



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

March 22, 2016

Mr. Thomas A. Vehec
Vice President
NextEra Energy Duane Arnold, LLC
3277 DAEC Road
Palo, IA 52324-9785

**SUBJECT: DUANE ARNOLD ENERGY CENTER, EVALUATIONS OF CHANGES, TESTS
AND EXPERIMENTS, AND PERMANENT PLANT MODIFICATIONS BASELINE
INSPECTION REPORT 05000331/2016007**

Dear Mr. Vehec:

On January 29, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an Evaluations of Changes, Tests, and Experiments, and Permanent Plant Modifications inspection at your Duane Arnold Energy Center. The enclosed inspection report documents the inspection results, which were discussed on February 29, 2016, with Mr. R. Murrell and other members of your staff.

The inspection 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.

Two NRC-identified findings of very-low safety significance (Green) were identified during this inspection. The findings were determined to involve a violation of NRC requirements. 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 in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of the Non-Cited-Violations, 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Duane Arnold Energy Center.

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 Duane Arnold Energy Center.

T. Vehec

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is 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 No. 50-331
License No. DPR-49

Enclosure:
Inspection Report 05000331/2015001

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-331
License No: DPR-49

Report No: 05000331/2016007

Licensee: NextEra Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, IA

Dates: January 11 – 29, 2016

Inspectors: A. Shaikh, Senior Reactor Inspector (Lead)
I. Khan, Reactor Inspector
J. Bozga, Reactor Inspector

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

Enclosure

SUMMARY

Inspection Report 05000331/2016007; 01/11/2016 - 01/29/2016; Duane Arnold Energy Center; Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications.

This report covers a 2-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 of very-low safety significance were identified by the inspectors. Each violation was considered a Non-Cited Violation (NCV) of U.S. Nuclear Regulatory Commission (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 and/or violations 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 5, dated February 2014.

NRC-Identified and Self-Revealed Findings

Cornerstones: Mitigating Systems

Green. 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.

Severity Level IV. 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

Licensee-Identified Violations

No violations were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: 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 one safety evaluation performed pursuant to Title 10, *Code of Federal Regulations* (CFR), Part 50.59 to determine if the evaluation was adequate and that prior U.S. Nuclear Regulatory Commission (NRC) approval was obtained as appropriate. The inspectors also reviewed twenty 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 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, to determine acceptability of the completed evaluations, and screenings. The Nuclear Energy Institute 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 sample constituted one evaluation and twenty samples of screenings and/or applicability determinations as defined in Inspection Procedure 71111.17-04. The inspectors could not review the minimum sample size of six evaluations because the licensee only performed one evaluation during the triennial sample period.

b. Findings

(1) Failure to Document Reviews Performed in 50.59 Screen for New Abnormal Operating Procedure

Introduction: The inspectors identified a finding of very-low safety significance (Green), and an associated Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to document the review performed to conclude that a 50.59 Evaluation was not required. Specifically,

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

Description: Abnormal Operating Procedure (AOP) 904, Extreme Cold Weather (<0 degrees Fahrenheit), was developed and issued by the licensee to provide actions that are required to be completed when there is a weather forecast for extreme cold weather. This procedure includes a step that directs the installation of portable electric heaters in the control building battery rooms to maintain battery temperatures above the Technical Specification 3.8.6 limit. The inspectors were concerned that installation of portable electric heaters in the battery rooms may have an adverse impact on safety-related batteries. Specifically, the inspectors were concerned that electric heaters may increase the probability of hydrogen ignition in the battery rooms. In addition, the inspectors were also concerned that portable electric heaters may result in spot heating, which may adversely impact battery cells and result in uneven heating of the battery room.

The inspectors reviewed the 10 CFR 50.59 screening performed by the licensee for this new procedure to determine if adverse impacts on safety related batteries were identified. The inspectors determined that the 50.59 screening performed for AOP 904 did not consider adverse effects of using portable electric heaters to maintain the temperature of safety-related batteries. Licensee Procedure EN-AA-203-1201, "10 CFR Applicability and 10 CFR 50.59 Screening Reviews", requires, in part, that reviews performed be documented if it is concluded that a 50.59 evaluation is not required. The inspectors determined that the licensee failed to document the reviews performed as required by procedure EN-AA-203-1201.

Analysis: 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). Specifically, the 50.59 screening performed by the licensee did not contain any discussion which demonstrated that installation of portable electric heaters in battery rooms would not have an adverse effect on safety-related batteries. In addition, the licensee did not perform any other engineering analyses or evaluations that demonstrated that installation of portable electric heaters would not have an adverse effect on safety-related batteries.

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 Inspection Manual Chapter 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.

