V.C. Summer Unit 3 Findings

Design Engineering

Identified By: NRC
Identification Date: 06/30/2017
Significance: Green
Item Type: ITAAC Finding

Licensee failure, through their contractor Westinghouse Electric Company (WEC), to perform thermal stress analysis in the ASME design report for the shear cap and valve body of the 14-inch fourth-stage automatic depressurization system (ADS) squib valves, RCS-PL-V004A/B/C/D.

Green: The NRC identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control" for the licensee's failure through their contractor Westinghouse Electric Company (WEC) to perform thermal stress analysis in the ASME design report for the shear cap and valve body of the 14-inch fourth-stage automatic depressurization system (ADS) squib valves, RCS-PL-V004A/B/C/D. The licensee entered this finding into their corrective action program as CR-17-30805 (additional CR for CAPAL 100478313 was in process, but is no longer being created due to the decision announced on July 31, 2017, to cease construction of the project) and WEC CAPALs 100478099 and 100481984. The licensee performed immediate corrective actions to demonstrate with reasonable assurance through design analysis that the component would have been able to meet its design function. Additional long-term corrective actions included performance of additional analysis and revisions to the ASME design report and supporting documentation, but due to the cancellation of the project will not be pursued at this time. The inspectors determined this finding was associated with the Design/Engineering Cornerstone. The finding was determined to be more than minor because the performance deficiency represented an adverse condition that rendered the quality of component indeterminate, and required substantive corrective action. The inspectors also determined that the finding was more than minor because it represented an ITAAC finding that was material to the acceptance criteria of V.C. Summer Units 2 & 3 ITAAC 13 (2.1.02.02a), and if left uncorrected, the licensee may not have been able to demonstrate that the acceptance criteria of this ITAAC was met. The inspectors evaluated the finding in accordance with IMC 2519, Appendix A, "AP1000 Construction Significance Determination Process," and determined the finding was of very low safety significance (Green) because it was associated with the RCS system which is assigned to the high risk importance column of the AP1000 Construction Significance Determination Matrix, and the licensee was able to demonstrate with reasonable assurance that the design function of the applicable structure or system would not be impaired by the deficiency. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Documentation, in the area of Human Performance, in accordance with IMC 0613, Appendix F, "Construction Cross-Cutting Areas and Aspects." Specifically, the licensee failed to maintain complete, accurate, and up-to-date design documentation for the 14-inch ADS squib valves [H.7]. (Section 1A01)

Identified By: NRC
Identification Date: 12/31/2016
Significance: Green
Item Type: ITAAC Finding

Failure to Properly Translate Design Requirements

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control" for South Carolina Electric & Gas Company's (SCE&G) failure through their contractor Westinghouse Electric Company (WEC) to adequately implement measures to assure that

design inputs are correctly translated into design documents. The licensee entered this finding into their corrective action program as SCE&G Condition Report (CR) CR-NND-16-01990 and WEC Corrective Action, Prevention, and Learning (CAPAL) System Issue ID 100423100.

The finding was associated with the Design/Engineering Cornerstone. The finding was considered more than minor because the performance deficiency represented a substantive failure to adequately implement a quality assurance process that rendered the quality of an structure, system, or component (SSC) indeterminate. The inspectors evaluated the finding in accordance with IMC 2519, "Construction Significance Determination Process," and determined the finding was of very low safety significance because the licensee was able to demonstrate with reasonable assurance that the design function of the in-containment refueling water storage tank (IRWST) would not be impaired. The inspectors determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of VCSNS Units 2 and 3 ITAAC 760, in that, if left uncorrected, the licensee may not have been able to demonstrate that the acceptance criteria of these ITAAC were met. The acceptance criteria of these ITAAC require that all deviations between the as-built structures and the approved designs be reconciled to verify that the as-built structures will withstand the design basis loads without a loss of structural integrity or other safety-related functions. The inspectors determined that the failure to adequately implement measures to assure that design inputs are correctly translated into design documents may have resulted in a deviation from the approved design that would not have been reconciled by the licensee. The inspectors determined the finding had a cross-cutting aspect in the Human Performance area because the detailed design documentation for the CA03 module did not provide evidence that the design was performed in accordance with quality assurance requirements, and that the IRWST would have performed satisfactorily in service. [H.7] (Section 1A18)

