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DG-1303 Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants

**Comment On:** NRC-2020-0279-0001

Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants

**Document:** NRC-2020-0279-DRAFT-0004

Comment on FR Doc # 2021-00940

## Submitter Information

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## General Comment

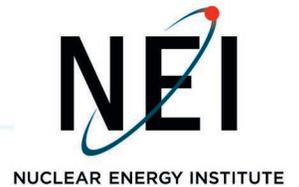
See attached file(s)

## Attachments

02-18-2021\_NRC\_Industry Comments DG-1303

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Mail Stop: TWFN-7-A60M  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
ATTN: Program Management, Announcements and Editing Staff

**Project Number: 689**

**Subject:** NEI Comments on Draft Regulatory Guide DG-1303, "Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants," Docket ID NRC-2020-0279.

***Submitted via regulations.gov***

Dear Program Management, Announcements and Editing Staff:

The Nuclear Energy Institute (NEI)<sup>1</sup>, on behalf of our members, appreciates the opportunity to provide comments on Draft Regulatory Guide DG-1303, "Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants." The purpose of this letter is to provide the attached comments which recommend several changes to improve clarity and consistency on the recommended practices, testing, and maintenance guidance provided and to raise backfitting and forward fitting concerns to your attention, as further described below. Please note that the comments in the attachment are prioritized by importance with 1- (high), 2- (medium), and 3- (low), followed by editorial.

While the industry agrees with many of the proposed changes in this revision, several other changes raise concerns with how the associated industry guidance documents (IEEE 387-2017 and IEEE 2420-2019) are approved and supplemented. Of greatest concern is a statement in the discussion section that "[t]he onsite emergency AC power source should be capable of operating for a minimum of 30 days..." The industry does not agree that there is a generic minimum requirement regarding "mission time" for emergency AC power sources. The industry's position is best articulated in the PWROG PA-LSC-1707, "Industry position paper – Emergency Diesel Generator Mission Time," which states: "[u]nless a plant was licensed with a specific 'mission time' for the EDGs, there is none. The term 'mission time' applied to the EDGs is not a part of any

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<sup>1</sup> The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

standard plant licensing basis.” Rather, the establishment of EDG mission time is highly unit-specific based on primary system design, vital bus scheme and environmental risk factors as determined by each station’s IPEEE and approved by the NRC in NUREG 1742. Given the plant-specific nature of this issue, the statement indicating that there is a generic requirement for, or expectation of, a 30-day mission time raises both backfitting and forward fitting concerns, which have not been evaluated in the associated regulatory analysis. Thus, we request that this statement be removed from the regulatory guide. This issue is discussed in Attachment 1 to this letter (see comments 1 and 2).

The current version of DG-1303 also includes a number of supplements to the approved IEEE standards that appear to have been misapplied. This includes supplements for provisions already included in the IEEE standards (but the wrong section was referenced), duplicate supplements with the same requirements, supplements for accelerated maintenance schedules that do not apply to all EDG makes and models, requirements for simulated environmental conditions during testing and supplements for off-site power supplies beyond the scope of this Regulatory Guide and the associated IEEE standards. Finally, the inclusion of Combustion Turbine Generators (CTGs) in this revision of the Regulatory Guide is considered appropriate and welcome. However, several sections discussing and providing the regulatory position for CTGs used EDGs as a starting point and did not appropriately modify the requirements based on the unique design of CTGs. These discrepancies are considered to hinder the intent and effectiveness of the Regulatory Guide as a useful tool to both end users and the NRC.

We appreciate the NRC’s effort in developing this draft guidance and encourage your consideration of all stakeholder comments prior to finalizing this draft Regulatory Guide. Given the long-lasting impact of the final document, we recommend a public meeting be scheduled to discuss in more detail the priority 1 and 2 comments included in the attachment and how the staff plans to address them. We trust that you will find these comments useful and informative as you finalize the draft and we look forward to future engagement on this important matter. Please contact me at [fap@nei.org](mailto:fap@nei.org) or (202) 739-8132 with any questions or comments about the content of this letter or the attached comments.

