NCP-2015-009

NON-CONCURRENCE PROCESS
COVER PAGE

The U.S. Nuclear Regulatory Commission (NRC) strives to establish and maintain an environment that encourages all employees to promptly raise concerns and differing views without fear of reprisal and to promote methods for raising concerns that will enhance a strong safety culture and support the agency's mission.

Employees are expected to discuss their views and concerns with their immediate supervisors on a regular, ongoing basis. If informal discussions do not resolve concerns, employees have various mechanisms for expressing and having their concerns and differing views heard and considered by management.

Management Directive, MD 10.158, "NRC Non-Concurrence Process," describes the Non-Concurrence Process (NCP), http://nrcweb.nrc.gov:8600/policy/directives/catalog/md10.158.pdf.

The NCP allows employees to document their differing views and concerns early in the decision-making process, have them responded to (if requested), and attach them to proposed documents moving through the management approval chain to support the decision-making process.

NRC Form 757, "Non-Concurrence Process" is used to document the process.

Section A of the form includes the personal opinions, views, and concerns of a non-concurring NRC employee.

Section B of the form includes the personal opinions and views of the non-concurring employee's immediate supervisor.

Section C of the form includes the agency's evaluation of the concerns and the agency's final position and outcome.

NOTE: Content in Sections A and B reflects personal opinions and views and does not represent official factual representation of the issues, nor official rationale for the agency decision. Section C includes the agency's official position on the facts, issues, and rationale for the final decision.

At the end of the process, the non-concurring employee(s):

- [ ] Concurred
- [x] Continued to non-concur
- [ ] Agreed with some of the changes to the subject document, but continued to non-concur
- [ ] Requested that the process be discontinued
  - [ ] The non-concurring employee(s) requested that the record be non-public.
  - [x] The non-concurring employee(s) requested that the record be public.
- [ ] This record is non-public and for official use only.
- [x] This record has been reviewed and approved for public dissemination.

GAM 11/12/15

NRC FORM 757
NRC MD 10.158
(07-2015)

U. S. NUCLEAR REGULATORY COMMISSION

NON-CONCURRENCE PROCESS

NCP TRACKING NUMBER: NCP-2015-009

SECTION A - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE

TITLE OF SUBJECT DOCUMENT License Amendment Nos. 175 and 157 for Vogtle Units 1 and 2	ADAMS ACCESSION NO. ML15127A669
DOCUMENT SIGNER Robert Pascarelli	SIGNER TELEPHONE NO. (301) 415-6603
TITLE Branch Chief	ORGANIZATION NRR/DORL/LPL2-1
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NON-CONCURRING EMPLOYEE'S SUPERVISOR Jacob Zimmerman	
TITLE Branch Chief	ORGANIZATION NRR/DE/EEEB

☑ I WOULD LIKE MY NON-CONCURRENCE CONSIDERED AND WOULD LIKE A WRITTEN EVALUATION IN SECTION B AND C.

☐ I WOULD LIKE MY NON-CONCURRENCE CONSIDERED, BUT A WRITTEN EVALUATION IN SECTIONS B AND C IS NOT NECESSARY.

WHEN THE PROCESS IS COMPLETE, I WOULD LIKE THE NCP FORM: ☑ PUBLIC ☐ NON-PUBLIC

REASONS FOR THE NON-CONCURRENCE, POTENTIAL IMPACT ON MISSION, AND THE PROPOSED ALTERNATIVES
(use continuation pages or attach Word document)

See Attached

SIGNATURE /RA/ / RA/	DATE 8/13/15

REASONS FOR THE NON-CONCURRENCE, POTENTIAL IMPACT ON MISSION, AND THE PROPOSED ALTERNATIVES

Background:

By Letter dated September 13, 2012, Southern Nuclear Operating Company, Inc. submitted a license amendment request (LAR) for Vogtle Electric Generating Plant, Units 1 and 2 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12258A055). The LAR proposes modification of the Vogtle Units 1 and 2 Technical Specifications (TS) to permit use of Risk Informed Completion Times (RICTs) in accordance with, Nuclear Energy Institute (NEI) Topical Report (TR) 06-09, "Risk Informed Technical Specifications Initiative 4b, Risk Managed Technical Specification (RMTS) Guidelines." The NRC staff has prepared a safety evaluation (SE) to issue Amendment Nos. 175 and 157, for Vogtle Units 1, and 2, respectively. The Amendments modify the Vogtle Units 1 and 2 TS to permit use of RICTs in accordance with TR NEI 06-09. Specifically, for selected TS action statements, the associated Completion Time (CT) would be altered with a reference to a licensee-controlled document (i.e., the existing CTs will be controlled by the licensee). The required CTs in the licensee-controlled documents will be managed in accordance with the licensee's RICT program.

Staff from Probabilistic Risk Assessment Branch (APLA) in the Division of Risk Assessment (DRA) has the lead responsibility for this LAR. The Electrical Engineering Branch (EEEB) staff was requested by the Division of Operating Licensing Branch (DORL) staff to and provide concurrence.

As stated in the SE, general guidance for evaluating the technical basis for proposed risk-informed changes is provided in Chapter 19, Section 19.2, "Use of Probabilistic Risk Assessment in Plant-Specific, Risk-Informed Decisionmaking: General Guidance," of the NRC Standard Review Plan (SRP), NUREG-0800. Guidance on evaluating Probabilistic Risk Assessment (PRA) based technical adequacy is provided in Chapter 19, Section 19.1, "Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (Reference 18). More specific guidance related to risk-informed TS changes is provided in SRP Section 16.1, "Risk-Informed Decisionmaking: Technical Specifications," which includes CT changes as part of risk-informed decisionmaking. Chapter 19 of the SRP and RGs 1.177 and 1.174 identify five key safety principles required for risk-informed changes to TS. They are:

- The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
- The proposed change is consistent with the defense-in-depth philosophy.
- The proposed change maintains sufficient safety margins.

- When proposed changes increase CDF or risk, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.

- The impact of the proposed change should be monitored using performance measurement strategies.

The EEEB staff normally uses SRP Section 8, Code of Federal Regulations (CFRs), and Regulatory Guides (RGs) and industry Standards that are applicable to the current licensing basis of US operating fleet of nuclear plants. Accordingly, the EEEB staff used the specific documents applicable to Vogtle Units 1 and 2 (current licensing basis) to review the proposed SE and associated amendments.

The EEEB staff was not requested and did not contribute to the SE prepared by APLA. The SE and the LAR do not contain any deterministic evaluation or information for extending the CTs for Vogtle TS (Section 3.8) for Electric Power System.

