

## Vogtle Unit 3 Findings

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### Design Engineering

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**Identified By:** NRC  
**Identification Date:** 12/31/2017  
**Significance:** Green  
**Item Type:** ITAAC Finding

The NRC identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50.55a(b), for the licensee's failure to demonstrate compliance with American Society of Mechanical Engineers (ASME) Code Section III, 1998 Edition with Addenda 1999 through 2000, Section NB-3222.2, "Primary Plus Secondary Stress Intensity." The inspectors identified that the licensee failed to ensure that the maximum range of stress intensities for the passive residual removal heat exchanger (PRHR HX) tube sheet and the core makeup tank (CMT) inlet nozzle were within ASME Code allowable limits for Service Level A/B conditions which was a performance deficiency. The licensee entered this finding into their corrective action program (CAP) as Condition Report (CR) 10402072, CR 10402069, CR 10454090, Corrective Action Prevention and Learnings (CAPAL) 100489810, and CAPAL 100489811 and took corrective actions to perform additional analyses after removing calculation conservatism to reevaluate the stress cut locations in question in order to show ASME Code compliance.

The finding was determined to be more than minor because the performance deficiency represented an adverse condition that rendered the quality of components indeterminate, and required substantive corrective action. The inspectors determined this finding was associated with the Design/Engineering Cornerstone. Using IMC 2519, Appendix A, "AP1000 Construction Significance Determination Process," the inspectors determined that the finding was associated with a system or structure; it was associated with the Passive Core Cooling System (PXS) 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. Therefore, this finding was of very low safety significance (Green). The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Conservative Bias, H.14, in the area of Human Performance, in accordance with IMC 0613, Appendix F, "Construction Cross-Cutting Areas and Aspects." (1A11, 1A38)

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

#### **Failure 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 NRC identified an ITAAC finding of very low safety significance (Green) and associated 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 Condition Reports (CR) 10379762 and 10389193 and WEC Corrective Action, Prevention and Learning (CAPAL) 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 include performance of additional analysis and revisions to the ASME design report and supporting documentation.

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 VEGP Unit 3 and 4 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:** 03/31/2016

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Failure to Perform AISC N690-94 Required Weld Nondestructive Examination**

Green. 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 XV, "Nonconforming Materials, Parts, or Components" for Southern Nuclear Company's (SNC) failure through their contractor Westinghouse Electric Company (WEC) to adequately review and accept nonconforming items in accordance with documented procedures. The licensee entered this finding into their corrective action program as condition reports (CR) 10180672 and 10181738.

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 a 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 finding is associated with a portion of a structure (auxiliary building) assigned to the intermediate risk column of the AP1000 construction significance determination matrix and would not reasonably be expected to impact the design function of the auxiliary building. The inspectors determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC 763, in that, if left uncorrected, the licensee may not be 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 review and accept nonconforming items in accordance with documented procedures may have resulted in a deviation from the approved design that would not have been reconciled by the licensee. The inspectors reviewed the finding for a possible cross-cutting aspect in accordance with IMC 0613 Appendix F, "Construction Cross-Cutting Areas and Aspects," and determined the finding has a cross-cutting aspect in the Human Performance area because the licensee's contractor, WEC, failed to use decision making-practices that emphasized prudent choices over those that were simply allowable. [H.14].

**Identified By:** NRC  
**Identification Date:** 06/30/2015  
**Significance:** Green  
**Item Type:** ITAAC Finding

### **Weld Allowable Stress Calculation Not in Compliance with Current Licensing Basis**

Green. The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, "Design Control." Southern Nuclear Operating Company (SNC), failed through their contractor Westinghouse Electric Corporation (WEC), to correctly translate design basis into specifications, drawings, procedures, and instructions to correctly translate the design basis for welded structural connections into specifications, drawings, procedures, and instructions. The licensee entered this finding in their corrective action program as condition report (CR) 10060139, Corrective Action, Prevention and Learnings (CAPAL) 100224197, and corrective action report (CAR) 2015-1597.

The inspectors determined the performance deficiency was more than minor because it represented a substantive non-conservative error in a design document that defines the technical requirements for structural welds that are important to safety. 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 affected components 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 Units 3 and 4 ITAACs 760, 761, 762, and 763. The acceptance criteria of these ITAAC require that reconciliation reports, concluding the "as-built" construction conforms to the approved design, are completed for the areas associated with each ITAAC. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee as required by the ITAAC. The finding had a cross-cutting aspect in the area Human Performance (Conservative Bias) because the licensee's contractor, WEC, failed to use decision making-practices that emphasized prudent choices over those that were simply allowable [H.14].

