct of Surveillance Testing," Revision 0, were also revised to address concerns identified in the CRs.

c. Conclusions

The inspectors concluded that for CSC Item No. 1, "Programmatic Breakdown in Surveillance Testing;" no concerns were identified with the programmatic aspects of the plan; the root causes reviewed appeared adequate; the approach to corrective actions appeared adequate; and, the specific actions to address the corrective actions had been initiated. However, for numerous surveillance procedures, the licensee had not incorporated condition report corrective actions and completed the revision/approval process at the time of the inspection. Therefore, the inspectors were unable to review and observe an adequate number of revised/approved surveillance procedures to draw a conclusion as to the effectiveness of the corrective actions at this time. Consequently, this inspection was not able to support closure of CSC Item No. 1.

O1.2 Surveillance Observations

a. Inspection Scope (40500, 61725, 61726)

Inspectors observed the performance of three surveillance procedures to assess the licensee's program to evaluate and improve surveillance procedures. The inspectors observed the performance of the following surveillance procedures:

- 01-OHP 4030.STP.020W, "West Component Cooling Water Loop Surveillance Test," Lineup sheet 1, Revision 6, Change 5
- 01-OHP 4030.STP.022W, "West Essential Service Water System Test," Lineup Sheet 1, Revision 6
- 01-OHP 4030.STP.027AB, "AB Diesel Generator Operability Test (Train B)," Attachment 1, "DG1AB Slow Speed Start," Revision 14, Change 2

b. Observations and Findings

The operators were able to perform the procedures as written. The inspectors interviewed the operators during the performance of the procedure and determined that the operators were adequately trained to perform the surveillance test.

During the 1AB emergency diesel generator (EDG) slow speed start test, after the one-hour fully-loaded run of the diesel was completed, the procedure required running the diesel unloaded for approximately two minutes before securing the diesel. After the diesel was unloaded, the main bearing temperatures began increasing such that the diesel had to be secured to prevent reaching the bearing temperature limit of 180°F, approximately one and a half minutes after the diesel was unloaded. The operators did not document that the diesel had to be secured because of the maximum temperature limit in the procedure, nor was a CR written. When the inspectors questioned whether a CR was warranted, the operators responded that this was a known condition, that the steps in the procedure had been satisfied, and that documentation was not required.

After further discussion with licensee management, the inspectors determined that there was a known problem with the bearing temperature of these diesels that had been evaluated by the engineering staff. However, the surveillance procedures had not been changed to reflect an increased temperature limit for this bearing.

Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states in part that measures shall be established to assure that conditions adverse to quality, such as deficiencies, deviations, and nonconformances are promptly identified and corrected. Contrary to this, the operators failed to document a condition adverse to quality after the 1AB EDG was secured to avoid exceeding a maximum bearing temperature procedural limit until prompted by the inspectors. Following discussions with the inspectors, CR P-99-28899 was written by the licensee to enter this discrepancy into the licensee's corrective action system. This CR addressed the maximum bearing temperature limit in procedure 1-OHP-4030.STP.027AB and other similar procedures, but did not address the failure of the operators to recognize and document the condition adverse to quality. Inspectors brought this omission to the attention of the licensee management at several different occasions and the CR was modified to address the failure of the operators to

meet the two minute unloaded run time requirement, but still did not fully address this issue. Since the EDG had to be secured, due to the bearing temperature reaching the maximum procedural limit, and the operators took no actions to report this condition to the appropriate levels of management this is considered a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." This Severity Level IV violation is being treated as a Non-Cited Violation (NCV) in accordance with Section VII.B.1.a of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as CR P-99-28899. (NCV 50-315/316-99003-01(DRS))

c. Conclusions

Inspectors observed the performance of three surveillance procedures. Inspectors noted during the observed surveillances that the instructions were adequate and the operators were able to perform the procedures as written. An NCV was identified when the operators failed to document and properly identify a condition adverse to quality during the performance of the Diesel Generator Operability Test (Train B) Slow Speed Start.

O3 Operations Procedures and Documentation

O3.1 CSC Item No. 14D - Emergency Operating Procedures Program Readiness for Restart

a. Inspection Scope (40500, 42001)

The inspectors reviewed licensee actions taken to Address CSC Item No. 14D, "Emergency Operating Procedures [EOP] Program Ready for Restart."

b.1 General Observations and Findings

The licensee had developed the following procedures for implementing their EOP program:

PMI-4023, DC Cook Nuclear Plant Emergency Operating Procedure Program
PMP-4023.EOP.001, EOP Maintenance
PMP-4023.EOP.002, EOP Writers Guide
PMP-4023.EOP.003, EOP Verification/Validation

The inspectors performed a general review of the above procedures and determined that the procedures were sufficiently comprehensive to provide adequate EOP program guidance. No programmatic concerns were identified. However, at the time of this inspection, the majority of EOPs were in the final stages of review and had not been approved. Consequently, the inspectors were not able to draw a general conclusion concerning the effectiveness of the EOP program and readiness for restart.

b.2 Plant Operations Review Committee Observations and Findings

The inspectors attended the December 9, 1999, and December 15, 1999, Plant Operations Review Committee (PORC) meetings during which procedure ES-0.1,

"Reactor Trip Response," Revision 13x, and procedure ES-1.3, "Transfer to Cold Leg Recirculation," Revision 6x, were conditionally approved. A number of outstanding items existed for both procedures which precluded final approval. The questions posed by the PORC chairperson and the engineering representative were probing and appropriate for PORC level review. The inspectors noted that the PORC specified that full committee review be performed again upon resolution of the outstanding items prior to final approval of the EOP procedures. The inspectors considered the administrative controls in place by both the EOP project team and PORC to be sufficient to provide reasonable assurance that outstanding items would be appropriately addressed prior to final procedure approval.

b.3 EOP Simulator Training Observations and Findings

The inspectors observed operators training on the following draft EOPs in the simulator:

E-0, Reactor Trip or Safety Injection
E-1, Loss of Reactor or Secondary Coolant
ES-1.3, Transfer to Cold Leg Recirculation
E-3, Steam Generator Tube Rupture
ECA-0.0, Loss of All AC Power

The inspectors observed that operators were able to perform the procedures in an expeditious manner without confusion. Training instructors identified one instance where an operator had missed a procedure sub-step. However, the operator later recognized the error and performed the step without adversely affecting the intent of the procedure. The instructors also identified an instance where an operator waited for a plant parameter to reach a specified value instead of proceeding as allowed by the procedure. Both instances appeared to be isolated in nature and not a reflection of procedure quality.