Issue:

The SE concludes that the licensee meets the deterministic criteria without providing any sound technical and regulatory basis. These conclusions are not in accordance with SRP Section 8.0 and the current licensing basis for Vogtle Units 1 and 2 electric power systems. Specifically, the proposed SE concludes that:

> "The proposed changes satisfy the key principles 1, 2, 3, 4, and 5 of risk-informed decision-making identified in RG 1.174 and RG 1.177, and therefore the proposed changes evaluated in this SE are acceptable."

In addition, the EEEB staff noted that the SE (ADAMS Accession No. ML071200238) prepared by APLA staff (principal contributor) for approval of TR NEI 06-09 methodology also did not have adequate regulatory and technical bases to conclude that all deterministic criteria are met. It should be noted that the TR SE was not reviewed by the Office of General Council (OGC) to determine whether there are any legal objections for adopting the proposed methodology to satisfy the current NRC applicable regulations. This could be a potential issue that NRC management should look into to see whether TRs are being approved without sufficient legal and technical bases. EEEB staff's position is that the approval of the proposed TS Amendments 175 and 157 for Vogtle Units 1 and 2 should not be issued since the APLA staff evaluation did not provide sufficient technical and regulatory bases (deterministic) to show that the changes proposed in the license amendments are adequate to ensure public health and safety and all applicable regulatory requirements are met as discussed below. The EEEB staff also notes that there are no regulatory requirements which require that the NRC staff must approve these license amendments (plant-specific licensing action) simply because staff approved a TR.

The SE, in general, is written based on risk-based principles rather than risk-informed principles that complement the deterministic principles. This approach tends to ignore the Vogtle current licensing basis, regulatory requirements, defense in depth, and safety margins. This is not consistent with the Commission's PRA Policy statement and deterministic principles stated in RG 1.177 and RG 1.174. It also does not meet the requirements for Electrical Power Systems. The plant can operate safely only if it operates within the established design bases and licensing basis and within accident analyses assumptions including TS limiting conditions for Operation (LCO).

The EEEB staff also noted that Pressurized Water Reactor Owners Group (PWROG) submitted a TR (WCAP-15622-NP, Risk-Informed Evaluation of Extensions to AC Electrical Power System Completion Times," Rev. 0, on June 15, 2001 (TAC No. M132257, ADAMS Accession No. ML011770404)). The staff review and draft safety evaluation identified several safety concerns that risk-informed approach for extending the CTs would result in unanalyzed design basis conditions. As a result, on June 26, 2007, PWROG officially withdrew TR WCAP- 15622 (See ADAMS Accession No. ML071780623). One of the reasons for staff's concern was that the TR evaluations did not provide adequate deterministic basis why extension of CT for key vital power sources would not have adverse effects on plant safety. As an example, the staff evaluated a proposed 24-hour extension for loss of vital AC bus CT. This CT could not be endorsed because plant-specific evaluations of Rector Protection System (RPS) and Emergency Core Cooling System (ECCS) logic system analysis are necessary for considering this CT. If the ECCS logic is supplied from a single DC power source due to an extended CT for redundant DC source, then a minor perturbation or flicker in the operating DC system would result in failure of the two out of three and two out of four logic resulting in malfunctions of the emergency core cooling and /or reactor protection systems. The overall impact on plant safety is different based on the number of 1E battery systems that are unavailable. A full outage of a bus or dual train outages even for a short duration could lead several failure modes based on the plant unique designs. The staff noted that neither the licensee nor the NRC staff addressed such concerns during the review of TR (NEI 06-09) and during the preparation of SE for the Vogtle Units 1, and 2, Amendment Nos. 175 and 157, respectively. If NRC needs to approve extension of completion times, the licensees must submit deterministic failure modes and consequence analyses articulating that plant safety is maintained by demonstrating that defense in depth and safety margins are not reduced and most importantly, the proposed changes do not introduce any new malfunctions.

REASONS FOR THE NON-CONCURRENCE

The Commission states in its PRA policy Statement that:

> "The use of PRA technology should be increased in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy."

Based on review of the SE, the EEEB staff concludes that neither the licensee nor the staff has provided reasonable technical and regulatory bases to conclude that:

- The proposed change meets current regulations;
- The proposed change is consistent with defense-in-depth philosophy;
- The proposed change maintains sufficient safety margins;

Therefore, the EEEB staff concludes that the licensee did not provide adequate assurance that the extended CT could be utilized while maintaining adequate protection of public health and safety and common defense and security.

Safety is the fundamental regulatory objective, and compliance with NRC requirements plays a fundamental role in giving the NRC confidence that safety is being maintained. NRC requirements, including technical specifications, other license conditions, orders, and regulations, have been designed to ensure adequate protection--which corresponds to "no undue risk to public health and safety" through acceptable design, construction, operation, maintenance, modification, and quality assurance measures. In the context of risk-informed regulation, compliance plays a very important role in ensuring that key assumptions used in underlying risk and engineering analyses remain valid.

The Commission's policy on PRA ("Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," dated August 16, 1995), states the following:

> Defense-in-depth is a philosophy used by the NRC to provide redundancy for facilities with "active" safety systems, e.g. a commercial nuclear power [plant], as well as the philosophy of a multiple-barrier approach against fission product releases.

An instructive discussion of the defense-in-depth philosophy also appears in director's decisions relating to a petition on Davis-Besse (FirstEnergy Nuclear Operating Company (Davis-Besse Nuclear Power Station, Unit 1), DD-03-3, 58 NRC 151, 163 (2003)).

The decision described defense-in-depth as encompassing the following requirements:

(1) require the application of conservative codes and standards to establish substantial safety margins in the design of nuclear plants;

(2) require high quality in the design, construction, and operation of nuclear plants to reduce the likelihood of malfunctions, and promote the use of automatic safety system actuation features;

(3) recognize that equipment can fail and operators can make mistakes and, therefore, require redundancy in safety systems and components to reduce the chance that malfunctions or mistakes will lead to accidents that release fission products from the fuel;

(4) recognize that, in spite of these precautions, serious fuel-damage accidents may not be completely prevented and, therefore, require containment structures and safety features to prevent the release of fission products; and

(5) further require that comprehensive emergency plans be prepared and periodically exercised to ensure that actions can and will be taken to notify and protect citizens in the vicinity of a nuclear facility.

Based on the above safety principles, the EEEB staff performed the SE review.