**Identified By:** NRC  
**Identification Date:** 09/30/2014  
**Significance:** Green  
**Item Type:** ITAAC Finding

### **Failure to Correctly Translate Shear Reinforcement Design Requirements into Design Drawings**

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 III, "Design Control" for the licensee's failure to correctly translate design basis requirements into specifications, drawings, procedures, and instructions. The licensee entered the issue into their corrective action program as condition report 877796, and took immediate actions to revise the drawings and related design calculation to restore compliance with the American Concrete Institute (ACI) 349-01 Code prior to the concrete placement.

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 defines the technical requirements for the shear reinforcement in the innermost west and east steam generator compartments at elevation 80'-0". 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. 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 the 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 Human Performance, Documentation, because the licensee failed to ensure that procedures, such as construction drawings and work packages, were accurate and adequate to assure construction quality. [H.7]

**Identified By:** NRC

**Identification Date:** 03/31/2014

**Significance:** Green

**Item Type:** ITAAC Finding

### **Inadequate Anchorage of Shear Stirrups in Precast Elements of Reinforced Concrete Slabs**

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control" for SNC's failure, through their contractor Westinghouse, to correctly translate regulatory requirements into specifications, drawings, procedures, and instructions. During an inspection of precast concrete panels being fabricated for use as elements of the reinforced concrete slabs in the elevated floors of the Unit 3 auxiliary building, the inspectors observed that the design did not conform to the requirements of ACI 349-01, a Tier 2\* licensing commitment for Seismic Category I structures. Specifically, longitudinal bars were missing from some of the bends in the U-stirrups that had been installed for resistance and transfer of vertical and horizontal shear forces, respectively. The presence of a longitudinal bar in the bends of the stirrups is required by Section 12.13.3 of ACI 349-01 to provide adequate anchorage of the stirrups.

The inspectors determined the performance deficiency was more than minor because it represented a substantive non-conservative error in a design document that defines the technical requirements for the reinforced concrete slabs in the auxiliary building. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green) because installation of the precast panels had not begun. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 763. 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. The inspectors screened the finding for a possible construction cross-cutting aspect (CCA) and determined that it was not related to any of the CCAs discussed in IMC 0613.

**Identified By:** NRC

**Identification Date:** 09/30/2012

**Significance:** Green

**Item Type:** ITAAC Finding

### **ITAAC Finding for Failure to Translate CA01 and CA20 Design Requirements Into Specifications and Drawings**

An ITAAC finding of very low safety significance (Green) and a violation (VIO) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," were identified by the inspectors on and before October 2, 2012, regarding the licensee's failure to assure that regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications and instructions associated with the structural submodules for portions of the auxiliary building and containment internal structures. The inspectors identified multiple examples of the licensee's failure to assure that applicable regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications, drawings, and

instructions.

The inspectors determined this issue was more than minor because, if left uncorrected, the failure to assure that regulatory requirements and the design basis for the auxiliary building and containment internal structures were correctly translated into specifications and instructions could adversely affect the closure of an ITAAC. The finding was associated with the Design/Engineering Cornerstone. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAACs 763 and 760. Specifically, the acceptance criteria for ITAAC 763 and ITAAC 760 require that a report exists and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, and the as-built containment internal structures, respectively, conform to the approved design. However, the as-built Seismic Category I Structural Submodules CA20-04, CA20-07A, CA20-08A, CA20-29 and CA01-24 did not conform to the approved design. The inspectors evaluated the finding using the construction SDP and determined that the finding was of very low safety significance because it did not impair the design function of the nuclear island auxiliary building or containment internal structures and was assigned to Row 1 of the risk importance table. The inspectors screened the finding for a possible construction safety focus component (CSFC) aspect in accordance with Appendix F, "Construction Safety Focus Components and Aspects," of IMC 0613P, "Power Reactor Construction Inspection Reports - Pilot." The inspectors determined that this finding was not related to any of the CSFC aspects discussed in IMC 0613P.

**Identified By:** NRC

**Identification Date:** 05/25/2012

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Inadequate Design Control of Software Development**

An NRC identified ITAAC finding of very low safety significance (Green) which involved a violation (VIO) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors on May 25, 2012, regarding the licensee's failure to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and specified in the license application, for the Protection and Safety Monitoring System (PMS) were correctly translated into specifications, drawings, procedures, and instructions. Specifically:

- The verification and validation (V&V) effort did not adequately perform the minimum V&V tasks including software requirements evaluation, interface analysis, criticality analysis, hazard analysis, and risk analysis;
- The V&V of the System Definition (requirements) phase activities was not performed independently;
- Reusable software element documents (RSED) did not follow the prescribed life cycle activities;
- A software hazard analysis of the software requirements specification (SRS) was not performed;
- The SRS was ambiguous, incomplete and was not ranked for importance.

