UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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LISLE, IL 60532-4352

April 15, 2014

Mr. Larry Weber
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2, EVALUATIONS OF CHANGES, TESTS, AND EXPERIMENTS AND PERMANENT PLANT MODIFICATIONS BASELINE INSPECTION REPORT 05000315/2014007; 05000316/2014007

Dear Mr. Weber:

On March 27, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications Inspection at your D. C. Cook Nuclear Power Plant. The enclosed inspection report documents the inspection results, which were discussed on March 27, 2014, with Mr. M. Scarpello, Nuclear Regulatory Affairs Manager, and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Two NRC-identified findings of very low safety significance (Green) were identified during this inspection. These findings were determined to involve violations of NRC requirements. One of these findings was associated with a traditional enforcement Severity Level IV violation. However, because of their very low safety significance and because the issues were entered into your Corrective Action Program, the NRC is treating the issues as Non-Cited Violations (NCVs), in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the violations or significance of these NCVs you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector office at D. C. Cook Nuclear Power Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at D. C. Cook Nuclear Power Plant.

In accordance with Title 10, *Code of Federal Regulations* (CFR), Section 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

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

Enclosure:
Inspection Report 05000315/2014007; 05000316/2014007
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-315; 50-316
License Nos:	DPR-58; DRP-74
Report No:	05000315/2014007; 05000316/2014007
Licensee:	Indiana Michigan Power Company
Facility:	D. C. Cook Nuclear Power Plant, Units 1 and 2
Location:	Bridgman, MI
Dates:	March 3 – 21, 2014
Inspectors:	Néstor J. Féliz Adorno, Reactor Engineer Jasmine Gilliam, Reactor Engineer Ijaz Hafeez, Reactor Engineer
Observer:	Diana Betancourt, Reactor Engineer
Approved by:	Robert C. Daley, Chief Engineering Branch 3 Division of Reactor Safety

SUMMARY

IR05000315/2014007; 05000316/2014007; 03/03/2014 – 03/21/2014; D.C. Cook Nuclear Power Plant, Units 1 and 2; Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications.

This report covers a two-week announced baseline inspection on evaluations of changes, tests, and experiments and permanent plant modifications. The inspection was conducted by Region III based engineering inspectors. Two findings were identified by the inspectors. The findings were considered Non-Cited Violations (NCVs) of NRC regulations. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0310, "Aspects within the Cross Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. <u>NRC-Identified and Self-Revealed Findings</u>

Cornerstone: Mitigating Systems

- <u>Severity Level IV</u>. The inspectors identified a Severity Level IV Non-Cited Violation of 10 CFR 50.59(d)(1), "Changes, Tests, and Experiments," and an associated finding of very low safety significance (Green) for the licensee's failure to perform a written safety evaluation that provided the bases for the determination that the deletion of Technical Requirement Manual, Section 8.4.3, "ASME Code Class 1, 2, and 3 Components," did not require a license amendment. Specifically, the licensee did not evaluate the adverse effects of the change. The licensee entered this issue into their Corrective Action Program and initiated corrective actions to implement compensatory measures in accordance with the deleted section of the Technical Requirement Manual.

  The performance deficiency was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern. In addition, the associated traditional enforcement violation was more than minor because the inspector could not reasonably determine that the changes would not have ultimately required NRC prior approval. The finding was of very low safety significance (Green) based on the inspectors' review of corrective action documents associated with non-conforming conditions related to structural integrity of ASME components generated since the TRM removal. Specifically, the inspectors used the two most bounding cases for the evaluation and determined the issues did not result in the loss of operability or functionality, represent a loss of system and/or function, represent an actual loss of function exceeding the Technical Specification allowed outage time, or represent an actual loss of function of non-Technical Specification equipment designated as high safety significant in accordance with the licensee's Maintenance Rule Program. This finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee did not take effective corrective actions to address the issue. Specifically, the licensee identified that they had not evaluated the adverse effects of deleting Section 8.4.3 of the Technical Requirement Manual and, as a result, they performed a 50.59 evaluation. However, the evaluation did not address these adverse effects. [P3] (Section 1R17.1.b(1))

- Green. The inspectors identified a finding having very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish inspection procedures that were appropriate for the circumstances for the component cooling water heat exchangers. Specifically, the inspection procedure did not include instructions to verify the as-found essential service water flow rate through the heat exchangers met the minimum required value, which was a prerequisite for the licensee's inspection methodology. This finding was entered into the licensee's Corrective Action Program with a proposed action to revise the affected procedure.

