UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 12, 2018

Mr. Michael Yox
Regulatory Affairs Director
Southern Nuclear Operating Company
7835 River Road, Bldg. 140, Vogtle 3&4
Waynesboro, GA 30830

SUBJECT: SUMMARY OF NUCLEAR REGULATORY COMMISSION VENDOR INSPECTIONS AFFECTING INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

Dear Mr. Yox:

This letter is to inform Southern Nuclear Operating Company (SNC) of U.S. Nuclear Regulatory Commission (NRC) vendor inspection findings that are material to the acceptance criteria in the inspections, tests, analyses, and acceptance criteria (ITAAC) for Vogtle Units 3 and 4 (thereafter abbreviated as "material to ITAAC"). The NRC performed an audit to account for potential ITAAC issues. Attached are the results of the audit and a summary of all vendor inspection findings material to ITAAC.

As a result of the audit, the NRC identified additional eighteen vendor inspection findings that are material to ITAAC (see Enclosure 2). The NRC's Enforcement Manual Agencywide Document Access and Management System (ADAMS) Accession No. ML18018B134 provides guidance on closing findings that are material to the acceptance criteria of an ITAAC. The staff conducted reviews of these findings to ensure that adequate corrective actions have been developed and implemented such that the deficiency will not prevent the ITAAC from being successfully completed. Four findings remain open pending further NRC inspection (see Enclosure 1). Although the NRC is planning to review the resolution of these items, you do not need to delay your ITAAC closure activities due to NRC inspection schedules.

The NRC expects that SNC will discuss the additional findings in ITAAC closure notifications (ICNs), with the following exception: SNC has already submitted ICNs for Vogtle Units 3 and 4 for an ITAAC associated with one of the ITAAC-related findings identified during the audit (ADAMS Accession Nos. ML17143A239 and ML17143A244). These ICNs do not include a reference to the finding that was identified during the audit. However, the NRC staff analyzed this finding and determined that SNC does not need to update the ICNs for that finding because corrective actions for the finding have been implemented and the NRC has closed the finding. This finding is designated NON 99901404/2011-201-03 and was, prior to being closed, material to Vogtle Units 3 and 4 ITAAC 2.5.02.14.

The NRC's Vendor Inspection Program verifies effective licensee oversight of the supply chain through inspections of a sample of vendors. Licensees are responsible for vendor oversight and vendor performance. It is the agency's expectation that licensees consider NRC vendor inspection findings as potential weaknesses in their procurement programs. Consistent with the

guidance in the NRC-endorsed Nuclear Energy Institution (NEI) 08-01, Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52, licensees should adequately discuss associated ITAAC findings (including those identified through vendor inspections) in their ITAAC notifications under 10 CFR 52.99(c)(1), (c)(2), and (c)(3).

Enclosure 1 is a summary of all findings that, as of the issuance date of this letter, are material to the acceptance criteria of ITAAC. Some vendor findings listed in Enclosure 1 were not identified as having errors, but are included in Enclosure 1 so that SNC has a complete list of vendor findings affecting ITAAC. Enclosure 2 lists the vendor inspection findings that were not previously identified as findings material to the acceptance criteria of ITAAC. Please contact Philip O'Bryan at Phil.OBryan@nrc.gov, or (910) 617-2469, if you have any questions or need assistance regarding these matters.

Sincerely,

/RA/

William B. Jones, Acting Director
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket Nos.: 05200025
05200026

Enclosures:
1. Vendor Findings Material to the Acceptance Criteria of ITAAC
2. Vendor Inspection Findings Not Previously Identified as Material to the Acceptance Criteria of ITAAC

SUBJECT: SUMMARY OF NUCLEAR REGULATORY COMMISSION VENDOR INSPECTIONS AFFECTING INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

Dated: October 12, 2018

DISTRIBUTION:
Public
CPatel
JJimenez
ASakadales
NCoovert
JBurke
VHall
NRO_DCIP_QVIB-1 Distribution
NRO_DCIP_QVIB-2 Distribution
DCIP Branch Chiefs
AP1000 CONTACTS

ADAMS Accession No.: ML18152B785 *via e-mail **NRO-002**

OFC	NRO/DCIP	NRO/DCIP	NRO/DCIP
NAME	PKrohn	POBryan	KKavanagh
DATE	9/26/18*	9/26/18*	9/27/18*
OFC	NRO/DCIP	NRO/DCIP	RII/DCO
NAME	ARivera-Varona (BGreen for)	OAyegbusi	SWalker (VHall for)
DATE	9/28/18*	9/27/18*	10/5/18*
OFC	OGC	NRO/DCIP	
NAME	MASpencer	WJones	
DATE	9/27/18*	10/12/18	

