



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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LISLE, IL 60532-4352

August 31, 2017

Mr. Joel Gebbie
Senior VP and Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
Bridgman, MI 49106

**SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000315/2017007; 05000316/2017007**

Dear Mr. Gebbie:

On July 28, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution (PI&R) inspection at your Donald C. Cook Nuclear Power Plant. The enclosed inspection report documents the inspection results, which were discussed at an exit meeting on July 28, 2017, with yourself and other members of your staff.

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

On the basis of the samples selected for review, the team concluded that the Corrective Action Program (CAP) at the Donald C. Cook Nuclear Power Plant was generally effective in identifying, evaluating, and correcting issues. The licensee had a low threshold for identifying issues and entering them into the CAP. Through consideration of risk, the significance of the issues and priority for issue evaluation and resolution were determined. Corrective actions were generally implemented in a timely manner, commensurate with their safety significance. Operating experience was entered into the CAP when appropriate and evaluated according to procedure. The use of operating experience was integrated into daily activities and found to be effective. In addition, self-assessments and audits were conducted at appropriate frequencies with sufficient depth and details for all departments. On the basis of the interviews conducted, the inspectors did not identify any impediment to the establishment of a safety conscious work environment. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program, through which concerns could be raised.

Based on the results of this inspection, the NRC has identified an issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with this issue. Because the licensee initiated condition reports (CRs) to address the issue, this violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2a of the Enforcement Policy. The NCV is described in the subject inspection report.

If you contest the violation or significance of the NCV, 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 copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at the Donald C. Cook Nuclear Plant.

If you disagree with the cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III, and the NRC Resident Inspector at the Donald C. Cook Nuclear Plant.

This letter, its enclosure, and your response, (if any), will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (CFR)2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Billy Dickson, Chief
Branch 2
Division of Reactor Projects

Docket No. 50-315; 50-316
License No. DPR-58; DPR-74

Enclosure:
IR 05000315/2017007; 05000316/2017007

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Letter to Joel P. Gebbie from Billy Dickson dated August 31, 2017

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000315/2017007; 05000316/2017007

Licensee: Indiana Michigan Power Company

Facility: Donald C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI

Dates: July 10 through July 28, 2017

Team Leader: N. Shah, Project Engineer

Inspectors: J. Neurauter, Senior Reactor Inspector
E. Fernandez, Reactor Inspector
J. Ellegood, Senior Resident Inspector

Approved by: B. Dickson, Chief
Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

Inspection Report 05000315/2017007; 05000316/2017007; 07/10/2017–07/28/2017; Donald C. Cook Nuclear Plant Units 1 and 2; Identification and Resolution of Problems.

This report covers a three week period of inspection by four regional inspectors. A Green finding was identified by the inspectors. The finding involved a non-cited violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) requirements. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-Cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6, dated February 2016.

Identification and Resolution of Problems

On the basis of the samples selected for review, the team concluded that the Corrective Action Program (CAP) at the Donald C. Cook Nuclear Plant was generally effective in identifying, evaluating and correcting issues. The licensee had a low threshold for identifying issues and entering them into the CAP. Through consideration of risk, the significance of the issues and priority for issue evaluation and resolution were determined. Corrective actions were generally implemented in a timely manner commensurate with their safety significance. Operating experience was entered into the CAP when appropriate and evaluated according to procedure. The use of operating experience was integrated into daily activities. In addition, self-assessments and audits were conducted at appropriate frequencies with sufficient depth and details for all departments. The assessments were thorough and effective in identifying site performance deficiencies, programmatic concerns and improvement opportunities. On the basis of the interviews conducted, the inspectors did not identify any impediment to the establishment of a safety conscious work environment. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program, through which concerns could be raised. The team determined that the licensee's performance in each of these areas supported nuclear safety.

Although implementation of the CAP was determined to be effective overall, the inspectors identified several issues that represented potential weakness of the program.

Cornerstone: Barrier Integrity

Green. The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 *Code of Federal Regulations* (CFR) Part 50, Criterion V for three examples where the licensee failed to follow procedures associated with the licensee's quality assurance program. This issue resulted in the licensee not properly classifying some structures, systems and components (SSCs) as operable, but non-conforming, consistent with station procedures.

The inspectors determined that the failure to properly classify the above SSCs as operable, but non-conforming, was within the licensee's ability to foresee and correct and was, therefore, a performance deficiency. This performance deficiency was considered more than minor, because it adversely affected the Design Control attribute

of Reactor Safety—Barrier Integrity, ensuring that SSCs would remain functional during a design basis event. Specifically, station procedures required that prompt action be taken to address operable, but non-conforming conditions. The inspectors evaluated the finding using the Significance Determination Process in accordance with IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” Exhibit 3, dated June 19, 2012. The finding was of very low safety significance (Green), because there was no actual loss of safety function for the affected SSCs.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of resolution, specifically to ensure that the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. [P.3] (Section 4OA2.1.b.3.ii)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152B)

This inspection constituted one biennial sample of problem identification and resolution (PI&R) as defined by Inspection Procedure 71152, "Problem Identification and Resolution." Documents reviewed are listed in the Attachment to this report. Note that the licensee's computer program tracks condition reports as action requests (ARs).