Sincerely,



Frances A. Pimentel

Attachment

c: Liliana Ramadan, RES/DE/ICEEB/EET, NRC  
Stanley Gardocki, RES/DE/RGGIB, NRC

**Attachment 1**

**Consolidated Comments on Draft Regulatory Guide DG-1303**

**“Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants”**

No.	Section	Comment/Basis	Recommendation	Priority
1.	B.	<p>Background, Onsite Emergency AC Power Sources: Paragraph 8, Last Sentence (Page 7), “The onsite emergency AC power source should be capable of operating for a minimum of 30 days with replenishment of fuel oil and other fluids/materials, as required.”</p> <p>The IEEE/PES/NPEC/SC-4 WG 4.2 infers this statement refers to an EDG mission time capability of 30 days; however, it is not in Section C, “Staff Regulatory Guidance,” of the Draft Guide. This was not part of any qualification type-testing and also was not part of any original design specifications used by the OEM when furnishing EDGs to the nuclear industry.</p>	<p>This should be removed since, per PWROG PA-LSC-1707, “Unless a plant was licensed with a specific ‘Mission Time’ for the EDGs, there is none. The inference of a 30-day capability requirement of the EDGs is not a part of any standard plant licensing basis.”</p> <p>If the item regarding 30-day capability for EDGs is to remain in the Reg. Guide, further clarification needs to be provided for mechanism of verification (test). This is not part of any NUREG 1431, 1432, or 1433 Tech Specs.</p>	1
2.	B.	<p>Background, Onsite Emergency AC Power Sources: Paragraph 8, Last Sentence (Page 7), “The onsite emergency AC power source should be capable of operating for a minimum of 30 days with replenishment of fuel oil and other fluids/materials, as required.”</p> <p>The minimum time of operation of the emergency AC power source should not be included in this RG due to the following reasons: 1) minimum EDG time of operation for some plants is established by accident analysis in their licensing basis, and 2) minimum EDG time of operation should be based on plant design and established by the nuclear vendor’s analysis vs. a common time for all.</p> <p>Some plants have performed site-specific plant accident analysis to determine the minimum operating time for an emergency AC power source, with results less than 30 days. One example is the Callaway analysis that was approved by the NRC.</p> <p>In addition, the PWROG has developed a document PWROG-20014-NP, that addresses this concept. Perhaps this document would be the place to address any concerns with the industry, vs. in the background discussion for this Regulatory Guide.</p>	<p>Delete this sentence. The issue is well described in the first paragraph of the background section and is consistent with other versions of RG 1.9:</p> <p>“An onsite emergency AC power source selected for use in an electric power system should be able to (1) start and accelerate a number of large motor loads in rapid succession, while maintaining voltage and frequency within acceptable limits, (2) provide power promptly to engineered safety features if a loss of offsite power (LOOP) and an accident occur at the same time, and (3) supply power continuously to the equipment needed to maintain the plant in a safe</p>	1

