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U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555-0001

Southern Nuclear Operating Company
Joseph M. Farley Nuclear Plant - Units 1 and 2
Edwin I. Hatch Nuclear Plant - Units 1 and 2
Vogtle Electric Generating Plant - Units 1 and 2
Vogtle Electric Generating Plant - Units 3 and 4

Response to NRC Requests for Information
License Amendment Request to Revise the Emergency Plan to Change Staffing and
Extend Staff Augmentation Times for Emergency Response Organization Positions

Ladies and Gentlemen:

On June 30, 2020 (ML20192A140), pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requested amendments to the licenses for the plants and units listed above. The license amendment request (LAR) proposed to revise the SNC Standard Emergency Plan (SEP), including the Site Annexes, to change the emergency response organization (ERO) staffing composition and to extend staff augmentation times from 75 to 90 minutes.

On July 23, 2020 (ML20209A004), the U.S. Nuclear Regulatory Commission (NRC) staff provided the results of their acceptance review, which concluded that technical information was not provided in sufficient detail to enable the NRC staff to complete its detailed review. On August 11, 2020, SNC submitted supplemental information providing more detail and further evaluation of the capabilities and availability of SNC's proposed on-shift staff to perform the augmenting emergency plan functions envisioned by the NRC in its guidance, NUREG-0654 Section II.B (Revised Table B-1).

On October 14, 2020, the NRC issued a request for additional information (RAI) in order to complete its technical review. SNC's response is enclosed with a general response in Enclosure 1, detailed answers to the RAIs in Enclosure 2, and revisions to the proposed Staffing Tables in Enclosure 3.

The conclusions of the No Significant Hazards Consideration Determination Analysis and Environmental Consideration contained in the original LAR have been reviewed and are unaffected by this response.

This letter contains no sensitive information and no new regulatory commitments. If you have any questions, please contact Jamie Coleman at 205.992.6611.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 20, 2020.



Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Company

CAG/efb/cbg

Enclosures:

1. General Response to NRC Requests for Additional Information
2. Detailed Response to NRC Requests for Additional Information
3. Proposed Staffing Tables

cc: NRC Regional Administrator, Region II
NRC Project Manager – Farley, Hatch, Vogtle 1 & 2, Vogtle 3-4
NRC Senior Resident Inspector – Farley, Hatch, Vogtle 1 & 2, Vogtle 3-4
Director, Alabama Office of Radiation Control
Director, Environmental Protection Division – State of Georgia
SNC Document Control RTypes: CFA04.054; CHA02.004; CVC7000; VND.LI.L00

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**Response to NRC Requests for Information
License Amendment Request to Revise Standard Emergency Plan
To Change Staffing and Extend Augmentation Times**

Enclosure 1

General Response to NRC Requests for Additional Information

SNC Response to NRC Request for Supplemental Information

NRC Request for Additional Information

By application dated June 30, 2020 (Agencywide Document Access and Management System (ADAMS) Accession No. ML20192A140), as supplemented by letter dated August 11, 2020 (ADAMS Accession No. ML20224A464), Southern Nuclear Operating Company (SNC, licensee) submitted changes to revise the SNC Standard Emergency Plan (SEP) for the Edwin I. Hatch Nuclear Plant, Units 1 and 2; the Joseph M. Farley Nuclear Plant, Units 1 and 2; and the Vogtle Electric Generating Plant, Units 1, 2, 3 and 4, for Commission review and prior approval pursuant to Section 50.54(q) of Title 10 of the Code of Federal Regulations (10 CFR). The proposed changes would change the emergency response organization (ERO) staffing composition and extend staff augmentation times from 75 to 90 minutes.

Applicable Regulatory Requirements / Guidance

1. **Planning Standard (b)(2) to 10 CFR 50.47**, which states:

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

2. **Section II.B to NUREG-0654/FEMA-REP-1 (NUREG-0654), Revision 2**, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"

3. **Regulatory Issue Summary (RIS) 2016-10**, "License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation," dated August 5, 2016 (ADAMS Accession No. ML16124A002), to inform licensees of the application of guidance documents to support license amend requests to change augmenting ERO staffing and response times.

RIS 2016-10 states in part:

In addition to the clarification this RIS provides, the RIS will assist licensees by providing examples of the scope and detail of information that should be provided in the LARs to facilitate the NRC review.