EEEB staff Review:

The SE states that the safety limits, limiting safety systems settings, limiting control settings, LCOs, SRs, and design features themselves remain unchanged. This is not true because the remedial actions proposed in the RICT program are administrative and programmatic in nature and there are no provisions to compensate for electric power sources (both ac and dc) that are unavailable and do not have actions or temporary or equivalent power sources during the period extended CT. Therefore, if a design bases accident or abnormal operating occurrence were to occur, operators at Vogtle Units 1 and 2 would not be able to safely shutdown the plant or mitigate the consequences of an accident consistent with accident analyses assumptions. The extended loss of redundancy of systems or sub-systems or complete loss of safety functions (i.e., RICT program allows flexibility for licensee to take one or both train of key vital electric power system out of service based on risk assessments and administrative and programmatic compensatory measures) which results in unavailability of safety functions for an extended duration. The proposed RICT program could allow the licensee operating the plant in Mode 1 or 2 with either 1 or two trains of offsite, onsite AC and DC power systems beyond that is specified in the current Standard Technical Specifications for PWRs and Staff Regulatory Positions described in Regulatory Guide 1.93. As stated before, since the compensatory measures are programmatic in nature, the power supplies to the engineered safety features (ESF) loads for accident mitigation cannot be provided within the time constraints of the accident analyses assumptions (UFSAR Chapter 15 requirements). See Enclosure 1 for estimated completion time based on RICT (RMTS 4b program).

This is unacceptable to the EEEB staff because of potential for loss of safety functions, if electrical power systems cannot provide the required power to the accident mitigation systems including providing defense in depth measures for maintaining reactor safety. For example, if a battery or inverter is taken out of service, the ECCS and RPS systems may be impacted because of potential voltage spikes in the AC system. Operating experience has shown that voltage perturbations (Forsmark event in Sweden) in plant auxiliary systems can result in lock up or trip of ECCS and RPS systems and non-conservative malfunctions of ECCS or ESF systems. Systems operating without redundancy may malfunction due to a single voltage spike and result in total failure of ECCS or ESF systems. In addition, if two trains are taken out service for extended time (for example, batteries or inverters) as allowed by the proposed changes to the TS in accordance with RICT program, there is a potential for the protection systems either to lock up or no protective actions may occur during LOOP/LOCA scenario until the power is restored to the safety buses. For LOOP/LOCA scenarios, the ESF buses feeding the vital ac buses would not have any power for at least 20 seconds until the onsite power system breakers for ESF systems are closed.

The EEEB staff notes that important instrumentation required for monitoring and actuating protective functions is supplied from vital or uninterruptible power supply (UPS) system. The intent of using a UPS is to insure that plant safety parameters are available for operator action during all modes of operation, shutdown and accident mitigation. The UPS system assures that there is no loss of safety function actuation signals even during loss of offsite power. At Vogtle Units 1 and 2, the instrumentation required for these function is delineated in TS 3.3. Specifically, TS 3.3.1 has Reactor Trip Instrumentation with requirements for immediate operator action in the event of loss of one channel. TS 3.3.2 related Engineered Safety Feature Actuation System Instrumentation also has requirements for immediate operator actions in the event of loss of a channel. Similarly, TS 3.3.3 Post Accident Monitoring Instrumentation has requirements for operator actions. The current TS CT for UPS systems is limited to 2 hours in view of the critical functions required by the loads on the system. The regulatory position is clearly articulated in RG 1.93. The unavailability of redundant instrumentation delineated in TS 3.3 for an extended duration (24 hours or more) imposes a plant safety concern. Therefore, the EEEB staff strongly recommends that detailed deterministic analyses would be required to determine if the plant could operate safely with only PRA based analyses. In addition, the EEEB staff notes that the CT limitations specified in the 4B program is not tightly controlled as evidenced by the following statement "RICT may not exceed 30 days." If the risk is acceptable per the RICT program, the licensee could extend the CT for diesels (both trains) up to 176.94 days based on the attached Table in Enclosure 1.

The EEEB staff notes that the current licensing basis for Vogtle TS Completion Time for electric power system is in accordance with Regulatory Guide 1.93, "Availability of Electric Power Sources." Specifically, RG 1.93 provides guidance with respect to operating restrictions, (i.e., CTs), if the number of available onsite offsite power sources, EDGs, batteries, battery chargers, inverters, and various power boards are less than that required by the TS (degraded level). In particular, this RG prescribes a maximum CT of 72 hours for an inoperable onsite or offsite power sources. In addition, this RG states the following:

> If the available onsite ac electric power sources are two less than the LCO, power operation may continue for a period that should not exceed 2 hours.
>
> If the available onsite dc power sources are one less than the LCO, power operation may continue for a period that should not exceed 2 hours.
>
> If the available inverters are one less than the LCO, power operation may continue for a period that should not exceed the 24-hour time period specified in the standard technical specifications.

If not, the licensee should shut down the plant in accordance with plant-specific technical specifications. The Regulatory Position in this guide recommends immediate shutdown of the plant with 2 trains of DC or vital ac (inverters and vital ac buses).

10 CFR 50.36(c)(2 requires that the TS include LCOs, which are defined as the lowest functional capability or performance levels of equipment required for safe operation of the

facility. Furthermore, it requires that, when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the condition can be met. The regulatory position described in the RG is to ensure that a nuclear power plant is in an acceptably safe operating mode whenever the available electric power sources are less than the TS LCO. In addition, this RG states the licensees should severely restrict the time allowed for continued operation of a nuclear power plant with less than the required redundant onsite power sources. The above regulatory position is consistent with the Commission's Final Policy Statement concerning Technical Specifications for Nuclear Power Plants published in the Federal Register (58 FR 39132-39139, July 22, 1993). The Commission states that the defense-in-depth approach is expected to continue to ensure the protection of public health and safety. The Commission will continue to use PSA, consistent with its policy on Safety Goals, as a tool in evaluating specific line item improvements to Technical Specifications, new requirements, and industry proposals for risk-based Technical Specification changes.

