

Vogle PEmails

From: Hoellman, Jordan
Sent: Wednesday, April 05, 2017 11:16 AM
To: Vogle PEmails
Subject: SNC ITAAC documents for UIN 617 and 618
Attachments: Response to NRC Comments - UINs 617 618 2017-04-04.pdf; Uncompleted ITAAC 2.6.03.08 - Index No 617 Revision 2017-04-04 R1.pdf; Uncompleted ITAAC 2.6.03.09 - Index No 618 Revision 2017-04-04 R1.pdf

SNC response to staff comments related to Uncompleted ITAAC Notifications (UINs) 617/618 from the 3/23 public meeting, along with drafts of the revised UINs.

Hearing Identifier: Vogtle_COL_Docs_Public
Email Number: 91

Mail Envelope Properties (1f9960d8d9d5450e9f339eb95dee95ae)

Subject: SNC ITAAC documents for UIN 617 and 618
Sent Date: 4/5/2017 11:15:47 AM
Received Date: 4/5/2017 11:15:48 AM
From: Hoellman, Jordan

Created By: Jordan.Hoellman2@nrc.gov

Recipients:
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS03.nrc.gov

Files	Size	Date & Time	
MESSAGE	170	4/5/2017 11:15:48 AM	
Response to NRC Comments - UINs 617 618 2017-04-04.pdf			101983
Uncompleted ITAAC 2.6.03.08 - Index No 617 Revision 2017-04-04 R1.pdf			115343
Uncompleted ITAAC 2.6.03.09 - Index No 618 Revision 2017-04-04 R1.pdf			115532

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

SNC Response to NRC comments regarding UINs 617 & 618 discussed in public meeting on 03-23-17**UIN 617** See revised UIN dated 04-04-17

- Licensee concurs with the reviewer that the word “interrupting” is used in the Institute of Electrical and Electronics Engineers (IEEE) standards, not “interrupt” as cited in the ITAAC Design Criteria (DC) and the Acceptance Criteria (AC). The word “interrupt” has been replaced with “interrupting” throughout the ITAAC Determination Basis (IDB) of the UIN.
- The reviewer indicated the “IDS interrupt capacity calculation”, identified in the second sentence of the second paragraph of the IDB, was a third calculation that should also be included in the list of reference documents for the UIN. However, the Designer has included those calculations in the Short Circuit Analysis and the Protection Coordination Study, and not in a separate document. The second sentence has been revised to provide further clarification.

The reviewer indicated the last sentence in the second paragraph of the IDB was not correct with the reference to section 7.1 of IEEE 946. The reviewer asserted that IEEE 946 is not applicable to the determination of interrupting device capacities. However, the final paragraph of Section 7.1 provides the design criteria for the determination of interrupting device capacities. Section 7.9 of IEEE 946 also provides guidance for the determination of interrupting device capacities and withstand capabilities of distribution buses and disconnecting devices.

The last sentence of the second paragraph of the IDB has been revised to further clarify the applicability of IEEE 946 to the ITAAC.

- The reviewer indicated the last sentence in the third paragraph of the IDB is confusing. The sentence has been revised to provide further clarification.
- Reference document IEEE 242 was changed to the 1986 version to align with the version cited in the license.

UIN 618 See revised UIN dated 04-04-17

- The reviewer identified the switchboards were not included in the list of equipment identified in the IDB, which is also the same equipment identified in the ITAAC DC, ITA, and AC. The switchboards are included in the scope of the analysis. The switchboard has been added to the equipment identified in the IDB to provide further clarification.
- The reference to the UFSAR in the last sentence in the first paragraph has been replaced with IEEE 946 and IEEE 242 (References 1 and 2).
- The reviewer indicated it was not appropriate to include the phrase; “for the time required to clear the fault from its power source” in the IDB, which is also included in the DC & AC of the ITAAC. The reviewer indicated the IDS was fully rated for the maximum expected fault current, and the time to clear the faults was not relevant for the system coordination protection. However, the ITAAC identifies a time-fault consideration. The reference to the time required to clear the fault will remain in the UIN.

SNC Response to NRC comments regarding UINs 617 & 618 discussed in public meeting on 03-23-17

- The reviewer indicated the third paragraph of the IDB does not reference the nameplate rating for the inspection of the manufacturer's fault current ratings. The paragraph has been revised to include a reference to the nameplate ratings.
- Reference document IEEE 242 was changed to the 1986 version to align with the version cited in the license.

Subject: Uncompleted ITAAC 2.6.03.08 [Index No. 617] (04-04-17)

ITAAC Statement

Design Commitment

8. *Circuit breakers and fuses in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to interrupt fault currents.*

Inspections/Tests/Analyses

Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.

Acceptance Criteria

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.

ITAAC Completion Description

Analyses for the as-built Class 1E dc and Uninterruptible Power Supply System (IDS) dc electrical distribution system are performed to verify that the analyzed fault currents do not exceed the interrupting capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and Motor Control Center (MCC) circuits, as determined by their nameplate ratings.