OFFICIAL RECORD COPY

Enclosure 1: Vendor Findings Material to the Acceptance Criteria of ITAAC

Vendor / Docket	Inspection Report (IR) Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
SPX Copes-Vulcan 99900080	2012-201 ML12158A154	01	2.1.02.12a.iv 2.1.02.12a.v 2.2.03.12a.i 2.2.03.12a.ii	IR 2012-201 does not clearly link the finding to the applicable ITAAC. The ITAAC are correctly identified in the 2015 NRC summary of vendor ITAAC findings (ML15219A276).	Closed in IR 2015-201 (ML15210A806)
	2013-201 ML13302B397	01	2.1.02.12a.iv 2.2.03.12a.i	2.1.02.12a.iv is incorrectly listed as 2.2.02.a.iv in the body of the inspection report. The ITAAC are listed correctly in the ITAAC table in the back of the report. The ITAAC are also listed correctly in the 2014 NRC summary of vendor ITAAC findings (ML14111A071).	Closed in IR 2015-202 (ML16027A153)
		02	2.1.02.12a.v 2.2.03.12a.ii	2.1.02.12a.v is incorrectly listed as 2.2.02.12a.v in the 2014 NRC summary of vendor ITAAC findings (ML14111A071). The finding was closed in IR 2015-202 but was not listed as closed in the 2015 NRC summary of vendor ITAAC findings.	Closed in IR 2015-202 (ML16027A153)

Vendor / Docket	Inspection Report (IR) Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
Westinghouse, Cranberry 99900404	2011-201 ML112440588	02	2.2.03.02a 2.2.03.02b	IR 2011-201 does not clearly link this finding to the applicable ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) incorrectly lists the finding number as "99900404/2012-202-02." The 2016 NRC summary of ITAAC findings (ML16280A303) correctly lists the finding number and the applicable ITAAC.	Closed in NRC memo dated December 18, 2017 (ML17346A937)
		05	2.2.03.08c.i.03	IR 2011-201 does not clearly link this finding to the applicable ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) correctly lists ITAAC 2.2.03.08c.i.03 as applicable. The 2016 NRC summary of vendor ITAAC findings (ML16280A303) incorrectly lists ITAAC 2.2.03.08c.i.04 as applicable.	Open
	2012-201 ML12128A072	01	2.1.02.07a.i 2.2.03.07a.i	IR 2012-201 does not clearly identify the applicable ITAAC. The finding is closed in the 2013 NRC summary of vendor ITAAC findings (ML13156A136) but lists the incorrect ITAAC. IR 2016-204 also includes a closure discussion of this finding.	Closed in IR 2016-204 (ML16307A159)
		02 and 03	2.1.02.07a.i 2.2.03.07a.i	IR 2012-201 does not clearly identify the applicable ITAAC. IR 2012-202 closes the findings but lists the incorrect ITAAC.	Closed in IR 2012-202 (ML12313A461)
	2014-201 ML14058A995	01 and 02	2.5.02.14	None	Closed in IR 2016-201 (ML15363A360)
	2015-204 ML15113B277	01	2.5.02.07a 2.5.02.07e	None	Closed in IR 2016-209 (ML17123A085)
		02 and 03	2.5.02.03	None	Closed in IR 2016-202 (ML16237A320)

Vendor / Docket	Inspection Report (IR) Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
Valcor 99900728	2017-201 ML17311A267	01	2.1.02.05a.i	None	Open
Wyle Labs 99900905	2012-201 ML12242A459	01 and 04	2.1.02.12a.i 2.2.01.11a.i 2.2.03.12a.i 2.3.02.11a.i 2.3.06.12a.i	IR 2012-201 lists incorrect ITAAC numbers. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) lists 4 of the ITAAC numbers correctly but does not list ITAAC 2.2.03.12a.i as being affected.	Closed in IR 2013-201 (ML14016A447)
National Technical Systems, Huntsville 99900905	2015-201 ML15078A379	01	2.1.02.07a.i 2.2.03.07a.i	IR 2015-201 does not clearly state that finding 01 is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in NRC memorandum dated April 27, 2018 (ML18102B171)
	2015-202 ML15152A080	01	2.2.03.12a.i	IR 2015-202 does not clearly state that finding 01 is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	
Westinghouse, New Stanton 99901043	2012-201 ML12131A263	03, 04, and 05	2.5.01.03d	IR 2012-201 does not clearly state that the findings are material to the ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) correctly lists the applicable ITAAC.	Closed in IR 2013-201 (ML13318A689)

Vendor / Docket	Inspection Report (IR) Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
Enertech 99901377	2012-201 ML12306A385	02	None	IR 2012-201 does not identify this finding as material to ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) incorrectly lists this finding as material to ITAAC 2.2.03.05a.ii and 2.2.03.02a. In an NRC memorandum dated January 5, 2017 (ML16357A724), this finding was listed as material to an additional ITAAC (2.2.03.03a). This finding is not material to ITAAC.	Closed in NRC memorandum dated January 5, 2017 (ML16357A724)
		03	None	IR 2012-201 does not identify this finding as material to ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) incorrectly lists this finding as material to ITAAC 2.2.03.04a. This finding is not material to ITAAC.	Closed in NRC memorandum dated January 5, 2017 (ML16357A724)
CS Innovations 99901404	2011-201 ML111890005	03 and 04	2.5.02.14	IR 2011-201 does not clearly state that the findings are material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in IR 9990404/2014-203 (ML14262A351)
Obayashi Corporation 99901409	2011-201 ML11286A106	03	3.3.00.02a.i.a 3.3.00.02a.i.b 3.3.00.02a.i.c 3.3.00.02a.i.d	IR 2011-201 does not clearly state that the finding is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in NRC memorandum dated July 6, 2018 (ML18186A573)
Clark Dynamics 99901412	2012-201 ML12108A097	02	2.2.01.05.ii 2.2.02.05a.ii 2.2.05.05a.ii 2.3.02.05.ii 2.3.07.05.ii 2.7.01.05.ii	IR 2012-201 does not clearly link the finding to the applicable ITAAC. The 2013 NRC summary of vendor ITAAC findings (ML13156A136) correctly identifies the applicable ITAAC.	Closed in NRC memorandum dated January 5, 2017 (ML16357A725)