At the time of the exit meeting for this report, the planned corrective actions for these issues were being evaluated by the licensee. These issues were entered into a corrective action program as Condition Report 438475.

The inspectors determined this issue is more than minor because, if left uncorrected, it represents a failure to implement an adequate process and quality oversight function that could render the quality of the construction activity unacceptable or indeterminate, and it could adversely affect the closing of an ITAAC.

The finding affected the objective of the Design/Engineering Cornerstone, which is to ensure that licensee's processes are adequately developed and implemented for design control. The finding was determined to be an ITAAC Finding because examples of this finding are material to the acceptance criteria of ITAAC 2.5.2.12, in that; software requirements were not ranked for importance and the V&V team was not independent of the design team. The inspectors evaluated the finding using the construction SDP and determined that, because there were no issues identified that would reasonably be expected to impair the design function of the PMS, the finding screened as Green. The finding was cross-cutting in the area of baseline inspection, work practices, because the licensee failed to ensure supervisory and management oversight of work activities associated with the PMS software development such that the construction quality was supported. [A.4(c)].

**Identified By:** NRC

**Identification Date:** 05/07/2012

**Significance:** Green

**Item Type:** ITAAC Finding

### **Failure to Assure Design Services were Accomplished with the Appropriate Design Control Measures**

An ITAAC finding of very low safety significance (green) and a VIO of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," were identified by the inspectors on May 7, 2012, regarding the licensee's failure to assure that regulatory requirements and the design basis for systems, structures, and components were correctly translated into specifications and instructions associated with the nuclear island (NI) basemat reinforcement. Specifically, the anchorage of the reinforcement steel inappropriately relied on the excess reinforcement provision of ACI 349-01, Section 12.2.5, to reduce the development length of the bars, and the anchorage of the negative moment reinforcement steel was not developed at the face of the support in a manner consistent with ACI 349-01, Section 13.3.4. At the time of the exit meeting for this report, the planned corrective actions for this issue were being evaluated by the licensee. This issue was entered in to the corrective action program as Condition Report (CR) 442272.

The inspectors determined that this issue was more than minor because, if left uncorrected, the failure to assure that regulatory requirements and the design basis for the NI basemat reinforcement were correctly translated into specifications and instructions could adversely affect the closure of an Inspection, Test, Analyses, and Acceptance Criteria (ITAAC). The finding is associated with the Design/Engineering Cornerstone. The finding was determined to be an ITAAC finding because it is material to the acceptance criteria of Unit 3 ITAACs 3.3.00.02a.i.b, 3.3.00.02a.i.c, and 3.3.00.02a.i.d in that the reinforcement design for NI basemat and the affected areas of the shield building, non-radiologically controlled areas of the auxiliary building, and the radiologically controlled areas of the auxiliary building deviated from the design basis without being reconciled by the licensee. The inspectors evaluated the finding using the construction SDP and determined that finding was of very low safety significance because it did not impair the design function of the nuclear island (NI) basemat, shield building, or auxiliary building and was assigned to Row 1 of the risk importance table. This finding was cross-cutting in the area of Baseline Inspection, Decision-Making, Systematic Process, because the licensee did not demonstrate that a systematic process, reflecting the potential to impact ITAAC closure, was followed to make design changes. [A.1(a)].

### **Procurement/Fabrication**

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**Identified By:** NRC

**Identification Date:** 06/30/2018

**Significance:** Green

**Item Type:** ITAAC Finding

**Report:** Vogtle Electric Generating Plant, Units 3 And 4 - NRC Integrated Inspection Reports 05200025/2018002, 05200026/2018002

**Item Number:** 05200025/2018002-01

**Note:** Closed in Report (NCV)

### **Missing Weld Edge Preparation Surface Examination on Pressurizer Lower Head**

(Green) The NRC identified an ITAAC finding of very low safety significance (Green) and associated NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50.55a(b), for the licensee's failure to demonstrate compliance with American Society of Mechanical Engineers (ASME) Code Section III, 1998 Edition with Addenda 1999 through 2000, Subarticle NB-5130, Examination of Weld Edge Preparation Surfaces. The inspectors identified that the licensee failed to document a magnetic particle (MT) or liquid penetrant (PT) examination on the full penetration weld edge preparation surface of the Unit 3 pressurizer lower head which was a performance deficiency. The licensee entered this finding into their corrective action program as condition report (CR) 10484251 and took corrective actions to provide reasonable assurance that a PT examination was performed by the vendor to show ASME Code compliance.