No.	Section	Comment/Basis	Recommendation	Priority
		<p>In the many revisions of RG 1.9 and associated NRC documents on EDGs, the first mention of a 30 requirement was in parentheses in Revision 4 which was added following the industry review, without a chance for industry comment. The text in Section B states: "...supply power continuously to the equipment needed to maintain the plant in a safe condition if an extended (e.g., 30-day period should be considered with refueling every 7 days) LOOP occurs." The NRC was questioned in a public meeting (by NEI) on why this was added in the final version without industry review, and requested it be deleted. The NRC's written response was that "The staff intended that the 30-day mission time for EDG should be considered if an extended LOOP occurs." Though in Section B, with the use of the word "should" the statement now can be read like a requirement that will be used to challenge operating plants</p>	<p>condition if an extended LOOP occurs."</p>	
3.	C.2.2	<p>Section 2.2 should be deleted because 1) Provisions are already provided in IEEE 387-2017, and 2) it is not practical to simulate environments during testing. Additional information is provided as follows:</p> <p>1) Provisions are already provided in IEEE Std 387-2017:</p> <ul style="list-style-type: none"> <li>a. 7.5 Test description (pre-lubrication and manufacturer's recommendations for reducing wear)</li> <li>b. 7.5.1 Slow-start test (manual start, standby conditions)</li> <li>c. 7.5.3 Fast-start test (manual start; standby conditions)</li> <li>d. 7.5.4 Loss of offsite power test (load shedding, automatic start, load sequencing)</li> <li>e. 7.5.5 Safety injection auction signal (SIAS) test (automatic start)</li> <li>f. 7.5.6 Combined SIAS and LOOP test – (load shedding automatic start, load sequencing)</li> <li>g. 7.5.9 Endurance and load test (operating time)</li> </ul> <p>2) It is not practical to simulate environments during testing.</p> <ul style="list-style-type: none"> <li>a. NEI's comment on the 4th revision of RG 1.9 was regarding "environments (e.g. temperature, humidity)": Sites currently have no capability to control the environment – outside temperature and/or humidity – for current testing. For future plants controlling these parameters would be very cost prohibitive to test at these extremes. Testing from normal standby conditions is appropriate.</li> <li>b. The NRC Response to RG 1.9, R4 comments (August 22, 2007 letter to NEI's Mr. Adrian P. Heymer, from NRC's William Reckley): "The staff agrees that the use of the words "simulate...environments" in Regulatory Position 1.5 is subject to different interpretations. The staff intended that the effects of environments (temperature and humidity) should be considered in establishing the rating of the diesel generator. <ul style="list-style-type: none"> <li>i. It is our position that these items are covered in IEEE Section 4, Principal design criteria, subsection 4.1.2.a Design conditions, items 3) Temperatures</li> </ul> </li> </ul>	<p>Section 2.2 should be deleted because 1) Provisions are already provided in IEEE 387-2017, and 2) it is not practical to simulate environments during testing.</p>	1

No.	Section	Comment/Basis	Recommendation	Priority
		<p>at equipment locations (minimum and maximum with durations and average annual ambient) and 6) Humidity (minimum and maximum with durations)</p> <p>c. Continued response from the NRC was “The tests should confirm that the capacity margin provided in the design of the EDG is continued to be adequate for design basis event mitigation during worst case expected temperature and humidity condition for a given plant.”</p> <p>i. It is our position that the existing diesel rooms do not have the capability to “simulate” temperature and humidity during testing, and that for future plants controlling these parameters would be very cost prohibitive to test at these extremes. Testing from normal standby conditions is appropriate. This proposed C.2.2 position should be eliminated.</p> <p>d. The NRC stated in the letter that, “The staff agrees to include this clarification in the next revision of RG 1.9 regarding this issue.” It does not appear that this was addressed in this revision.</p>		
4.	C.2.3	<p>Most but not all manufacturers do not require accelerated maintenance requirements for operating time above the nominal rating. In addition, this time should be limited to the 2 hours of the endurance run at 105-110% load. The Reg. Guide should clarify this is planned loading. Additionally, the Reg. Guide needs to acknowledge the variety of rating schemes currently in place in the industry. Each of these rating levels represents the manufacturer’s estimated liability for warranty claim at a given load level. Accordingly, the resulting ratings lack consistent basis and their application toward maintenance interval adjustments is of questionable validity. The application of the proposed guidance should be reviewed by the EDG manufacturer against their rating basis with appropriate clarification/changes documented for the licensee. There are, however, some EDG manufacturers that no longer exist, meaning that a valid review of rating basis is not possible. In these cases, the Reg. Guide needs to include allowance for EDG owner group recommendations for accelerated maintenance as appropriate.</p> <p>Current STS recognizes that grid instability and cycling plant loads can perturbate EDG load while paralleled with offsite power. Accordingly, allowance is specifically provided for short-term “momentary” episodes where load is above the specified level. Likewise, if kept, NRC should allow momentary excursions without penalty or superfluous accounting burden.</p>	<p>This requirement should be removed as IEEE Std 387-2017, Section 6.5.1 covers establishing a maintenance program (with sufficient technical basis) that factors in operating hours, testing, condition, operating experience, or a combination of these for emergency diesel generator units.</p> <p>Also consider adding language that acknowledges and accepts momentary episodes where the load is above the EDG rating.</p>	1
5.	C.2.4	<p>IEEE Std 387, Clause 4.4, Table 1 scope is for design considerations for the EDG. It is not intended to address considerations for off-normal preferred power supply. If protection design criteria, the EDG system boundary should be respected. Any Class</p>	<p>This should be removed because this is out of scope of RG 1.9.</p>	1