.1 Assessment of the Corrective Action Program Effectiveness

a. Inspection Scope

The inspectors reviewed the procedures and processes that described the licensee's CAP to ensure, in part, that the requirements of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," were met. The inspectors observed and evaluated the effectiveness of meetings related to the CAP, such as the Issue and Management Screening Committees and Corrective Action Review Board meetings. Selected licensee personnel were interviewed to assess their understanding of, and their involvement in, the CAP.

The inspectors reviewed selected ARs across all seven Reactor Oversight Process cornerstones to determine if problems were being properly identified and entered into the licensee's CAP. The majority of the risk-informed samples of condition reports (CR) reviewed were issued since the last NRC biennial PI&R inspection completed in 2015; however, the inspectors also reviewed some selected older issues.

The inspectors assessed the licensee's characterization and evaluation of the issues and examined the assigned corrective actions. This review encompassed the full range of safety significance and evaluation classes, including root cause evaluations, apparent cause evaluations and condition evaluations. The inspectors assessed the scope and depth of the licensee's evaluations. For issues that were characterized as significant conditions adverse to quality, the inspectors evaluated the licensee's corrective actions to prevent recurrence and for issues that were less significant, the inspectors reviewed the corrective actions to determine if they were implemented in a timely manner commensurate with their safety significance.

The inspectors performed a 5-year review of the safety-related component cooling water system based on input from the resident staff. The system functions to provide cooling to other safety-related equipment and also serves as an intermediate system to prevent the spread of radioactivity from the reactor coolant into the environment. The primary purpose of this review was to determine whether the licensee was monitoring and addressing performance issues associated with this system.

The inspectors examined the results of self-assessments of the CAP completed during the review period. The results of the self-assessments were compared to self-revealed and NRC-identified findings. The inspectors also reviewed the corrective actions associated with previously identified non-cited violations and findings to determine whether the station properly evaluated and resolved those issues.

b. Assessment

(1) Identification of Issues

Based on the results of the inspection, the inspectors concluded that the licensee was generally effective in identifying issues at a low threshold and entering them into the CAP. The inspectors determined that problems were normally identified and captured in a complete and accurate manner in the CAP. The licensee was appropriately screening issues from both NRC and industry operating experience at an appropriate level and entering them into the CAP when applicable to the station. The inspectors also noted that deficiencies were identified by external organizations (including the NRC) that had not been previously identified by licensee personnel. These deficiencies were subsequently entered into the CAP for resolution.

The inspectors determined that the licensee was generally effective at trending low level issues to prevent larger issues from developing. The licensee used the CAP to document instances where previous corrective actions were ineffective or were inappropriately closed.

The inspectors concluded that component cooling water system related concerns were identified and entered into the CAP at a low threshold, and concerns were resolved in a timely manner commensurate with their safety significance.

i) Observation

Follow Up of Trends with No Apparent Cause

The inspectors noted that approximately 25 percent of potential trends receiving a common-cause evaluation were closed with no identified cause. Additionally, the licensee's process did not require a subsequent evaluation to determine if the trend was a short-term aberration or if it recurred, potentially requiring a more in-depth evaluation than afforded by the common-cause evaluation process. Although the number of total trends identified by the licensee was consistent with the industry, the number of those closed to no identified cause appeared high. The inspectors did not identify any example where a missed trend resulted, in part, in a subsequent, significant issue; however, there was a potential for the licensee to miss some underlying performance issues by not further evaluating those trends having no apparent cause. The licensee documented this observation as AR 2017-7213.

Inconsistent Definition of Condition Not Adverse to Quality

The inspectors noted that the licensee's definition for Conditions Adverse to Quality (CAQ) in procedure PMP-7030-CAP-001, "Action Initiation," Revision 035, was inconsistent with that in procedure DTG-CNAQ-001, "Processing Conditions Not Adverse to Quality Actions," Revision 0. Through a selective review, the inspectors identified no examples where this discrepancy had resulted in a CAQ not being either properly identified or addressed. The licensee issued General Tracking item 2017-7079 to track the procedure change(s) to correct the definitions.

ii) Findings

No findings were identified.

(2) Prioritization and Evaluation of Issues

Based on the results of the inspection, the inspectors concluded that the station was effective at prioritizing and evaluating issues commensurate with the safety significance of the identified issue, including an appropriate consideration of risk.

The inspectors determined that the Issue and Management Screening Committee and the Corrective Action Review Board meetings were generally thorough and maintained a high standard for evaluation quality. Members of the screening committee meetings discussed selected issues in sufficient detail and challenged each other regarding their conclusions and recommendations.

i) Observations

Missed Compensatory Action to Address Potential Pump Leakage

The licensee initiated AR 2017–6452 to address a potential oil leak associated with the safety-related, Unit 2 auxiliary feed water pump turbine. This pump supplies water to the steam generators during certain accident conditions to ensure that a heat sink is available to maintain reactor core temperature. The AR was written following two instances where low oil level was observed in the pump sight glass during routine operator rounds. In both cases, the oil level had dropped while the pump was shut down. Although the cause of the leakage was unknown, the pump was still considered operable, as sufficient oil remained in the pump even though the low level mark had been reached in the sight glass. During the licensee screening of the issue, the inspectors noted that the licensee had initiated an action to investigate the cause of the leakage, but had not initiated an action to monitor the leakage rate while the pump was running to ensure that it remained operable. The inspectors discussed this issue with licensee operations staff who subsequently initiated an action to have an operator stationed at the pump whenever it was running, in order to assess the oil leakage and add oil if needed. Because the pump remained operable (i.e., the pump was not run during the period from discovery until implementation of the compensatory action), the failure to initiate the compensatory action was not considered a performance deficiency. The licensee documented the missed compensatory action as AR 2017–6710.

ii) Findings

No findings were identified.