However, one exception to the RG is that the staff has allowed plants such as Vogtle to extend the CT of electric power system up to 14 days based on the licensees' request to perform the required major maintenance online occasionally (6 -10 year interval) to improve the reliability of power sources in accordance with the guidance provided in SRP Chapter 8.0. In this case, the staff has considered balancing the risk associated with performing these tasks during shutdown versus online. Specifically, Branch Technical Position (BTP) 8-8, Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions. The BTP states "the EDG or offsite power AOT should be limited to 14 days to perform maintenance activities. This time period is based on industry operating experience for performing major maintenance which occurs only every 6 -10 years; for example, a maximum of 216 hours (13.5 days, consisting of two shifts, each shift working 8 hours) is considered to be sufficient for a major EDG overhaul or offsite power major maintenance. The licensee must provide justification for the duration of the requested AOT (actual hours plus margin based on plant-specific past operating experience). An EDG or offsite power AOT license amendment of more than 14 days should not be considered by the staff for review." As stated above, the regulatory position for safe operation of the facility from a deterministic principle with an inoperable power source (EDG or offsite power) is 72 hours. The staff's approval of this 14-day is based on licensee's providing supplemental power sources to bring the plant to a safe shut down condition to replace the power source that is inoperable (i.e.., this is not based on administrative and programmatic compensatory measures unlike the RICT program). The staff's expectation and the regulatory/ technical bases for this exception to the RG is that the licensee will use this CT extension only occasionally (i.e., every 6 -10 years). There is no provision for CT extension if two trains of power systems are inoperable. This condition requires immediate plant shutdown as specified in RG 1.93 to preserve the key safety functions during power operation.

Since the proposed amendments for Vogtle Units 1 and 2 are not consistent with the current licensing bases and the safety margins and defense in depth for Vogtle are significantly reduced by allowing the licensee to operate with less than redundant trains or even both trains of electric onsite (AC, DC, and uninterruptable vital AC) and offsite power systems inoperable for extended period of time in accordance with RICT program, a detailed deterministic analyses of the consequences of allowing the plant to continue operate in this configuration and continued

compliance with the following regulations and current licensing bases requirements are required. The EEEB staff position is that without detailed analyses of the failure modes and the consequences of the proposed changes (extension of CTs for electric power systems) are clearly understood, staff cannot ensure that the Vogtle can operate safely with the proposed changes specified in these amendments.

Regulatory requirements and Guidance

- General Design Criterion (GDC)-17, "Electric power systems," in Appendix A to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires that nuclear power plants have an onsite electric power system and an offsite electric power system to15 permit the functioning of structures, systems, and components (SSCs) important to safety. The safety function of each system (assuming the other system is not functioning) is to provide sufficient capacity and capability to assure that (1) fuel design limits and design conditions of the reactor coolant boundary are not exceeded as a result of anticipated operational occurrences (AOOs), and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

  The onsite electric power supplies (including the batteries) and the onsite electric distribution system are required to have sufficient independence, redundancy, and testability to perform their safety functions, assuming a single failure. Electric power from the transmission network to the onsite electric distribution system is required to be supplied by two physically independent circuits designed and located so as to minimize the likelihood of their simultaneous failure. Each of these circuits are required to be designed to be available in sufficient time following a loss of all onsite AC power supplies and the other offsite electric power circuit, to assure that fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits is required to be available within a few seconds following an accident to assure that core cooling, containment integrity, and other vital safety functions are maintained. In addition, GDC-17 requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as the result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

- 10 CFR 50.36, Technical Specifications requires a licensee to establish limiting conditions for operation (LCOs), which include CTs for equipment that is required for safe operation of the facility.

- 10 CFR 50.36(c)(2), "Limiting Conditions for Operation," requires the TSs to include the limiting conditions for operation (LCO) and actions required to be taken by the licensee when the LCO is not met. Power operation may be initiated and continued without restriction only when the LCO is met.

- 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," Section a)(1)(i) requires, in part, that each boiling or pressurized light-water nuclear power reactor fueled with uranium oxide pellets within cylindrical zircaloy or ZIRLO cladding must be provided with an emergency core cooling system (ECCS) that must be designed so that its calculated cooling performance

following postulated loss-of-coolant accidents conforms to the criteria set forth in paragraph (b) of this section. ECCS cooling performance must be calculated in accordance with an acceptable evaluation model and must be calculated for a number of postulated loss-of-coolant accidents of different sizes, locations, and other properties sufficient to provide assurance that the most severe postulated loss-of-coolant accidents are calculated.

- Vogtle UFSAR Section 8.1.4.3, "Design Criteria, Regulatory Guides, and IEEE Standards," states that the design of the offsite power and onsite Class 1E electric systems conforms with Regulatory Guide (RG) 1.93, "Availability of Electric Power Sources." RG 1.93 provides guidance with respect to operating restrictions (i.e., AOTs) if the number of available alternating current (AC) sources is less than that required by the TS LCO. In particular, this guide prescribes a maximum AOT of 72 hours for an inoperable onsite or offsite AC source.

- Branch Technical Position (BTP) 8-8, Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions. BTP 8-8 states that the EDG Allowed Outage Time (AOT) should be limited to 14 days to perform maintenance activities.

- 10 CFR 50, Appendix A Single failure criterion.

- Regulatory Guide 1.93, "Availability of Electric Power Sources." Specifically, RG 1.93 provides guidance with respect to operating restrictions, (i.e., CTs).

In addition, the EEEB staff determined that compliance with the following GDCs may be affected without detailed analyses of the proposed operating conditions (with less than the minimum required electric power system(s)).

10 CFR 50, Appendix A:

Criterion 2—Design bases for protection against natural phenomena.

Criterion 20—Protection system functions.

Criterion 21—Protection system reliability and testability.

Criterion 22—Protection system independence.

Criterion 23—Protection system failure modes.

Criterion 25—Protection system requirements for reactivity control malfunctions.

Criterion 29—Protection against anticipated operational occurrences.

Criterion 33—Reactor coolant makeup.

Criterion 34—Residual heat removal.

Criterion 35—Emergency core cooling.

Criterion 38—Containment heat removal.

Criterion 41—Containment atmosphere cleanup.

Criterion 44—Cooling water.

Conclusions:

Section 182 of the Atomic Energy Act as implemented by 10 CFR 50.36 requires that those design features of the facility which, if altered or modified, would have a significant effect on safety be included in technical specifications required by 10 CFR 50.36. TSs are to be derived from the analyses and evaluation included in the safety analysis report. They establish, among other things, LCOs which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. The Current licensing basis for electric power systems for Vogtle is in accordance with GDC 17, RG 1.93, and acceptance criteria provided in SRP Chapter 8. Therefore, the proposed Vogtle TS CT changes do not meet the current regulatory requirements and staff requirements for electric power systems, based on deterministic criteria of preventing loss of safety functions of electric power systems and operating within the current licensing bases requirements. Remedial measures or compensatory measures based on programmatic and administrative aspects do not restore functional capabilities of electric systems or sub-systems as previously approved by the EEEB staff for safe operation of the plant in accordance with the requirements specified in licensing basis of Vogtle Units 1 and 2. Exemptions from regulations may be required in order to approve the proposed changes since the licensee would not be in compliance with the above regulations. In addition, the EEEB staff concludes that the licensee did not demonstrate the proposed CT based on RICT program is acceptable based on meeting the defense-in-depth criterion and safety margins and assumptions consistent with accident analysis. The EEEB staff concludes that implementation of Nuclear Energy Institute (NEI) 06-09, "Risk Informed Technical Specifications Initiative 4b, Risk Managed Technical Specification (RMTS) Guidelines" at Vogtle Units 1 and 2 is not acceptable and contrary to NRC's safety mission.