Identified By: NRC
Identification Date: 12/31/2014
Significance: Green
Item Type: ITAAC Finding

Failure to Correctly Translate ACI 349-01 Development Length Requirements into Design Drawings

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, "Design Control" for the licensee's failure, through their contractor Westinghouse, to correctly translate design basis requirements into specifications, drawings, procedures, and instructions. Specifically, the inspectors identified that the licensee installed safety-related reinforcing steel in the VC Summer Unit 3 containment internal structures basemat that was not compliant with the design basis requirements established by American Concrete Institute (ACI), 349-01, "Code Requirements for Nuclear Safety Related Concrete Structures;" and design calculation APP-1100-CCC-003, "Design Calculation, Containment Mass Concrete Reinforcement, Elevation 66'-6" to 71'-6", Rev. 0, in that hooked bars with extended tails were installed at an embedment depth less than that required for a standard hook. The licensee entered the issue in their corrective action program as CR-NND-14-01659.

The finding was associated with the Design/Engineering cornerstone. The inspectors determined the performance deficiency was more than minor because it represented a substantive non-conservative error in a design document that defined the technical requirements for the Vertical Reinforcement inside of the containment vessel bottom head. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green) because the licensee was able to demonstrate with reasonable assurance that the design function of the applicable structure would not be impaired by the deficiency. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 760 (3.3.00.02a.i.a). The acceptance criteria of this ITAAC requires that a reconciliation report, concluding the "as-built" construction conforms to the approved design, is completed for the areas associated with the ITAAC. This finding is associated with deviations from design requirements that would not have been reconciled

by the licensee as required by the ITAAC, because WEC issued for construction design drawings contained deviations, which did not meet ACI 349-01, which is a Tier 2* licensing commitment for Seismic Category I structures. This finding has a cross-cutting aspect in the area of Baseline Inspection, Problem Identification and Resolution, because the licensee failed to implement construction experience to ensure construction quality. [P.5]

Procurement/Fabrication

Identified By: NRC
Identification Date: 07/31/2017
Significance: Green
Item Type: ITAAC Finding

Green: The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion IX, “Special Processes,” for South Carolina Electric & Gas Company’s (SCE&G) failure to assure that special processes, including welding, were controlled and accomplished using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements. The licensee entered this finding into their corrective action program under condition report (CR) number CR-NND-17-30967 and WEC Corrective Action, Prevention, and Learning (CAPAL) System Discrete Issue (DI) 100484092. Due to the decision to abandon the construction of Units 2 and 3, shortly after this finding was identified, no corrective actions will be pursued at this time, and this NCV will remain open.

The finding was associated with the Procurement/Fabrication Cornerstone. The finding was considered more than minor because the performance deficiency, if left uncorrected, would represent a condition adverse to quality that would render the quality of the systems, structures or components (SSCs) indeterminate and the performance deficiency would require substantive corrective actions to correct. The inspectors utilized IMC 2519, “Construction Significance Determination Process,” to evaluate the finding and determined that the finding was of very low safety significance (Green). This was determined because the licensee would have been able to requalify the welding procedures by performing additional impact tests to qualify the procedure instead of removing and replacing the welds. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 2 ITAAC 2.1.02.02a and 2.2.03.02a and Unit 3 ITAAC 2.2.03.02a. The acceptance criterion of this ITAAC requires that the American Society of Mechanical Engineers (ASME) Code Section III design reports exist for the as-built components identified in Table 2.2.3-1 as ASME Code Section III. This finding is associated with violations of ASME Code Section III and would have prevented an accurate design report from existing because the welds were not made using procedures qualified by the requirements of the ASME Code Section III. The inspectors determined that this finding was not related to any of the cross-cutting aspects discussed in IMC 0613, Appendix F, "Construction Cross-Cutting Components and Aspects." (Section 1A01)