The finding was determined to be more than minor because the performance deficiency represented an irretrievable loss or inadequate documentation of a quality assurance record, and a record-keeping issue that could preclude the licensee from demonstrating the adequacy of quality or from properly evaluating safety-significant activities. The inspectors determined this finding was associated with the Procurement/Fabrication Cornerstone and was not associated with a security finding; it was not associated with an IMC 2504 operational/construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. Using IMC 2519, Appendix A, AP1000 Construction Significance Determination Process, the inspectors determined that the finding was associated with a system or structure; it was associated with the Reactor Coolant System (RCS) 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 (row 1 of the Construction Significance Determination Matrix). Therefore, this finding was of very low safety significance (Green). The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Documentation, H.7, in the area of Human Performance, in accordance with IMC 0613, Appendix F, Construction Cross-Cutting Areas and Aspects. (1A01)

**Identified By:** NRC

**Identification Date:** 06/30/2018

**Significance:** Green

**Item Type:** ITAAC Finding

**Report:** Vogtle Electric Generating Plant, Units 3 And 4 - NRC Integrated Inspection Reports 05200025/2018002, 05200026/2018002

**Item Number:** 05200025/2018002-02

**Note:** Closed in Report (NCV)

### **Failure to Meet Radiographic Film Requirements on PRHR HX**

(Green) The NRC identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50.55a(b), for the licensee's failure to demonstrate compliance with ASME Code Section III, 1998 Edition with Addenda 1999 through 2000, Subarticle NB-5100, General Requirements for Examination. The inspectors identified that the licensee failed to ensure that radiographic films for the passive residual heat removal (PRHR) heat exchanger (HX) lower channel head to lower support plate weld (CW-006/2) met density limitations and image quality indicator (IQI) placement requirements which was a performance deficiency. The licensee entered this finding into their corrective action program as CR 10491047 and took corrective actions to perform additional radiographs in order to show ASME Code compliance.

The finding was determined to be more than minor because the performance deficiency represented an adverse condition that rendered the quality of a component indeterminate, and required substantive corrective action. The inspectors determined this finding was associated with the Procurement/Fabrication Cornerstone and was not associated with a security finding; it was not

associated with an IMC 2504 operational/construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. Using IMC 2519, Appendix A, AP1000 Construction Significance Determination Process, the inspectors determined that the finding was associated with a system or structure; it was associated with the passive core cooling system (PXS) which is assigned to the intermediate 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 (row 1 of the Construction Significance Determination Matrix). Therefore, this finding was of very low safety significance (Green). The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Evaluation, P.2, in the area of Problem Identification and Resolution, in accordance with IMC 0613, Appendix F, Construction Cross-Cutting Areas and Aspects. (1A15)

**Identified By:** NRC

**Identification Date:** 03/31/2015

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Failure to Identify Nonconforming Overlay Plates**

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 VII, "Control of Purchased Material, Equipment, and Services," for the licensee's failure, through their contractor Chicago Bridge and Iron (CB&I), to perform adequate inspections of safety-related overlay plates at supplier facilities and failure to perform adequate examinations of overlay plates upon delivery, to assure the plates conformed to the procurement documents. The licensee entered this issue in their corrective action program as condition report number 899313.

The finding was associated with the Procurement / Fabrication Cornerstone. The inspectors determined the performance deficiency was more than minor because it was associated with the process and material control attributes of the Procurement / Fabrication Cornerstone and adversely affected the cornerstone objective of ensuring that the licensee's programs and processes were adequately developed and implemented for procurement and fabrication activities. The finding was determined to represent an ITAAC finding because it was material to the acceptance criteria of Vogtle Unit 3 ITAAC 763, in that, if left uncorrected, the licensee could not show that the acceptance criteria of this ITAAC was met. The inspectors determined that the failure of these overlay plates to meet AWS D1.1:2000 welding requirements represented a nonconformance with the approved structural design, which if left uncorrected, represented a deviation from the design that would not have been reconciled by the licensee. The inspectors determined that the finding was of very low safety significance (Green) because the licensee demonstrated, with reasonable assurance, that the design function of the applicable structure or system would not have been impaired by the deficiency. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution (Resolution) because the licensee failed to take effective corrective actions to address issues in a timely manner commensurate with their safety significance.

**Identified By:** NRC

**Identification Date:** 09/30/2013

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Inadequate Source and Receipt Inspections of Safety Related Embed Plates**

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 VII, "Control of Purchased Material,

Equipment, and Services,” for SNC’s failure, through their contractor Chicago Bridge and Iron (CB&I), to perform adequate inspections of safety-related embed plates at supplier facilities and failure to perform adequate examinations of these embed plates upon delivery, to assure the plates conformed to the procurement documents. The violation was entered into the licensee’s corrective action program as condition report (CR) 695726 and corrective action record (CAR) 207908, to ensure actions were taken to correct the condition.