(3) Effectiveness of Corrective Action

Based on the results of the inspection, the inspectors concluded that the licensee was generally effective in addressing identified issues and the assigned corrective actions were generally appropriate. The licensee generally implemented corrective actions in a timely manner, commensurate with their safety significance, including an appropriate consideration of risk.

Problems identified using root or apparent cause methodologies were generally resolved in accordance with the CAP procedural and regulatory requirements. Corrective actions designed to prevent recurrence were generally comprehensive, thorough, and timely. The inspectors sampled corrective action assignments for selected NRC documented violations and determined that actions assigned were generally effective and timely.

The inspectors concluded that instrument air system related concerns were identified and entered into the CAP at a low threshold, and concerns were resolved in a timely manner commensurate with their safety significance.

However, as discussed below, the inspectors identified several observations primarily with the resolution of long standing issues and with operable, but non-conforming conditions.

i) Observations

Resolution of Long-Standing Issues

In 2015, the licensee performed an Apparent Cause Evaluation (AR 2015–12802) after an external assessment concluded that the licensee was not effectively resolving several long standing issues. The evaluation concluded that inadequate management oversight was the apparent cause and the corrective actions included developing additional management metrics and providing additional training to licensee supervisors and staff. An Effectiveness Review subsequently concluded that these actions were effective. However, the inspectors noted that the evaluation did not review a sampling of individual long term issues and that the Effectiveness Review only considered the 3-month period after corrective actions were implemented. The inspectors concluded that the evaluation missed potential worker and process issues that may have contributed to the backlog of long term items and that the Effectiveness Review was performed too early to adequately evaluate the corrective actions.

As of this inspection, the licensee had 26 open ARs originating in 2014 or earlier and 13 ARs having five or more management extensions of the due date. These ARs were associated with either Significant or Conditions Adverse to Quality. A selective review of these ARs identified several apparent contributors as to why issues remained open.

For example, the inspectors identified that the licensee's procedure for addressing deficient engineering conditions, permitted the long term deferral of determining whether a potential operability issue was either non-conforming or degraded. Additionally, the inspectors noted that management extensions often did not document the safety or risk impacts for deferring corrective actions. The inspectors also identified potential issues with the licensee's work control and CAP process in that changes to corrective actions were not always documented. One example was the failure to address recurring leakage associated with a safety-related instrumentation line, which is further discussed below.

The licensee documented this observation as AR 2017–7212.

Failure to Correct Recurring Leakage from Safety-Related Instrumentation Line

Since 2005, the licensee has observed recurring leakage from an instrumentation line associated with the east centrifugal charging pump. This line is classified as safety-related, but is not part of the reactor coolant pressure boundary. However, the issue was a condition adverse to quality, as it was considered reactor coolant system leakage. Leakage was documented on several occasions between 2005 and 2015. In each case, the line was isolated (stopping the leak thereby immediately correcting the condition adverse to quality) and the affected components were either tightened or replaced; however, as stated, the leak would recur requiring another repair.

In 2015, the licensee identified this issue as rework and recommended that the previously replaced components should again be replaced, that a new pipe nipple should be installed and that all replaced components should be sealed/welded to prevent further leakage. These actions were incorporated into a work order and the associated AR was closed. Although the work was completed in November 2016, the pipe nipple was not replaced nor were any components sealed/welded. Instead, the pertinent instructions in the work order had been crossed out without any documented explanation.

Subsequently, in 2017, on two occasions (ARs 2017-4877, 2017-6609) the licensee again documented leakage from this instrumentation line. In each case, the recommended actions were consistent with those taken prior to 2015 (i.e., replace or retighten the affected components). There was no discussion of the failure to implement those actions recommended from the 2015 rework evaluation. In fact, as part of AR 2017-4877, the licensee performed an evaluation which concluded that there were no rework issues.

Because the licensee had corrected the condition adverse to quality by isolating the leakage and repairing the piping, this was not considered a violation. However, the failure to take the actions to address recurrence was considered another example where a long standing issue was not addressed. The licensee documented this observation in AR 2017-6769.

Effectiveness of Corrective Actions to Manage Plant Risk

In 2015, an industry assessment of several plant events identified a potential issue with how the licensee managed risk. The assessment was documented in AR 2015-9639, "Steaming Analysis Results." The corrective actions for this observation included, in part, developing a list of seven questions (i.e., the "seven question challenge") for use by plant management to aid in decision making. The licensee completed Effectiveness Reviews in June and December 2016, which concluded that these corrective actions were effective. The inspectors reviewed the same sample(s) that the licensee used to determine effectiveness as well as NRC findings issued or proposed since completion of the effectiveness review. The inspectors concluded there were several plant events that could have been prevented by using the seven question challenge. Some of these events included:

- AR 2016–11243, “Tire from fork truck broke through 34.5 Plastibeton.” This event resulted in the loss of a 34.5 KV line due to a truck driving over and breaking a plastibeton cover over the line;
- AR 2016–7626, “Fire Protection water line break.” This event concerned the unplanned loss of a fire water line during construction activities;
- AR 2017–2984, “ACE–12–SEC–UPS–BATT, Security Uninterruptible Power Source Battery has remained off line.” This event concerned an unrecognized adverse impact to the security system, due to the loss of one of the security uninterruptible power supplies; and
- AR 2016–7865, “Unit 2 B Right Moisture Separator Reheater Expansion Joint Failure.” This event resulted in an unplanned power reduction of Unit 2.

