

Vogle PEmails

From: Hoellman, Jordan
Sent: Wednesday, April 18, 2018 3:41 PM
To: Vogle PEmails
Subject: SNC Responses to ICN/UIN Comment Status Sheet for 4/19 Public Meeting
Attachments: UIN ICN comment status sheet April 19 SNC responses.pdf; pages from ML17279A084 LAR 17-036.pdf

Attached are SNC's responses to the ICN/UIN Comment Status Sheet for discussion at the public meeting on April 19, 2018.

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Subject: SNC Responses to ICN/UIN Comment Status Sheet for 4/19 Public Meeting
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MESSAGE	142	4/18/2018 3:41:21 PM
UIN ICN comment status sheet April 19 SNC responses.pdf		82310
pages from ML17279A084 LAR 17-036.pdf	234840	

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VOGTLE ICN/UIIN ISSUES TRACKING SHEET

Date	ITEM #	ICN UIN	TOPIC	ITAAC INDEX #	ISSUE	Licensee Comment
4/19	1	UIN	Class 1E cable separation ITAAC	789 – 811 submitted UINs: 793, 794, 797, 800, 803	We would like to discuss SNC's plan for executing these ITAAC and possible grouping of the closure submittals especially for 799 - 811 which work off of each other. Specific comments are provided below:	

1. The example D2 in NEI 08-01 combined all four ITAAC into one ICN in that the primary ITAAC is ITAAC 3.3.00.07d.ii.a with ITAAC 3.3.00.07d.iii.a, 3.3.00.07d.iv.a, and 3.3.00.07d.v.a dealing with exceptions.

SNC response: The UINs mentioned above were also grouped and sent on one UIN (Reference ND-18-0413, dated 3/27/18).

2. The example D2 discusses pulling cables and termination tickets for cables after raceway verification, the new UIN for ITAAC 3.3.00.07d.ii.a does not.

SNC response: The referenced UINs state that completed raceway installation, in-progress cable installation, and completed cable terminations are inspected. While cable pull and termination tickets will be performed, the inspections will be used to verify that the ITAAC criteria have been met. This methodology is consistent with previously accepted UINs 3.3.00.07aa (789), 3.3.00.07ab (790), and 3.3.00.07ac (791).

3. APP-GW-E1-001 is a non-public document which means that some critical separation criteria identified in it should be included in the UIN for ITAAC 3.3.00.07d.ii.a.

SNC response: Separation criteria must meet the ITAAC requirement which is verified by as-built inspections. Specific design requirements given in APP-GW-E1-001 are outside the scope of this UIN, as the as-built condition must satisfy the ITAAC requirements regardless of the design specifications. APP-GW-E1-001 was referenced to show that the design was translated in to installation specifications. This reference is consistent with what was used in previously accepted UINs 3.3.00.07aa (789), 3.3.00.07ab (790), and 3.3.00.07ac¹ (791).

4. ITAAC 3.3.00.07d.iii.a, 3.3.00.07d.iv.a, and 3.3.00.07d.v.a are listed as enclosures to UIN for ITAAC 3.3.00.07d.ii.a when they are not.

SNC response: These UINs were submitted as 4 enclosures on a single letter.

5. In what order are ITAAC 3.3.00.07d.iii.a, 3.3.00.07d.iv.a, and 3.3.00.07d.v.a utilized to deal with exceptions to ITAAC 3.3.00.07d.ii.a?

SNC response: Every cable and raceway is individually inspected and verified to meet requirements. As such, inspections do not occur in a tiered approach by ITAAC.

6. UIN for ITAAC 3.3.00.07d.iii.a discusses enclosed trays, but there is no reference that identifies what that means that is in public domain.

SNC response: This definition was addressed in approved LAR-17-036, which revised these ITAAC and added definitions for enclosed raceways to UFSAR Subsection 8.3.2.4.2, which is in the public domain. The relevant marked up LAR pages are attached on pages 2 and 3 of LAR enclosure 3.