POTENTIAL IMPACT ON MISSION

The NRC mission to protect public health, safety, and the environment is directly affected by approving the proposed license amendment for Vogtle using the RMTS 4b methodology because the regulatory requirements, safety margins, and defense in depth for designs are compromised (licensing and oversight for reactors).

PROPOSED ALTERNATIVES

Option 1

Delete changes to the CT based on RICT program for all applicable Vogtle TS Section 3.8 from Amendment Nos. 175 and 157 for Vogtle Units 1, and 2, respectively. In addition, DORL should ensure that the RICT program does not affect changes to other TS systems.

Option 2

Since most of the TS systems are affected, approval of the Topical Report (RMTS 4B should be withdrawn based on not meeting the current regulatory requirements and NRC deterministic design criteria. The staff also notes that a similar risk-informed approach is taken for RMTS 5B (relocating surveillance frequencies) licensing actions. This TR methodology and the staff evaluations also do not support the deterministic criteria and detailed analysis to confirm that equipment reliability is maintained consistent with plant's design basis and accident analyses assumptions. Although TR for RMTS 5B is not within the scope of this NCP, it should be withdrawn so that staff does not take non-conservative plant-specific licensing actions.

Option 3

Deny the amendment based for not meeting the deterministic criteria and current regulatory requirements.

ENCLOSURE 1

(Copy of Enclosure 1 to NL-12-1344
List of Revised Required Actions to Corresponding PRA Functions)

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.1 AC Sources - Operating: F. Two DGs inoperable	8.02	176.94[3]
3.8.1 AC Sources - Operating: G. One automatic load sequencer inoperable	4.15	4.62
3.8.1 AC Sources - Operating: H. Three or more required AC sources inoperable	6.47	176.94[3]
3.8.4 DC Sources - Operating: A. One DC electrical power source inoperable due to inoperable battery A	9.90	10.74

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.4 DC Sources - Operating: B. One DC electrical power source inoperable due to inoperable battery C or D	93.97[3]	176.94[3]
3.8.4 DC Sources - Operating: C. One DC electrical power source inoperable for reasons other than Condition A or B	157.73[3]	176.94[3]
3.8.4 DC Sources - Operating: D. Two DC electrical power subsystems inoperable	9.90	176.94[3]
3.8.7 Inverters - Operating: A. One required inverter inoperable	3.46	162.13[3]
3.8.7 Inverters - Operating: B. Two or more required inverters inoperable	3.46	162.13[3]
3.8.9 Distribution Systems - Operating: A. One or more AC electrical power distribution subsystems inoperable	N/A[2]	176.94[3]

Table E1.2
Unit 1/Unit 2 TS RICT Estimate Based on CDF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.9 Distribution Systems - Operating: B. One or more AC vital bus electrical power distribution subsystems inoperable	3.46	176.94[3]
3.8.9 Distribution Systems - Operating: C. One or more DC electrical power distribution subsystems inoperable	0.90	176.94[3]
3.8.9 Distribution Systems - Operating: D. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function	N/A[2]	176.94[3]

Notes:

1. Not in model but documented to have no impact on CDF/LERF and a 30 day backstop CT applies.

2. The calculated RICT value is less than the front-stop CT, so the RICT Program cannot be entered for this instance.

3. The RICT Program backstop CT of 30 days will be used for this instance.

Table E1.3
Unit 1/Unit 2 TS RICT Estimate Based on LERF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
• Engineered Safety Features (ESF) Room Cooler and Safety Related Chiller System: • One ESF room cooler and safety-related chiller train inoperable	N/A[1]	N/A[1]
3.8.1 AC Sources - Operating: A. One required offsite circuit inoperable	12.84	182.50[3]
3.8.1 AC Sources - Operating: B. One DG inoperable	26.80	182.50[3]
3.8.1 AC Sources - Operating: C. Required Actions B.2, B.5.1, or B.5.2 and associated Completion Times not met	26.80	182.50[3]
3.8.1 AC Sources - Operating: D. Two required offsite circuits inoperable	N/A[2]	182.50[3]

Table E1.3
Unit 1/Unit 2 TS RICT Estimate Based on LERF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.1 AC Sources - Operating: E. One required offsite circuit inoperable. AND One DG inoperable	0.57	182.50[3]
3.8.1 AC Sources - Operating: F. Two DGs inoperable	26.80	182.50[3]
3.8.1 AC Sources - Operating: G. One automatic load sequencer inoperable	3.43	18.41
3.8.1 AC Sources - Operating: H. Three or more required AC sources inoperable	12.84	182.50[3]

Table E1.3
Unit 1/Unit 2 TS RICT Estimate Based on LERF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.4 DC Sources - Operating: A. One DC electrical power source inoperable due to inoperable battery A or B	19.67	31.60[3]
3.8.4 DC Sources - Operating: B. One DC electrical power source inoperable due to inoperable battery C or D	147.33[3]	182.50[3]
3.8.4 DC Sources - Operating: C. One DC electrical power source inoperable for reasons other than Condition A or B	182.50[3]	182.50[3]
3.8.4 DC Sources - Operating: D. Two DC electrical power subsystems inoperable	19.67	182.50[3]
3.8.7 Inverters - Operating: A. One required inverter inoperable	N/A[2]	182.50[3]
3.8.7 Inverters - Operating: B. Two or more required inverters inoperable	0.26	182.50[3]

Table E1.3

Unit 1/Unit 2 TS RICT Estimate Based on LERF Limit

TS LCO/Condition	RICT Calculated – Low Estimate (Days)	RICT Calculated – High Estimate (Days)
3.8.9 Distribution Systems - Operating: A. One or more AC electrical power distribution subsystems inoperable	0.53	182.50[3]
3.8.9 Distribution Systems - Operating: B. One or more AC vital bus electrical power distribution subsystems inoperable	0.26	182.50[3]
3.8.9 Distribution Systems - Operating: C. One or more DC electrical power distribution subsystems inoperable	0.15	182.50[3]
3.8.9 Distribution Systems - Operating: D. Two or more electrical power distribution subsystems inoperable that result in a loss of safety function	0.07	182.50[3]