No.	Section	Comment/Basis	Recommendation	Priority
		1E bus protection (IEEE Std 308) or Preferred Power Supply (IEEE Std 765) is out of scope of IEEE Std 387.		
6.	C.2.8	Section 2.8 is redundant to Section 2.2.	Delete Section C.2.8	1
7.	C.3.1	In IEEE 387, "Continuous rating" with 8760 hours operation is defined along with "short time rating" which requires 2-hour operation in any 24-hour period. However, IEEE Std 2420 does not have "short time rating," and therefore uses only term of "rating" instead of "continuous rating." Because the "rating of combustion turbine-generator unit" is already defined in IEEE Std 2420, Section 3.1, this requirement should be removed from RG 1.9.	Remove requirement 3.1. See Comment/Basis.	1
8.	C.3.6	<p>In case of emergency (accident or LOOP) startup, purge process affects startup time of emergency power system. In order to conform with safety requirement, it may be appropriate to be done during shutdown.</p> <p>Also, if automatic purge system is provided, starting sequence should probably override purge process to start up the CTG within a required time.</p>	<p>Recommend the follow change to item 3.6 (blue italics):</p> <p>Because of the potential for explosion of residual fuel or fuel vapor remaining in the CTG, the exhaust system should be purged before startup or <i>during shut down</i>. The starting <i>and / or shut down sequence</i> should include a gas purge <i>process</i> of the turbine to prevent damage to the turbine and downstream components <i>by explosion</i>.</p>	1
9.	C.3.8	Automatic switch to open the bypass door should not be required unconditionally.	<p>Recommend revising item 3.8 to the following (or similar):</p> <p>The inlet air design should consider preventing excessive increase in pressure loss due to particle deposition on inlet air filter. When increase of pressure loss is not acceptable for CTG performance, inlet air filter should be removed, replaced, or cleaned without power reduction of CTG.</p>	1

No.	Section	Comment/Basis	Recommendation	Priority
10.	C.3.12	<p>This item does not need to specify "under a standard load."</p> <p>Also, it seems monitoring under standard load operation is required, but item b (deposits or deterioration of the turbine blades or vanes (as inferred from ideal model results)) cannot be monitored during operation.</p>	<p>Recommend changing to:</p> <p>In addition to IEEE Std 24202019, Section C.3, the following items <del>observed under a standard load</del> indicate the need for an overhaul and should be monitored when appropriate for a CTG based on the manufacturer's recommendations: a. decreasing run out time after shutdown, and b. deposits or deterioration of turbine blades or vanes (as inferred from ideal model results).</p>	1
11.	B.	<p>Background, Onsite Emergency AC Power Sources, Paragraph 6, Second Sentence: "...Increased operational reliability can be achieved through appropriate testing and maintenance, as well as an effective root cause analysis of all failures of the onsite emergency power source.</p> <p>a) The section does not have a reference for direction here. RG 1.160, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, should be the reference.</p> <p>b) A full root cause analysis may not be warranted for each failure. In some cases, apparent cause analyses may be more effective. An "appropriate level causal analysis" would be a better</p>	<p>Please revise sentence as follows: "...Increased operational reliability can be achieved through appropriate testing and <b>maintenance per RG 1.160 (Monitoring the Effectiveness of Maintenance at Nuclear Power Plants)</b>, as well as <b>appropriate level causal analyses of all failures of the onsite emergency AC power source.</b></p>	2
12.	C.1.13	<p>Clarify the fire source being considered in this guidance. Other guidance and regulations cover fires originating elsewhere.</p>	<p>Add "originating from the emergency AC power source" to the end of the 2nd sentence.</p>	2
13.	C.2.1	<p>Clause 1.4, "Inclusions for Site Testing": NRC Draft Guide recommends supplementing field flashing devices. Field flashing devices are already included within the scope of IEEE Std 387-2017 (Section 1.3.1.b.1)</p>	<p>Delete C.2.1. see basis.</p>	2
14.	C.2.7	<p>"The maximum design-basis loads should be within the continuous rating (as defined in IEEE Std 387-2017, Section 3.2) of the EDG with margin."</p> <p>IEEE Section 4.1.2.d discusses "Design load." C.2.7 should be revised to reference and supplement this section.</p>	<p>Change C.2.7 to state that "IEEE Std 387-2017, Clause 4.1.2.D, T "Design Load," should be supplemented with the following: "The maximum design-basis loads should be within the continuous rating (as defined in IEEE</p>	2