During observation of simulator training on procedure E-3, the inspectors noted that operators isolated auxiliary feedwater early in the event and the ruptured steam generator was not overfilled. The control of steam generator level for the ruptured steam generator was a marked improvement from the performance documented in Inspection Report 50-315/98023; 50-316/98023. The improvement appeared to be due, in part, to rewording of steps in procedure E-3.

During observation of simulator training on ES-1.3, the inspectors noted that the time periods for which containment spray (CTS) and residual heat removal (RHR) were stopped during the switchover process were well within the five minute period assumed by the accident analyses described by Westinghouse safety evaluation SECL 99-076. Based on discussions with the instructors, the inspectors confirmed that the training staff was monitoring the time periods for which CTS and RHR were stopped during simulator training and verifying that the times were within analyzed limits.

b.4 Operator Interviews Observations and Findings

The inspectors interviewed three licensed senior reactor operators to assess the EOP project team's responsiveness to operator concerns and determine what, if any, EOP

improvements were perceived by operators. The operators interviewed normally acted in the unit supervisor position.

The operators unanimously considered the EOP project team to be receptive and responsive to operator comments and concerns. One operator noted that the project team actively solicited comments from operators on the procedures being revised. Operators stated that comments which arose during the verification and validation efforts were generally addressed within one work day.

The operators identified a number of improvements that the revised EOPs had with respect to previous versions. The improvements identified by the operators included:

- Use of double negatives in procedure steps had been significantly reduced;
- Necessary steps which were previously contained in procedures other than the EOPs had been incorporated into the EOPs;
- Consistency among step wording significantly improved;
- Procedure steps were less ambiguous; consequently, less interpretation was required;
- EOPs could be performed more expeditiously - especially for those procedures which contained time critical steps; and
- Implied actions previously contained in notes and cautions were incorporated into procedure steps.

No problems with the revised EOPs were identified by the operators. The operator comments were consistent with the inspectors' observations.

b.5 EOP Shutdown Criteria Observations and Findings

By Information Change Package (ICP) 00344, design engineering communicated the value of 10 steps out as an acceptable value for determining whether control rods are sufficiently inserted to not require boration. The specific application was the shutdown criteria used in EOPs such as 02-OHP 4023.ES-0.1, Reactor Trip Response. Procedure ES-0.1 required operators to verify all control rods (other than control rod H-8) were inserted to less than 10 steps out prior to proceeding without borating. (Indication for control rod H-8 is discussed in Section O8.9.) The inspectors noted that, theoretically, all control rods could be stuck out at nine steps and boration would not be required by the procedure. The analysis performed to support the 10 step criteria was described in calculation FA-99-03, Stuck Control Rods Near Reactor Core Bottom, Shutdown Margin, and Emergency Boration. Calculation FA-99-03 determined, deterministically, that the reactor would be shutdown with adequate shutdown margin if all control rods were stuck out at seven steps. Additionally, calculation FA-99-03 determined that if eight control rods were stuck out at 22 steps and the remaining control rods were fully inserted, the reactor would also be shutdown with adequate margin. The inspectors noted that the criteria of 10 steps appeared to be

non-conservative with respect to the analysis which supported the value of the seven steps. Calculation FA-99-03 stated that due to the uncertainties associated with rod position indication, if all control rods were stuck at 8 steps, the probability that at least one rod would show 11 steps or more was greater than 99.9%. The calculation assumed that the rod position indication had a normal distribution with a three step standard deviation from actual position. The inspectors questioned the appropriateness of relying upon statistical variations in rod position indication (i.e., the probability that the indication would not accurately reflect actual rod position) for supporting a criteria which was in the non-conservative direction with respect to the analyzed value. This issue is an unresolved item (URI) pending review of the licensee's justification. (URI 50-315/99033-02; 50-316/99033-02 (DRS))

c. Conclusions

The EOP program procedures were sufficiently comprehensive to provide adequate EOP program guidance. The PORC review of EOPs was conducted with appropriate questioning and probing. Sufficient administrative controls were in place to ensure outstanding items relating to EOPs would be appropriately addressed prior to final procedure approval. Operators were able to perform the revised EOPs expeditiously without confusion. The EOP project team was responsive to operator comments and concerns. One URI was identified concerning the licensee's justification for the EOP shutdown and boration criteria. Although no programmatic EOP concerns were identified during this inspection, an insufficient number of EOPs had been approved to permit a conclusion with regards to program effectiveness. Consequently, CSC Item No. 14D will remain open pending review of additional completed EOPs.