  The performance deficiency was determined to be more than minor because, if left uncorrected, it has the potential to lead to a more significant safety concern. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality. Specifically, the licensee reviewed recent heat exchanger inspection results and reasonably determined the as-found macro fouling conditions did not impacted operability. The inspectors did not identify a cross-cutting aspect associated with this finding because it was confirmed not to be reflective of current performance due to the age of the performance deficiency. (Section 1R17.1.b(2))

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R17 Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications (71111.17T)

.1 Evaluation of Changes, Tests, and Experiments

a. Inspection Scope

The inspectors reviewed six safety evaluations performed pursuant to Title 10, Code of Federal Regulations (CFR) 50.59 to determine if the evaluations were adequate and that prior NRC approval was obtained as appropriate. The inspectors also reviewed 12 samples of screenings and/or applicability determinations where licensee personnel had determined that a 10 CFR 50.59 evaluation was not necessary. The inspectors reviewed these documents to determine if:

- the changes, tests, and experiments performed were evaluated in accordance with 10 CFR 50.59 and that sufficient documentation existed to confirm that a license amendment was not required;
- the safety issue requiring the change, tests, or experiment was resolved;
- the licensee conclusions for evaluations of changes, tests, and experiments were correct and consistent with 10 CFR 50.59; and
- the design and licensing basis documentation was updated to reflect the change.

The inspectors used, in part, Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, to determine acceptability of the completed evaluations and screenings. The NEI document was endorsed by the NRC in Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," dated November 2000. The inspectors also consulted Part 9900 of the NRC Inspection Manual, "10 CFR Guidance for 10 CFR 50.59, Changes, Tests, and Experiments."

This inspection constituted six samples of evaluations and 12 samples of screenings and/or applicability determinations as defined in IP 71111.17T-04.

b. Findings

(1) Failure to Evaluate the Adverse Effects of Technical Requirement Manual (TRM) Section Deletion

Introduction: The inspectors identified a Severity Level IV, NCV of 10 CFR 50.59(d)(1), "Changes, Tests, and Experiments," and an associated finding of very low safety significance (Green) for the licensee's failure to perform a written safety evaluation that provided the bases for the determination that the removal of TRM Section 8.4.3, "ASME

Code Class 1, 2, and 3 Components," did not require a license amendment. Specifically, the licensee did not address the adverse effects of the changes in evaluation 2010-0163-01, "Deletion of Unit 1 & 2 TRM 8.4.3, 'ASME Code Class 1, 2, and 3 Components'."

Description: Section 8.4.3 of the TRM addressed structural integrity requirements for the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, 2, and 3 Components and included surveillance requirements to verify structural integrity in accordance with the In-Service Inspection/Testing Program. This section also prescribed specific actions with corresponding completion times if the structural integrity of an ASME Code Class 1, 2, or 3 Component was found not to be in conformance with Code requirements. Depending on the Class of the component, the actions included either: (1) immediately initiating actions to maintain reactor coolant system (RCS) temperature above the TRM temperature requirements, or (2) immediately isolating the affected component. These requirements were previously included in Technical Specification (TS) Section 3/4.4.10, "ASME Code Class 1, 2, and 3 Components," before they were relocated to the TRM during D. C. Cook's TS conversion to Improved Technical Specifications (ITS) under License Amendments No. 287 and 269. The associated Safety Evaluation (ML050620034) stated "The TRM is a general reference in the UFSAR [Updated Final Safety Analysis Report] and changes to it are accordingly also subject to 10 CFR 50.59."

The licensee deleted Section 8.4.3 and the corresponding section in the bases from the TRM on September 20, 2010, using the 10 CFR 50.59 process per screening 2010-0163-00, "ASME Code Class 1, 2, and 3 Components." The screening concluded the change did not have an adverse effect because the TRM requirements were a duplicate to the requirements in 10 CFR 50.55a, "Codes and Standards," which requires licensees, in part, to comply with the In-Service Inspection Program. Additionally, it stated that the actions specified in TRM 8.4.3 were not needed because any non-conformance with the structural integrity requirements of ASME Code Class 1, 2, and 3 Components would be addressed on a case by case basis in accordance with the Corrective Action Program, Operability Determination Program, and ITS. As a result, the licensee screened out the change as not needing a full 50.59 safety evaluation and consequently not needing NRC prior approval.