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 established Procedure EN-AA-203-1201, Revision 6 as the implementing procedure for 10 CFR applicability and 10 CFR 50.59 screening reviews. Procedure EN-AA-203-1201, Footnote 3 states, "If it is concluded that a 50.59 Evaluation is NOT required, document the reviews as indicated on this form or in accordance with local administrative procedures."

Contrary to the above, on December 10, 2007, the licensee failed to follow Footnote 3 of procedure EN-AA-203-1201. Specifically, the licensee failed to document the reviews performed to conclude that a 50.59 evaluation was not required for installation of portable electric heaters in battery rooms containing safety related batteries.

This 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 Action Request 02102327. The licensee's immediate corrective action was to sequester Procedure AOP 904 and provide guidance to the Operations Department to cease use of portable electric heaters per AOP 904. **(NCV 05000331/2016007-01, "Failure to Document Reviews Performed in 50.59 Screen for New Abnormal Operating Procedure")**

(2) Failure to Document 50.59 Evaluation for Updated Final Safety Analysis Report Change Concerning Radiological Dose Consequence Analysis Methodology

Introduction: 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.

Description: In UFSAR Table 15.0-2 lists the Computer Codes & Methods of Evaluation used in UFSAR Chapter 15 Accident Analysis. As a part of the implementation of License Amendment Request (LAR) 261 the licensee updated UFSAR Table 15.0-2 to reflect the approval of RADTRAD Version 3.03 for Radiological Dose Consequence Analysis. The LAR 261 specifically approved the use of RADTRAD Version 3.03 only for the Control Rod Drop Accident (CRDA). However, the update to UFSAR Table 15.0-2 that was performed allowed the use of RADTRAD Version 3.03 for all accident analyses. The inspectors reviewed the 10 CFR 50.59 screening performed for the update to UFSAR Table 15.0-2 and determined that the 10 CFR 50.59 screening did not address

the use of RADTRAD Version 3.03 for accidents other than CRDA. Specifically, the 10 CFR 50.59 screening for the UFSAR update stated that LAR 261 bounded all of the changes made to the UFSAR. However, LAR 261 did not approve the use of RADTRAD Version 3.03 for accidents other than CRDA. The inspectors determined that the change to UFSAR Table 15.0-2 to allow use of RADTRAD Version 3.03 for all Chapter 15 Accidents was a change to an element of a method of evaluation described in the UFSAR. The 50.59 screening performed by the licensee failed to evaluate whether this change constituted a 'Departure from a Method of Evaluation' described in the UFSAR. Therefore, the inspectors could not reasonably determine that this change was not a 'Departure from a Method of Evaluation' described in the UFSAR that would have never required prior NRC review and approval.

Analysis: 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. Specifically, the change to UFSAR Table 15.0-2 allowed the use of RADTRAD 3.03 for all UFSAR Chapter 15 Accidents based on the approval in LAR 261. However, LAR 261 only approved use of RADTRAD 3.03 for the CRDA. The licensee failed to evaluate whether using RADTRAD 3.03 on accidents other than the CRDA constituted a 'Departure from a Method of Evaluation' described in the UFSAR.

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

Violations of 10 CFR 50.59 are dispositioned using the traditional enforcement process instead of the significance determination process (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.

The inspectors determined that finding could be evaluated using the SDP in accordance with Inspection Manual Chapter 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 Inspection Manual Chapter 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

Enforcement: Title 10 CFR Part 50.59, "Changes, Tests, and Experiments," Section (d)(1) requires 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.

Contrary to the above, on April 10, 2007, the licensee failed to document the basis for changing UFSAR Table 15.0-2 to allow the use of RADTRAD Version 3.03 for Radiological Dose Consequence. Specifically, the licensee did not evaluate whether use of RADTRAD Version 3.03 for accidents other than the CRDA was a 'Departure from a Method of Evaluation' described in the UFSAR that would have required a license amendment.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was a Severity Level IV violation and was entered into the licensee's Corrective Action Program as Action Request 02105462. The licensee's immediate corrective actions included performing a gap analysis between RADTRAD Version 3.02 & Version 3.03 to determine if any significant differences exist and to demonstrate that the radiological dose consequence using RADTRAD Version 3.03 would provide essentially the same results as Version 3.02. In addition, the licensee intends to update the UFSAR table 15.0-2 to accurately describe which RADTRAD Version is applicable to each accident analyzed in the UFSAR under Chapter 15. **(NCV 05000331/2016007-02; "Failure to Document 50.59 Evaluation for Updated Final Safety Analysis Report Change Concerning Radiological Dose Consequence Analysis Methodology")**.