The performance deficiency had greater than minor safety significance because it was associated with the process and material control attributes of the Procurement / Fabrication Cornerstone and adversely affected the cornerstone objective of ensuring that the licensee’s programs and processes were adequately developed and implemented for procurement and fabrication activities. The finding represented an ITAAC finding because it was material to the acceptance criteria of Vogtle Unit 3 ITAACs 762 and 763, in that, if left uncorrected, the licensee could not show that the acceptance criteria of these ITAACs were met. The finding was evaluated under the construction significance determination process as outlined in IMC 2519, Appendix A. The finding was of very low safety significance (Green) because the nonconforming embed plates had not been installed in the nuclear island, and the licensee was able to demonstrate in their Part 21 evaluation, that, if left uncorrected, the affected portions of the structure would have been able to meet their design functions. The finding had a cross-cutting aspect in the area of baseline inspection, corrective action program A.5(c).

**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**

An ITAAC finding of very low safety significance (Green) and three examples of a VIO of 10 CFR Part 50, Appendix B, Criterion VII, “Control of Purchased Material, Equipment, and Services,” were identified by the inspectors for SNC’s failure, through its contractor Stone and Webster (Shaw), to ensure that purchased material conformed to procurement documents. Specifically, the inspectors identified that (1) submodule CA20-04, (2) auxiliary building embed plates, and (3) nuclear island reinforcing steel were accepted but did not conform to the approved design. This issue was entered into the corrective action program as CR 531786.

The finding was determined to be more than minor because the issue, if left uncorrected, 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. Additionally, this issue was considered to be more than minor because, if left uncorrected, it could adversely affect the closure of an ITAAC. The finding was associated with the Procurement/Fabrication Cornerstone. This finding was determined to be an ITAAC finding because examples 1 and 3 were material to the acceptance criteria of Vogtle Unit 3 ITAACs 763 and 762. Specifically, the acceptance criteria for these ITAAC require that a report exists and concludes that the as-built structures in the non-radiologically controlled and radiologically controlled areas of the auxiliary building, respectively, conform to the approved design. However, as-built submodule CA20-04 and nuclear island reinforcing steel did not conform to the approved design. The inspectors evaluated the finding using the construction SDP and determined this finding was of very low safety significance because it did not impair the design function of the nuclear island basemat or auxiliary building and was assigned to Row 1 of the risk importance table. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Construction Experience, because the licensee and Shaw did not adequately implement and institutionalize construction experience through changes to construction processes, procedures, materials, and training programs [A.6(b)].

#### **Construction/Installation**

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**Identified By:** NRC

**Identification Date:** 12/31/2016  
**Significance:** Green  
**Item Type:** ITAAC Finding

**Failure to adequately implement measures to assure that special processes, including welding, are accomplished in accordance with applicable codes**

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes" for Southern Nuclear Operating Company's (SNC) failure through their contractor Westinghouse Electric Company (WEC) to adequately implement measures to assure that special processes, including welding, are accomplished in accordance with applicable codes. The licensee entered this finding into their corrective action program as SNC CR 10320757 and WEC CAPAL System Issue ID 100436639.

The inspectors concluded the finding was associated with the Construction/Installation Cornerstone. The finding was considered more-than-minor because the performance deficiency represented a substantive failure to adequately implement a quality assurance (QA) measure that rendered the quality of an SSC indeterminate. The finding is also similar to IMC 0613, "Power Reactor Construction Inspection Report", Appendix E, example 6 which indicates, in part, that a WPS qualification issue is not minor if it is related to a change in an essential variable, and the WPS was required to be re-qualified. The inspectors evaluated the finding in accordance with IMC 2519, "Construction Significance Determination Process," and determined the finding was of very low safety significance (Green) because the finding affected a portion of a structure in the intermediate column of the risk importance table. The inspectors determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Unit 3 ITAAC 761, in that, if left uncorrected, the licensee may not have been able to demonstrate that the acceptance criteria of this ITAAC was met. The acceptance criteria of this 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 special processes, including welding, are accomplished in accordance with applicable codes may have resulted in a deviation from the approved design that would not have been reconciled by the licensee. The inspectors reviewed the finding for a possible cross-cutting aspect in accordance with IMC 0613 Appendix F, "Construction Cross-Cutting Areas and Aspects," and determined the finding has a cross-cutting aspect in the Human Performance area because the licensee did not recognize that the WPS was not qualified in accordance with AWS D1.4-98. [H.9]. (Section 1A34)

