

Duane Arnold 3Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: FIN Finding

Failure to Follow Temporary Configuration Control Procedure.

The inspectors identified a finding of very low safety significance for the licensee's failure to follow procedure EN-AA-205-1102, "Temporary Configuration Changes," Revision 6. Specifically, the licensee constructed a shaft housing enclosure on the "B" condensate pump without applying the rigor provided by the temporary configuration change (TCC) process. This resulted in water intrusion into the "B" condensate pump lower motor bearing. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. The licensee entered the inspectors concerns into the corrective action program (CAP) as condition report (CR) 2100521. Corrective actions included the performance of an apparent cause evaluation and the creation of a form to document engineering positions with respect to TCC applicability.

The inspectors determined that the failure of the licensee to follow procedure EN AA 205-1102 to document the addition of the "B" condensate pump shaft housing shield and forced air blower as TCCs was a performance deficiency. The finding was determined to be more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the addition of the shaft housing shield resulted in a very high humidity environment which resulted in water passing through the lower motor shaft seal and entering the lower motor bearing oil reservoir. This resulted in the need for repetitive feeding and bleeding of the lower motor bearing oil reservoir to prevent emulsification of the oil. The feeding and bleeding of the "B" condensate pump lower motor bearing oil reservoir was an evolution that could have resulted in bearing damage, pump trip, and reactor scram. The finding was determined to be of very low safety significance because the finding did not result in exceeding the reactor coolant system leak rate for a small loss of coolant accident, cause a reactor trip, involve the complete or partial loss of a support system that contributes to the likelihood of or caused an initiating event, and did not affect mitigation equipment. This finding was associated with the cross-cutting aspect of operating experience in the area of problem identification and resolution because the licensee failed to implement relevant internal operating experience in a timely manner.

Inspection Report# : [2015004](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO SATISFY 10 CFR 50.72 AND 10 CFR 50.73 REPORTING REQUIREMENTS FOR A CONDITION THAT COULD HAVE PREVENTED FULFILLMENT OF A SAFETY FUNCTION.

The inspectors identified a Severity Level IV NCV of 10 CFR Part 50.72(a)(1) and 10 CFR Part 50.73(a)(1) due to the licensee's failure to make a required 8-hour non-emergency notification and a 60 day Licensee Event Report to the

NRC after discovering a loss of safety function for the reactor core isolation cooling (RCIC) system. The licensee documented this issue in the CAP as CR 02156273 and planned to perform a causal evaluation for the failure to recognize the reportable condition.

The inspectors previously evaluated the RCIC system's loss of safety function under the SDP as a finding of very low safety significance (Green) as documented in Section 1R22.b of NRC Integrated Inspection Report 05000331/2016002-01 (ML16221A619). Violations of the NRC's reporting requirements are dispositioned using the traditional enforcement process because they are considered to be violations that potentially impede or impact the regulatory process. The inspectors reviewed the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy and determined the violation associated with the failure to report was a Severity Level IV Violation because the previously evaluated loss of safety function was determined to be a Green finding under the SDP. No cross cutting aspect was assigned to this issue due to the issue being a traditional enforcement violation.

Inspection Report# : [2016003](#) (pdf)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO IDENTIFY AND EVALUATE A CONDITION ADVERSE TO QUALITY.

A finding of very low safety significance and an NCV of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," was identified by the inspectors for the licensee's failure to follow Quality Assurance Program implementing procedure PI-AA-104-1000, "Condition Reporting." Specifically, the licensee failed to properly classify a condition report documenting the inappropriate revision of an alarm response procedure as a condition adverse to quality. This issue was subsequently entered into the licensee CAP as CR 2160423. Corrective actions included revising the alarm response procedure and taking action to evaluate the incorrect classification.