Vendor / Docket	Inspection Report (IR) Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
Kinectrics 99901415	2012-201 ML12179A413	01 and 02	2.2.01.05.ii 2.2.01.06a.i	IR 2012-201 does not clearly state that the findings are material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in IR 2015-201 (ML15148A419)
Cives Steel Company 99901419	2012-201 ML13042A397	03	3.3.00.02a.i.a 3.3.00.02a.i.b 3.3.00.02a.i.c 3.3.00.02a.i.d	IR 2012-201 does not clearly state that the finding is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in NRC memorandum dated May 11, 2018 (ML18131A260)
CB & I Lake Charles 99901425	2014-201 ML14072A315	01	3.3.00.02a.i.a 3.3.00.02a.i.d	IR 2014-201 does not clearly state that the finding is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in NRC memorandum dated April 12, 2018 (ML18101A168)
Pentair 99901431	2013-201 ML13212A265	01	2.1.02.02a 2.1.02.05a.ii 2.2.03.02a 2.2.03.05a.ii	IR 2013-201 and the 2014 NRC summary of vendor ITAAC findings (ML14111A071) list the four applicable ITAAC, but also incorrectly include ITAAC 2.1.02.08a.ii. This finding is not material to ITAAC 2.1.02.08a.ii.	Closed in IR 2014-201 (ML14073A652)

Vendor / Docket	Report Number and ADAMS Accession Number	Finding Number(s)	Affected ITAAC	Issues Identified in NRC Audit of Vendor Inspection Findings	Status
SMCI 99901439	2014-201 ML14121A433	01	3.3.00.02a.i.a	IR 2014-201 does not clearly state that the finding is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in IR 2015-201 (ML15175A446)
	2015-201 ML15175A446	01 and 02	3.3.00.02a.i.a	IR 2015-201 does not clearly state that the findings are material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in NRC memorandum dated April 11, 2018 (ML18100A857)
Curtis Wright Qualtech 99901441	2014-201 ML14231B268	03	2.1.02.07a.i 2.2.03.07a.i	None	Open
Oregon Iron Works 99901448 99901449	2014-201 ML14308A463	02	3.3.00.02a.i.d	IR 2014-201 does not clearly state that the finding is material to the ITAAC, nor does any subsequent NRC correspondence to SNC.	Closed in Vigor IR 2017-201 (ML17226A340)
WECTEC 99901467	2016-201 ML17013A658	01	2.6.03.08	None	Open

Enclosure 2: Vendor Inspection Findings Not Previously Identified as Material to the Acceptance Criteria of ITAAC

1. Westinghouse, Cranberry/ Docket 99900404

   a. Inspection Scope

   During the period of March 26 to 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Westinghouse Electric Company (WEC) facility in Cranberry Township, PA. The purpose of the technically-focused inspection was to review implementation of WEC's quality assurance program in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and 10 CFR Part 21, "Reporting of Defects and Noncompliance." This inspection specifically evaluated the quality assurance program as it pertains to WEC's development of test requirements and specifications for the performance of qualification and functional testing for components to be supplied as part of the AP1000 design. The vendor inspection activities were documented in Inspection Report (IR) 99900404/2012-201 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12128A072).

   The lead for the abovementioned inspection is Mr. Jeffrey Jacobson, who can be reached by phone at 301-415-2977 or via electronic mail at Jeffrey.Jacobson@nrc.gov.

   b. Findings and Observations

   Inspection Report 99900404/2012-201 contains three findings associated with the following inspections, tests, analyses, and acceptance criteria (ITAAC):

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.1.02.07a.i	The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.2.03.07a.i	The Class 1E equipment identified in Table 2.2.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.2.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

Inspection Report Finding 99900404/2012-201-01 states, in part, that:

> WEC failed to verify the adequacy of certain design features and include the most adverse design conditions in the test program for performing functional testing of the squib valve actuators. This issue has been identified as Nonconformance 99900404/2012-201-01.
>
> This finding that the most adverse conditions were not tested during environmental qualification affects the ITAAC listed in the table above because, if the deficiencies are left uncorrected, the testing program would fail to provide the requisite assurance that the squib valves would perform as required in design basis conditions, including harsh environmental conditions that would exist before, during and following a design basis accident for the time required to perform the safety function.

Inspection Report Finding 99900404/2012-201-02 states:

> WEC did not identify design interfaces sufficient to allow for the translation of the design basis into specifications. Specifically, APP-GW-J4-072 “Interface Specification for Squib Valve Controller,” Revision 1, did not include the full range of temperatures that need to be considered when sizing the field run cable/connector systems located between the Plant Monitoring and Protection System, the Diverse Actuation System, and the squib valve actuators. This issue has been identified as Nonconformance 99900404/2012-201-02.
>
> This finding affects the ITAAC listed in the table above because, if the deficiencies are left uncorrected, the testing program would fail to provide the requisite assurance that the squib valves would perform as required in design basis conditions, including harsh environmental conditions that would exist

before, during and following a design basis accident for the time required to perform the safety function.