**Identified By:** NRC  
**Identification Date:** 06/30/2015  
**Significance:** Green  
**Item Type:** ITAAC Finding

**Spent Fuel Pool Wall Repair Without an Approved Procedure**

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 V, "Instructions, Procedures, and Drawings," for the licensee's failure, through their contractor Chicago Bridge and Iron (CB&I), to perform repair activities of the VEGP Unit 3 Spent Fuel Pool Wall according to an approved engineering disposition or procedure. The licensee entered this finding in their corrective action program as condition report (CR) 10062982, corrective action report (CAR) 2015-1585, and Nonconformance and Disposition report (N&D) SV3-CA20-GNR-000577. The inspectors determined the performance deficiency was more than minor since it represented a substantive failure to establish an adequate procedure for the mechanical straightening of duplex stainless steel materials. The finding was determined to represent an ITAAC finding because it was material to the acceptance criteria of VEGP Unit 3 ITAAC 763, in that, if left uncorrected, the licensee could not show that the acceptance criteria of this ITAAC was met. The inspectors determined that the failure to repair the spent fuel pool wall according to an approved

procedure represented a deviation from the design that would not have been properly reconciled by the licensee.

The inspectors determined that the finding was of very low safety significance (Green) because the licensee developed an adequate repair procedure that would correct the out of tolerance condition, and through supplemental testing, verify that the mechanical properties of the duplex stainless steel material were not adversely affected (i.e., the design function of the applicable structure or system would not have been impaired by the deficiency). This finding had a cross-cutting aspect in the area Human Performance (Resources) because the licensee failed to ensure that procedures were available and adequate to support nuclear safety. Specifically, the licensee had established the requirement that all fabrication processes for duplex stainless steel material are in accordance with appropriate procedures, but failed to develop and obtain engineering approval for mechanical straightening activities (a fabrication process) to ensure that the integrity of the spent fuel pool wall would be maintained [H.1].

**Identified By:** NRC

**Identification Date:** 03/31/2015

**Significance:** Green

**Item Type:** Construction Finding

#### **Failure to Perform Routine Quality Control Inspections**

The inspectors identified a construction finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to accomplish safety-related, required quality control inspections in accordance with CB&I QC inspection plan FS561-004. The licensee entered the issue in their corrective action program as condition report number 10039935.

The finding was associated with the Construction/Installation Cornerstone. The inspectors determined the performance deficiency was more than minor because the issue represented a substantive failure to implement an adequate quality oversight function, in that these routine welding inspections were not performed by the licensee's contractor for over six months. The finding was determined to be a construction finding because it was not associated with a specific ITAAC. The inspectors determined that the finding was of very low safety significance (Green) because the finding could not be directly associated with a system or structure. This finding has a cross-cutting aspect in the area of Human Performance, Procedure Adherence because the licensee failed to ensure that individuals followed specific procedures [H.8].

**Identified By:** NRC

**Identification Date:** 12/31/2014

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Failure to Establish Qualified Welding Procedures In Accordance With American Welding Society (AWS) D1.1:2000**

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 the licensee's 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 the issue into their corrective action program under condition report numbers 898717, 10008446, and 10009103, and took immediate actions to revise three welding procedure specifications to meet American Welding Society (AWS) D1.1: 2000 and post-qualify them to justify a "use-as-is" disposition for the associated welds in CA01, CA05, and CA20.

The finding was associated with the Construction/Installation cornerstone. The inspectors determined the performance deficiency was more than minor because the issue was similar to the “not minor if” statement of example 6 in IMC 0613, “Power Rector Construction Inspection Reports,” Appendix E, in that the issue was related to a change in an essential variable, and the welding procedure specification (WPS) required re-qualification. 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 create additional procedure qualification records to post-qualify the WPSs and disposition the associated welds “use-as-is.” The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAACs 3.3.00.02a.i.a (760) and 3.3.00.02a.i.d (763). The acceptance criteria of these ITAACs require that a reconciliation report, concluding the as-built structure conforms to the approved design and will withstand the design basis loads without loss of structural integrity 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 the welds were not welded with qualified welding procedures resulting in a deviation from AWS D1.1:2000 and a failure to meet Section Q1.17, “Welds,” of American Institute of Steel Construction (AISC) N690:1994 requirements. This finding has a crosscutting aspect in the area of Human Performance - Resources because the licensee failed to ensure that procedures were adequate to assure construction quality. Specifically, the licensee failed to ensure that welding procedures were qualified in accordance with the Code. [H.1]

**Identified By:** NRC

**Identification Date:** 09/30/2014

**Significance:** Green

**Item Type:** ITAAC Finding

#### **Failure to Install Structural Reinforcement in Accordance with ACI 349-01 Development Length Requirements**

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee's failure to correctly install structural reinforcement in accordance with approved design drawings. The licensee entered this issue into their corrective action program as CR 877795, and removed the nonconforming reinforcement, revised the design drawings, and re-installed the reinforcement according to the revised design.