The minimum required interrupting capacity rating of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits in the IDS is determined by calculation and summarized in the IDS Short Circuit Analysis and Protection Coordination Study (References 1 and 2). These calculations utilize the worst case short circuit contribution from each battery, battery charger, and motor loads of the IDS, which determines the minimum required protective device interrupting capacity in accordance with the criteria stated in Section 7.1 and 7.9 of Institute of Electrical and Electronics Engineers (IEEE) Standard 946 (Reference 3).

The nameplate capacity ratings of the as-built IDS circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits are inspected in accordance with Quality Site Instruction (QSI) 10.1-V, "Inspection Planning and Reporting" (Reference 5). The nameplate rating for each of these circuit breakers and fuses is evaluated to assure the device interrupting capacity exceeds the analytically determined system fault currents.

The combination of the as-built IDS inspection results and the analyses documented in the IDS Short Circuit Analysis and Protection Coordination Study conclude that the analyzed fault

currents do not exceed the interrupting capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings. The as-built IDS inspection results and the IDS Short Circuit Analysis and Protection Coordination Study analysis results are documented in the Principal Closure Document XXX (Reference 6) supporting the ITAAC 2.6.03.08 Completion Package (Reference 7)

Principal Closure Document XXX exists and is available for NRC inspection as part of the ITAAC 2.6.03.08 Completion Package.

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant ITAAC findings associated with this ITAAC.

References (available for NRC inspection)

1. IDS Short Circuit Analysis
2. IDS Protection Coordination Study
3. IEEE Standard 946, IEEE Recommended Practice for the Design of dc Auxiliary Power Systems for Generating Stations, 1992
4. IEEE Standard 242, IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems, 1986
5. QSI 10.1-V, Inspection Planning and Reporting
6. Principal Closure Document XXX
7. ITAAC 2.6.03.08 Completion Package
8. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"

Subject: Uncompleted ITAAC 2.6.03.09 [Index No. 618] (04-04-17)

ITAAC Statement

Design Commitment

9. *The IDS batteries, battery chargers, dc distribution panels, and MCCs are rated to withstand fault currents for the time required to clear the fault from its power source.*

Inspections/Tests/Analyses

Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.

Acceptance Criteria

Analyses for the as-built IDS dc electrical distribution system exist and conclude that the fault current capacities of as-built IDS batteries, battery chargers, dc distribution panels, and MCCs, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

ITAAC Completion Description

Analyses for the as-built Class 1E dc and Uninterruptible Power Supply System (IDS) dc electrical distribution system are performed to verify that the fault current capacities of as-built IDS batteries, battery chargers, switchboards, dc distribution panels, and Motor Control Centers (MCCs), as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses. Fault current and circuit interrupting device coordination analysis requirements for the IDS dc electrical distribution system are performed in accordance with the criteria stated in Institute of Electrical and Electronics Engineers (IEEE) Standards 946 and 242 (References 1 and 2).

The worst case short circuit (fault) currents of the as-built IDS batteries, battery chargers, dc distribution panels, and MCCs are determined by the IDS Short Circuit Analysis (Reference 3). The results of Reference 3 are used in combination with the circuit interrupting device IDS Protection Coordination Study (Reference 4) to determine the worst case analyzed fault currents for the time required to clear the fault from its power source.

The manufacturer's nameplate fault current ratings of the as-built IDS batteries, battery chargers, dc distribution panels, and MCCs are inspected in accordance with Quality Site Quality Site Instruction (QSI) 10.1-V, "Inspection Planning and Reporting" (Reference 5). The as-built fault current rating for each of the batteries, battery chargers, dc distribution panels, and MCCs, as documented in inspection records, are then compared to the fault current information

determined in References 3 and 4 to verify that the fault current capacities of as-built IDS batteries, battery chargers, dc distribution panels, and MCCs exceed the analyzed fault currents for the time required to clear the fault from its power source.

The results of these comparison analyses are documented in the Principal Closure Document XXX (Reference 6) supporting the ITAAC 2.6.03.09 Completion Package (Reference 7) and conclude that the fault current capacities of as-built IDS batteries, battery chargers, dc distribution panels, and MCCs, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Principal Closure Document XXX exists and is available for NRC inspection as part of the ITAAC 2.6.03.09 Completion Package.

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant ITAAC findings associated with this ITAAC.

References (available for NRC inspection)

1. IEEE Standard 946, IEEE Recommended Practice for the Design of dc Auxiliary Power Systems for Generating Stations, 1992
2. IEEE Standard 242, IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems, 1986
3. IDS Short Circuit Analysis
4. IDS Protection Coordination Study
5. QSI 10.1-V, Inspection Planning and Reporting
6. Principal Closure Document XXX
7. ITAAC 2.6.03.09 Completion Package
8. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"