Inspection Report Finding 99900404/2012-201-03 states:

> WEC did not establish measures necessary to ensure that the design basis for the Diverse Actuation System was correctly translated into specifications, drawings, and instructions. Specifically, WEC did not perform a documented calculation or analysis to justify the selection of resistance values contained in APP-GW-J4-072, "Interface Specification for Squib Valve Controller," Revision 1, for the field run cabling located between the Diverse Actuation System and the squib valve actuators. This issue has been identified as Nonconformance 99900404/2012-201-03.
>
> This finding affects the ITAAC listed in the table above because, if the deficiencies are left uncorrected, the testing program would fail to provide the requisite assurance that the squib valves would perform as required in design basis conditions, including harsh environmental conditions that would exist before, during and following a design basis accident for the time required to perform the safety function.

2. Valcor Engineering Corporation/Docket No. 99900728

   a. <u>Inspection Scope</u>

   During the period of October 9-12, 2017, the U.S. NRC staff conducted an inspection at the Valcor Engineering Corporation's facility (hereafter referred to as Valcor) facility in Springfield, NJ. The purpose of this limited-scope routine inspection was to assess Valcor's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." This inspection specifically evaluated Valcor's implementation of the quality activities associated with the design, fabrication, and testing of the solenoid valves and replacement valve parts for the Westinghouse Electric Company AP1000 reactor design and for the domestic operating reactors. The vendor inspection activities were documented in Inspection Report (IR) 99900728/I-2017-201 (ADAMS Accession No. ML17311A267).

   The lead for this inspection is Mr. Yamir Diaz-Castillo, who can be reached by phone at 301-415-2228 or via electronic mail at Yamir.Diaz-Castillo@nrc.gov.

b. Findings and Observations

IR 999007728/I-2017-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.1.02.05a.i	The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

IR 99900728/I-2017-201 states:

> IEEE 323-1974 requires testing or analysis of the valve to be performed at the full range of its performance characteristics. While it appeared that the valves may have sufficient margin to compensate for the lower coil pull-in voltage, this margin had not been specifically quantified as it is unknown what the controller output voltage would be when the input to the controller is at the minimal 180 VDC. A change in applied voltage or temperature could impact the capability of the valve to perform its intended safety function. This issue impacts the domestic AP1000 solenoid valves fabricated by Valcor that are identified in the WEC data sheets APP-PV13-Z0D-101and -111.
>
> This issue has been identified as Nonconformance 99900728/I-2017-201-01.

The NRC staff determined that the above vendor finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC 2.1.02.05a.i, in that, if left uncorrected, the licensee may not be able to successfully complete the ITAAC. The referenced valves are identified in Table 2.1.2-1 of Appendix C of the Combined License, as being located in a harsh environment. However, the EQ testing performed on these valves was not performed using the voltage controller which is an integral part of the solenoid valve system and which will be used to supply power to the valves in the plant. As of the completion of the inspection, Valcor had not performed testing or analysis sufficient to verify that the voltage controller output would be adequate to ensure the subject valves would be capable of performing their intended safety functions under all design basis environmental conditions.

3. National Technical Systems (NTS)/ Docket 99900905

a. Inspection Scope

During the period of December 15-17, 2014, and February 11, 2015, the U.S. NRC staff conducted an inspection at the National Testing Systems (NTS) facility in Huntsville, AL. The purpose of the inspection was to review NTS's implementation of an adequate quality assurance program as related to the irradiation and submergence testing of the explosive actuators, which are a subcomponent of the 8-inch squib valves being supplied as a part of the Westinghouse Electric Corporation AP1000 reactor design. The vendor inspection activities were documented in Inspection Report (IR) 99900905/2015-201 (ADAMS Accession No. ML15078A379).

The lead for the above mentioned inspection is Mr. Jeffrey Jacobson, who can be reached by phone at 301-415-2977 or via electronic mail at Jeffrey.Jacobson@nrc.gov.

During the week of May 11-15, 2015, the NRC staff conducted an inspection at the NTS facility in Huntsville, AL. The purpose of the inspection was to review NTS's quality assurance activities as it pertains to the qualification testing of the 8-inch high pressure (HP) and the low pressure (LP) squib valves in the Passive Core Cooling System (PXS) of the AP1000 reactor design. The vendor inspection activities were documented in Inspection Report (IR) 99900905/2015-202 (ADAMS Accession No. ML15152A080).

The lead for the above mentioned inspection is Mr. Raju Patel, who can be reached by phone at 301-415-3511 or via electronic mail at Raju.Patel@nrc.gov.

b. Findings and Observations

IR 99900905/2015-201 and IR 99900905/2015-202 each contain one inspection finding.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.2.03.12a.i	The squib valves and check valves identified in Table 2.2.3-1 perform an active safety-related function to change position as indicated in the table.	Tests or type tests of squib valves will be performed that demonstrate the capability of the valve to operate under its design condition.	A test report exists and concludes that each squib valve changes position as indicated in Table 2.2.3-1 under design conditions.

2.1.02.07a.i	The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.
2.2.03.07a.i	The Class 1E equipment identified in Table 2.2.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.2.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

IR 99900905/2015-201 states:

> NRC inspectors reviewed the irradiation of the squib valve cartridges. The inspectors concluded that the previously stated accuracy of the irradiation system was found to be non-conservative as it did not include several factors that could impact the accuracy of the radiation measurements. As a consequence, nuclear safety related components (squib valve actuators for the Westinghouse AP1000 reactor) currently undergoing environmental qualification at NTS did not receive the full radiation dose when subtracting out the actual uncertainty of the measurement system. This item was identified as Nonconformance 99900905/2015-201-01.