The finding was associated with the Construction/Installation Cornerstone. The inspectors determined the performance deficiency was more than minor because it represented an adverse condition that rendered the quality of a system, structure, or component unacceptable or indeterminate and required substantive corrective action. 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. 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 the as-built configuration contained deviations that 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 Human Performance, Field Presence, because the licensee failed to ensure that supervisory and management oversight of work activities, including contractors, was adequate and sufficient enough such that construction quality is supported and assured. [H.2]

**Identified By:** NRC

**Identification Date:** 05/07/2012

**Significance:** Green

**Item Type:** Technical Finding

### **Failures to Properly Classify Conditions Adverse to Quality**

The inspectors identified a Green technical finding and cited violation (NOV) of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, with five examples of the licensee's failure to adequately identify conditions adverse to quality (CAQ) due to inadequate evaluation and classification attributes. The licensee issued Condition Report (CR) 441941 to address this issue and to review the classification of the five identified examples and other corrective action documents for inappropriate thresholds.

This performance deficiency had greater than minor safety significance because it identified issues that, if left uncorrected represented failures to implement an adequate program that could render the quality of the construction activity 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 is of very low safety significance (Green) because none of the examples impaired 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 suppliers failed to adequately evaluate and classify conditions as adverse to quality due to an inappropriately high threshold for classifying conditions adverse to quality. [A.5(c)].

**Identified By:** NRC

**Identification Date:** 05/07/2012

**Significance:** Green

**Item Type:** Technical Finding

### **Failure to Correct a Condition Adverse to Quality**

The inspectors identified a Green technical finding and cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for a failure to correct a CAQ. The licensee initiated CR 441949 to document this finding in their corrective action program, and to evaluate the extent of the condition and the areas where corrective action may be needed.

This performance deficiency had greater than minor safety significance because it involved the closure of three corrective action reports that all identified a potential adverse trend (a potential CAQ or significant CAQ) without an evaluation or justification for closure and without any corrective action. 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 is 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 supplier failed to adequately evaluate and correct conditions adverse to quality. [A.5(c)].

## **Inspection/Testing**

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**Identified By:** NRC

**Identification Date:** 12/31/2016

**Significance:** Green

**Item Type:** ITAAC Finding

### **Failure to identify nonconforming welds**

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of

Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify nonconforming welds between seismic category I embed plates and structural modules inside the Vogtle Unit 3 and Unit 4 containment building. The licensee entered this finding into their corrective action program as Condition Reports (CRs) 10308295, 10308213, Corrective Action, Prevention, and Learning (CAPAL) 100436977, SV3-CA01-GNR-000958, SV3-CA02-GNR-000069, and SV4-CA05-GNR-000028.

The inspectors concluded this finding was associated with the Construction Reactor Safety - Inspection/Testing Cornerstone. The finding was considered more-than-minor because the issue was not isolated, similar to example 11 from Appendix E, "Examples of Minor Construction Issues," of IMC 0613, and represented a substantive failure to implement a quality oversight function. Specifically, the inspectors identified at least 33 nonconforming welds that were accepted by at least eight different quality control (QC) inspectors. The inspectors determined the finding was of very low safety significance (Green) because the finding was associated with Row 1 of the AP1000 Construction Significance Determination Matrix and the containment internal structures basemat was associated with the Intermediate Risk of the Systems/Structures Risk Importance Table for AP1000 Construction Significance Determination Process (SDP) Matrix X-Axis. Furthermore, the licensee was able to provide reasonable assurance that the structure would have been able to meet its design function. The inspectors determined the finding represented an ITAAC finding because it was material to the acceptance criteria of Vogtle Unit 3 and Unit 4 ITAAC 760, in that, if left uncorrected, the licensee could not show that the acceptance criteria of these ITAAC were met. The acceptance criteria of Vogtle Unit 3 and Unit 4 ITAAC 760 requires that all deviations between the as-built containment internal structures and the approved design be reconciled (evaluated) such that the as-built structure would withstand the design basis loads without a loss of structural integrity or other safety-related functions. The inspectors determined that the failure of these welds to meet the American Welding Society (AWS) D1.1:2000 and AWS D1.6:1999 visual weld acceptance criteria represented a nonconformance with the approved structural design, which if left uncorrected, represented a deviation from the design that would not have been reconciled by the licensee. The inspectors screened the finding for a possible construction safety focus component (CSFC) aspect in accordance with Appendix F, "Construction Cross-Cutting Areas and Aspects," of IMC 0613, "Power Reactor Construction Inspection Reports." This finding has a cross-cutting aspect in the area of Safety Conscious Work Environment, avoid complacency, because the licensee did not assure that individuals adequately recognized and planned for the possibility of mistakes, latent issues, and inherent risk while expecting successful outcomes, in that multiple QC inspectors failed to consider that the ends of the Complete Joint Penetration (CJP) welds were within the scope of the inspection and even though the front sides of the welds were satisfactory the ends were nonconforming. [H.12]. (Section 1A32)