On November 9, 2012, the licensee created Action Request (AR) 2012-14124 to review the appropriateness of screening 2010-0163-00. As part of the corrective actions, the licensee revised the screening and concluded that the proposed change involved adverse effects. Specifically, TRM 8.4.3 Required Actions for non-conformances were more restrictive than the requirements of 10 CFR 50.55a, Corrective Action Program, Operability Determination Program, and ITS. As a result, the licensee performed 50.59 safety evaluation 2010-0163-01 and concluded that prior NRC approval was not required because there was no change to the requirements for inspection and testing of ASME components to monitor structural integrity. Additionally, it stated the change was administrative in nature, ensured continued operability of required components, and did not affect failure modes or frequency of equipment failure. Again, the licensee credited the ASME Code, Corrective Action Program, Operability Determination Program, and ITS to assess operability of non-conforming conditions.

The inspectors noted, however, that the actions required by the aforementioned processes would not result in the same actions as those described in the deleted TRM section. Specifically, TRM 8.4.3 required either immediately (emphasis added) isolating the non-conforming Class 1, 2, and 3 Components, or to immediately (emphasis added) initiate actions to maintain RCS temperature above the minimum TRM temperature requirements (for Class 1 and 2 non-conforming Components). In contrast, the use of the operability determination process could allow the licensee to continue normal operations without isolating non-conforming components. The inspectors also determined the TRM Required Actions were not covered or bounded by 10 CFR 50.55a. The inspectors discussed these observations with the Office of Nuclear Reactor Regulations (NRR) and determined the TRM deletion adversely impacted 10 CFR 50.59 change evaluation criteria because in some cases the deleted TRM Required Actions for non-conforming conditions were more restrictive than the requirements of existing processes. For instance, depending on the non-conforming SSC, it could result in a more than a minimal increase in the likelihood of occurrence of an accident or malfunction of an SSC important to safety. Since the licensee failed to appropriately evaluate these differences in the 50.59 safety evaluation, the inspectors could not reasonably determine that the changes would not have ultimately required NRC prior approval.

The licensee entered the deficiency in their Corrective Actions Program as AR 2014-3789. As an immediate corrective action, the licensee implemented a standing order to establish compensatory measures in accordance with the deleted TRM requirements. The corrective action considered at the time of this inspection to restore compliance was to perform a condition evaluation with an extent of condition to review other TRM changes for similar deficiencies.

<u>Analysis</u>: The inspectors determined that the failure to provide a written safety evaluation to demonstrate the deletion of TRM Section 8.4.3 did not require a licensee amendment was contrary to the requirements of 10 CFR 50.59(d)(1) and was a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, it would become a more significant safety concern. Specifically, the deletion of TRM Section 8.4.3 could result in components not meeting the acceptance criteria for structural integrity being left in service, thereby adversely affecting SSC reliability. The inspectors concluded this finding was associated with the Mitigating Systems cornerstone.

In addition, the associated violation was determined to be more than minor because the inspectors could not reasonably determine the changes would not have ultimately required NRC prior approval.

Violations of 10 CFR 50.59 are dispositioned using the traditional enforcement process instead of the SDP because they are considered to be violations that potentially impede or impact the regulatory process. This violation is associated with a finding that has been evaluated by the SDP and communicated with an SDP color reflective of the safety impact of the deficient licensee performance. The SDP, however, does not specifically consider the regulatory process impact. Thus, although related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding.

In this case, the inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process.” Using

Attachment 0609.04, “Initial Characterization of Findings,” Table 2, the inspectors determined that the finding affected the Mitigating Systems cornerstone. As a result, the inspectors evaluated the finding using Appendix A, “The Significance Determination Process for Findings At-Power,” Exhibit 2 for the Mitigating Systems cornerstone. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality, represent a loss of system and/or function, represent an actual loss of function exceeding the ITS allowed outage time, or represent an actual loss of function of non-ITS equipment designated as high safety significant in accordance with the licensee’s Maintenance Rule Program. This was based on a review of ARs issued since the TRM deletion documenting non-conforming conditions related to structural integrity of ASME components. Specifically, the inspectors used the two most bounding cases for the SDP evaluation. The first instance involved a 0.1 gallon per minute leak on the Unit 1 east centrifugal charging pump which caused the pump to become inoperable for less than the ITS allowed time. The second example involved a 40-60 drop per minute leak on the Unit 2 west component cooling water (CCW) heat exchanger essential service water (ESW) outlet valve that was found to not result in inoperability upon further evaluation.