The inspectors noted that the licensee had not evaluated events after completion of the effectiveness review to determine if the seven question challenge should have been prevented the event. The licensee documented this issue in action report (AR) 2017–7237 to address this issue.

ii) Findings

Failure to Correct Operable, but Non-Conforming Conditions

Introduction: The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Criterion V for three examples where the licensee failed to follow procedures associated with the licensee’s quality assurance program. This issue resulted in the licensee not properly classifying certain structures, systems and components (SSC) as operable, but non-conforming, consistent with station procedures. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of resolution, specifically to ensure that the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. [P.3]

Description: The inspectors identified three examples of CAQs affecting safety-related structures, systems and components (SSCs) where the licensee failed to make a timely determination that the system was operable, but nonconforming contrary to procedures. As a result, prompt corrective actions to address the non-conformances were not taken and in two of the examples, were deferred for several years.

- AR 2017–2597, “Primary Water Piping does not Meet Operational Basis Earthquake Criteria.” On March 6, 2017, the licensee identified that a section of primary water piping and two recently replaced valve actuators may not meet the seismic licensing basis. The licensee concluded that the piping and affected components were operable based on an interim analysis, but that further evaluation was warranted to determine whether the issue was nonconforming or degraded. As a result, corrective action(s) to address the nonconformance was deferred and the issue remained open as of this inspection.
- AR 00863160/0041908, “Inadequate Resolution of Nuclear Safety Advisory Letter (NSAL)–00–009.” On January 7, 2000, the licensee was informed by Westinghouse that the current licensing/design basis calculations may be incorrect, due to improper evaluation of reactor coolant piping loading following

a loss of coolant accident. Initially, the licensee concluded that the apparent errors did not affect the calculation and closed the concern with no action taken. Subsequently, in 2010, the licensee identified that the calculations were affected and that while the piping was considered operable, additional evaluation was necessary to determine whether it was a nonconforming or degraded condition. The inspectors noted that this evaluation was continuously deferred and remained incomplete as of this inspection.

- AR 2010–10039, “Seismic Qualifications of Components Associated with Reactor Vessel Closure Head (RVCH) Modification.” On September 29, 2010, the licensee identified that a non-conservative methodology was used to perform seismic analyses for the RVCH replacement. This issue was identified as “Operable, but nonconforming” requiring a revision to the design/licensing basis calculations. However, the revisions have been deferred for several years and the issue remained open as of this inspection.

Licensee procedure PMP–7030–OPR–001, “Operability Determination,” Revision 33, states the following:

- (step 3.4.4(a)) “Operability should be determined without delay upon discovery that a SSC is in a degraded or non-conforming condition. While this information may be based on limited information, the information should be sufficient to conclude that there is a reasonable expectation that the SSC is operable.”
- (step 3.5.3) “If an Operability Determination is not required, but an SSC is in, or still suspected to be in a Non-conforming or Degraded condition AND the path to full compliance is not clear, THEN a discrepant condition evaluation shall be performed in accordance with 12–EHP–5043–EDC–001, “Evaluation of Discrepant Conditions” and tracked as necessary.”
- (step 3.8.1) “Prompt actions shall be taken to correct or resolve degraded or nonconforming conditions as required by 10 *Code of Federal Regulations* (CFR) 50, Appendix B. Corrective actions shall be taken at the first opportunity, as determined by the safety significance...Time frames longer than the next refueling outage shall be explicitly justified and documented.”

Licensee procedure 12–EHP–5043–EDC–001, “Evaluation of Discrepant Conditions,” Revision 14 stated:

- (step 3.4.2(a)) “IF the evaluation of a suspected Degraded or Non-Conforming Condition will involve significant labor, such as that required to perform a complicated Calculation or Calculation Revision, THEN it is NOT necessary to declare a Degraded or Non-Conforming Condition pending the evaluation if the Operability Determination meets the Reasonable Expectation of Operability.”
- (step 3.4.2(b)) “Timeliness of the evaluation shall be governed by 10 CFR 50 Appendix B, Criterion XVI, Corrective Action: ‘Measures shall be established to assure that conditions adverse to quality...are promptly identified and corrected.’ Promptness shall be commensurate with the safety significance of the condition.”

Clearly, the licensee expected that operability issues were to be promptly evaluated to determine whether the issue was non-conforming or degraded so that corrective actions were taken to ensure that condition adverse to qualities (CAQ) were promptly identified and corrected. The inspectors verified with the licensee that similar requirements had existed in both procedures at the time of initial discovery of the above ARs.

The guidance in 12-EHP-5043-EDC-001 step 3.4.2(a) allowed the licensee to defer determining whether a condition was nonconforming or degraded based on the anticipated resources needed. As a result, corrective actions could not be assigned until this determination was made, resulting in some CAQs being open for an extended period of time. However, in the above examples the licensee had determined that the issues involved deficiencies in calculations that while needing revision, were believed to be insufficient to render the SSCs inoperable. Therefore, the affected SSCs should have been declared as being non-conforming and corrective actions should have been taken to address the associated CAQ. The licensee agreed that the procedural guidance needed revision and documented this issue in AR 2017-7002.