Identified By: NRC
Identification Date: 03/31/2017
Significance: Green
Item Type: ITAAC Finding

Failure to generate adequate instructions and procedures to control the fabrication of safety-related parts in an on-site machine shop

Green: The inspectors identified a construction finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings”, for South Carolina Electric & Gas Company’s (SCE&G) failure through their contractor Westinghouse Electric Company (WEC) to generate adequate instructions and procedures to control the fabrication of safety-related parts in an on-site

machine shop. The licensee stopped work in the machine shop until the work package was updated with steps to define the scope of work, including inspection hold points. All parts were inspected for compliance before being installed. The licensee entered this finding into their corrective action program as SCE&G CR-NND-17- 30375 and WEC CAPAL System Issue DI 100455172.

The finding was associated with the Procurement/Fabrication Cornerstone. The finding was considered more than minor because there was a substantive failure to establish an adequate procedure or quality oversight function to ensure safety-related parts were being fabricated in accordance with design requirements. The inspectors evaluated the finding in accordance with Appendix A, of IMC 2519, "AP1000 Construction Significance Determination Process." The inspectors determined the finding was of very low safety significance (GREEN) because at the time of discovery, the installation of the rebar connection plate to the electrical penetration assembly had not yet been completed, nor had any EPAs been installed into the shield building wall. This finding was assigned a cross-cutting aspect in accordance with IMC 0613 Appendix F, "Construction Cross-Cutting Areas and Aspects," in the area of Human Performance, Work Management. [H.5] The inspectors determined that the most significant causal factor of the performance deficiency was due to a lack of work controls established in the machine shop.
(Section 1P03)

Identified By: NRC
Identification Date: 09/30/2012
Significance: Green
Item Type: ITAAC Finding

Failure to Assure Safety Related Materials Conformed to the Procurement Documents

The inspectors identified a Green construction finding and cited violation of 10 CFR 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," for the licensee's failure to assure that purchased material and equipment (embedded plates), purchased through contractors and subcontractors, conformed to procurement documents. The licensee entered this issue into their corrective action programs as VCS-ND-12-0419 and CR 0-L-2012-0583 to evaluate the issue and to develop and implement corrective actions to address the violation.

The performance deficiency was considered more than minor because, if left uncorrected, it represented a failure to establish and implement an adequate program and quality oversight function that could render the quality of construction activities unacceptable or indeterminate. The finding was associated with the procurement/fabrication cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. The inspectors determined the finding was of very low safety significance (Green) because the finding: (1) was associated with a structure (basemat) in the intermediate risk column of the risk importance table; and (2) impaired a portion of the structures design function. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Work Control (A.4.c), because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that construction quality is supported.

Construction/Installation

Identified By: NRC
Identification Date: 06/30/2013
Significance: Green
Item Type: Construction Finding

Failure to Document and Process a Nonconformance

The inspectors identified a technical finding and non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to identify, evaluate, and correct nonconforming steel reinforcing bars

in accordance with documented procedures. The licensee initiated condition report (CR) NND-13-00448 to document this finding in their corrective action program.

This performance deficiency had a greater than minor safety significance because it was similar to the "not minor if" statement of construction issue example 19 in Appendix E to IMC 0613P. The finding was a technical finding associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. This finding was of very low safety significance (Green) because it was determined to be a construction finding and was dispositioned use-as-is. This finding was associated with the Procedural Compliance aspect in the Work Practices component of the construction cross-cutting area of Baseline Inspection.