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed fifteen permanent plant modifications that had been installed in the plant during the last three years. This review included in-plant walk-downs for portions of the modified Emergency Service Water piping and pipe supports and the Residual Heat Removal Service Water piping and pipe supports in the pump house. 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 fifteen permanent plant modification samples as defined in Inspection Procedure 71111.17-04.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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 were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. R. Murrell and other members of the licensee staff on February 29, 2016. The licensee personnel acknowledged the inspection results presented, and did not identify any proprietary content.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Vehec, Site Vice President
S. Brown, Director, Site Engineering
B. Preston, Manager, Engineering Design
M. Davis, Licensing Manager
T. Weaver, Senior Licensing Engineer
L. Swenzinski, Licensing Engineer
B. Murrell, Licensing Engineer
J. Swales, Design Engineering

U.S. Nuclear Regulatory Commission

C. Norton, Senior Resident Inspector
J. Steffes, Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000331/2016007-01	NCV	Failure to Document Reviews Performed in 50.59 Screen for New Abnormal Operating Procedure (Section 1R17.1.b.(1))
05000331/2016007-02	NCV	Failure to Document 50.59 Evaluation for UFSAR Change Concerning Radiological Dose Consequence Analysis Methodology (Section 1R17.1.b.(2))

Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AOP	Abnormal Operating Procedures
CFR	<i>Code of Federal Regulations</i>
CRDA	Control Rod Drop Accident
IMC	Inspection Manual Chapter
LAR	License Amendment Request
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PARS	Public Available Records System
PD	Performance Deficiency
UFSAR	Updated Final Safety Analysis Report

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

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
282231	Implementation of Revised Calculations for Non-LOCA Dose Consequence	0

10 CFR 50.59 SCREENINGS

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
10432	RHR Service Water Pump House Pipe Support Mod	2
10916	1VAC030A & 1VAC030B Foundation Bolt Repairs	0
43569	Support Modification of HPCI Suction Piping	2
10935	B Loop RHR Heat Exchanger Inlet Piping snubber, GBB-003-SS-226	0
12-0073	Reactor Building Closed Cooling Water/Emergency Equipment Cooling Water System	0
12-0107	Secondary Containment Airlocks and Penetrations	0
12-0122	Reactor Building Closed Cooling Water/Emergency Equipment Cooling Water System	0
11033	Modify SBLC Small Bore Supports	1
28042	RHR SW Pump Motor Cooler Piping Reroute	0
281806	Re-Rating of Live Load on Pump-house slab, EL 761', Between Column Lines C and E	0
10101	EC 274436 GENERATOR RECTIFIER REPLACEMENT	9
–	EC 281396 Digital to Digital Equivalent Change (Equivalent Change, No Screening)	3
–	EC 282558 1B5228 BREAKER SETTING CHANGE (APPLICABILITY FORM credits screening for EC 156061)	2
156061	EC 156061 480V MCC Replacement	1
9949	Jumper for chilled water flow switch to prevent spurious chiller trips FS6925A(B) & 9TR relay, EC 273976, TM 11-012	0
023280	Procedure AOP 904 Extreme Cold Weather, PWR 39309	0
283298	UFSAR Table 9.4-1 update to revise the calculated maximum room temperature for the Emergency Diesel Generator (EDG)	0
045513	ECP 1914	0
–	ARP 1C07A Turbine Control	58
9927	EC 372555 Rev. 3 – Battery Cell Additions	1
156057	Installation of Fuses to B ESW Pump Motor Control Circuitry	0
270405	Relocate 1P49-E Diesel Fire Pump Batteries	0
270500	Installation of Inverted U in A EDG Heat Exchanger Tubes	0

CORRECTIVE ACTION PROGRAM DOCUMENTS INITIATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date</u>
2102755	2016 50.59 Anchor Bolt in Masonry Walls	01/14/16
02106237	2016 50.59 Potential Phase Fault Effects	01/29/16

CORRECTIVE ACTION PROGRAM DOCUMENTS INITIATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date</u>
2102176	2016 50.59 Revise CAL-M13-001 At Closure of EC278843	01/12/16
2103084	2016 50.59 Inspection Identified Inadequate 50.59 Screening for Screening EC270405	01/15/16
2105462	2016 50.59 Inspection Identified UFSAR Change MOE for DBAS	01/26/16
2102327	2016 50.59 Inspection Identified 50.59 Screening for AOP 904	01/31/16