> This finding is material to ITAAC 2.1.02.07a.i and 2.2.03.07a.i because, if the deficiencies are left uncorrected, the testing program would fail to provide the requisite assurance that the squib valves would perform as required in harsh environmental conditions that would exist before, during and following a design basis accident for the time required to perform the safety function.

IR 99900905/2015-202 states:

> The NRC inspection team determined that NTS failed to establish a procedure in its test program for verifying that the data acquisition system (DAS) functioned as designed. NTS performed both pre-and post-test verification and validation of the DAS to verify that the DAS software was accurately calculating and reporting those temperature and pressure values that would be used to determine the qualification of the safety-related AP1000 8-inch low pressure squib valves. However, NTS activities to validate the proper function of the DAS, a testing activity affecting quality, were not performed in accordance with written procedures containing the requirements and acceptance limits of the design documents to assure that all prerequisites for the given test have been met. This issue has been identified as Nonconformance 99900905/2015-202-01
>
> Proper functioning of the DAS system is required to verify design conditions when testing squib valves. Therefore, this finding is material to ITAAC 2.2.03.12a.i because if the deficiencies are left uncorrected, the testing program would fail to provide the requisite assurance that the squib valves would perform as required in design basis conditions, including harsh environmental conditions that would exist before, during and following a design basis accident for the time required to perform the safety function.

These inspection findings are material to the acceptance criteria of the ITAAC listed above because the findings concern the adequacy of the testing and/or analyses used to support the conclusion that the squib valves meet the acceptance criteria of the ITAAC.

4. <u>CS Innovations / Docket No. 99901404</u>

   a. <u>Inspection Scope</u>

   During the period of April 25-29, 2011, the U.S. NRC staff conducted an inspection at the CS Innovations, Inc. (CSI), facility in Scottsdale, AZ. The purpose of the inspection was to review the quality assurance activities associated with the development of digital instrumentation and control systems and components for the Westinghouse AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in IR 99901404/2011-201 (ADAMS Accession No. ML111890005).

   The lead for this inspection is Mr. Greg Galletti, who can be reached by phone at 301-415-1831 or via electronic mail at Greg.Galletti@nrc.gov.

b. Findings and Observations

IR 99901404/2011-201 contains two findings associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.5.02.14	The Component Interface Module (CIM) is developed using a planned design process which provides for specific design documentation and reviews.	An inspection and or an audit will be performed of the processes used to design the hardware, development software, qualification and testing.	A report exists and concludes that CIM meets the below listed life cycle stages. Life cycle stages: a. Design requirements phase, may be referred to as conceptual or project definition phase b. System definition phase c. Hardware and software development phase, consisting of hardware and software design and implementation d. System integration and test phase e. Installation phase

IR 99901404/2011-201 states:

> The NRC inspector determined that CSI failed to establish and implement provisions to collect information on error reports related to discrete components used in safety-related applications. Specifically, the NRC inspection team determined that CSI procedure QCP 9000-01500, "Control of Nonconformance," Revision 6, dated December 12, 2010, did not have provisions for the collection, evaluation, disposition, and notification to affected organizations of nonconforming conditions related to discrete components, such as field programmable gate arrays used in safety-related applications. As a result CSI did not formally collect and evaluate error reports for such safety-related components to determine if nonconforming conditions could exist. This item was identified as Nonconformance 99901404/2011-201-03.
>
> The NRC inspectors determined that CSI failed to establish measures to assure that applicable requirements associated with specific independent verification and validation (IV&V) activities were implemented. Specifically, CSI's IV&V process failed to provide for the development of an independent testing tool during the component or module-based level of development for the CIM-SRNC

subsystem, and CSI's IV&V process did not include specific independent test plans for implementation by the IV&V team as required by CSI Report No. 6105-00013. This item was identified as Nonconformance 99901404/2011-201-04.

The NRC staff determined that the vendor findings represented ITAAC findings because they were material to the acceptance criteria of VEGP Units 3 and 4 ITAAC 2.5.02.14, in that, if left uncorrected, the licensee may not have been able to demonstrate that the acceptance criterion of this ITAAC was met. The acceptance criteria of this ITAAC require a report exists and concludes that CIM meets the following life cycle stages:

1. Design requirements phase, may be referred to as conceptual or project definition phase
2. System definition phase
3. Hardware and software development phase, consisting of hardware and software design and implementation
4. System integration and test phase
5. Installation phase

The inspectors determined that the quality assurance failures found would have prevented the development of an acceptable report for the CIM and therefore, the ITAAC acceptance criteria would not be met by the licensee.

5. Obayashi Corporation / Docket No. 99901409

a. Inspection Scope

During the period of September 12-16, 2011, the U.S. NRC staff conducted an inspection at the Obayashi Corporation (hereafter referred to as Obayashi) facility in Tokyo, Japan. The purpose of this inspection was to evaluate the quality assurance activities associated with the design services being provided the Westinghouse Electric Company in support of the AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in IR 99901409/2011-201 (ADAMS Accession No. ML11286A106).