In accordance with Section 6.1.d of the NRC Enforcement Policy, this violation is categorized as Severity Level IV because the resulting change was evaluated by the SDP as having very low safety significance (i.e., Green finding).

The inspectors determined that the associated finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee did not take effective corrective actions to address the issue. Specifically, the licensee identified they had not evaluated the adverse effects of deleting TRM Section 8.4.3. As part of the corrective actions, the licensee performed a 50.59 evaluation; however, the evaluation did not address these adverse effects. [P3]

<u>Enforcement</u>: Title 10 CFR 50.59 Section (d)(1) requires, in part, the licensee to maintain records of changes in the facility, of changes in procedures, and of tests and experiments made pursuant 10 CFR 50.59(c). These records must include a written evaluation which provides the bases for the determination that the change, test, or experiment does not require a license amendment pursuant to Paragraph (c)(2) of this section. Paragraph (c)(2)(i) states, in part, that a licensee shall obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the UFSAR. Paragraph (c)(2)(ii) states, in part, that a licensee shall obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the UFSAR. The Safety Evaluation (ML050620034) associated with the relocation of the ASME Code Class 1, 2 and, 3 Components TS requirements to the TRM stated “The TRM is a general reference in the UFSAR and changes to it are accordingly also subject to 10 CFR 50.59.” Upon the discovery of non-conforming components, TRM 8.4.3 required either immediately isolating the components (for Class 1, 2 and 3 Components) or immediately initiating actions to maintain RCS temperature above the minimum TRM temperature requirements (for Class 1 and 2 Components).

Contrary to the above, on September 20, 2010, the licensee failed to maintain a record of the deletion of TRM Section 8.4.3 that included a written evaluation providing the bases for the determination the change did not require a license amendment. Specifically, the licensee did not address the adverse effects of the change in evaluation 2010-0163-01. Depending on the SSC found to be in non-conformance with the Code, the change could result in a more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety or occurrence of an accident because the deleted TRM Required Actions were more restrictive than those required by other existing processes.

The licensee is still evaluating its planned corrective actions. However, the inspectors determined that the continued non-compliance does not present an immediate safety concern because the licensee implemented a standing order to establish compensatory measures in accordance with the deleted TRM requirements.

The violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the licensee's Corrective Action Program as AR 2014-3789 (NCV 05000315/2014007-01; 05000316/2014007-01; Failure to Evaluate the Adverse Effects of TRM Section Deletion).

The associated finding is evaluated separately from the traditional enforcement violation; and therefore, the finding is being assigned a separate tracking number (FIN 05000315/2014007-02; 05000316/2014007-02; Failure to Evaluate the Adverse Effects of TRM Section Deletion).

(2) Inadequate Heat Exchanger Inspection Procedure

Introduction: A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to establish inspection procedures that were appropriate for the circumstances for the CCW heat exchangers. Specifically, Procedure 12-EHP-8913-001-002, "Heat Exchanger Inspection," did not verify the as-found ESW flow rate through the heat exchangers met the minimum required value, which was a prerequisite for the licensee's inspection methodology.

Description: The CCW system is a safety-related closed loop cooling system which serves as an intermediate system between potentially radioactive heat sources and the ultimate heat sink. The CCW system removes heat from the RCS, in addition to other loads, and transfers the heat to the ESW system. The CCW heat exchanger is a two pass flow heat exchanger, with ESW (raw water) flowing though the tube side and CCW water flowing though the shell side.