The inspectors also noted that the associated deferrals for two of the above examples, did not have explicit and documented bases for extending the period of noncompliance past the next refueling outage. Essentially, each of the deferrals referred to a lack of available funding or other resources as the reason for the delay. This was inconsistent with the step 3.8.1 of station procedure PMP-7030-OPR-001. The licensee documented this issue in ARs 2017-7015 and 2017-7211.

Analysis: The inspectors determined that the failure to properly classify the SSCs described above as operable, but non-conforming, consistent with station procedures was within the licensee's ability to foresee and correct and was, therefore, a performance deficiency. This performance deficiency was considered more than minor, because it adversely affected the Design Control attribute of Reactor Safety—Barrier Integrity, ensuring that SSCs would remain functional during a design basis event. Specifically, the licensee failed to implement timely corrective actions to address the nonconforming conditions. The inspectors evaluated the finding using the Significance Determination Process in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, dated June 19, 2012. The finding was of very low safety significance (Green), because there was no actual loss of safety function for the affected SSCs.

Specifically, in each example, the licensee had concluded that the affected SSC was operable, based on a reasonable assessment that the impact to the associated calculation(s) was minimal and that sufficient design margin remained. However, the licensee then deferred classifying the issues as either nonconforming or degraded, resulting in no corrective action being taken for the respective CAQs. As stated, the licensee had sufficient information in the operability assessment to declare the SSCs as nonconforming and promptly assign corrective actions consistent with station procedures.

The inspectors determined this finding affected the cross-cutting area of problem identification and resolution in the aspect of resolution, specifically to ensure that the organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. As stated, for each example, the licensee

did not take corrective actions to address these CAQs (in two cases, for several years) without adequate justification. [P.3]

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures. The licensee’s Quality Assurance Program description, which forms part of the current license bases for the facility, states that “Procedures shall provide for the identification, evaluation and resolution of conditions adverse to quality.” (B.13.a). The licensee established PMP–7030–OPR–001, “Operability Determination,” Revision 33, as the implementing procedure for evaluation and resolution of conditions affecting operability of SSC’s.

Licensee procedure PMP–7030–OPR–001, “Operability Determination,” Revision 33, step 3.8.1 states the following: “Prompt actions shall be taken to correct or resolve degraded or nonconforming conditions as required by 10 CFR 50, Appendix B. Corrective actions shall be taken at the first opportunity, as determined by the safety significance...Time frames longer than the next refueling outage shall be explicitly justified and documented.”

Contrary to the above, the licensee failed to evaluate and/or resolve conditions adverse to quality associated with operable, but nonconforming conditions for three SSCs, as documented in the following ARs:

- AR 2017–2597, “Primary Water Piping does not Meet Operational Basis Earthquake Criteria.” On March 6, 2017, the licensee identified that a section of primary water piping and two recently replaced valve actuators may not meet the seismic licensing basis. The licensee concluded that the piping and affected components were operable based on an interim analysis, but that further evaluation was warranted to determine whether the issue was nonconforming or degraded. As a result, corrective action to address the nonconformance was deferred and the issue remained open as of this inspection.
- AR 00863160/0041908, “Inadequate Resolution of Nuclear Safety Advisory Letter (NSAL)–00–009.” On January 7, 2000, the licensee was informed by Westinghouse that the current licensing/design basis calculations may be incorrect, due to improper evaluation of reactor coolant piping loading following a loss of coolant accident. Initially, the licensee concluded that the apparent errors did not affect the calculation and closed the concern with no action taken. Subsequently, in 2010, the licensee identified that the calculations were affected and that while the piping was considered operable, additional evaluation was necessary to determine whether it was a nonconforming or degraded condition. The inspectors noted that this evaluation was continuously deferred and remained incomplete as of this inspection, resulting in no corrective action being taken for the nonconformance.
- AR 2010–10039, “Seismic Qualifications of Components Associated with RVCH Modification.” On September 29, 2010, the licensee identified that a non-conservative methodology was used to perform seismic analyses for the RVCH replacement. This issue was identified as “Operable, but

nonconforming” requiring a revision to the design/licensing basis calculations. However, the revisions have been deferred for several years and the issue remained open as of this inspection.

Each of these examples was classified as a CAQ in the licensee’s corrective action program (CAP). In two of the examples, the licensee had failed to identify the SSCs as non-conforming, resulting in no corrective action being taken to address the CAQs. In the remaining example, the licensee had identified the non-conforming condition, but inappropriately deferred corrective action for several years without providing explicit and documented justification.

The licensee documented these issues in the CAP as ARs 2017–7002, 2017–7015 and 2017–7211. Because this violation was of very low safety significance and the issue was entered in the licensee’s CAP, this violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2.a of the Enforcement Policy.

(NCV 05000315/2017007–01; 05000316/2017007–01, Failure to Correct Operable, but Non-Conforming Conditions)

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee’s implementation of the facility’s Operating Experience program. Specifically, the inspectors reviewed the program implementing procedures, attended CAP meetings to observe the use/screening of operating experience, interviewed plant staff and reviewed licensee evaluations of operating experience issues and events. The objective of the review was to determine whether the licensee was effectively integrating operating experience into the performance of daily activities, whether evaluations of issues were appropriate, whether the licensee’s program was sufficient to prevent future occurrences of previous industry events, and whether the licensee effectively used the information in developing departmental assessments and facility audits. The inspectors also assessed if corrective actions, as a result of operating experience, were identified and implemented in an effective and timely manner.

b. Assessment

The inspectors determined that operating experience was discussed as part of the daily and pre-job briefings and was disseminated across plant departments for their review and use, if needed. Specific equipment related issues were distributed to appropriate engineers for evaluating and screening into the CAP. The inspectors also verified that the use of operating experience in root or apparent cause evaluations was appropriate and adequately considered.