Notes:

4. Not in model but documented to have no impact on CDF/LERF and a 30 day back-stop CT applies.

5. The calculated RICT value is less than the front-stop CT, so the RICT Program cannot be entered for this instance.

6. The RICT Program back-stop CT of 30 days will be used for this instance.

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NRC MD 10 158
(07-2015)

U. S. NUCLEAR REGULATORY COMMISSION

NON-CONCURRENCE PROCESS

NCP TRACKING NUMBER: NCP-2015-009

SECTION B - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE'S SUPERVISOR

TITLE OF SUBJECT DOCUMENT	ADAMS ACCESSION NO.
License Amendment Nos. 175 and 157 for Vogtle, Units 1 and 2	ML15127A669

NAME
Jacob I. Zimmerman

TITLE	TELEPHONE NUMBER
Chief, Electrical Engineering Branch	(301) 415-1220

ORGANIZATION
NRR/Division of Engineering

COMMENTS FOR THE NCP REVIEWER TO CONSIDER (use continuation pages or attach Word document)

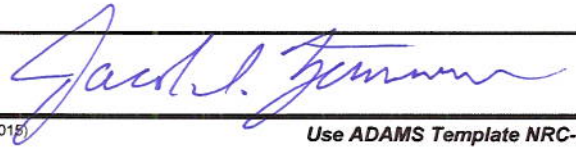
I agree with the comments, logic, and reasoning provided by the Electrical Engineering Branch (EEEB) staff expressing their concerns with approving the Vogtle, Units 1 and 2 license amendment request to implement the methodology for establishing Risk-Informed Completion Times (RICT).

Over the past month, I have met with and listened to the perspectives and positions offered by the EEEB and other NRR staff and branch chiefs on multiple occasions. These interactions have enabled me to gain a reasonable understanding of the fundamental tenets to the Risk-Informed Completion Time (RICT) Program, its supporting methodology, implementation strategy, and technical and regulatory history. Clearly, there are benefits to be achieved from the implementation of the RICT Program, but approval should not be granted without adequately considering the concerns raised by this non-concurrence, most notably the following:

(1) the technical and regulatory basis for the generic RICT back-stop of 30-days;
(2) if the 30-day back-stop is adequately justified, the staff should clarify the proposed TS language to explicitly state that the 30-day RICT must not be exceeded vice the current language in the RICT Program (i.e., may be 30 days);
(3) the defense-in-depth measures that would be established (i.e., compensatory measures) to support going beyond the existing Technical Specification CTs and the appropriateness of credit being given for programmatic and administrative controls;
(4) the basis for not requiring a licensee to implement a more restrictive CT than the current TS CT when the risk profile for the specific plant conditions would call for otherwise;
(5) the basis for deviating from previously established staff guidance and positions (e.g., Regulatory Guide 1.93, "Availability of Electric Power Sources," Branch Technical Position 8-8, "Onsite Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions")

In addition, other issues (e.g., PRA functionality, inspection procedure, acceptance criteria for compensatory measures) that have been raised during subsequent internal discussions should similarly be considered and addressed.

My recommendation to the NCP Reviewer is to seriously consider the concerns of the EEEB staff and additional issues raised more recently in discussions, and withhold approval of the Vogtle Units 1 and 2 and other similar license amendment requests until all issues are appropriately addressed.

SIGNATURE 

DATE 8/19/15

NRC FORM 757
NRC MD 10.158
(02-2015)

U. S. NUCLEAR REGULATORY COMMISSION

NCP TRACKING NUMBER: NCP-2015-007

NON-CONCURRENCE PROCESS

SECTION C - TO BE COMPLETED BY NCP COORDINATOR

TITLE OF SUBJECT DOCUMENT: License Amendment Nos 175 + 157 for Vogtle 1 + 2

ADAMS ACCESSION NO.: ML15127A669

NAME: George Wilson

TITLE: Deputy Director, Division of Operating Reactor Licensing

TELEPHONE NUMBER: (301) 415-1711

ORGANIZATION: Nuclear Reactor Regulation

AGREED UPON SUMMARY OF ISSUES (use continuation pages or attach Word document)

The EEEB Non-concurrence has three core objections to the proposed license amendment request (LAR):

1. The proposed amendment would modify the TSs in a manner that doesn't meet the current licensing basis of Vogtle and NRC regulatory requirements or maintain defense-in-depth.

2. The wording of the deterministic backstop (i.e., "RICT may not exceed 30 days") is inappropriate because it is optional and the licensee could go past 30 days. The suggestion is that it should be "RICT shall not exceed 30 days."

3. Allowing up to 30-days for an allowed outage time (AOT) doesn't preserve safety and isn't in accordance with Regulatory Guide (RG) 1.93. The EEEB staff does acknowledge that their BTP 8-8 allows longer than the RG, but they point out that this extension is c

EVALUATION OF NON-CONCURRENCE AND RATIONALE FOR DECISION (use continuation pages or attach Word document)

See Attached

TYPED NAME OF NCP COORDINATOR: George Wilson

TITLE: Deputy Director, Division of Operating Reactor Licensing

ORGANIZATION: Nuclear Reactor Regulation

SIGNATURE--NCP COORDINATOR

DATE: 10/21/15

TYPED NAME OF NCP APPROVER: George Wilson

TITLE: Deputy Director, Division of Operating Reactor Licensing

ORGANIZATION: Nuclear Reactor Regulation

SIGNATURE--NCP APPROVER

DATE: 10/21/15

Use ADAMS Template NRC-006 (ML063120159)

As the NCP Approver, I have read and considered the submission from EEEB staff. Prior to discussion of the issues, I would like to acknowledge the work of the EEEB staff and thank them for participating in the non-concurrence process. Although we don't always agree on particular issues, it is important for staff to raise issues they perceive for consideration by all involved parties.

The EEEB Non-concurrence has three core objections to the proposed license amendment request (LAR):

1. The proposed amendment would modify the TSs in a manner that doesn't meet the current licensing basis of Vogtle and NRC regulatory requirements or maintain defense-in-depth.

2. The wording of the deterministic backstop (i.e., "RICT **may not** exceed 30 days") is inappropriate because it is optional and the licensee could go past 30 days. The suggestion is that it should be "RICT **shall not** exceed 30 days."