Identified By: NRC
Identification Date: 06/30/2013
Significance: Green
Item Type: Construction Finding

Failure to correct conditions adverse to quality

The inspectors identified a technical finding and NCV of 10 CFR 50, Appendix B, Criterion XVI for the licensee's failure to ensure that conditions adverse to quality were corrected. The licensee initiated CR NND-13-00575 and nonconformance and disposition (N&D) report VS2-CE50-GNR-000016 to document this finding in their corrective action program.

This performance deficiency had greater than minor safety significance because the uncorrected conditions could render the quality of construction activities and installed items unacceptable or indeterminate. The finding was a technical finding associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. This finding was of very low safety significance (Green) because the identified condition did not impair the design function of a system or structure listed in the construction significance determination process risk importance table. This finding was associated with the Human Error Prevention Techniques aspect in the Work Practices component of the construction cross cutting area of Baseline Inspection.

Identified By: NRC
Identification Date: 12/31/2012
Significance: Green
Item Type: Technical Finding

Failure to adequately implement procedure guidance for evaluating, classifying, and correcting conditions adverse to quality

The inspectors identified a technical finding and cited violation (VIO) of 10 CFR Part 50, Appendix B, Criterion V, for the failure to properly categorize Shaw CAR 2010-12-08-971 as a significant condition adverse to quality.

This performance deficiency had greater than minor safety significance because the uncorrected conditions could render the quality of construction activities unacceptable or indeterminate. The finding was a technical finding associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P Appendix A. This finding was of very low safety significance (Green) because the identified condition did not impair the design function of a system or structure listed in the construction significance determination process risk importance table. This finding was not associated with a construction cross cutting aspect.

Identified By: NRC
Identification Date: 12/31/2012
Significance: Green
Item Type: Technical Finding

Failure to adequately evaluate and correct conditions adverse to quality

The inspectors identified a technical finding and cited violation (VIO) of 10 CFR Part 50, Appendix B, Criterion XVI, for three examples of the licensee's failure to promptly correct conditions adverse to quality in accordance with regulatory requirements and applicable quality standards.

This performance deficiency had greater than minor safety significance because the uncorrected conditions could render the quality of construction activities unacceptable or indeterminate. The finding was a technical finding associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P Appendix A. This finding was of very low safety significance (Green) because the identified condition did not impair the design function of a system or structure listed in the construction significance determination process risk importance table. This finding was directly related to the construction cross cutting area of baseline inspection and the Corrective Action Program component because the licensee's engineering, procurement, and construction consortium failed to adequately evaluate and correct conditions adverse to quality.

Identified By: NRC
Identification Date: 09/30/2012
Significance: Green
Item Type: Construction Finding

Failure to Transfer Containment Coating Testing Requirements into Specifications

The inspectors identified a Green construction finding and cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that an element of the design basis (methyl ethyl ketone rub test), as specified in the license application, was correctly translated into specifications. This issue was entered into the corrective action program as IR-12-216-M010 and CR-2012-00499 to evaluate the issue and to develop and implement corrective actions to address the violation.

This performance deficiency had greater than minor safety significance because the failure to perform the rub test, if left uncorrected, represented a failure to establish, implement or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate. Specifically, the rub test, if left unperformed, represented a failure to ensure that the coating would be adequately cured and that the coating would perform its intended safety function. The finding was associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. The inspectors determined the finding was of very low safety significance (Green) because the finding was associated with a system in the low risk column of the risk importance table and was not a repetitive significant condition adverse to quality. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Resources (A.2.b), because the licensee did not ensure that procedures were available and adequate to assure construction quality.

Identified By: NRC
Identification Date: 06/30/2012
Significance: Green
Item Type: Programmatic Finding

Failure to Establish an Adequate Authentication Process for Records in Electronic Media

The inspectors identified a Green programmatic finding and cited violation of 10 CFR Part 50, Appendix B, Criterion XVII, Quality Assurance Records, for failing to adequately assure that records established in electronic media were sufficient to furnish evidence of activities affecting quality. The licensee issued Condition Report 2012-0283 to address this issue and began a complete review of quality assurance records that have been converted into electronic format.