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date</u>
02000048	1F602B Pipe Lacks Structural Support	10/18/14
02004731	A and B Platform Baseplates	11/04/14
01959155	EDP EC 281396 Lacks Thorough Failure Mode Evaluation	04/17/14
01963155	Mock 95002 Insp: Determine if A Gap Exists in A 5059	05/01/14
02080743	PSV3223A Disch Piping & Supports Incorrectly Shown on FSK	10/10/15
01904828	72.48 Prescreen for EC 272302 Potentially Inadequate	09/18/13
02083979	NRC Eight Hour Reportable Condition	10/21/15
01990465	Facility Cable Data Not Updated In Fire Protection Program	09/11/14
02005568	Steam Tunnel Temperature Element Wire Replacement Issues	11/08/14
01952291	Review Critical Systems for Digital Equipment Without EQID's	03/27/14
01991533	NOS Identified: Unauthorized Plant Modification	09/16/14
01963155	Mock 95002 INSP: Determine if a Gap Exists in Applying 50.59	05/01/14
01931706	B FPC MOD EC276600 Missed INST. AC System Interrelationship	01/08/14
01913675	50.59 Review of Clearances Hanging > 60 Days Per OP-001	10/20/13
02047070	Design Change Package Quality	05/11/15

CALCULATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
CAL-M12-010	Evaluation of RHR Service Water Division B Piping (GBC015) in the Pumphouse	0
CAL-M12-011	Evaluation of RHR Service Water Division A Piping (GBC014) in the Pumphouse	0
CAL-M87-055	Evaluation of RHRSW (Division "A") Line GBC-001 in the Pumphouse	2
CAL-M87-056-001	Evaluation of RHRSW (Division B) Line GBC-002 in the Pumphouse	1
CAL-E08-005	AC Safety Related Motor Control Center (MCC) Starter/Contactor Control Circuit Voltage Calculations	0

MODIFICATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
EC 283585	Add a Small Section of Piping to Allow Installation of New Check Valve for V32-0032	2
EC 281806	Re-Rating of Live Load on Pump House slab El. 761', Between Column Lines C and E	2
EC 280492	RHRSW Pump Motor Cooler Piping Reroute	9
EC 279552	Modify SBLC Small Bore Supports	3
EC 275902	RHR Service Water Pump House Pipe Support Mod	10
EC 279012	1VAC030A & 1VAC030B Foundation Bolt Repairs	3
EC 156099	Support Modification of HPCI Suction Piping	7

MODIFICATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
EC 274436	GENERATOR RECTIFIER REPLACEMENT	9
EC 281396	Digital to Digital Equivalent Change Yokogawa DX100	3
EC 282558	1B5228 Breaker Setting Change	2
EC 156061	480V MCC Replacement	10
EC 273976	Jumpered Chilled Water Flow Switch	0
EC 280981	Jumpered Chilled Water Flow Switch (PERMANENT)	1
EC 282834	Install New Power and Control Cables B01234-E&F for MO 9417	0
EC 283025	Replace Power Supply E/S3101	1
EC 156635	Replace TSC Diesel Generator Fuel Tank	1
EC 156613	Replace Permanent Concrete Curbs at Entrance of 'A' EDG Room	3
EC 156099	Modification to HPCI Pipe Supports	5

DRAWINGS AND OTHER DOCUMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
M015-006<1>	SCHEMATIC DIAGRAM – DIESEL GENERATOR	20
BECH-E104<025>	4160V & 480V SYSTEM CONTROL & PROTECTION	17
BECH-E104<012>	4160V & 480V SYSTEM CONTROL & PROTECTION	18
BECH-E023	SCHEMATIC METER & RELAY DIAGRAM 4160V SYSTEM ESSENTIAL SWGR: 1A3 & 1A4	36
M015-006<1A>	DIESEL GENERATOR 1G21 START CIRCUIT A & B GOVERNOR CONTROL & EXCITATION CONTROL	9
BECH-E104<025>	4160V & 480V SYSTEM CONTROL & PROTECTION	17
BECH-E104<026>	4160V & 480V SYSTEM CONTROL & PROTECTION	19
BECH-E121<052A>	REACTOR CORE COOLING SYSTEMS	5
BECH-E121<053A>	REACTOR CORE COOLING SYSTEMS	10
NUREG/CR-6604	RADTRAD: A Simplified Model for RADionuclide Transport and Removal and Dose Estimation	October 2002

PROCEDURES

<u>Number</u>	<u>Description or Title</u>	<u>Revision</u>
AD-AA-100-1004	PREPARATION, REVISION, REVIEW, AND APPROVAL OF SITE SPECIFIC PROCEDURES	16
ACP 106.1	PROCEDURE PREPERATION, REVISION, REVIEW, AND APPROVAL	55
AOP 904	EXTREME COLD WEATER (<0 F)	0
ARP 1C07A	TURBINE CONTROL	58
ACP 103.2	10 CFR 50.50 Screening Process	27
EN-AA-203-1201	10 CFR Applicability and 10 CFR 50.59 Screening Reviews	7

T. Vehec

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Sincerely,

/RA/

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

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