In 2010, NRC inspectors identified that the licensee's heat exchanger inspection guidance and acceptance criteria could potentially result in the design basis tube plugging limit being exceeded due to the accumulation of macro fouling. This issue was captured in the Corrective Action Program as AR 2010-8974 and resulted in an NCV, which was documented in Inspection Report 05000315/2010006; 05000316/2010006. As part of the corrective actions, the licensee revised the CCW heat exchanger inspection guidance for evaluation of partial flow blockage, added a preventive maintenance (PM) task to establish normal ESW flow rate through the heat exchangers prior to inspection, and increased the allowable plugging margin. The licensee reviewed the impact of the tube plugging allowance change in 50.59 screening 2011-0010-00, "Heat Exchanger Tube Plugging."

During this inspection period, the inspectors reviewed 50.59 screening 2011-0010-00 to determine, in part, if the safety issue requiring the change was resolved. The inspectors noted that the CCW heat exchanger inspection methodology assumed the minimum required ESW flow rate through the heat exchangers was maintained. However, the PM task to establish normal ESW flow rate did not include instructions to document the as-found flow rate value, and, it did not include acceptance criteria to assess the as-found condition. In addition, because the PM task was not linked to the heat exchanger inspection activity, the inspectors were concerned that if the minimum required flow rate was not initially achieved, operators would simply adjust the system configuration to achieve the PM required flow rate value without any feedback to the heat exchanger inspection personnel. Thus, this activity had the potential to allow a degraded hydraulic performance go undetected.

The licensee captured the inspectors' concern in their Corrective Actions Program as AR 2014-3805. As an immediate corrective action, the licensee reviewed recent inspection results and demonstrated past-operability of the CCW heat exchangers. Specifically, the licensee assumed the as-found partially plugged tubes were fully plugged and determined the resulting differential pressure across the heat exchangers would have not adversely impacted the expected ESW flow rate through the heat exchangers. The corrective action considered at the time of this inspection to restore compliance was to revise the partial blockage evaluation guidance of Procedure 12-EHP-8913-001-002.

<u>Analysis</u>: The inspectors determined the failure to establish procedures that were appropriate for inspecting CCW heat exchangers was contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and was a performance deficiency. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, not capturing and evaluating as-found ESW flow rates could have led to an unacceptable hydraulic performance affecting the operability of the CCW heat exchanger to go undetected. The inspectors concluded this finding was associated with the Mitigating Systems cornerstone.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings." Because the finding impacted the Mitigating Systems cornerstone, the inspectors screened the finding through IMC 0609 Appendix A, "The Significance Determination Process for Findings At-Power," using Exhibit 2, "Mitigating Systems Screening Questions." The finding screened as very low safety significance (Green) because it did not result in the loss of operability or functionality. Specifically, the licensee reviewed recent CCW heat exchanger inspection results and reasonably determined the as-found macro fouling conditions did not impact operability.

The inspectors did not identify a cross-cutting aspect associated with this finding because it was confirmed not to be reflective of current performance due to the age of the performance deficiency. Specifically, the partial tube blockage inspection guidance and PM task to perform CCW heat exchanger flushing prior to inspections were added more than three years ago.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. The licensee established Procedure 12-EHP-8913-001-002 as the implementing procedure for CCW heat exchanger inspections, an activity affecting quality.

Contrary to the above, as of March 18, 2014, the licensee failed to have a procedure of a type appropriate to perform CCW heat exchanger inspections. Specifically, Procedure 12-EHP-8913-001-002 did not include instructions for documenting and evaluating as-found ESW flow rates such that the effects of partially blocked tubes on the heat transfer capability of the heat exchangers could be determined.

The licensee is still evaluating its planned corrective actions. However, the inspectors determined that the continued non-compliance does not present an immediate safety concern because the licensee reasonably determined recent as-found macro fouling conditions did not impacted operability and the CCW heat exchangers were cleaned following their last inspection.

Because this violation was of very low safety significance and was entered into the licensee’s Corrective Action Program as AR 2014-3805, this violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000315/2014007-03; 05000316/2014007-03; Inadequate Heat Exchanger Inspection Procedure).

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed six permanent plant modifications that had been installed in the plant during the last three years. This review included in-plant walkdowns for portions of the modified emergency diesel generator jacket water surge tanks, containment equipment access hatches, and battery-N and associated battery chargers. The modifications were selected based upon risk significance, safety significance, and complexity. The inspectors reviewed the modifications selected to determine if:

- the supporting design and licensing basis documentation was updated;
- the changes were in accordance with the specified design requirements;
- the procedures and training plans affected by the modification have been adequately updated;
- the test documentation as required by the applicable test programs has been updated; and
- post-modification testing adequately verified system operability and/or functionality.