This performance deficiency had greater than minor safety significance because the failure to adequately authenticate the content of quality assurance records, if uncorrected, could lead to loss of information that could render the quality of a construction activity unacceptable or indeterminate. As a result, the deficiency could preclude the licensee from being able to take appropriate action on safety-significant matters. The finding was associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in Inspection Manual Chapter 2519P Appendix A. The finding was a non-technical programmatic finding associated with the quality assurance records program verification of a critical attribute related to accurately recording activities affecting quality. This finding is of very low safety significance (Green) because it is not a repetitive programmatic finding. The inspectors did not identify a cross-cutting aspect associated with this finding.

Inspection/Testing

Identified By: NRC
Identification Date: 06/30/2017
Significance: Green
Item Type: ITAAC Finding

Failure, through a subcontractor, to ensure that safety-related welds were in compliance with applicable codes and standards.

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion IX, “Control of Special Processes” for South Carolina Electric & Gas’s (SCE&G) failure, through a subcontractor, to ensure that safety-related welds were in compliance with applicable codes and standards. Section 3.8.3.2 of the Updated Final Safety Analysis Report (UFSAR) requires compliance with American Welding Society (AWS) D1.1:2000. The licensee and contractor entered this finding into their corrective action programs as condition report (CR) CR-17-30376 and discrete issue (DI) 100456560.
The finding was associated with the Inspection/Testing Cornerstone. The inspectors determined the performance deficiency was more than minor following the guidance in IMC 0613, “Power Reactor Construction Inspection Reports,” Appendix E, because the issue rendered the quality of a safety-related structure indeterminate and required substantive corrective action. Specifically, an inspection of basemat attachment plates for a safety-related structure failed to identify nonconforming fit-up gaps and allowed welding to proceed. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green). Although the finding was associated with a portion of a structure whose structural integrity is required to ensure functionality of the reactor coolant system (RCS) system, the nonconforming welds that were identified by the inspectors would not have affected the ability of the structure to meet its design function. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 760 (3.3.00.02a.i.a). The acceptance criteria of this ITAAC requires the as-built containment internal structures, including the critical sections, to conform to the approved design and to withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee as required by the ITAAC. The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, “Construction Cross-Cutting Areas and Aspects,” of IMC 0613. This finding has a cross-cutting aspect in the area of

Human Performance, because the licensee's contractor failed to utilize the procedures, specifications, and other resources that were available to perform the inspection. [H.12] (Section 1A31)

Identified By: NRC
Identification Date: 06/30/2016
Significance: Green
Item Type: ITAAC Finding

Excessive Reinforcement on Unit 3 CA20 Welds

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion X, "Inspection," for SCE&G's failure, through their contractor WEC, to identify nonconforming welds on a safety-related structure as required per quality control inspection plans. Section 3.8.3.2 of the Updated Final Safety Analysis Report (UFSAR) requires compliance with American Welding Society (AWS) D1.1:2000. The inspections were required by a contractor's quality control (QC) inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel." The licensee entered this issue into their corrective action program as CR-NND-16-00854.

The finding was associated with the Inspection/Testing cornerstone. The inspectors determined the performance deficiency was more than minor following the guidance in IMC 0613, "Power Rector Construction Inspection Reports," Appendix E, because the issue represented a substantive failure to implement an adequate quality oversight function. Specifically, a visual welding inspection of a safety-related structure failed to identify nonconforming welds. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green) because there was reasonable assurance that the CA20 module would have been able to meet its design function. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 763 (3.3.00.02a.i.d). The acceptance criteria of this ITAAC requires the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee as required by the ITAAC. The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, "Construction Cross-Cutting Components and Aspects" of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance, because the licensee's contractor failed to identify nonconforming welds when performing an inspection using a contractor's QC inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel." [H.8]

Security Programs

Operational Programs