7. UIN for ITAAC 3.3.00.07d.iii.a does not state whether barriers are between cables in different divisions or raceways.

SNC response: This ITAAC requires that circuits be ran in enclosed raceways or barriers be provided when separation distances between raceways are not met; therefore, the circuits will be provided with enclosed raceway or with a barrier.

4/19	2		public website		Feedback on public website discrepancies.	

Southern Nuclear Operating Company

ND-17-1661

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to Licensing Basis Documents

(LAR-17-036)

**Insertions Denoted by Blue Underline and Deletions by ~~Red~~ Strikethrough
Green text indicates simple relocation of existing information.
Omitted text is identified by three asterisks (* * *)**

(This Enclosure consists of 10 pages, including this cover page)

UFSAR Subsection 8.3.2.4.2 “Raceway and Cable Routing” is revised, as shown below.

* * *

Cables of one separation group are run in separate raceway and physically separated from cables of other separation groups. Group N raceways are separated from safety-related groups A, B, C and D. Separation between safety-related groups, and between safety-related groups and nonsafety-related cables, are routed ~~Raceways from group N are routed in the same areas as the safety-related groups~~ according to spatial separation stipulated in Regulatory Guide 1.75 and IEEE 384 with the ~~following~~ exceptions listed below.

Note: If not explicitly specified below, "enclosed raceway" and "enclosed configuration" refer to conduit, enclosed trays or transition boxes designed and used for supporting or enclosing wires, cables or busbars. "Open configuration" refers to free air cable and open cable trays. The exceptions are limited to low-voltage power system applications and below (instrumentation and control).

- ~~• Within the main control room and remote shutdown room (nonhazard areas), the minimum vertical separation for open top cable tray is 3 inches and the minimum horizontal separation is 1 inch.~~
- ~~• Within general plant areas (limited hazard areas), the minimum vertical separation is 12 inches, and the minimum horizontal separation is 6 inches for open top cable trays with low-voltage power circuits for cable sizes <2/0 AWC. For configurations that involve exclusively limited energy content cables (instrumentation and control), these minimum distances are reduced to 3 inches and 1 inch respectively.~~
- Within panels and control switchboards, the minimum horizontal separation between components or cables of different separation groups (both field-routed and vendor-supplied internal wiring) is 1 inch, and the minimum vertical separation distance is 6 inches.
- ~~• For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.~~

Non-hazard Area Exceptions

- The minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch between open to enclosed configurations for configurations involving low-voltage power cables.
- The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch between open configurations, and between open to closed configurations, for configurations that involve exclusively limited energy content cables (instrumentation and control).
- For configurations involving low-voltage power cables within an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.
- Within panels and control switchboards, the minimum horizontal separation between components or cables of different separation groups (both field-routed and vendor-supplied internal wiring) is 1 inch, and the minimum vertical separation distance is 6 inches.

Limited Hazard Area Exceptions

- The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch with configurations that involve exclusively limited energy content cables (instrumentation and control).
- The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches with configurations that involve low-voltage power cables for cable sizes less than and equal to 2/0 AWG. The minimum vertical separation may be reduced to 3 inches for the configuration with a conduit above and crossing an open tray at an angle equal to or greater than 45 degrees.
- The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation may be reduced to 3 inches if the conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.
- The minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway for low-voltage power cables.
- The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.
- Within panels and control switchboards, the minimum horizontal separation between components or cables of different separation groups (both field-routed and vendor-supplied internal wiring) is 1 inch, and the minimum vertical separation distance is 6 inches.

Hazard Area Exceptions

Within hazard areas, the minimum spatial separation between safety-related groups, and between safety-related groups and nonsafety-related cables is the same as the spatial separation applicable in limited hazard areas, unless otherwise specified by IEEE 384 for an external hazard.

The exceptions to the guidance in Regulatory Guide 1.75 are based on test results used to support exceptions to the separation guidance for operating nuclear power plants. A summary of test results from ten electrical separation test programs is documented in Reference 13. These test programs support the AP1000 exceptions.

* * *

UFSAR Subsection 8.3.2.4.3 “Hazard Protection” is revised, as shown below.