The inspectors also used applicable industry standards to evaluate acceptability of the modifications. The list of modifications and other documents reviewed by the inspectors is included as an Attachment to this report.

This inspection constituted six permanent plant modification samples as defined in IP 71111.17T-04.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

.1 Routine Review of Condition Reports

a. Inspection Scope

The inspectors reviewed several corrective action process documents that identified or were related to 10 CFR 50.59 evaluations and permanent plant modifications. The inspectors reviewed these documents to evaluate the effectiveness of corrective actions related to permanent plant modifications and evaluations of changes, tests, and experiments. In addition, corrective action documents written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problems into the corrective action system. The specific corrective action documents that were sampled and reviewed by the inspectors are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting Summary

On March 27, 2014, the inspectors presented the inspection results to Mr. M. Scarpello, and other members of the licensee staff. The licensee personnel acknowledged the inspection results presented and did not identify any proprietary content. The inspectors confirmed that all proprietary material reviewed during the inspection was returned to the licensee staff.

.2 Interim Exit Meeting

On March 21, 2014, the inspectors presented the preliminary inspection results to Mr. L. Weber and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary. The inspectors had outstanding questions that required additional review and a follow-up exit meeting.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

L. Weber, Site Vice-President and Chief Nuclear Officer
M. Scarpello, Nuclear Regulatory Affairs Manager
S. Mitchell, Licensing Activity Coordinator (Compliance)

Nuclear Regulatory Commission

B. Daley, Branch Chief, Engineering Branch 3
J. Ellegood, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000315/2014007-01; 05000316/2014007-01	NCV	Failure to Evaluate the Adverse Effects of TRM Section Deletion (Section 1R17.1.b(1))
05000315/2014007-02; 05000316/2014007-02	FIN	Failure to Evaluate the Adverse Effects of TRM Section Deletion (Section 1R17.1.b(1))
05000315/2014007-03; 05000316/2014007-03	NCV	Inadequate Heat Exchanger Inspection Procedure (Section 1R17.1.b(2))

LIST OF DOCUMENTS REVIEWED

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

10 CFR 50.59 EVALUATIONS

Number	Description or Title	Date or Revision
2010-0169-00	DC Cook U1 Low Pressure Turbine Retrofit with Alstom Low Pressure Turbine	6/29/2011
2011-0152-00	Change Technical Specification Bases 3.7.9 to Increase UHS Temperature	7/29/2011
2010-0163-01	Deletion of Unit 1 and 2 TRM 8.4.3, "ASME Code Class 1, 2 and 3 Component"	3/4/2013
2008-0290-01	Units 1 & 2 Auxiliary Missile Block Removal Project	6/14/2013
2011-0233-00	Unit 1 Cycle 24 ore Reload Mod Dose Evaluation	10/3/2011
2012-0019-00	Leak-Before-Break Evaluation Summery of D.C. Cook Unit 1 and 2 Pressurizer Lines due to Structural Weld Overlay Application at the Alloy 82/182 Weld Locations	2/6/2012

10 CFR 50.59 SCREENINGS

Number	Description or Title	Date or Revision
2011-0010-00	Heat Exchanger Tube Plugging	1/17/2011
2012-0047-00	Determination of Reactor Shutdown Margin	2/17/2012
2013-0108-00	Plant Cooldown From Hot Standby to Cold Shutdown	3/22/2013
2012-0151-00	Modify Vent Line for EDG FOST 12-TK-47-CD	6/8/2012
2012-0212-01	Unit 2 Control Room Annunciator System Replacement	8/24/2012
2013-0068-00	DG1AB & DG1CD Operation	2/22/2013
2013-0065-00	TDB-2-FIG-19-1	3/27/2013
2012-0402-00	Loss of Offsite Power with Reactor Shutdown	11/14/2012
2013-0344-00	1-OHP-4021-082-030, Removal and Restoration of Power to Lighting Transformer 2-TR-LTG-9S	9/18/2013
2012-0021-01	EC 50389 Replacement of Unit Auxiliary Transformer 1-TRIAB, 1-TRICD, and 12-	8/24/2012