The inspectors determined that the failure to follow a Quality Assurance Program implementing procedure was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it impacted the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using IMC 0609 Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined the finding to be of very low safety significance because it did not represent an actual loss of function for greater than the TS allowed outage time. The finding was associated with the Problem Identification and Resolution cross-cutting aspect of Evaluation because the licensee failed to thoroughly evaluate issues to ensure that resolutions addressed the causes and extent of conditions commensurate with their safety significance.

Inspection Report# : [2016003](#) (pdf)

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

FAILURE TO ACCOMPLISH A SURVEILLANCE TEST PROCEDURE IN ACCORDANCE WITH INSTRUCTIONS RESULTING IN AN UNPLANNED TS LCO 3.8.1 ENTRY AND AN UNPLANNED RISK CHANGE FROM GREEN TO YELLOW.

A self-revealed finding of very low safety significance and a non-cited violation (NCV) of Technical Specification (TS) 5.4, "Procedures," was self-revealed due to the licensee's failure to implement a written procedure recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Specifically, the licensee did not implement Administrative Control Procedure 1408.23, "Controls to the DAEC [Duane Arnold Energy Center] Switchyard," which led to the loss of one credited offsite power source and an increase in plant risk on August 22, 2016. This issue was entered into the licensee corrective action program (CAP) as Condition Report (CR) 02151255. The licensee's

corrective actions included correcting the incorrect relay wiring information which led to the loss of the offsite source and revising ACP 1408.23 to define the systematic process that will be used to review modifications, either planned or emergent, made by ITC to the DAEC Switchyard.

The inspectors determined the licensee's failure to implement a written procedure recommended in Regulatory Guide 1.33 was a performance deficiency. This issue was determined to be more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it affected the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in the lockout of the T-1 transformer which required entry into TS 3.8.1 due to the loss of a required offsite power source. Using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued

June 19, 2012, the inspectors determined the finding to be of very low safety significance because all of the questions in Exhibit 2, "Mitigating Systems Screening Questions," were answered "no." The finding was associated with the cross-cutting aspect of Work Management because the licensee failed to identify and manage risk and coordinate within different job groups.

Inspection Report# : [2016003](#) (pdf)

Significance:  Jun 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

FAILURE TO ACCOMPLISH A SURVEILLANCE TEST PROCEDURE IN ACCORDANCE WITH INSTRUCTIONS RESULTING IN SAFETY SYSTEM INOPERABILITY.

A self-revealing finding of very low safety significance (Green) and associated NCV of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the licensee's failure to accomplish surveillance test procedure (STP) 3.3.6.1-28, "[Reactor Core Isolation Cooling] RCIC Steam Line Flow HI Channel Functional Test." Specifically, on April 28, 2016, licensee personnel placed a relay block on the incorrect relay finger which when the relay was actuated, in accordance with the procedure, caused the steam supply to the RCIC system to isolate which resulted in an unplanned RCIC inoperability. Corrective actions included ceasing the performance of the STP, restoring the RCIC system to an operable status and performing an apparent cause evaluation. The apparent cause evaluation corrective actions included updated and expanded training on the proper implementation of place keeping and error reduction techniques.

Blocking the wrong relay contacts was a performance deficiency. The finding was more than minor because it affected the mitigating systems cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Although the finding constituted a loss of safety function, the finding was determined to be of very low safety significance (Green) because the three hours of system unavailability was less than the Technical Specification allowed outage time. Corrective actions included ceasing the performance of the STP, restoring the RCIC system to an operable status and performing an apparent cause evaluation. The apparent cause evaluation corrective actions included updated and expanded training on the proper implementation of place keeping and error reduction techniques. The finding was associated with the cross-cutting aspect of avoid complacency in the area of human performance because individuals failed to implement appropriate error reduction tools.

Inspection Report# : [2016002](#) (pdf)

Significance:  Jan 29, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO DOCUMENT REVIEWS PERFORMED IN 50.59 SCREEN FOR NEW ABNORMAL

OPERATING PROCEDURE.