No.	Section	Comment/Basis	Recommendation	Priority
			Std 387-2017, Section 3.2) of the EDG with margin.”	
15.	C.1.8	This sentence seems like an opinion, and it does not provide direction. The rest of the paragraph already clearly states the requirements.	Delete the 7th sentence: "If test programs are not ..."	3
16.	C.2.5	Item b is for Lube Oil and the IEEE Std 387 Section 4.5.1.7 is solely for Fuel Oil. If this is intended to remain in the Reg. Guide, it should be its own item.	If a requirement for lube oil is to be presented in the Reg. Guide, it should have its own section (see Comment/Basis).	3
17.	C.3.3	Current wording only includes ISOC testing w/ plant vital bus loads, but the intent should be to include parallel operation at varying load levels.	Change a. (3) to "... planned to run loaded for at least 1 hour at ≥ 50% continuous rating."	3
<b>Editorial Comments Included Below:</b>				
1.	A.	Purpose: 2nd to last paragraph from Section B of Rev. 4 provides additional discussion of purpose but was not included in this draft.	1. Copy 2nd to last paragraph from Section B of Rev. 4 to make 2nd paragraph of Purpose section. 2. Change "emergency diesel generators" to "onsite emergency AC power sources" (2x).	N/A
2.	A.	<p>Purpose: Note in Rev. 3 the root cause statement was limited to just the EDGs. In Rev. 4 and DG-1303 the wording changed to onsite emergency power source potentially opens the door to failures beyond EDGs, CTGs or other sources. At first glance it seems a small change but the purpose states it addresses “onsite emergency alternating current (AC) power sources, including emergency diesel generators (EDGs) and combustion turbine generators (CTGs), in nuclear power plants. This RG may also be used for other types of onsite emergency AC power sources.” This leaves the door open to applying the RG wording to other power sources on site.</p> <p>RG 1.9 Rev. 3 “High reliability, ... can be achieved by appropriate testing, maintenance, and operating programs and by institution of a reliability program that implements effective root cause analysis of all emergency diesel generator failures and that is designed to monitor, improve, and maintain reliability at selected levels.”</p>	Add clarification to be sure that this applies only to Class 1E GDC 17 On-site AC Emergency Power Sources.	N/A

No.	Section	Comment/Basis	Recommendation	Priority
		DG-1303, Page 7, "Increased operational reliability can be achieved through appropriate testing and maintenance, as well as an effective root cause analysis of all failures of the onsite emergency power source."		
3.	A.	Applicability: Be consistent with the use of "all." Use in both locations or neither one (recommended).	Delete "all" from "... and all applicants and ..." OR add "all" up front, as in, "... applies to all applicants..."	N/A
4.	A.	Related Guidance: Be consistent with the use of "AC power" vs "ac power".	Change "ac" to "AC" under NUREG-0800 discussion of SRP Chapter 8.	N/A
5.	B.	Reason for Revision: Language not specific enough	Change first sentence to "This revision (Revision 5) of RG 1.9 endorses, ..."	N/A
6.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 2: The word is implied and doesn't need to be stated.	Delete "active" from the 2nd sentence of the 2nd paragraph.	N/A
7.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 2: Do not need to list the three types of generators every time.	Delete "EDG, CTG, or other" from the 4th sentence of the 2nd paragraph.	N/A
8.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 2: Language not specific enough	Add "of the emergency generator prime mover" after the word "overspeed" in the 7th sentence of the 2nd paragraph.	N/A
9.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 3: Awkward wording	Change the middle of the 2nd sentence of the 3rd paragraph to "... and selecting EDGs or CTGs with continuous ratings that exceed the sum ..."	N/A
10.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 3: Redundant wording	Combine last 2 sentences of 3rd paragraph to "However, the DBE loads during the operating license or COL stages should be within the	N/A