3. Allowing up to 30-days for an allowed outage time (AOT) doesn't preserve safety and isn't in accordance with Regulatory Guide (RG) 1.93. The EEEB staff does acknowledge that their BTP 8-8 allows longer than the RG, but they point out that this extension is contingent upon prescriptive remedial actions (e.g., auxiliary DGs).

The following is a response to each of the three core objections raised by the EEEB staff:

1. The TS Limiting Conditions for Operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the facility. The FSAR documents the conformance of the plant design to the regulations. The analyses in the FSAR form the bases from which the TS are derived. The specific values, functions, or equipment required by the TS under normal conditions are selected to assure that the system or component will be able to carry out its design functions under accident and transient conditions, including maintenance of Defense-in-Depth.

   SNC has not proposed any changes to any LCOs within the Vogtle TSs as part of this LAR. As such, the proposed LAR cannot impact the manner in which the plant meets the various regulations cited in the non-concurrence. Instead, and as discussed further in the response to issue 3, the proposed changes should be evaluated against whether risk-informed completion times represent an appropriate remedial measure.[1]

   The increased allowed outage time does not affect the overall design of the system or plant therefore the overall safety margins are unaffected.

   Defense-in-Depth involves creating multiple independent and redundant layers of defense to compensate for potential human and mechanical failures so that no single

[1] Completion times are not specifically mentioned in the regulations, but are generally viewed as a component of the "remedial measures permitted by the TS."

layer, no matter how robust, is exclusively relied upon. In general, the TS specifically address the availability of redundant equipment that perform specified safety functions. As an example, TS 3.8.1, AC Sources – Operating, and TS 3.8.4, DC Sources – Operating, involve completely separate functions. However, TS 3.8.1 requires two DGs operable to meet the LCO. These DGs both support the same function. The RICT program does not allow for a total loss of function.

The existing TS permit a brief time in which components may be inoperable and the TS provide the appropriate remedial measures, if one train of a system is out of service, but its redundant train is operable. If both trains of TS required components are inoperable, the TS typically provide instructions to prepare for and then conduct an orderly transition to a lower mode of operation. The Risk Informed Completion Time program is structured similarly. If a TS required component is inoperable and its redundant component is operable a Risk Informed Completion Time may be calculated. Additionally, the program requires that compensatory measures be initiated when the PRA calculated Risk Managed Action Time is exceeded. The threshold for implementing these compensatory risk management actions is an order of magnitude lower than the threshold for a risk-informed CT. Generally, if redundant components are inoperable, PRA functionality is determined. If it is determined that the PRA success criteria are still satisfied, a Risk Informed Completion Time may be used. The Risk Informed Completion Time may be used to restore equipment or prepare for and then conduct an orderly transition to a lower mode of operation. Furthermore, the Risk Informed Completion Time takes into consideration the actual configuration of the unit (i.e., any other equipment out of service for maintenance, etc.). The only change promulgated by this amendment is the Completion Time to restore components to service.

Although there are no direct restrictions on the number of times a licensee may enter an action statement for a given LCO, the availability of critical systems is currently tracked under the mitigating systems performance indicator of the ROP. The RICT program is implemented in conjunction with the ROP and maintenance rule. If a licensee were to continually maneuver equipment in and out of TS Operability, it would eventually result in the PI transitioning from Green to White and so on, due to increasing equipment unavailability. Exceeding the PI thresholds would cause additional regulatory focus on their performance. In addition to maintaining this level of control on the unavailability of event mitigating equipment, the RICT Program separately monitors cumulative risk exposure for the plant, as a whole. The program requires that the licensee address situations where use of the RICT program causes an increase in risk greater than a small change in risk (i.e., 1E-5 CDF and 1E-6 LERF) as assessed against the guidelines in RG 1.174. This assessment is performed every refueling cycle and at least every two years. This additional facet of the RICT Program provides an additional, diverse, layer of monitoring and control for exposure to risk. Additionally, before performing maintenance activities, the licensee will assess and manage the increase in risk in accordance with 10 CFR 50.65

In addition, the risk assessment for determining a RICT will adequately consider defense-in-depth quantitatively in the PRA model, and by a qualitative assessment of the specific configuration. The proposed TS changes preserve the existing balance

between avoidance of core damage, avoidance of containment failure, and consequence mitigation by ensuring that CTs do not result in a loss of all these multiple barriers associated with current plant configuration. The RICT Program, in conjunction with the PRA, measures and accounts for the level of defense-in-depth on both an instantaneous and a cumulative basis. It considers plant design features, operating philosophy, and equipment capability.

As an example, the exposure time for allowing one EDG to be inoperable can potentially be increased up to 30 days, provided the additional RICT program requirements are met such as:

- Time limits to institute compensatory risk management actions based on the associated risk thresholds
- The current plant configuration is considered by the RICT evaluation
- The licensee maintains a program to track cumulative risk associated with the RICT

This Completion Time calculated by the RICT is based on a realistic estimate of the risk presented by the actual real-time configuration of the unit performed using a PRA model that has been assessed against the current revision of RG 1.200, which is currently Revision 2, and in accordance with the NRC approved methodology. This "customization" of Completion Times does not alter the method in which the TS comply with the applicable regulations.

It should also be noted that the 30 day "back-stop" or upper limit to a completion time also enhances defense-in-depth. This generic 30 day limit has been used in other risk-informed programs and is based on engineering judgment and is considered a conservative administrative limit for configuration risk management, as compared with the 10 CFR 50.59 design change criteria limit of 90 days. The limit is a back-stop to any probabilistic calculation that could indicate such equipment might be able to be out of service for excessive periods of time. It is recognition that PRAs are incomplete in scope and knowledge and have an inherent degree of uncertainty. The licensee's LAR confirms that without a back-stop of 30 days, an EDG could be out of service for a considerably longer amount of time (if all other equipment in the plant was operable), as based on a risk calculation alone.

Given the above considerations, I find that the proposed LAR would not adversely impact the manner in which the TSs meet the applicable regulatory requirements and maintains Defense-in-Depth.

2. In this usage the word "may" implies the permission to do something. Thus, when used alone (e.g., "you may do something") it conveys that one is allowed to do something, but is neither compelled to nor dissuaded from actually taking the action. When used with the word "not" (e.g., "you may not do something") it conveys that one does not have permission or approval to take the subject action. Therefore, were a licensee to exercise a RICT greater than 30 days, they would be in violation of their TSs and the NRC could cite them for this. We do acknowledge that the usage of this word manifests differently than the usage of should and should not (which, in both cases, imply an option) and the

usage of shall and shall not (which, in both cases, imply an imperative). Given the above consideration, I find that usage of "may not exceed 30 days" applies an acceptable level of regulatory control and would be an acceptable way to word the restriction.