Based on the results of the inspection, the inspectors concluded that operating experience was effectively utilized at the station. No significant issues were identified during the inspectors’ review of selected licensee operating experience evaluations.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed selected self-assessments and Nuclear Oversight audits, as well as the schedule of past and future assessments. The inspectors evaluated whether these audits and self-assessments were effectively managed, adequately covered the subject areas, and properly captured identified issues in the CAP. In addition, the inspectors interviewed licensee personnel regarding the implementation of the audit and self-assessment programs.

b. Assessment

Based on the results of the inspection, the inspectors concluded that self-assessments and audits were typically accurate, thorough, and effective at identifying issues and enhancement opportunities at an appropriate threshold. The inspectors concluded that these audits and self-assessments were completed by personnel knowledgeable in the subject area. These issues were entered into the CAP. The inspectors also determined that findings from the CAP self-assessment were generally consistent with the inspectors' assessment.

c. Findings

No findings were identified.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope

The inspectors assessed the licensee's safety conscious work environment through the reviews of the facility's Employee Concerns Program (ECP) implementing procedures, discussions with the coordinator of the ECP, interviews with personnel from various departments, and reviews of ARs. The inspectors also reviewed the results from safety-culture assessments/surveys conducted by the licensee since the 2015 NRC Problem Identification and Resolution inspection.

The individuals interviewed in the scheduled interviews were randomly selected to provide a distribution across various departments at the site. In addition to assessing individuals' willingness to raise nuclear safety issues, the interviews also included discussion on any changes in the plant environment over the last six months. Items discussed included:

- knowledge and understanding of the CAP;
- effectiveness and efficiency of the CAP;
- willingness to use the CAP; and
- knowledge and understanding of ECP.

The inspectors also discussed the functioning of the ECP with the program coordinator and reviewed selected case files from 2015 through 2017 to identify any emergent issues or potential trends.

b. Assessment

The licensee maintained an effective safety conscious work environment. Individuals felt free to raise nuclear safety issues without fear of retaliation and were generally familiar with the CAP and other processes, including the ECP and the NRC's allegation process, through which concerns could be raised. In addition, a review of the types of issues in the ECP indicated that the licensee staff members were appropriately using the CAP and ECP to identify issues. The results of the licensee safety culture surveys generally supported the conclusions from the interviews.

c. Findings

No findings were identified.

4OA6 Management Meetings

Exit Meetings

On July 28, 2017, the inspectors presented the inspection results to Mr. J. Gebbie 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.

On August 25, 2017, the inspectors presented additional information to Mr. M. Scarpello and other members of the licensee staff regarding the finding discussed in Section 4OA2.1.b.3.ii of this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Aubrey, Manager, Engineering Programs
M. Frasier, Manager, Organizational Effectiveness
A. Garrett, Director, Plant Engineering
J. Gebbie, Senior Vice-President and Chief Nuclear Officer
M. Lloyd, Vice-President, Engineering
J. Ross, Plant Manager
M. Scarpello, Manager, Nuclear Regulatory Assurance

U.S. Nuclear Regulatory Commission

K. Riemer, Chief, Plant Support Branch
B. Dickson, Chief, Reactor Projects Branch 2 (via telecom)

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open and Closed

05000315/2017007-01; 5000316/2017007-01	NCV	Failure to Correct Operable, but Non-Conforming Conditions (Section 40A2.1.b.3.ii)
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Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections or 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.

Procedures

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
DTG-CNAQ-001	Processing Conditions Not Adverse to Quality (CNAQ) Actions	Revision 0
PMP-7030-CAP-001	Action Initiation	Revision 35
PMP-7030-CAP-003	Conduct of Condition Evaluations	Revision 10
PMI 2015	Policy For Making A Safety Conscious Work Environment	Revision 4
PMP-7030-P21-001	Processing and Reporting of Defects and Non-Compliances	Revision 7
PMP-7030-OE-001	Operating Experience Program	Revision 30
12-EHP-5035-SMP-001	Plant Structure Performance and Monitoring Program	Revision 15
12-EHP-5043-EDC-001	Evaluation of Discrepant Conditions	Revision 23
12-EHP-5043-OAR-001	Owner's Acceptance Review	Revision 7
PMI-7030	Corrective Action Program	Revision 44
PMP-7030-CAP-001	Condition Action and Closure	Revision 33
DCC01.G03	ISI Program Plan Fourth Ten-Year Inspection Interval	Revision 8
OP-ECT-9.03	ECT RFT of Balance of Plant Heat Exchangers	Revision 4
PMP-2291-WMP-001	Work Management Process Flowchart	Revision 49
DIG-WCO-103	Outage Management Department Scheduling Desktop Guide	Revision 5
PMP-2291-OUT-002	Outage Scope Control	Revision 9