10 CFR 50.59 SCREENINGS

Number	Description or Title	Date or Revision
	TR-UAT-SP	
2013-0346-00	12-OHP-4021-082-012, Locating 250VDC Grounds	9/18/2013
2013-0355-00	2-OHP-4021-082-022, Removal and Restoration of Power to 600V Bus 21BMC and Associated Motor Control Center	10/23/2013

CALCULATIONS

Number	Description or Title	Date or Revision
DCC-PV-12-MC22-N	Flood Protection ESW Pipe Tunnel	Revision 1
RS-C-232	Equipment Hatch Dose Rates Gap Reference	Revision 1
PRA-DOSE-CSSEAH	Radiation Protection for Concrete Shadow Shield for Equipment Access Hatch	Revision 0

CORRECTIVE ACTION PROGRAM DOCUMENTS INITIATED DURING INSPECTION

Number	Description or Title	Date or Revision
AR 2014-1896	Lost Quality Copy EC-47065	2/7/2014
AR 2014-3049	Safety Screen SS-SE-2008-0119-01 not in Documentum	3/4/2014
AR 2014-3371	Calculation for 1” pipe Iso 1-DW-521-L11-18 cannot be found	3/11/2014
AR 2014-3671	NOTE in TRS 8.5.1.1 could be enhanced	3/18/2014
AR 2014-3688	NRC Observation Regarding Performance of 50.59 Products	3/19/2014
AR 2014-3698	Enhance Heat Exchanger Inspection Procedure	3/19/2014
AR 2014-3789	Removal of TRM 8.4.3 was not adequately evaluated	3/20/2014
AR 2014-3795	SS-SE-2008-0290-01 Potential Performance Deficiency	3/20/2014
AR 2014-3805	Inspection of the CCW Heat Exchangers	3/21/2014

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Number	Description or Title	Date or Revision
AR 2012-15931	Clarify Assumption With Regards to Internal Flood Flowrates	12/21/2012
AR 2012-14124	Review of 50.59 Performed for Deletion of TRM 8.4.3	11/09/2012
AR 2010-8974	Need for GL 89-13 Program Assessment Identified	9/3/2010
AR 2013-7701	U1 E. ESW Strainer basket pinhole leak	5/23/2013

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Number	Description or Title	Date or Revision
	through piping	
AR 2014-1550	Ultrasonic Testing results for piping near 1-WFI-741	1/31/2014
AR 2013-5773	Rusted AFW pipe surrounding 2-FFI-240-OR	4/17/2013
AR 2014-0367	Ultrasonic Tests results for piping near 2-WRV-763	1/9/2014
AR 2013-17093	Ultrasonic Testing results for piping near 2-OME-34E	11/5/2013
AR 2013-4910	Eval Corrosion residual on U2 East ESW strainer basket	4/4/2013
AR 2013-4907	Eval Corrosion residual streaks on U1 W-ESW strainer basket	4/4/2013
AR 2013-5943	Cavitation found downstream 1-WMO-733	4/19/2013
AR 2012-11462	Pinhole leak from ESW outlet piping on U-2 West CCW Hx	9/14/2012
AR 2011-7092	Weld leak on discharge piping of East Charging Pump	6/14/2011
AR 2012-12972	EC-49191 Related Dose Calc Updates- Low Level of Detail	10/17/2012
AR 00089382	Fusible Switch QMQB6622R with M&E 25149833	4/9/2004
GT00127871	4KV Bus Under Voltage Relays Require Equivalency	6/12/2006
AR00854074	1-HV-AES-1 Control Power Failure	7/9/2009
AR 2014-0707	50.59 Record Keeping Discrepancies	1/15/2014

DRAWINGS

Number	Description or Title	Date or Revision
OP-1-5151D-70	Flow Diagram Emergency Diesel Generator “CD” Unit No. 1	Revision 70
OP-1-98264-9	Hydrogen Mitigation Distributed Ignition Sys Elementary Diagram	Revision 9
OP-1-12035-33	Distribution Aux One-Line, 600V Bus 11C, 11D Engineered Safety System	Revision 33
OP-2-12001-47	Main Auxiliary One-Line Diagram Bus A & B Engineered Safety System	Revision 47
PS-1-92053-13	Station Auxiliary Rear Panels SR1 &SR2 Wiring Diagram	Revision 13
OP-2-98099-6	Turbine Floor Outside Trailer and Screenhouse Misc. PWR. Elementary Diagram	Revision 6
OP-1-12013-20	MCC Aux One-Line 600V Bus 11A, 11B Engineered Safety System (Train B)	Revision 20