No.	Section	Comment/Basis	Recommendation	Priority
			continuous (or nominal) rating of the selected onsite emergency AC power source(s) with margin."	
11.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 4: Words are implied	Delete "boiling or pressurized" from the 2nd sentence of the 4th paragraph.	N/A
12.	B.	Background, Onsite Emergency AC Power Sources, Paragraph 4: Excessive/awkward wording	Combine the last 2 sentences of the 4th paragraph to "... provided with an ECCS capable of maintaining the core temperature at an acceptably low value and removing decay ..."	N/A
13.	B.	Background, Onsite Emergency AC Power Sources, Paragraphs 4 & 5: The author is trying to convey the continuous rating should bound ECCS loads, but long-term ECCS loads are significantly lower than during the first 2-24 hrs. The previous paragraph already said DBE loads should be within the continuous rating; this is the message that needs to be conveyed. The deleted part confuses the issue.	Move the 1st sentence of the 5th paragraph to the end of the 4th paragraph and delete the 2nd sentence of the 5th paragraph.	N/A
14.	B.	2. Add "AC" for consistency.	Change the last part of the last sentence in paragraph 6 to "as well as effective root cause analyses of all failures of the onsite emergency AC power source."	N/A
15.	B.	Background, Emergency Diesel Generators: Information for EDGs and CTGs is redundant and should be combined into one section.	Change Section title to "Emergency Diesel Generators and Combustion Turbine Generators"	N/A
16.	B.	Background, Emergency Diesel Generators: The concern is not limited to EDGs.	Change the 1st sentence of the 1st paragraph to 2 sentences: "Motor-starting transients can also affect the frequency of the emergency AC power source. This is primarily an EDG concern but may apply to other generator types."	N/A

No.	Section	Comment/Basis	Recommendation	Priority
17.	B.	Background, Emergency Diesel Generators: Mostly redundant/awkward wording	Delete existing 2nd and 3rd sentences of 1st paragraph and move the revised sentences above to the beginning of the 2nd paragraph.	N/A
18.	B.	Background, Emergency Diesel Generators: Section is being revised to apply to more than just EDGs	Change the 3 uses of "EDG" in the 2nd paragraph to "emergency AC power source" (one is plural).	N/A
19.	B.	Background, Emergency Diesel Generators: Captures previously deleted material that was not redundant	Change the last part of the 2nd sentence in the 2nd paragraph to "... ECCS motor loads (e.g., pumps, motor-operated valves and fans) and bypass power supplies associated with uninterruptible power systems."	N/A
20.	B.	Background, Emergency Diesel Generators: Section is being revised to apply to more than just EDGs	<ol style="list-style-type: none"> <li>1. Change 1st sentence of 3rd paragraph to "Protection of an EDG or CTG from ... operation of an overspeed trip device (usually set at 115 percent of nominal speed for EDGs)."</li> <li>2. Add "or CTGs" after "EDGs" in the 2nd and 3rd sentences of the 3rd paragraph.</li> </ol>	N/A
21.	B.	Background, Emergency Diesel Generators: It is not clear the author wishes these to be Test mode-only trips. Also, a trip obviously interferes with operation; this does not need to be stated.	Change the last 3 sentences of the 3rd paragraph to "Conversely, spurious operation of a trip circuit lowers EDG/CTG availability and reliability. Consequently, it is important to ensure these other protective trips are only enabled in Test mode so they do not prevent the EDGs/CTGs from performing ..."	N/A
22.	B.	Background, Combustion Turbine Generators: The concern is not limited to CTGs.	<ol style="list-style-type: none"> <li>1. Move the 1st paragraph to be the 1st paragraph of the combined EDG/CTG section.</li> <li>2. Add "EDGs or" before "CTGs" in the 1st and last sentences of the 1st paragraph.</li> </ol>	N/A