Action Requests

<u>Number</u>	<u>Description or Title</u>
2015-12776	Disposition of OE [Operating Experience] Search Results
2017-3236	Inconsistent Interpretation of Part 21 Process
2015-12776	Disposition of OE Search Results
2016-14181	1-OME-150-AB, DG1AB Developed Fuel Oil Leak
2017-2984	ACE 12-SEC-UPS-Battery Has Remained Off-Line
2017-3181	2-HV-CEQ-1 Failed Acceptance Criteria
2016-13840	Potential Trend B2b8—ERO [Emergency Response Organization] Turnover
2017-0741	Security Potential Trend Identified
2017-2665	Potential Trend of Safety Culture Issues
2017-3711	Declining Potential Trend of CAP Quality
2010-9097	Complete Effectiveness Review Plan to Resolve GTRF Failures for Unit 2
2015-12802	AFI PI3.1 Corrective Action Effectiveness

2015-14153	ERO Evaluated Exercise DEP [Drill Exercise Performance] Results Below Expectations
2016-9941	NRC Concerns With Completeness and Accuracy
2016-11243	Tire From Fork Truck Broke Through 34.5 Plastibeton
2016-4795	Auxiliary Feedwater Mission Time Green Non-Cited Violation
2016-10169	Potential MC&A [Material Control and Accountability] Program Violation
2016-13827	Dose Rate Alarm in Unit 2 Upper Containment
2016-12277	Procedure Requirements Not Followed—A Curing Membrane was Applied to the Grout Inside the Recirculation Sump Without Using Procedure 12-CHP-5021-CCD-012
2016-3775	Security Loggable Event #25—A Security Officer Failed to Meet the Specific Requirements for an Assigned Post
2016-3952	U1C26 Fuel Defect—Fuel Assembly Aj53 (Core Location F13) Yielded a Nonstandard Response by In-Mast Sipping
2017-5360	Security Diesel Generator 2 Did Not Parallel to Emergency Preparedness Bus
2010-7835	SD-040225-001 Rev 0 Has Limitation Until UCR-1751 Issued
2010-8266	OE31683 Seismic Analysis Methodology Not Per Licensing Basis
2010-10039	Seismic Qualification of Components Associated with RVCH [Reactor Vessel Channel Head] Modification
2010-13874	EPD STRUDL Critical Error—BER Report No. B6.0-244
2012-14755	Part of Containment Cooling Project Are Not RTO'd
2013-18920	UV Relay Setting Sheets Are Out of Date
2015-7495	1-BD-204 Difficult to Operate
2015-10455	Broken Structural Support
2015-11951	Leaking BRE Gun Port—BRE 02
2015-12982	INPO AFI [Area For Improvement] Engineering Fundamentals
2015-14259	Determine Current Licensing Basis for U1/U2 HSD Panels
2015-15195	Missed Opportunity for Site Risk Precursor Recognition
2015-16513	Revise Calculation 1-2-UNC-006 Auxiliary Building Vent ESF Exh Outlet Flow
2016-0313	Missing U Bolt on 1-FFI-220-V1 Support
2016-1142	Finding PAO-16-01 Degraded Engineering Performance
2016-2489	NCV-05000315/2015004-01 Failure to Monitor Forebay Structure
2016-7626	Fire Protection Water Line Break
2016-7752	Pressurizer Relief Tank Seismic Anchor Movement
2016-10052	Security Doors
2016-10691	Material Handling
2016-11120	A Need of Additional Pipe Supports for Valve 1-NCR-252
2016-13289	WOT 55270022-13: Material Traceability
2016-14166	Adverse Trend: Code ER2—Life Cycle Management
2016-14572	Maintenance Emergency Response Organization Qualifications
2017-0881	Control of Combustible Materials Common Cause Evaluation
2017-2423	A Section of Piping Provides a Potential Unmonitored Release
2017-2597	Primary Water Piping Does Not Meet Operational Basis Earthquake Design Requirements
2017-2905	Installed Regulators 1-XRV-52E/52W Do Not Meet Design Rating

2017-3188	Calculations Used 4000 psi Instead of 3500 psi As Concrete Strength
2017-5274	Discrepancy Between Design and UFSAR Damping Values
AR 2017-0792	Maintenance Rule Unavailability Monitoring Weakness in Outage Windows
AR 2015-4459	In-service Inspection Scope Deferral for U2C22 (CNAQ)
AR 2016-10906	Replacement of Drain Line for Turbine Bypass Header (CNAQ)
AR 2017-3327	Maintenance to Clean Legacy Boric Acid Leaks (CNAQ)
AR 2016-12037	Common Cause Evaluation of Dropped Objects
AR 2016-8995	Leak in Unit 2 East Component Cooling Water Heat Exchanger
AR 2016-12667	Divider Plate Repairs on Unit 2 East Component Cooling Water Heat Exchanger
AR 2017-0503	Missed VT-2 Exam on Class 2 Isolation Valve
AR 2015-14477	Tube Leak on Feedwater Heater 2-HE-5B
AR 2016-8995	Leak in Unit 2 East Component Cooling Water Heat Exchanger
AR 2015-12890	Station Reverence for Maintenance Rule Unavailability