DRAWINGS

Number	Description or Title	Date or Revision
OP-1-12003-33	2 DC Main One-Line Diagram Engineered Safety System (Train A,B&N & BOP)	Revision 33
OP-1-12001-84	Main Auxiliary One-Line Diagram Bus A & B Engineered Safety System (Train B)	Revision 84
OP-1-12002-67	Main Auxiliary One-Line Diagram Bus C & D Engineered Safety System (Train A)	Revision 67
OP-1-12031-36	MCC Aux One-Line 600V Bus 11C,11D Engineered Safety System (Train A)	Revision 36
OP-1-12010-24	MCC Aux One-Line 600V Bus 11A,11B Engineered Safety System (Train A)	Revision 24
OP-1-12024-21	MCC Aux One-Line 600V Bus 11BMC Balance of Plant	Revision 21

MODIFICATIONS

Number	Description or Title	Date or Revision
EC 51402	Change U1 TS Bases 3.7.9 to Increase UHS Temperature	Revision 0
EC 50514	Replace Float Valve 1-QT-518-CD	Revision 0
EC 50360	Replace Float Valve 1-QT-518-AB	Revision 0
EC 49191	Elimination of the 650’ Elevation Auxiliary Missile Blocks from the Design of Unit 1 & 2	Revision 0
EC 47065	Change 2-MCCD-13, 250VDC Distribution Spare Power Panel Switch from “Spare” Designation	Revision 0
EC 50558	2-CT-CN Molded Case Circuit Breaker Replacement	Revision 0
EC 50203	Alternate Evaluation for General Electric 12NGV13B21A- Revision A Relay for the Components Identified in Section1.1	Revision 0
EC 51002	Alternate Replacement of Molded Case Circuit Breaker 1-52-BHT-A3 by Applying Electrical Design Standard 1-2-EDS-455	Revision 0

OTHER DOCUMENTS

Number	Description or Title	Date or Revision
WO55379030	1-XJ-54E Replace Expansion Joint	10/16/2004
WO55310787-39	U2 West CCW Heat Exchanger Inspection	8/10/2012
WO55330332-26	U1 East CCW Heat Exchanger Inspection	5/29/2013
WO55338047-01	Inspect Expansion Joints for Age Degradation	7/27/2011
WO55288972-01	Inspect Expansion Joints for Age Degradation	5/18/2009
SD-DCC-NEMH-321	Emergency Diesel Generator Jacket Water System	Revision 3
	Valve Reference Value Date Sheet for Valve	1/25/2013

OTHER DOCUMENTS

Number	Description or Title	Date or Revision
	2-MRV-212	
1-2-EDS-455	Molded Case Circuit Breaker Replacement	Revision 3

PROCEDURES

Number	Description or Title	Date or Revision
2-OHP-4021-001-004	Plant Cooldown From Hot Strandby to Cold Shutdown	Revision 60
2-OHP-2021-001-012	Determination of Reactor Shutdown Margin	Revision 31
MDS-607	Heat Exchanger Tube Plugging	Revision 10
12-EHP-8913-001-002	Heat Exchanger Inspection	Revision 8
2-OHP-4030-251-018	Steam Generator Stop Valve Dump Valve Surveillance Test	Revision 6
2-OHP-4021-082-022	Removal and Restoration of Power to 600V Bus 21BMC and Associated Motor Control Center	Revision 21
1-OHP-4022-001-005	Loss of Offsite Power with Reactor Shutdown	Revision 11
12-IHP-5030-EMP-006	MCCB/TOLR Testing and Electrical Enclosure Maintenance	Revision 31

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AR	Action Request
ASME	American Society of Mechanical Engineers
CCW	Component Cooling Water
CFR	Code of Federal Regulations
EC	Engineering Change
ESW	Essential Service Water
FIN	Finding
IMC	Inspection Manual Chapter
ITS	Improved Technical Specifications
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulations
PARS	Public Available Records System
PM	Preventative Maintenance
RCS	Reactor Coolant System
SDP	Significance Determination Process
SSC	Structure, System, or Component
TRM	Technical Requirement Manual
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report

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Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

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

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