Concerning the Emergency Operations Facility Director

Per the guidance in NUREG-0654, Table B-1, an augmented "Senior Manager" should fulfill the "Emergency Operations Facility Director" major task at 60 minutes. A licensee requesting a change in staff augmentation requirements that would have the lead manager unavailable to assume command and control within 60 minutes of the initial emergency declaration should show that the on-shift staff includes enough qualified supervision such that one supervisor will

assume the emergency director role. The licensee should show that the on-shift supervisor performing the manager actions will not have any additional duties (e.g., each unit under the direction of a unit supervisor, a shift manager providing oversight of the plant response, and a designated emergency director responsible for emergency plan implementation).

Concerning Technical Support

Table B-1 of NUREG-0654 assigns the major task of “Technical Support” to the “Shift Technical Advisor” on-shift to perform core damage assessments and additional support with one individual within 30 minutes. To adequately support an elimination or extension of the one 30-minute technical support responder, the licensee should show that an on-shift position is identified as capable of initially filling the 30-minute responder’s role of “Core/Thermal Hydraulics.” Typically, this position will be the shift technical advisor. The licensee should show that this position has the necessary expertise with core/thermal hydraulics and possesses the ability to offer adequate functional oversight to assess core conditions. The licensee should also show that the augmenting staff with core/thermal hydraulics expertise will be available within an appropriate time frame. NRC staff will review whether the justification identifies procedure and information technology advances since the implementation of NUREG-0654 such as improvements that allow using a symptom-based emergency operating procedure network, and computerized or automated systems for the acquisition and display of parameters used to evaluate core conditions.

Per the guidance of NUREG-0654, Table B-1, “Electrical” and “Mechanical” expertise should be provided by two 60-minute responders under the “Technical Support” major task. To adequately justify an extension of these responders, the licensee should show that on-shift positions are capable of filling these roles during the 90-minute period after an emergency declaration. This will require a review of site procedures to identify the technical support tasks requiring electrical and mechanical expertise that must be performed within the first 90 minutes of an emergency. The licensee should then show that there are on-shift positions with the necessary expertise to perform the identified technical support functions, and that such performance will not prevent the timely performance of their other assigned functions, as specified in the emergency plan. The justification should identify procedure, training and information technology advances made since the implementation of NUREG-0654 that facilitate technical support assessments by on-shift personnel or obviate the need for such assessments within 90 minutes of an emergency declaration. Additionally, the change justification should address the ability of on-shift positions to perform troubleshooting activities without interfering with their primary emergency response duties (e.g., on-shift electrical or mechanical maintenance personnel with supervisory personnel to provide oversight).

4. Prior NRC approval of the SNC Standard Emergency Plan and Site-Specific Annexes

The NRC staff previously reviewed and approved the ERO staffing composition and staff augmentation times in letter dated March 14, 2017 (ADAMS Accession No. ML16141A090). As part of its review of this LAR, the NRC staff reviewed the basis and justification used previously by SNC for the changes to ERO staffing composition and staff augmentation times.

SNC Response:

SNC has proposed a strategic, detailed emergency response organization (ERO) staffing plan and a single 90-minute augmentation time for the technical support center (TSC), operations support center (OSC), and emergency operations facility (EOF) from event declaration. This staffing plan complies with the regulations noted in the front matter to the requests for additional information (RAIs) above by defining on-shift facility responsibilities for emergency response, ensuring that adequate staffing for initial facility accident response in key functional areas is maintained at all times, and ensuring timely augmentation of response capabilities are available. SNC's proposed license amendment is requested to modernize and streamline its emergency plan.

SNC has evaluated the emergency plan functions provided by the augmenting ERO staffing in their entirety. SNC has analyzed the qualifications, training, capabilities, and availability of the proposed on-shift staff to satisfactorily perform the additional "augmentation functions" for 90 minutes. No augmentation functions are eliminated by the proposed changes. Conversely, a number of enhancements have been proposed, including the capability to support the on-shift staff with qualified Engineering and Maintenance personnel using remote-work technology and mobile communication devices. SNC's analysis included a performance-based procedure analysis (PBPA) review of the widest possible spectrum of accidents/events, including a review of every emergency operating procedure, abnormal operating procedure, and their supporting procedures at all 4 sites in order to collect a comprehensive list of possible augmentation support needs (e.g. Emergency Director, Maintenance, Engineering, Radiation Protection, and Chemistry tasks). This review and analysis ensured that functions, duties and tasks expected to be performed by augmentation personnel could be addressed by the proposed on-shift staff for 90 minutes. SNC will include training, as appropriate, for on-shift staff members in the LAR Implementation Plan.