## Security Programs

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## Operational Programs

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**Identified By:** NRC

**Identification Date:** 12/31/2017

**Significance:** Green

**Item Type:** Construction Finding

The inspectors identified a construction finding of very low safety significance (Green) for the licensee's failure to include accurate parameters in the ODCM for the calculation of offsite radiation doses due to routine gaseous effluent releases. Specifically, the ODCM contained long-term atmospheric dispersion factors that were less representative of current meteorological conditions and less conservative than those used in the UFSAR and ESP to demonstrate compliance with 10 CFR 20 and 10 CFR 50, Appendix I. The licensee documented this issue in CR 10437502 and has planned corrective actions including re-evaluation of the dispersion values contained in the ODCM by an independent subject matter expert.

The finding was of more than minor significance because it was associated with the Operational Readiness Cornerstone, Program Effectiveness Attribute of Process and Effluent Monitoring, and adversely affected the associated cornerstone objective to ensure licensees adequately develop and

implement the operational programs required by a license condition or regulation. The finding has a cross-cutting aspect in the area of Human Performance, Conservative Bias [H.14], because the dispersion parameters incorporated into the ODCM were less conservative than the ones used in the approved licensing basis documents (3P02). The finding is not greater than Green because the finding is not an omission of the ODCM's critical attributes.

### Violations Identified Prior to 2012

**Significance:** Severity Level IV, August 18, 2011

**Identified by:** NRC

**Item Type:** Violation

#### **Failure to Assure That Material Qualification Testing Associated With The Waterproof System Simulated Field Conditions.**

Based on the review of documentation and the observation of installation practices associated with site-specific (SS) ITAAC 3.8.5.1.1, the inspectors identified several examples where Southern Nuclear Operating Company, Inc (SNC) failed to simulate field conditions during qualification testing of the waterproof system. This issue was determined to be an ITAAC- related construction finding and a severity level (SL) IV violation of Criterion III, "Design Control," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

Inspection Report #: 05200025/2011009

**Significance:** Severity Level IV, December 31, 2010

**Identified by:** NRC

**Item Type:** Violation

#### **Failure To Assure That Purchased Services Conform To Procurement Documents**

During the review of records and the observation of a sample of pre-construction activities that could affect the quality of the safety-related containment vessel (CV), the inspectors identified several examples where Southern Nuclear Operating Company, Inc (SNC) failed to assure that safety-related services purchased through their contractor and subcontractor conformed to the CV procurement documents. This issue was determined to be a construction finding and a Severity Level IV Violation of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," for SNC's failure to assure that activities which could affect the quality of the safety-related containment vessel for Vogtle Unit 3, conformed to the procurement documents.

Inspection Report #: 05200011/2010-008; 05200025/2010-002; 05200026/2010-001

**Significance:** Severity Level IV, March 6, 2009  
**Identified by:** NRC  
**Item Type:** Violation

#### **10 CFR Part 21 and 10 CFR 50.55(e) Procedure and Implementation**

The NRC inspectors issued Violations 05200025/2009-201-01 and 05200026/2009-201-01 as a result of SNC ND failure to: (1) accurately reflect the correct definitions of 10 CFR Part 21, (2) address all the requirements of 10 CFR 50.55(e), and (3) use the correct terminology throughout the procedure.  
Inspection Report #: 05200025/2009-201; 05200026/2009-201-01

**Significance:** Severity Level IV, March 6, 2009  
**Identified by:** NRC  
**Item Type:** Violation

#### **Corrective Action Program**

The NRC inspectors issued Violations 05200025/2009-201-02 and 05200026/2009-201-02 because SNC ND NMP-GM-002 does not include guidance to screen new condition reports for potential 10 CFR Part 21 applicability and does not provide a clear link to the SNC ND 10 CFR Part 21 Procedure (ND-ARL-017).  
Inspection Report #: 05200025/2009-201; 05200026/2009-201-01