3. 10 CFR 50.36 requires that when an LCO is not met, the licensee shall shut down the reactor or take any remedial action permitted by the TSs until the condition can be met. Typically, the remedial actions include returning to compliance with the LCO in a time-frame commensurate with the risk of operation in the non-compliant configuration. The TS LCOs generally require that two trains of safety related equipment be operable, which preserve the single failure criterion of systems that are relied upon in the safety analysis report. If one train becomes inoperable, the TSs specify the Required Actions that must be taken within the specified Completion Times when the requirements of the LCO are not met. The Completion Time is a temporary relaxation of the single failure criterion, which, consistent with overall system reliability considerations, provides a limited time to fix equipment or otherwise make it operable. By and large, many of these Completion Times are established based on engineering judgment and bounding assessments of risk (e.g., they must account for the possibility that other LCOs may concurrently not be met). Originally, many of the TS Completion times were set at 3 days (72 hours) based on engineering judgement and limited operating experience. Over time and, as additional operating experience was gained, sufficient justification became available to extend selected completion times. Initially, this was based upon a more qualitative assessment of exposure to the non-compliant condition but, over time, these extensions have begun incorporating more risk-insights. Following approval of the Risk Informed Completion Time amendment for a licensee, the licensee may calculate a Completion Time that is unit specific and takes into consideration the specific configuration of the unit (i.e., concurrent maintenance activities, weather conditions, etc.).

   In general, the TS require the unit be placed in a lower mode of operation in the event there are multiple outages of redundant components. For situations in which the configuration of the unit is not specifically addressed by the associated Actions, or combination of conditions and Actions, the unit must be placed in a mode or other condition in which the TS requirement does not apply. Absent a Risk Informed Completion Time, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. The time limits to reach lower Modes of operation are established to facilitate a safe and orderly shutdown. Following approval of the Risk Informed Completion Time, the time allowed before initiating a change in unit operation is calculated based on the risk presented by remaining in the current mode of operation. Note that the Risk Informed Completion Time program may not be used for voluntary removal of redundant components from service. Given these considerations, I find that the RICT program does provide an appropriate means of determining a Completion Time for the selected TS Required Actions.

   Although, as detailed above, I've indicated my support for the general concept of RICTs, the non-concurrence did identify one area that I believe should change. Currently, if a single EDG is out of service, the Vogtle TS 3.8.1 requires the licensee to verify that a

combustion turbine generator and black-start diesel generator are available or running within 72 hours. If at least one is available or running, then the licensee has 14 days to return the EDG to service. If this Action is not completed within the completion time, Required Action C requires that the EDG be restored to operable status within an additional 72 hours or proceed to Action H, which directs the licensee to shutdown the plant. Such configurations and completion times are in accordance with the EEEB Branch Technical Position 8-8. In their written non-concurrence and during the discussions that preceded it, the staff identified that, by adding a RICT to the Required Action C for this specification, the licensee could potentially enter a configuration where an EDG is inoperable longer than the additional 72 hours allowed by Action C without the supplementary power sources available. While there is no direct regulatory prohibition on this condition, I did find the EEEB argument compelling that, from an engineering judgement and defense-in-depth approach, having the supplementary power sources available is appropriate to provide adequate defense-in-depth. Therefore, prior to rendering a final decision on the LAR, I am directing my staff to engage the licensee in order for the licensee to justify that defense-in-depth is maintained or to make a modification to the proposed Vogtle TSs that would retain the existing Completion Times for Required Action C.

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NCP TRACKING NUMBER
NCP-2015-009

ADDENDUM TO

NON-CONCURRENCE PROCESS

SECTION C - TO BE COMPLETED BY NCP COORDINATOR

TITLE OF SUBJECT DOCUMENT	ADAMS ACCESSION NO.
License Amendment Nos. 175 and 157 for Vogtle Units 1 and 2	ML15127A669

NAME
Eric Benner

TITLE	TELEPHONE NUMBER
Deputy Director, Division of Operating Reactor Licensing	301-415-31

ORGANIZATION
Nuclear Reactor Regulation

AGREED UPON SUMMARY OF ISSUES (use continuation pages or attach Word document)
Addendum to original Section C. Please see original summary of issues

EVALUATION OF NON-CONCURRENCE AND RATIONALE FOR DECISION (use continuation pages or attach Word document)
See Attached

Note: When the non-concurrence was originally processed, the document title included the expected amendment numbers (i.e., 175 and 157). The document title above has been preserved, however, multiple other amendments have been processed since the original development of section C. Therefore, the actual document will have different amendment numbers.

TYPED NAME OF NCP COORDINATOR	TITLE
G. Ed Miller	Project Manager

ORGANIZATION
NRR/DORL/LSPB

SIGNATURE--NCP COORDINATOR	DATE
/RA/ Ed Miller	5/9/17

TYPED NAME OF NCP APPROVER	TITLE
Eric Benner	Deputy Director

ORGANIZATION
NRR/DORL

SIGNATURE--NCP APPROVER	DATE
/RA/	5/9/17

Use ADAMS Template NRC-006 (ML063120159)

Following disposition of the NCP, and in part based on some of the issues raised by the non-concurring staff, the NRC staff developed a significant number of additional questions regarding the LAR. Exploration of these issues resulted in the licensee removing some of the actions originally included, providing additional justification for selected TS actions, and introducing additional constraints to implement the risk-informed TS completion time (RICT) program.

Although the arguments tendered in the original Section C for the validity of a RICT program remain valid, it is appropriate to document the changes that have resulted and the positive results of the NRC staff working collaboratively through difficult and highly technical issues. Among others, some of the more notable changes were:

- Additional justification was provided to demonstrate that defense-in-depth is maintained;
- Additional constraints were added for addressing the possibility of common cause failure for both emergent failures and planned maintenance;
- Some actions were identified as not appropriate for applying a RICT;
- Additional constraints were applied to TS loss of function (TS LOF) situations;
- A license condition was added for change control of the PRA used to calculate a RICT.

Additionally, it is important to note the generic impact as well. Although the Vogtle LAR did not directly reference TSTF-505, Revision 1 (TSTF-505), which provides model TS changes to adopt RICTs in accordance with NEI 06-09, Revision 0-A, the application was considered a pilot for implementing a RICT program. The concerns identified during the NRC's review of the Vogtle LAR also caused the NRC staff to suspend approval of TSTF-505, Revision pending resolution of said issues. That effort is currently ongoing.