The inspectors identified a finding of very low safety significance (Green) and associated NCV of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to document the review performed to conclude that a 50.59 evaluation was not required.

Specifically, the licensee failed to document the reviews performed to determine that installation of portable electric heaters in battery rooms would not have an adverse effect on the safety related batteries.

The inspectors determined that the licensee's failure to document the reviews performed to conclude that a 50.59 evaluation was not required was contrary to procedure EN-AA-203-1201, "10 CFR Applicability and 10 CFR 50.59 Screening Reviews," and was a performance deficiency (PD). The PD was determined to be more than minor, and a finding, because if left uncorrected, the PD would become a more significant safety concern. Specifically, installation of portable electric heaters in battery rooms may increase the probability of hydrogen ignition and challenge the ability of safety related batteries to perform their safety function. In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Table 2 the inspectors determined the finding affected the Mitigating Systems cornerstone. As a result, the inspectors determined the finding could be evaluated using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2 for the Mitigating Systems cornerstone. The finding screened as very-low safety significance (i.e. Green) because it did not result in the loss of operability or functionality of any structure, system, or component. Specifically, the licensee did not enter a condition that required the installation of portable electric heaters in the battery room per Procedure AOP 904. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current licensee performance.

Inspection Report# : [2016007](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO SCOPE SAFETY RELATED AND NONSAFETY RELATED BREAKER INTO THE MAINTENANCE RULE.

The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65(a)(1), 10 CFR 50.65(a)(2), and 10 CFR 50.65(b), due to the licensee's failure to scope the load-shed function of safety related and nonsafety related 4160 volt (V) and 480V breakers into the Maintenance Rule. The load-shed function of the breakers was to ensure upon receipt of load-shed signal that the required breakers would separate from the associated essential buses such that the Standby Diesel Generators (SBDGs) could close into the vital buses. The licensee entered the inspectors' concerns into the CAP as CR 2065346. Corrective actions included scoping those breakers of concern into the Maintenance Rule program, establishing breaker performance criteria, and performing a review of past breaker failures against the established criteria.

The performance deficiency was determined to be more than minor because it impacted the Mitigating Systems Cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage) with respect to the SBDGs. Because the finding did not affect the design or qualification of the SBDGs, nor did it represent a loss of a system or function, the finding screened as very low safety significance. This finding was not indicative of licensee performance since the scoping aspects were determined in 1994, which was prior to the rule's effective date of July 10, 1996. Therefore, no cross-cutting aspect was assigned to this finding.

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO DECLARE HIGH PRESSURE COOLANT INJECTION AND REACTOR CORE ISOLATION COOLING INOPERABLE WHEN THE HIGH PRESSURE COOLANT INJECTION AND REACTOR CORE ISOLATION COOLING PUMP SUCTION WAS INOPERABLE

The inspectors identified a finding of very low safety significance, with two examples, and an associated NCV of Technical Specifications (TS) Sections 3.3.5.1, Condition D and 3.3.5.2, Condition D, for failure to initiate required TS action statements 3.3.5.1.D.1 and 3.3.5.2.D.1. Specifically, the licensee failed to declare the high pressure coolant injection (HPCI) and the reactor core isolation cooling (RCIC) systems inoperable when the automatic HPCI/RCIC pump suction swap function on low condensate storage tank (CST) level was revealed to be inoperable during surveillance testing. The licensee entered the inspectors concerns into the CAP as CR 2080489 and replaced the failed time delay relay.

The inspectors determined the failure to declare the HPCI/RCIC systems inoperable when the pump suction swap function on low CST level failed during surveillance testing was a performance deficiency because it resulted in the licensee's failure to implement TS required actions and the cause was reasonably within the licensee's ability to foresee and should have been prevented. The performance deficiency was determined to be more than minor and a finding because if left uncorrected, failing to implement TS required actions reduced the margin of safety and had the potential to lead to significant safety concerns. The finding was determined to be of very low significance because the CST was assumed to contain sufficient inventory for HPCI and RCIC to perform their function for most scenarios. This finding was associated with the cross-cutting aspect of conservative bias in the area of human performance because the licensee failed to use decision-making practices that emphasize prudent choices over those that are simply allowable when the licensee failed to conservatively evaluate unexpected surveillance test results.