O3.2 CAL Item No. 4 - ES-1.3 (Switchover to Recirculation Sump) Procedure

a. Inspection Scope (42001, 92703)

The inspectors reviewed the licensee's actions taken in response to CAL No. RIII-97-011, Item No. 4, "ES-1.3 (Switchover to Recirculation Sump) Procedure." Specifically, the inspectors reviewed procedure 02-OHP 4023.ES-1.3, "Transfer to Cold Leg Recirculation," Revision 6x.

b.1 General Observations and Findings

Procedure ES-1.3 was conditionally approved by the PORC on December 15, 1999. Final procedure approval was pending engineering approval of some of the setpoints used in the procedure and installation of float level switches in the containment sump (so that adequate sump volume could be verified).

b.2 Adequate Sump Volume Concern Observations and Findings

Based on review of procedure ES-1.3 and ICP-00352, the inspectors determined that sufficient refueling water storage tank (RWST) volume would be transferred to the reactor coolant system (RCS) and containment before switchover to recirculation was completed. Specifically, procedure ES-1.3 specified that RWST level would have to drop to 20 percent prior to switching RHR and CTS to taking a suction from the

containment sump. During the switchover of RHR and CTS pumps, continuous emergency core cooling system (ECCS) injection flow would be maintained by the centrifugal charging pumps (CCPs) and safety injection (SI) pumps. When a RWST level of 11% was reached, the CCPs and SI pumps would then be switched over to recirculation mode. In addition, the licensee was in the process of installing float switches in the containment sump so that adequate sump level could be verified prior to initiating the switchover process. The inspectors concluded that the CAL condition of providing assurance that there would be adequate sump volume was addressed.

b.3 Single Active Failure Concern Observations and Findings

The inspectors reviewed procedure ES-1.3 and determined that the procedure provided for separation of SI and component cooling water (CCW) trains. In addition, the procedure specified contingency actions for valve repositioning failures, control power failures, electrical bus failures, and individual pump failures. The inspectors were not able to postulate any single active failures which had not been appropriately addressed by the procedure. The inspectors concluded that the procedure had been appropriately revised to address single active failures and such failures would not preclude successful switchover to recirculation mode. The inspectors determined that the CAL condition of providing proper consideration of single failures was addressed.

b.4 Instrument Uncertainties Observations and Findings

The inspectors reviewed engineering approval documentation for the approved setpoint values used in procedure ES-1.3. In all cases, instrument uncertainties were considered where appropriate in determining an acceptable setpoint value. However, as discussed below, one instance was identified where the approved setpoint value was not consistent with the supporting analysis. The inspectors determined that providing proper consideration for instrument bias, as identified by the CAL, was addressed.

The inspectors noted that step 12.a of the procedure ES-1.3 directed operators to stop the SI pumps if RCS pressure was greater than 1300 pounds per square inch gauge (psig). This step was to be performed prior to closure of the SI pump recirculation valves to preclude heading of the pumps and potential damage. The criteria value of 1300 psig was approved by engineering and transmitted by ICP-00342. The inspectors reviewed ICP-00342 and determined that the minimum SI pump discharge pressure was 1337 psig and associated instrument uncertainty was 122 psig. Consequently, minimum SI pump discharge pressure could be as low as 1215 psig when instrument uncertainties were taken into account. The inspectors identified that the 1300 psig value approved by ICP-00342 was non-conservative with respect to the 1215 psig value when instrument uncertainties were taken into account. The licensee reviewed the issue and concurred with the inspectors conclusion, amended CR P-99-24399 to document the error, and issued ICP-00381 to correct the engineering documentation with respect to the criteria value.

Title 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” states in part that measures shall be established to assure that the design basis as specified in the license application are correctly translated into specifications, drawings, procedures, and instructions. Contrary to this, the incorrect translation of design into a procedure, as

transmitted by ICP-00342, is considered a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This Severity Level IV violation is being treated as a NCV in accordance with Section VII.B.1.a of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as CR P-99-24399. (NCV 50-315/99003-03; 50-316/99003-03(DRS))

b.5 Human Factors Observations and Findings

The inspectors reviewed procedure ES-1.3 for incorporation of general human factors principles. The inspectors determined that, in general, decision and action steps were clear, and cautions were appropriate. However, the inspectors made two observations with respect to human factors issues as follows:

- Step 3 of Attachment A, Splitting CCW Trains, of the procedure ES-1.3 had three decision steps when the only criteria for taking the course of action was whether a specific CCW pump was running. The inspectors were concerned that the use of the three decision steps instead of one could be confusing. The licensee agreed to review the wording of the step.

- Steps 4 and 5 of Attachment A did not specify local actions to reposition valves if the appropriate response was not obtained. The inspectors noted that loss of one division of power would result in local actions being required to perform these steps. The failure to specify local actions when required was contrary to the licensee's programmatic requirements of procedure PMP-4023.EOP.002, EOP Writers Guide. Based on discussions with the licensee, the inspectors determined that repositioning of valves for this portion of the procedure, although desirable, was not required to ensure adequate mitigation. The licensee agreed to review the wording of these steps.

The inspectors did not identify any instances where procedure effectiveness had been affected by the above observations.

c. Conclusions

Procedure ES-1.3 provided assurance that there would be adequate sump volume with proper consideration of instrument bias and single failure criteria. Procedure ES-1.3 satisfied the conditions specified by CAL Item No. 4 and CAL Item No. 4 is closed. One NCV was identified because an EOP setpoint value was inconsistent with the supporting analysis.

O8 Miscellaneous Operations Issues

O8.1 (Closed) Low Priority Restart Action Matrix Items

a. Inspection Scope (40500, 90712, 92700, 92701)

To improve the efficiency of the NRC in assessing the licensee's restart readiness and to focus on the restart action matrix (RAM) items most important from a safety and

probabilistic risk perspective, the licensee's RAM items were identified as high or low priority items. The inspectors evaluated low priority RAM items using the following guidance:

(1) the inspectors examined relevant inspection reports, LERs, CRs, action requests, and status reports to ensure that the RAM item was captured in the licensee's corrective action system;

(2) that the RAM item was correctly characterized and classified;

(3) that appropriate corrective actions were specified for the RAM item; and,

(4) that the RAM item's corrective actions were either completed or scheduled and tracked for completion.