Self-Assessments and Observation Reports

<u>Number</u>	<u>Description or Title</u>
GT 2015-1061-3	2015 Third Quarter Trend Report
GT 2016-0056-7	2016 Second Quarter Trend Report
GT 2016-0056-8	2016 Third Quarter Trend Report
GT 2016-0056-9	2016 Fourth Quarter Trend Report
GT 2017-0053-13	2017 First Quarter Trend Report
GT 2016-14379	Self-Assessment of PI&R Program dated 12/16/2016
GT 2015 0823-4	Quick-Hit Self-Assessment—Project Management Effectiveness
GT 2015-1345-3	Quick-Hit Self-Assessment—Management of Non-Conforming Conditions
GT 2015-12195-3	Quick-Hit Self-Assessment—In-Service Inspection Activities
GT 2015-117-4	Commercial Grade Dedication Program
GT 2016-134-4	Fluid Leak Management

Condition Reports Generated During the Inspection

<u>Number</u>	<u>Description or Title</u>
GT 2017-7079	DTG-CNAQ-001 Processing CNAQ Actions
2017-6710	NRC Prompted U2 TDAFT Compensatory Action
2017-7015	Operability Determination Performed for AR 0063160
2017-7002	EDC Procedure Provides Incorrect Guidance
2017-6769	Repeat Maintenance on Fitting Leak Upstream 2-QPI-253-II
2017-7213	Approximately 25% of the CCEs do not Identify a Common Cause
2017-7212	Timeliness Resolution of Long Standing CAQ Issues
2017-7211	Timely Resolution of Potentially Non-Conforming/Degraded
2017-7230	Potential Failure to Implement 10CFR50.55a Requirements

Miscellaneous

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	An Assessment of the DC Cook Nuclear Power Plant Employee Concerns Program	January 2015
	DC Cook Nuclear Safety Culture Assessment	May 2017
GT 2017-4967	Palo Verde Failure to Control Access to LHRA	5/15/17
GT 2017-1520	Hatch Declared an Unusual Event	2/8/17
GT 2016-2290	NRC Information Notice 2016-01	2/26/2016
GT 2017-2338	IER L4-16-23 Unplanned RX SD and Equipment Malfunction Caused by H2O Intrusion	2/27/2017
GT 2015-0173-5	Part 21 Screening ABB Breaker	2/27/2015
GT 2015-0173-5	Review Attached Part 21 EN 50846 for Applicability	2/27/2015
GT 2015-16496-2	Part 21 Screening—Fisher Controls Type 3570 Positioner (EN 51643)	1/11/2016
GT 2015-16496-7	Part 21 Screening—United Controls International EN 51936	5/18/2016
GT 2016-14215-3	Part 21 Screening—Plastic Jars Used in 1E Battery Cells	1/23/2017
GT 2016-14215-4	ETAP Error Report ERCA-17-001	2/1/2017
GT 2016-14215-13	Part 21 Screening—K Line Circuit Breaker	
0025-1302-LTR-01, Rev 1	Letter from MPR Associates Re: Root Cause Investigation of DC Cook EDG [Emergency Diesel Generator] Fuel Injection Pump Leakage	5/10/2013
0025-0203-LTR-006	Laboratory Evaluation of Through-Wall Cracked DVH from EDG 1AB Cylinder 5R Fuel Injection Pump	Revision 0
GT 2016-14665	Monthly Inspections—Security	12/21/2016
	Corrective Action Review Board Package	7/12/2017
	Operating Experience Screening Committee Package	7/13/2017
	Management Screening Committee Package	7/11/2017
	Initial Screening Committee Package	7/11/2017
	Risk Issue Assessment, Bulk Hydrogen Storage Removal from Plant Health Committee Top 10	Revision 1
	Risk Issue Assessment, Motor Driven Auxiliary Feedwater Pump Room Cooler Reliability Removal from Plant Health Committee Top 10	Revision 0
	Risk Issue Assessment, Trash Rack Removal from Plant Health Committee Top 10	Revision 1
	Risk Issue Assessment, Moisture Separator Reheater Cross-Over Piping Vibration	Revision 0
	Risk Issue Assessment, Unit 2 Heater Drain System Level Control Problems	Revision 1
	Work Assessment Group Meeting	07/12/17
	Initial Screening Committee Meeting	07/13/17
	Management Screening Committee Meeting	07/14/17

AEP OE 10-2981	OE31683 – Element of Seismic Analysis Not Per Licensing Basis (DCPP 1&2)	08/03/10
AREVA-17-01795	Letter From AREVA to American Electric Power Company, Subject: DC Cook RRVCH Project Stress Analysis Reconciliation for Revised Seismic Analysis Methodology	07/19/17
WO 55453489-80	NNDV, U1 Inspect Forebay West of Trash Racks	02/15/16
WO 55487601-94	NNDV, U2 Inspect Forebay West of Trash Racks	09/14/16
WO 55498328-01	EC-55648: Remove Section of Piping & Cap in Auxiliary Building	07/19/17
AR 2016-3629	Effectiveness Review for AR 2016-3629 "Combustible Material Control Issues"	4/21/2017
AR 2015-12978	Effectiveness Review for INPO AFI for FAC Program	3/23/2017
PA-13-04	Performance Assurance Audit for Maintenance and Special Processes	6/24/2013

LIST OF ACRONYMS

ADAMS	Agency wide Documents Access and Management System
AR	Action Request
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CFR	<i>Code of Federal Regulations</i>
CR	Condition Report
ECP	Employee Concerns Program
IMC	Inspection Manual Chapter
IST	In-service Testing
LCS	Leakage Control System
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
PI&R	Problem Identification and Resolution
RVCH	Reactor Vessel Closure Head
SCWE	Safety Conscious Work Environment
SSC	Structure, System or Component