The lead for this inspection is Ms. Kerri Kavanagh, who can be reached by phone at 301-415-3743 or via electronic mail at Kerri.Kavanagh@nrc.gov.

b. Findings and Observations

IR 99901409/2012-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.a	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
3.3.00.02a.i.b	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.c	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
3.3.00.02a.i.d	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

IR 99901409/2011-201 states:

> The NRC inspectors determined that Obayashi failed to: 1) assure that applicable design basis are correctly translated into calculations; 2) establish procedures for the identification and control of design control interfaces and for coordination among the participating design organizations; and 3) subject design changes to the commensurate design control measures applied to the original design. This item was identified as Nonconformance 99901409/2011-201-03.

The NRC staff determined that the vendor finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC listed above, in that, if left uncorrected, the licensee may not have been able to demonstrate that the acceptance criteria of these ITAACs were met. The acceptance criteria of these ITAACs require that all construction deviations be reconciled to verify that the as-built

structures conform to the approved design and 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 reconcile nonconforming items in accordance with adequate documented procedures may have resulted in a construction deviation that may not be properly reconciled by the licensee.

6. Kinectrics / Docket No. 99901415

a. Inspection Scope

During the period of May 14-18, 2012, the U.S. NRC staff conducted an inspection at the Kinectrics Inc. (hereafter referred to as Kinectrics) facility in Toronto, Ontario. The purpose of the inspection was to evaluate the quality assurance activities associated with the supply of testing services by Kinectrics in support of environmental qualification of components being used in the Westinghouse AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in Inspection Report (IR) 99901415/2012-201 (ADAMS Accession No. ML12179A413).

The lead for this inspection is Mr. Jeffrey Jacobson, who can be reached by phone at 301-415-2977 or via electronic mail at Jeffrey.Jacobson@nrc.gov.

b. Findings and Observations

IR 99901415/2012-201 contains two findings associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.2.01.05.ii	The seismic Category I equipment identified in Table 2.2.1-1 can withstand seismic design basis loads without loss of structural integrity and safety function.	Type tests, analyses, or a combination of type tests and analyses of seismic Category I equipment will be performed.	A report exists and concludes that the seismic Category I equipment can withstand seismic design basis dynamic loads without loss of structural integrity and safety function.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.2.01.06a.i	The Class 1E equipment identified in Table 2.2.1-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E equipment located in a harsh environment.	A report exists and concludes that the Class 1E equipment identified in Table 2.2.1-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

IR 99901415/2012-201 states:

> The NRC inspectors determined that Kinectrics failed to implement measures to ensure that testing performed by subcontractors was in conformance with procurement documents. Specifically: (1) Kinectrics did not properly dedicate the testing services provided by Global EMC, Inc., for the performance of electromagnetic compatibility testing, as necessary to ensure that the testing was performed in accordance with the stated requirements; and (2) Kinectrics did not ensure that the test report produced by its subcontractor, Clark Testing Laboratories, for seismic testing of electrical penetration assemblies performed in accordance with stated requirements. This item was identified as Nonconformance 99901415/2012-201-01.
>
> The NRC inspectors determined that Kinectrics did not explicitly state the proper technical standard and revision to be used for electromagnetic compatibility testing of electrical penetration assemblies. Consequently, the incorrect revision of the MIL-STD-461 was used to perform the testing. This item was identified as Nonconformance 99901415/2012-201-02.

These items are material to the ITAAC acceptance criteria because if left uncorrected, these issues challenge the validity of the qualification testing performed on the subject equipment as required by the ITAAC.

7. Cives Steel Company / Docket No. 99901419

a. Inspection Scope

During the period of December 10-14, 2012, the U.S. NRC staff conducted an inspection at the Cives Steel Company (hereafter referred to as Cives) facility in Thomasville, GA. This inspection evaluated the quality assurance activities associated with the fabrication of concrete embedments for the AP1000 reactor plants for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in IR 99901419/2012-201 (ADAMS Accession No. ML13042A397).

The lead for this inspection is Mr. Jonathan Ortega-Luciano, who can be reached by phone at 301-415-1159 or via electronic mail at Jonathan.Ortega-Luciano@nrc.gov.

b. Findings and Observations

IR 99901419/2012-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.a	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.b	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
3.3.00.02a.i.c	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.d	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

IR 99901419/2012-201 states:

> The inspectors determined that Cives failed to establish and implement a program for inspection of activities affecting quality to verify conformance with the documented instructions, procedures, and drawings. Specifically, (1) Cives failed to adequately implement its inspection program to inspect stud welds on embedment APP-12S02-CE-PW908 for Vogtle Electric Generating Plant, Unit 3, which connects to stairs in Auxiliary Building Area 1, Wall P, west face, at an elevation of 66 feet 6 inches; and (2) Cives failed to test at least 1 out of every 100 studs welded by each operator as required by Westinghouse Specification APP-SS01-Z0-003, Revision 3, dated March 3, 2011, and the inspection plan entitled, "Inspection Fabrication Plan No. 5200-01 for Embeds, Items, and Anchor Bolts," Revision 1, dated December 14, 2011. These issues were identified as Nonconformance (NON) 99901419-2012-201-03.