In addition, the inspectors selected a small sample of RAM items in the particular performance area being assessed and conducted a detailed review of the licensee's corrective actions. Using this guidance, RAM items that the inspectors thoroughly reviewed and found adequately corrected should provide reasonable assurance that similar items have also been adequately addressed.

b. Observations and Findings

The inspectors confirmed that the four guidance attributes listed in the above scope were satisfied for each of the following low priority RAM items:

- R.1.13 - Failure to Consider the Effects of Change to ES-0.1 on the Shutdown Margin (see O8.2 - EEI 50-315/316-98004-10)
- R.1.33 - Inadequate Technical Specification Surveillance Testing of Essential Service Water Pump Engineered Safety Feature Response Time (LER 315/99023-00)
- R.1.34 - Literal Technical Specifications Requirement Not Met By Accumulator Valve Surveillance (LER 315/99024-00)
- R.2.1.7 - An Apparent Violation for Failure to Comply with TS Requirements Upon Discovery of an Inoperable PORV (EEI 50-316/98007-07)
- R.2.1.14 - Flow Indicator Not Calibrated at Technical Specification Required Frequency (LER 50-315/98036-00)
- R.2.1.15 - Component Cooling Water Pump Surveillance Testing Has Potential to Cause Unplanned Entry into TS 3.0.3 (LER 50-315/98041-00)
- R.2.1.16 - Containment Air Locks Testing Not Performed in Accordance with TS 4.6.1.3.a (LER 50-315/98043-00)
- R.2.1.17 - Offsite Power Availability Not Verified as Required by Technical Specification Surveillance (LER 50-315/98044-00)
- R.2.3.45 - The RWST and the Containment Water Level Instrumentation AOTs Should Appropriately be Governed by Consistent AOT Requirements (IFI 50-315/316-98009-36)
- R.2.3.49 - Response to High-High Containment Pressure Procedure Not Consistent with Analysis of Record (see O8.3 - LER 50-315/98014-03)

- R.2.4.14 - Historic Operability Review for Past ES-1.3 Revisions (see O8.4 - URI 50-315/316-98004-07)
- R.2.4.17 - Failure to Perform an Adequate Safety Evaluation for Changes to the Plant Affecting Four Emergency Operating and Abnormal Operating Procedures (see O8.5 - EEI 50-315/316-98004-13)
- R.2.4.24 - Revision to ES-1.3 Created a Single Failure Vulnerability That Could Render One RHR Pump and Both Trains of SI and CCP Inoperable (see O8.6 - EEI 50-315/316-98009-30)
- R.2.5.1 - Simulator Scenario Identified Flowpath That Diverted ECCS Flow, Caused by Plant Design/Emergency Response Guidelines (see O8.7 - LER 50-316/91007-02)
- R.2.7.3 - An Apparent Violation for a Procedure Which Caused Inconsistent Performance of TS Surveillances (EEI 50-316/98007-04)
- R.2.7.4 - An Apparent Violation for Failure to Correct a Previously Identified Condition Regarding Pre-conditioning of Equipment Prior to a Surveillance Test (EEI 50-315/316-98007-05)

c. Conclusions

The inspectors concluded that the 16 low priority RAM items, identified in Section O8.1.b, satisfied the four RAM closure guidance attributes listed in Section O8.1.a. These items are closed.

O8.2 (Closed) EEI 50-315/98004-10; 50-316/98004-10 (RAM Item No. R.1.13): Failure to consider the effects of change to ES-0.1, Reactor Trip Response, on the shutdown margin. The original concern was that no 10 CFR 50.59 safety evaluation was performed which assessed the adequacy of the criteria used in procedure ES-0.1 for determining whether the reactor was shutdown and whether boration was required. During this inspection, the inspectors reviewed safety screening 1999-0791-00 which had been performed in response to this issue. The inspectors concurred with the safety screening conclusion that changes to the shutdown and boration criteria used in EOPs were beneath the level of detail provided in the Updated Final Safety Analysis Report (UFSAR) and, consequently, such changes were not within the scope of 10 CFR 50.59. However, as discussed in Section O3.1.b.5, the inspectors identified a technical issue with respect to the criteria used for determining whether the reactor was shutdown and whether boration was required. This item is closed.

O8.3 (Closed) LER 50-315/98014-03 (RAM Item No. R.2.3.49): "Response to High-High Containment Pressure" procedure was not consistent with analysis of record. Previously, procedure FR-Z.1, "Response to High-High Containment Pressure," directed operators to initiate RHR spray when containment pressure reaches 8 psig. The analysis of record assumed that RHR spray was initiated when containment pressure reached 8 psig and did not account for operator and system response times for initiation of RHR spray. Consequently, the assumed RHR spray initiation time would not likely have been met. Since initiation of this LER, Westinghouse performed an evaluation, Safety Evaluation SECL 99-076, "Modifications to the Containment Systems," which determined that RHR spray was not required until 1.25 hours following the start of an accident. The evaluation also determined that RHR spray was only required if less than

both CTS pumps were operating. As part of the corrective actions outlined by the LER, the licensee committed to determine an appropriate point to initiate RHR spray, with allowance for operator and system response times. The inspectors reviewed procedure 02-OHP 4023FR-Z.1, "Response to High Containment Pressure," Revision 5x, and determined that the procedure guidance satisfied the analytical assumptions outlined in the Westinghouse evaluation. Specifically, the procedure directed operators to initiate RHR spray 50 minutes after the event if RHR spray was required. The inspectors concluded that the 50 minute initiation time provided sufficient margin from the analyzed initiation time to account for operator and system response. The inspectors noted that similar procedural requirements had been incorporated into the procedure ES-1.3. The inspectors concluded that the corrective actions in progress for this LER were sufficient and acceptable. This item is closed.