No.	Section	Comment/Basis	Recommendation	Priority
23.	B.	Background, Combustion Turbine Generators: Information is redundant for combined EDG/CTG section.	Delete 2nd and 3rd paragraphs.	N/A
24.	C.1	Awkward/incomplete wording	Change section title to "Design and Testing Considerations for Onsite Emergency AC Power Sources other than EDGs and CTGs"	N/A
25.	C.1.4	Enhancement Suggestion: Paragraph is cumbersome and contains many items.	Consider putting the individual requirements in bullet form.	N/A
26.	C.1.4	Consistency and grammar	<ol style="list-style-type: none"> <li>1. In the 5th sentence: <ol style="list-style-type: none"> <li>a. Change "power AC" to "AC power"</li> <li>b. Replace the comma after "controls" with "and"</li> </ol> </li> <li>2. Change "internal" to "internally" in the last sentence</li> </ol>	N/A
27.	C.1.6	Words are implied	Delete "for these plants" from the last sentence.	N/A
28.	C.1.8	Grammar	Change "i.e." to "e.g." in the 2nd sentence.	N/A
29.	C.1.8	Wording not copied and modified properly from IEEE 387-2017.	Add "of the system" after "status" in the 6th sentence.	N/A
30.	C.2	Awkward/incomplete wording	<ol style="list-style-type: none"> <li>1. Change section title to "Design and Testing Considerations for Emergency Diesel Generators"</li> <li>2. Add "and testing" after "design" in the opening sentence.</li> </ol>	N/A

No.	Section	Comment/Basis	Recommendation	Priority
31.	C.2.5	Grammar	Delete hyphen in "lubricating-oil" in subsection b.	N/A
32.	C.2.7	2.7 refers to IEEE 387-2017, Section 3.2. There is no Section 3.2 in IEEE 387-2017. It is Definitions Clause, second definition and should be clarified as such.	Refer to Section 3 definition of continuous rating (of diesel generator unit)	N/A
33.	C.2.9	Words are redundant to the word "independently"	Delete "of the redundant units" from the end of the opening sentence.	N/A
34.	C.3	Awkward/incomplete wording	1. Change section title to "Design and Testing Considerations for Combustion Turbine Generators" 2. Add "and testing" after "design" in the opening sentence.	N/A
35.	C.3.3	Language not specific enough	Add "following maintenance" after "declare the CTG operable" in the last sentence of the opening paragraph.	N/A
36.	C.3.3	Grammar	1. Change "load run" to "load/run" in 3rd paragraph of subsection c. 2. Delete hyphen in "high-lubricant" in subsection c. (1).	N/A
37.	C.3.9	Redundant wording	Delete "consideration" from the opening sentence.	N/A
38.	C.3.13	Words are redundant to the word "independently"	Delete "of the redundant units" from the end of the opening sentence.	N/A
39.	C.3.15	Grammar - proper nouns should be capitalized	1. Capitalize "technical specification surveillance requirements" and add "(TSSRs)" in the 1st sentence.	N/A

No.	Section	Comment/Basis	Recommendation	Priority
			2. Change "technical specification surveillance requirement" to "TSSR" in the last sentence.	

References:

- 1) IEEE 387 (2017), IEEE Standard for Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations.
- 2) Letter to Mr. Adrian P. Heymer, Senior Director, New Plant Development, Nuclear Energy Institute, from William Reckley, U.S. NRC, Chief, Rulemaking, Guidance, and Advanced Reactors Branch, Division of New Reactor Licensing, Office of New Reactors, dated August 22, 2007, Subject: Response to Nuclear Energy Institute (NEI) Letter Dated May 23, 2007 - Re: Industry Comments on Recent Guidance Documents. ML072330563