The NRC staff determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC listed above, in that, if left uncorrected, the licensee may not have been able to successfully complete the ITAAC. The acceptance criteria of these ITAACs require that all construction deviations be reconciled to verify that the as-built structures will conform to the approved design and 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 adequate documented procedures may have resulted in a construction deviation that may not be properly reconciled by the licensee.

8. Chicago Bridge & Iron (CB & I) Lake Charles / Docket No. 99901425

a. Inspection Scope

During the week from February 3-7, 2014, the U.S. NRC staff conducted an inspection at the Chicago Bridge & Iron Lake Charles (hereafter referred to as CB&I LC) facility in Lake Charles, LA. The purpose of the inspection was to evaluate CB&I LC's implementation of quality assurance activities associated with the fabrication and inspection of the Westinghouse Electric Company AP1000 reactor design of structural sub-modules for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in Inspection Report (IR) 99901425/2014-201 (ADAMS Accession No. ML14072A315).

The lead for this inspection is Mr. Paul Prescott, who can be reached by phone at 301-415-3026 or via electronic mail at Paul.Prescott@nrc.gov.

b. Findings and Observations

IR 99901425/2014-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02.a.i.a	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.d	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	Inspection will be conducted of the as-built piping as documented in the ASME design reports.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

IR 99901425/2014-201 states:

> The NRC inspectors determined that CB&I LC failed to adequately implement measures to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. Specifically, CB&I LC failed to correctly identify unresolved nonconformances on a safety-related sub-module being prepared to ship: one stud that had an incomplete weld was incorrectly located in the documentation; one stud that was identified on the documentation as being added and having incomplete weld did not appear to exist on the module; and one stud was documented as having an incomplete weld, but was actually missing. This item was identified as Nonconformance 99901425/2014-201-01.

The NRC staff determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC listed above, in that, if left uncorrected, the licensee may not have been able to successfully complete the ITAAC. The acceptance criteria of these ITAACs require that all construction deviations be reconciled to verify that the as-built structures will conform to the approved design and 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 adequate documented procedures may have resulted in a construction deviation that may not be properly reconciled by the licensee.

9. SMCI / Docket No. 99901439

a. Inspection Scope

During the period April 7-11, 2014, the U.S. NRC staff conducted an inspection at the Specialty Maintenance and Construction, Inc. (hereafter referred to as SMCI) facility in Lakeland, FL. The purpose of this inspection was evaluate SMCI's implementation of quality assurance activities associated with the fabrication of the remain-in-place steel formwork modules for concrete, in-containment refueling water storage tank wall and reactor vessel cavity modules for the Westinghouse Electric Company (WEC) AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in Inspection Report (IR) 99901439/2014-201 (ADAMS Accession No. ML14121A433).

During the period June 8-12, 2015, the NRC staff conducted an inspection at the SMCI facility in Lakeland, FL. The purpose of this inspection was to evaluate SMCI's implementation of quality assurance activities associated with the fabrication of the embed plates for the CA-01 module (steam generator and refueling canal module) and CA-02 module (independent wall structure connecting the CA-01 and CA-03 module, where the CA-03 module is the in-containment refueling water storage tank module). These are modules for the Westinghouse AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in IR 99901439/2015-201 (ADAMS Accession No. ML15175A446).

The lead for the above inspections is Mr. Yamir Diaz-Castillo, who can be reached by phone at 301-415-2228 or via electronic mail at Yamir.Diaz-Castillo@nrc.gov.

b. Findings and Observations

IR 99901439/2014-201 contains one finding, and IR 99901439-2015-201 contains two findings associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.a	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

IR 99901439/2014-201 states:

> The NRC inspectors determined that SMCI failed to qualify a welding procedure in accordance with WEC specification APP-VW20-ZO-023. Specifically, SMCI welding procedure qualification record (PQR) 1015-Partial Joint Penetration (PJP), lists the results of the ferrite testing of the test weld root as 73 percent, which is outside of the 35-65 percent ferrite range acceptance criteria specified by WEC in APP-VW20-ZO-023. PQR 1015-PJP is a supporting PQR for welding procedure specification (WPS) number 1015. WPS 1015 is being used to perform welding on the in-containment refueling water storage tank modules for the AP1000 reactor design. This item was identified as Nonconformance 99901439/2014-201-01.

IR 99901439/2015-201 states:

> The NRC inspectors determined that SMCI failed to transfer all the pertinent design requirements into the applicable instructions and failed to inspect welds in accordance with the applicable travelers and design specification drawings. Specifically, (1) SMCI did not adequately incorporate several general notes on NDE requirements from WEC design specifications drawings into all the applicable travelers. These general notes would require visual examination (VT), and magnetic particle examination (MT) or liquid penetrant (PT) examination of both the reinforcing fillet weld and the partial joint penetration (PJP). By not correctly transferring nondestructive examination requirements to the SMCI travelers, partial penetration welds did not receive the required surface examinations required by the WEC design drawings; and (2) SMCI only performed VT and MT examination of the reinforcing fillet weld that is applied over the PJP, and did not perform a VT and MT examination of the PJP as required by several general notes from design specification drawing APP-GW-S9-105. Not inspecting the PJP welds leaves the quality of welds to be indeterminate, and therefore affects how these welds would meet their design stress requirements and would perform their intended safety function. This item was identified as Nonconformance 99901439/2015-201-01.
>
> The NRC inspectors determined SMCI failed to control welding consumable filler metal in accordance with applicable procedures and criteria. Specifically, (1) SMCI did not record on form WCIL-001 the weld filler metal that was issued for the time period of June 28, 2014, through July 11, 2014, as required by the applicable procedure; and (2) During a review of traveler 926-CA01-00774, the NRC inspection team noted that a welder used weld filler metal to weld the beam seat that was not the weld filler metal he was issued and required to use. The use of the correct weld filler metal for welding the beam seat was not adequately controlled as required by the applicable procedure. This item was identified as Nonconformance 99901439/2015-201-02.