O8.4 (Closed) URI 50-315/98004-07; 50-316/98004-07 (RAM Item No. R.2.4.14): Operability Determination for procedure ES-1.3. EOP procedure ES-1.3 delayed full CCW flow to RHR heat exchangers until after switchover to recirculation was completed. The delay was not consistent with accident analysis of record which assumed full CCW flow to RHR heat exchangers existed as soon as switchover to recirculation was initiated. This issue was an URI pending NRC review of the licensee's historic operability review of past EOP procedure revisions. During this inspection, the inspectors reviewed CR 98-3412 and Westinghouse letter AEP-99-466 which documented the effect of delaying full CCW flow to the RHR heat exchangers. Westinghouse letter AEP-99-466 documented that the impact on the peak containment pressure of the delay in aligning the full CCW flow to the RHR heat exchanger was negligible. The inspectors concluded that no past operability issue existed. This item is closed.

O8.5 (Closed) EEI 50-315/98004-13; 50-316/98004-13 (RAM Item No. R.2.4.17): Inadequate safety evaluation for four reactor coolant pump (RCP) seal injection throttle valves. No 10 CFR 50.59 safety evaluation had been performed for RCP seal injection throttle valves being disconnected from their reach rods. Since this issue was identified, the inspectors determined that the method of operating the valves was below the level of detail described in the UFSAR. Additionally, the inspectors determined that the valves in question were not required to be manipulated for performance of EOP steps. The inspectors concluded that 10 CFR 50.59 was not applicable to this issue. This item is closed.

O8.6 (Closed) Violation 50-315/98152-01332; 50-316/98152-01332 (RAM Item No. R.2.4.24): ES-1.3 single failure vulnerability. As discussed in Section O3.2.b.3, single failure vulnerabilities for procedure ES-1.3 have been adequately addressed. This issue was also tracked as EEI 50-315/98009-30; 50-316/98009-30. This item is closed.

O8.7 (Closed) LER 50-316/91007-02 (RAM Item No. R.2.5.1): Simulator scenario identified flowpath that diverted ECCS flow, caused by plant design/emergency response guidelines. The identified flow path was through the CCP leakoff valves after a switchover to recirculation mode had occurred. The associated concerns were that ECCS flow could be diverted and that dose rates could be adversely affected. As part of the corrective actions in response to this LER, the licensee committed to revise their EOPs to require closure of the leakoff valves prior to switchover to recirculation mode.

The inspectors verified that ES-1.3 directed operators to close the leakoff valves prior to the CCPs taking a suction (via RHR) from the containment sump. This item is closed.

O8.8 (Open) IFI 50-315/98023-01; 50-316/98023-01 (RAM Item No. R.2.5.2): Verify quality and adequacy of the licensee's EOPs prior to plant restart. As discussed in Section O3.1.c, although no programmatic concerns were identified during this inspection, an insufficient number of EOPs had been approved to permit a conclusion with regards to program effectiveness. Consequently, this IFI will remain open pending review of additional completed EOPs.

O8.9 (Closed) IFI 50-315/98023-02; 50-316/98023-02(DRS): Adequacy of licensee's corrective actions for control rod H-8 indication. Licensee personnel stated that the reason for the inaccurate control rod indication was residual magnetism in the rod position indication sensing coils for Unit 2 control rod H-8. Both the approved and draft versions of EOP procedure ES-0.1 for Unit 2 permitted control rod H-8 to be considered inserted if rod position indication showed less than 35 steps. The inspectors verified that the most recent core reload analyses were performed with control rod H-8 stuck out at 50 steps as an input assumption. The UFSAR, Table 3.3-3, "Reactivity Requirements for Rod Cluster Control Assemblies [control rods]," noted that the shutdown analyses performed for one control rod stuck out also included the effects of control rod H-8 stuck out at 50 steps for Unit 2. This item is closed.

O8.10 (Closed) LER 50-316/98039-01: Emergency operating procedure step conflicts with small break LOCA analysis. Procedure ES-1.3 contained a step to shut off SI pumps prior to closing their associated recirculation valves if RCS pressure was above the pump shutoff head. The step was intended to prevent damage to the pumps if deadheading could occur. The licensee originally concluded that the SI pumps could be shutoff by this step even though still required for small break LOCA scenarios. The licensee subsequently determined that RCS pressure would be well below the EOP step shutoff criteria for design basis accident conditions. Consequently, the licensee retracted this LER on December 8, 1998. The licensee's basis for determining that RCS pressure would be below the shutoff criteria under design basis accident conditions was analyses discussed in Westinghouse letter AEP-98-230. The inspectors reviewed the Westinghouse letter and associated analyses and concurred that the shutoff criteria would not be reached under design basis accident conditions. This item is closed.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on January 5, 2000. The licensee acknowledged the inspection conclusions presented and did not identify any potential report material as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Bakken, Site Vice President
R. Crane, Lead Inspection Interface
M. Danford, Corrective Action Program Manager
M. Finissi, Plant Engineering Director
R. Foster, Shift Manager
D. Garner, Nuclear Fuel, Safety, and Analysis Director
R. Gaston, Compliance Licensing Manager
P. Gember, Work Control Supervisor
R. Godley, Regulatory Affairs Director
S. Greenlee, Design Engineering Director
G. Harland, Work Control Director
N. Jackiw, Compliance Engineer
W. Kropp, Performance Assurance Director
S. Lacey, Engineering Restart Director
M. Marano, Business Services Director
J. Pollock, Plant Manager
R. Powers, Senior Vice President
T. Quaka, Nuclear Safety Assessment Manager
M. Rencheck, Vice President of Engineering
R. Rickman, EOP Manager
P. Schoepf, Ice Condenser Manager
T. Taylor, Senior Licensing Engineer
C. Vanderniet, Plant Oversight Manager
L. Weber, Operations Manager
V. Woods, Assistant Shift Manager

US NRC

B. Bartlett, Senior Resident Inspector
M. Farber, Engineering Corrective Action Team Leader
J. Grobe, Division of Reactor Safety Director
M. Holmberg, Reactor Inspector
N. Shah, Reactor Inspector
G. Shear, Plant Support Branch Chief