~~Where redundant safety related and nonsafety related raceway systems traverse each other, separation in accordance with Regulatory Guide 1.75 and IEEE 384 is maintained. See~~ UFSAR Subsection 8.3.2.4.2 for separation requirements in hazard areas.

* * *

COL Appendix C Table 3.3-6 and corresponding Plant-Specific Tier 1 Table 3.3-6, are revised as shown below.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
799	3.3.00.07d.i	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	<p>Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:</p> <p>i) Within the main control room and remote shutdown room (<u>non-hazard areas</u>), the minimum separation <u>for low-voltage power cables and below</u> is defined by one of the following:</p> <p>1) For configurations involving open top raceways configurations <u>to enclosed configurations with low-voltage power cables</u>, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.</p> <p>2) For configurations involving an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum horizontal and vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>3) For configurations involving enclosed raceways the minimum separation is 1 inch in both horizontal and vertical directions.</p> <p><u>4) For configurations involving open configurations, and an enclosed raceway and an open raceway, with instrumentation and control cables, the minimum separation is 1 inch in both horizontal and vertical directions.</u></p>	<p>Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:</p> <p>i) Within the main control room and remote shutdown room (<u>non-hazard areas</u>), the minimum separation <u>for low-voltage power cables and below</u> meets one of the following:</p> <p>1) For configurations involving open top raceways configurations <u>to enclosed configurations with low-voltage power cables</u>, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.</p> <p>2) For configurations that involve an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum horizontal and vertical separation may be reduced to 1 inch if the enclosed raceway is below the open raceway.</p> <p>3) For configurations that involve enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.</p> <p><u>4) For configurations that involve open configurations, and an enclosed raceway and an open raceway, with instrumentation and control cables, the minimum separation is 1 inch in both horizontal and vertical directions.</u></p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
800	3.3.00.07d.ii.a	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	<p>Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:</p> <p>ii.a) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:</p> <p>1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.</p> <p>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation is 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u></p> <p>3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation is 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u></p>	<p>Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is the following:</p> <p>ii.a) Within other plant areas inside containment (limited hazard areas), the separation meets one of the following:</p> <p>1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more.</p> <p>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation may be reduced to 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u></p> <p>3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation may be reduced to 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u></p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
800 (cont)			<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations involving an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>	<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations that involve an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
801	3.3.00.07d.ii.b	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	<p>Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:</p> <p>ii.b) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:</p> <p>1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.</p> <p>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation is 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u></p> <p>3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation is 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u></p>	<p>Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is the following:</p> <p>ii.b) Within other plant areas inside the non-radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following:</p> <p>1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more.</p> <p>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation may be reduced to 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u></p> <p>3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation may be reduced to 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u></p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
801 (cont)			<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations involving an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>	<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations that involve an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
802	3.3.00.07d.ii.c	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	<p>Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:</p> <p>ii.c) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:</p> <ol style="list-style-type: none"> 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation is 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u> 3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation is 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u> 	<p>Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is the following:</p> <p>ii.b) Within other plant areas inside the radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following:</p> <ol style="list-style-type: none"> 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables \leq2/0 AWG. <u>This minimum vertical separation may be reduced to 3 inches for the configuration with a conduit above and crossing the open tray at an angle equal to or greater than 45 degrees.</u> 3) <u>The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches between a conduit and an open configuration for low-voltage power cables greater than 2/0 AWG but not greater than 750 kcmil. The vertical separation may be reduced to 3 inches if a conduit is above and crossing an open tray at an angle equal to or greater than 45 degrees.</u>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
802 (cont)			<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations involving an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>	<p>34) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 1 3/8 inches and the minimum horizontal separation is 1 inch.</p> <p>45) For configurations that involve an enclosed raceway and an open raceway <u>with low-voltage power cables</u>, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</p> <p>56) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</p> <p><u>7) The minimum vertical separation is 1 inch and the minimum horizontal separation is 1 inch for configurations with a non-safety conduit and a free air safety cable with low-voltage power cables and below.</u></p>