The NRC staff determined that the above findings represent ITAAC findings because they are material to the acceptance criteria of VEGP Units 3 and 4 ITAAC 3.3.00.02a.i.a in that, if left uncorrected, the licensee may not have been able to successfully complete the ITAAC. The acceptance criteria of these ITAACs require that all construction deviations be reconciled to verify that the as-built structures will conform to the approved design and 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 adequate documented procedures may have resulted in a construction deviation that may not be properly reconciled by the licensee.

10. Oregon Iron Works / Docket Nos. 99901448/1449

a. Inspection Scope

During the period of September 22-26, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Oregon Iron Works, Inc. (hereafter referred to as OIW) facilities in Clackamas, OR and Vancouver, WA. The purpose of the inspection was to evaluate OIW's implementation of quality assurance activities associated with the fabrication and inspection of the CA20 Auxiliary Building Modules for the Westinghouse Electric Company (WEC) AP1000 reactor design for the Vogtle Units 3 and 4 currently under construction. The vendor inspection activities were documented in Inspection Report (IR) 99901448/2014-201 / 999901449/2014-201 (ADAMS Accession No. ML14308A463).

The lead for this inspection is Mr. Jonathan Ortega-Luciano, who can be reached by phone at 301-415-1159 or via electronic mail at Jonathan.Ortega-Luciano@nrc.gov.

b. Findings and Observations

IR 99901448/2017-201 / 999901449/2014-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.3.00.02a.i.d	The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	Inspection will be conducted of the as-built piping as documented in the ASME design reports.	A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

IR 99901448/2014-201 / 999901449/2014-201 states:

> The NRC inspectors determined that OIW failed to ensure the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components. Additionally, OIW failed to establish appropriate measures that included provisions for source evaluation of subcontractors. This item was identified as Nonconformances 99901448/2014-201-02 and 99901449/2014-201-02.

The NRC staff determined that the above finding is an ITAAC finding because it was material to the acceptance criteria of VEGP Units 3 and 4 ITAAC 3.3.00.02a.i.d, in that, if left uncorrected, the licensee may not have been able to successfully complete the ITAAC. The acceptance criteria of this ITAAC requires that all construction deviations be reconciled to verify that the as-built structures will conform to the approved design and 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 construction deviation that may not be properly reconciled by the licensee.

11. WECTEC/ Docket No. 99901467

a. Inspection Scope

During the period from November 14-18, 2016, the U.S. NRC conducted an inspection at the Westinghouse/WECTEC facility in Charlotte, North Carolina. The purpose of the inspection was to review implementation of Westinghouse's processes for transferring the design requirements contained in the AP1000 Design Control Document into detailed engineering, procurement, and construction documents, consistent with NRC requirements. The vendor inspection activities were documented in Inspection Report (IR) 99901467/2016-201 (ADAMS Accession No. ML17013A658).

The lead for this inspection is Mr. Jeffrey Jacobson, who can be reached by phone at 301-415-2977 or via electronic mail at Jeffrey.jacobson@nrc.gov.

b. Findings and Observations

IR 99901467/2016-201 contains one finding associated with the following ITAAC:

ITAAC	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.6.03.08	Circuit breakers and fuses installed in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to interrupt fault currents.	Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.	Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings.

IR 99901467/2016-201 states, in part, that:

The inspectors identified that Document CDI 3398 does not list the circuit breakers' interrupting current rating as a critical characteristic. Consequently, no specific actions were taken as part of the dedication process (or as part of any other Westinghouse process) to identify and verify the validity of the breakers' interrupting current ratings. The inspectors noted the interrupting current capacity of these components is a critical element of the IDS design and is also specifically called out in ITAAC 2.6.03.08. While Westinghouse performed commercial grade surveys of the commercial manufacturer, as described in Document CDI 3398, these surveys did not specifically evaluate the adequacy of the methods used by the commercial manufacturer to establish the interrupting current ratings, or whether sufficient quality controls were implemented at facilities utilized to test the interrupting current capacity of the breakers. While not specifically reviewed during this inspection, Westinghouse indicated the concern raised by the inspectors would also apply to fuses, as their interrupting capacity was also not captured via the dedication process.

ITAAC 2.6.03.08 states, "Circuit breakers and fuses installed in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to interrupt fault currents." The acceptance criteria for this ITAAC states, "Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings." Contrary to the above, prior to November 18, 2016, Westinghouse failed to identify and verify the adequacy of circuit breaker and fuse interrupting current ratings as a critical characteristic, as part of its commercial grade dedication process. This issue is identified as Nonconformance 99901467/2016-201-01.

The issue is material to ITAAC 2.6.03.08 because if the interrupting ratings for the circuit breakers and fuses cannot be verified, the analyses which compares the available fault currents to those ratings would be invalid, and if left uncorrected, the licensee may not be able to successfully complete the ITAAC.