LIST OF INSPECTION PROCEDURES USED

IP 40500: Effectiveness of Licensee Process to Identify, Resolve, and Prevent Problems
IP 42001: Emergency Operating Procedures
IP 61700: Surveillance Procedures and Records
IP 61701: Complex Surveillance
IP 61725: Surveillance Testing and Calibration Control Program
IP 61726: Surveillance Observations
IP 90712: In-office Review of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92701: Followup
IP 92703: Followup of Confirmatory Action Letters

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

Report Item Number	Item Type	RAM Item No.	Description
50-315/316-99033-01	NCV	NA	Failure to Document Diesel Had to Be Secured Due to Bearing Temperature Limit
50-315/316-99033-02	URI	NA	Justification for EOP Shutdown Criteria
50-315/316-99033-03	NCV	NA	EOP Setpoint Value Inconsistent With Support Analysis

Closed

Report Item Number	Item Type	RAM Item No.	Description
50-316/91007-02	LER	R.2.5.1	Simulator Scenario Identified Flowpath That Diverted ECCS Flow, Caused by Plant Design/Emergency Response Guidelines
50-315/316-98004-07	URI	R.2.4.14	Historic Operability Review for Past ES-1.3 Revisions
50-315/316-98004-10	EEI	R.1.13	Failure to Consider the Effects of Change to ES-0.1 on the Shutdown Margin
50-315/316-98004-13	EEI	R.2.4.17	Failure to Perform an Adequate Safety Evaluation for Changes to the Plant Affecting Four Emergency Operating and Abnormal Operating Procedures
50-316/98007-04	EEI	R.2.7.3	An Apparent Violation for a Procedure Which Caused Inconsistent Performance of TS Surveillances
50-315/316-98007-05	EEI	R.2.7.4	An Apparent Violation for Failure to Correct a Previously Identified Condition Regarding Pre-conditioning of Equipment Prior to a Surveillance Test
50-316/98007-07	EEI	R.2.1.7	An Apparent Violation for Failure to Comply with TS Requirements Upon Discovery of an Inoperable PORV
50-315/316-98009-30 50-315/316-98152-01332	EEI VIO	R.2.4.24	Revision to ES-1.3 Created a Single Failure Vulnerability That Could Render One RHR Pump and Both Trains of SI and CCP Inoperable
50-315/316-98009-36	IFI	R.2.3.45	The RWST and the Containment Water Level Instrumentation AOTs Should Appropriately be Governed by Consistent AOT Requirements

Report Item Number	Item Type	RAM Item No.	Description
50-315/98014-03	LER	R.2.3.49	Response to High-High Containment Pressure Procedure Not Consistent with Analysis of Record
50-315/316-98023-02	IFI	NA	Adequacy of licensee's corrective actions for control rod H-8 indication
50-315/98036-00	LER	R.2.1.14	Flow Indicator Not Calibrated at Technical Specification Required Frequency
50-316/98039-01	LER	NA	Emergency operating procedure step conflicts with small break LOCA analysis
50-315/98041-00	LER	R.2.1.15	Component Cooling Water Pump Surveillance Testing Has Potential to Cause Unplanned Entry into TS 3.0.3
50-315/98043-00	LER	R.2.1.16	Containment Air Locks Testing Not Performed in Accordance with TS 4.6.1.3.a
50-315/98044-00	LER	R.2.1.17	Offsite Power Availability Not Verified as Required by Technical Specification Surveillance
50-315/99023-00	LER	R.1.33	Inadequate Technical Specification Surveillance Testing of Essential Service Water Pump Engineered Safety Feature Response Time
50-315/99024-00	LER	R.1.34	Literal Technical Specifications Requirement Not Met By Accumulator Valve Surveillance
50-315/316-99033-01	NCV	NA	Failure to Document Diesel Had to Be Secured Due to Bearing Temperature Limit
50-315/316-99033-03	NCV	NA	EOP Setpoint Value Inconsistent With Support Analysis

Discussed

Report Item Number	Item Type	RAM Item No.	Description
50-315/98007-16	URI	R.2.1.8	Review of Additional Information on the Appropriateness of the Use of Duct Tape Inside of Containment
50-315/98018-02	LER	R.2.3.50	Use of Reactor Coolant Pump Seals as Alternate Boron Injection Flow Path Potentially Results in Unanalyzed Condition

Report Item Number	Item Type	RAM Item No.	Description
50-315/316-98023-01	IFI	R.2.5.2	Verify the Quality and Adequacy of the Licensee's EOPs Prior to Plant Restart
50-315/98047-00	LER	R.2.3.55	Interim - Potential Increase for Leakage Reactor Coolant Pump Seals Identified
50-315/98051-00	LER	R.2.1.18	Reactor Trip Signal from Manual Safety Injection Not Verified as Required by Technical Specification Surveillance
50-315/98053-00	LER	R.2.1.19	Interim LER - Use of Inoperable Substitute Subcooling Margin Monitor
50-315/98060-00	LER	R.2.1.20	Interim LER - Reactor Trip System Response Time Testing Does Not Comply with Technical Specification Requirement
50-315/99002-00	LER	R.2.1.22	Requirements of Technical Specification 4.0.5 Not Met Due to Improperly Performed Test
50-315/99003-00	LER	R.2.1.21	Control Room Pressurization System Surveillance Test Does Not Test System in Normal Operating Condition
	CSC	1A	Inadequate Instructions in Surveillance Tests
	CSC	1B	Acceptance Criterion Lack Sufficient Margin to Analysis Limit
	CSC	1C	Failure to Meet Technical Specification Requirements
	CSC	1D	Pre-conditioning of Equipment Prior to Surveillance Testing
	CSC	1E	Failure to Assess and Control the Quality of Contractors Performing Surveillance Testing
	CSC	14D	Emergency Operating Procedures Program Ready for Restart