Inspection Report# : [2015004 \(pdf\)](#)

Significance: N/A Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO SATISFY 10 CFR PART 50.73 REPORTING REQUIREMENTS FOR A CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS AND FOR A CONDITION THAT COULD HAVE PREVENTED FULFILLMENT OF A SAFETY FUNCTION.

The inspectors identified a Severity Level IV NCV of Title 10 of the Code of Federal Regulations (CFR), Section 50.73, "Licensee Event Report System." Specifically, the licensee failed to submit a required Licensee Event Report within 60 days after the discovery of an event that was reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition that was prohibited by the plant's TS and 10 CFR 50.73(a)(2)(v)(B) as a condition that could have prevented fulfillment of a safety function. The licensee documented the inspectors' concern into the CAP as CR 2099065. Planned corrective actions included the performance of an apparent cause evaluation for the failure to recognize the reportable condition and to submit a licensee event report.

This issue was determined to be more than minor because the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the 10 CFR 50.73 in order to perform its regulatory function. The inspector's previously determined in Section 1R15 of this report that the underlying issue (i.e., the failure of the HPCI/RCIC suction swap function as discovered during surveillance requirement testing) was a finding of very low safety significance. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, the violation associated with this finding was determined to be a Severity Level IV Violation. No cross cutting aspect was assigned to this traditional enforcement violation.

Inspection Report# : [2015004 \(pdf\)](#)

Barrier Integrity

Significance: N/A Jan 29, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

FAILURE TO DOCUMENT 50.59 EVALUATION FOR UFSAR CHANGE CONCERNING RADIOLOGICAL DOSE CONSEQUENCE ANALYSIS METHODOLOGY.

The inspectors identified a Severity Level IV, NCV of 10 CFR 50.59, “Changes, Tests, and Experiments,” having very-low safety significance (Green) for the licensee’s failure to document the basis for making a change to Updated Final Safety Analysis Report (UFSAR) Table 15.0-2 to allow the use of RADTRAD Version 3.03 for all Chapter 15 Accidents. Specifically, the licensee failed to demonstrate that the change to UFSAR Table 15.0-2 did not constitute a Departure from a Method of Evaluation described in the UFSAR and would have never required prior NRC review and approval.

The inspectors determined that the failure to evaluate whether the change to UFSAR Table 15-0.2 constituted a ‘Departure from a Method of Evaluation’ was contrary to 10 CFR 50.59(d)(1) and was a PD. The PD was determined to be more than minor, and a finding, because if left uncorrected, the PD had the potential to become a more significant safety concern. Specifically, the inspectors could not reasonably determine that use of RADTRAD version 3.03 for all UFSAR Chapter 15 Accidents would not have increased the control room dose value during accidents. In addition, the associated violation was determined to be more than minor because the inspectors could not reasonably determine that the changes would not have ultimately required NRC prior approval. The inspectors determined that 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 Barrier Integrity cornerstone. As a result, the inspectors evaluated the finding using Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 3 for the Barrier Integrity cornerstone. The inspectors answered “Yes” to question C.1 in Exhibit 3 – Barrier Integrity Screening Questions. Specifically, the inspectors determined the finding only represented a degradation of the radiological barrier function provided for the control room. In accordance with Section 6.1.d of the NRC Enforcement Policy this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very-low safety significance (i.e., green finding). In accordance with IMC 0612, “Power Reactor Inspection Reports,” Section 07.03.c, the inspectors did not assign a cross-cutting aspect to this violation because the violation and underlying technical finding was not indicative of current plant performance.

Inspection Report# : [2016007](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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