LIST OF ACRONYMS

AEP	American Electric Power
CAL	Confirmatory Action Letter
CCP	Centrifugal Charging Pump
CNP	Cook Nuclear Power
CR	Condition Report
CSC	Case Specific Checklist
CTS	Containment Spray
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EEI	Escalated Enforcement Item
EOP	Emergency Operating Procedure
ICP	Information Change Package
IFI	Inspection Followup Item
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PORC	Plant Operations Review Committee
psig	pounds per square inch gauge
RAM	Restart Action Matrix
RAP	Restart Action Plan
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RWST	Refueling Water Storage Tank
SI	Safety Injection
URI	Unresolved Item
UFSAR	Updated Final Safety Analysis Report
WCSG	Work Control Surveillance Group

PARTIAL LIST OF DOCUMENTS REVIEWED

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
DRAWINGS:		
OP-2-5129	Flow Diagram, CVCS - Reactor Letdown and Charging, Unit No. 2	38
OP-2-5129A	Flow Diagram, CVCS - Reactor Letdown and Charging, Unit No. 2, Sheet 1	30
OP-2-5135	Flow Diagram, CCW Pumps and CCW Heat Exchangers	34
OP-2-5135A	Flow Diagram, CCW Safety Related Loads	35
OP-2-5142	Flow Diagram, Emergency Core Cooling (SIS)	39
OP-2-5143	Flow Diagram, Emergency Core Cooling (RHR), Unit No. 2	45
OP-2-5144	Flow Diagram, Containment Spray, Unit No. 2	42
PROCEDURES:		
PMI-3030.EXE.001	Conduct of Surveillance Testing	0
PMI-4023	DC Cook Nuclear Plant Emergency Operating Procedure Program	0
PMI-4030	Surveillance Requirement Program	21a
PMI-4030	Technical Specification Surveillance Test Program	22
PMI-5080	Administration of Contractors	7
PMO-191	Surveillance Test Reviews	0
PMP-2010.PRC.001	Procedure Writing	0
PMP-2010.PRC.002	Procedure Correction, Change, and Review	0
PMP-4023.EOP.001	EOP Maintenance	0
PMP-4023.EOP.002	EOP Writers Guide	1
PMP-4023.EOP.003	EOP Verification/Validation	1
PMP-4030.SCH.001	Scheduling of Surveillance Testing	0
PMP-7200.RST.004	Expanded System Readiness Review	9
01-EHP-4030.STP.206	Unit 1 Electric Hydrogen Recombiner Surveillance	0

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
01-IHP-4030.STP.089	Pressurizer Power Operated Relief Valve Cold Overpressurization Bistable and Backup Air Pressure System Functional Test	5
01-OHP-4030.STP.007E	East Containment Spray System Operability Test	Rev 13, Ch 3
01-OHP-4030.STP.020W	West Component Cooling Water Loop Surveillance Test	Rev 6, Ch 5
01-OHP-4030.STP-022W	West Essential Service Water System Test	6
01-OHP-4030.STP.52E	East Centrifugal Charging Pump Operability Test	8
01-OHP-4030.STP.52W	West Centrifugal Charging Pump Operability Test	Rev 7 Ch 2
01-OHP-4030.001.002	Containment Inspection	16
02-OHP 4023.ES-0.1	Reactor Trip Response	12
02-OHP 4023.ES-0.1	Reactor Trip Response, draft 13x (conditionally approved by Plant Operations Review Committee	12/09/99
02-OHP 4023.ES-1.3	Transfer to Cold Leg Recirculation	5
02-OHP 4023.ES-1.3	Transfer to Cold Leg Recirculation, draft 6x (conditionally approved by Plant Operations Review Committee	12/5/99
02-OHP 4023.FR-Z.1	Response to High Containment Pressure	Draft 5x
02-IHP-4030.SMP.209	Pressurizer Level Protection Set II Functional Test and Calibration	0
02-OHP-4030.001.002	Containment Inspection	Rev 12, Ch 4
02-OHP-4030.STP.52E	East Centrifugal Charging Pump Operability Test	Rev 6 Ch 1
02-OHP-4030.STP.52W	West Centrifugal Charging Pump Operability Test	Rev 7 Ch 2
12-EHP-4030.STP-211	Ice Condenser Basket Weighing Surveillance	0
12-EHP 5040.DRB.001	Design Review Board Expectations, Policies, and Practice	1
12-IHP-4030.STP.606	Distributed Ignition System 18 Month Surveillance and Maintenance	0
12-MHP-4030.010.001	Ice Condenser Basket Weighing Surveillance	0

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
12-MHP-4030.010.007	Ice Condenser Ice Basket Surveillance	0
227340-STG-6300-01	Engineering Control Packages	3
227340-STG-6300-02	Control of I&C Information	2
227340-STG-6300-03	Control of Instrument Configuration Documents	2
227700-ADM-1100-01	Responsibilities of the Fuel Fabrication Project Engineer	4
OHP40303.STP.013A (B)	Electric Hydrogen Recombiner Functional Test	6
Plant Procedure 2010.PRC.002	Procedure Corrections, and Review - Procedure Data Sheet 4, "Surveillance Test Procedure Criteria"	3
UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR):		
Table 3.3-3	Reactivity Requirements for Rod Cluster Control Assemblies	16.1
Section 9.2	Chemical and Volume Control System	----------
CALCULATIONS AND ANALYSES:		
Attachment to CAA-97-381	Donald C. Cook Nuclear Plant Unit 2 Cycle 12, Reload Safety Evaluation	1
FA-99-03	Calculation for Stuck Control Rods Near Reactor Core Bottom, Shutdown Margin, and Emergency Boration	0
SECL 99-076	Westinghouse Safety Evaluation for Modifications to the Containment Systems	3
INFORMATION CHANGE PACKAGES:		
ICP-00342	Revised footnotes to ECP 1-2-O0-14	11/02/99
ICP-00344	Added footnotes to ECP [Engineering Change Package] 1-2-O0-14	11/04/99
ICP-00349	Revised footnotes to ECP 1-2-O0-14	11/09/99
ICP-00352	Revised and added footnotes to ECP 1-2-O0-14	11/19/99
ICP-00381	Revised footnotes to ECP 1-2-O0-14	12/16/99
DESIGN INFORMATION TRANSMITTALS:		
DIT-B-00238-00	Design Accuracy of the Rod Position Indication System and Full out Position of D.C. Cook Shutdown and Control Rods	09/29/99
DIT-B-00239-00	Rod Position Indication Variation	09/29/99
DIT-B-00486-00	ECP 1-2-O0-14, Footnotes T.06 and T.08	12/01/99

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
CONDITION REPORTS:		
98-0388	Damage to Ice Condenser Ice Baskets Not Previously Recorded	02/03/98
98-0721	Problem with Control of Contractors During the Process of Ice Basket Maintenance and Surveillance Work	02/25/98
98-0591	Operations surveillance procedures written to implement Tech Specification 3.6.4.2 need to be revised to ensure they properly implement the current as amended TS requirements.	02/18/98
98-1022	At the routine resident NRC exit held March 12, 1998, an apparent violation was cited against 10CFR50, Appendix B, Criterion V, for failure to have an appropriate/adequate procedure for testing of the hydrogen recombiners.	03/17/98
98-1058	Apparent Violation of 10 CFR 50, Appendix B, Criterion 7, Concerning Damage to Ice Baskets by Contractors During 12.EHP.4030.STP.211	03/21/98
98-1077	During Performance of 12.EHP.4030.STP.211, Contractor Damaged Ice Basket (Repeat Violation of 10 CFR 50, Appendix B, Criterion 7)	03/20/98
98-1130	Hydrogen Recombiner temperature measurement circuitry was installed contrary to the original vendor design assumptions	03/20/98
98-3412	Historic Operability Review of ES-1.3 Past Revisions	07/14/98
99-15581	The inspections/examinations program requires a detailed assessment per Senior Management direction for programs where Management Attention was recommended during Programmatic Readiness Cross-Functional Team Review	06/14/99
P-98-01181	Technical Surveillance Process is Fragmented and Inconsistent	04/16/99
P-99-00030	AEP/RP Keycard Was Not Controlled per 12.PMP.2060.SEC.006	12/28/98
P-99-00930	Pressurizer PORV interlock bistable testing exceeded Technical Specification Requirements	10/01/99
P-99-08703	Third Party Assessment of Technical Specification Surveillance Program	06/11/99
P-99-24399	NEIC EOP ACTION TRACKING to consolidate and organize the various CRs associated with NEIC's production of EOP footnote data	10/01/99
P-99-28899	All Operations Surveillance Procedures Reference Inaccurate Maximum Bearing Temperatures	12/10/99

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
P-99-28899	All Operations Surveillance Procedures Reference Inaccurate Maximum Bearing Temperatures	12/16/99
P-99-29008	The NRC inspector for EOP project decided that a calculation performed to support a change in the EOP procedure improperly took credit for uncertainty in RPI indication	12/13/99
P-99-29043	Inspector Identified three incomplete 0350 surveillance procedure review checklists	12/13/99
P-99-29100	Valve 1-CCW-201W found out of position	12/14/99
SAFETY SCREENINGS / SAFETY EVALUATIONS:		
SE 1999-0791-00	Reactor Trip Response	10/12/99
CORRESPONDENCE:		
NRC Letter to AEP	Confirmatory Action Letter	09/19/97
AEP Letter to NRC	Remaining Confirmatory Action Letter Item Resolution	12/15/99
Westinghouse Letter AEP-98-270 to AEP	Safety Injection Isolation Report	11/04/98
Westinghouse Letter AEP-99-466 to AEP	Containment Integrity Evaluation - Delay of Full CCW Flow to RHR HX	12/10/99
RESTART ACTION PLAN PACKAGES:		
1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-17, 1-18, 1-20	Programmatic Breakdown in Surveillance Testing	----------
1A-1	Programmatic Breakdown in Surveillance Testing	----------
1A-6	Insufficient Margin to Limit - Maximum Gross Basket Weight	----------
1A-7	Inadequate Instructions - Unanalyzed Condition - Unpinning of Baskets	----------
1A-8	Inspect Accessible Areas of Lower Ice Baskets per Technical Specifications	----------
1A-10	Inadequate Procedure for Containment Inspections	----------
1A-11	Inadequate Instructions in Surveillance Tests	----------
1B-1	Correct the Generic Programmatic Issues Related to Acceptance Criterion Lacking Sufficient Margin	----------

TYPE OF DOCUMENTS:		
Number	**Description**	**Date/ Revision**
1C-1, 1C-2	Correct the Generic Programmatic Issues Related to Meeting Technical Specification Requirements	----------
1C-3	Programmatic Breakdown of Surveillance Testing	----------
1C-4	Correct the Generic Programmatic Issues Related to Meeting Technical Specification Requirements	----------
1C-5	Programmatic Breakdown of Surveillance Testing	----------
1C-6, 1C-7, 1C-8, 1C-9, 1C-10, 1C-11	Correct the Generic Programmatic Issues Related to Meeting Technical Specification Requirements	----------
1C-14	Recombiner Declared Operable with Data Above Technical Specification Limits	----------
1C-15, 1C-16	Technical Specification Surveillance Requirement for Unit 2 Ceramic Insulators on the Hydrogen Recombiners did not Include Requirement for Measuring Resistance Immediately Following Heat Up Test	----------
1C-17	Distributed Ignition System Declared Inoperable	----------
1-D	Pre-conditioning of Equipment Prior to Surveillance Testing	----------
1-E	Failure to Assess and Control the Quality of Contractor's Performing Surveillance Test	----------