Revised NUREG-0654 Table B-1 contains generic guidance for meeting applicable regulations. SNC has gathered substantial information in the form of 12 studies (3 at each of the 4 sites) and additional technical analysis that demonstrates that a single 90-minute alternative augmentation method, combined with certain enhancements, a robust augmentation staff at 90 minutes, and an appropriately trained on-shift staff meets the regulations and is effective for the SNC-specific fleet.

SNC's single 90-minute augmentation time is not an arbitrary number. SNC has performed extensive analyses of the 90-minute augmentation strategy, which required a significant expenditure of highly skilled resources to complete. Senior Reactor Operators, Engineering, Maintenance, Radiation Protection, Chemistry, and Security supervisors supported by Emergency Preparedness staff and experienced industry consultants performed these reviews and analyzed the results. The reviews are specific to SNC sites but use an approach aligned with NUREG-0654. These reviews identified that improvements in technology, procedures, training and abilities of station staff could be used to reduce the need for certain on-shift staff and extend the time for full augmentation. The SNC approach varies from the NRC guidance in the number of personnel and timing of full augmentation. The SNC approach does not vary from the necessary tasks to minimize or prevent escalation of a declared emergency and limit or stop a radioactive release to the public. Using the SNC staffing approach, the entire plant sites and corporate population of employees will be eligible for ERO duty, except for employees living in

the most remote residences.

The SNC differences from the NRC guidance have been carefully considered and are designed to meet regulations and provide SNC with an effective and efficient strategy for responding to emergencies, prevent escalation of accident conditions, and mitigate the consequences of the worst possible accidents, regardless of their extremely low likelihood. SNC's proposal includes technological enhancements that were not available when the NRC guidance was developed. Finally, SNC's proposal includes components and certain strategies that are conservative. Therefore, the SNC staffing approach and the responses to individual RAIs must be evaluated in totality to fully understand the staffing strategy and how SNC has demonstrated compliance with the regulations.

The SNC ERO staffing approach is conservative in the following ways:

- SNC uses an "all-call all-respond" notification of the ERO members. Several teams at the OSC, TSC, and EOF are notified to come in.
- SNC's all-call and early-activation procedures and practices ensure the earliest possible activation of the ERFs and relief of the on-shift staff.
- SNC activates the TSC, OSC, and the EOF upon declaration of an Alert or higher classification. (In the NRC guidance, the EOF is activated only upon declaration of a Site Area Emergency.) The SNC approach is more conservative as the entire ERO augmentation staff is activated together from a lower-level classification. Consequently, the SNC SEP ensures that the EOF and the entire ERO augmentation team is already activated at lower-level events to assist in preventing the emergency from progressing to a higher classification.
- SNC has remote-working capabilities that can reliably engage the whole SNC workforce using the entire SNC suite of software technologies as effectively demonstrated by months of remote-working during the 2020 pandemic. For the first time, SNC expertise in the key areas of emergency response (e.g. Engineering, Maintenance, Operations and Radiation Protection) have the capability to engage during plant events within minutes of notification through reliable mobile technologies. The reliability of these remote-work technologies have been demonstrated as effective through numerous important issue resolutions.
- SNC ERO members, both on-shift and augmentation personnel, carry mobile devices with capabilities for phone calls, teleconferencing, taking pictures and video capabilities that greatly enhance the ability to aid and support the on-shift staff to speed up troubleshooting and problem-solving activities early in the event. The reliability of these mobile technologies has been demonstrated as effective through numerous important issue resolutions.

In conclusion, SNC's proposal is focused on improvements made since the SNC Standard Emergency Plan was implemented in 2017. Technology available to the ERO has improved dramatically. And, improvements at SNC sites continue to occur, often resulting in marked improvements in efficiency and effectiveness. SNC has completed a comprehensive rewrite of emergency preparedness procedures, upgraded facilities, and improved training. SNC's improvements have now been incorporated into the proposed alternate staffing approach.

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Enclosure 2

Detailed Response to NRC Requests for Information

NRC Requests for Additional Information (RAIs)

The NRC staff has reviewed the LAR, as supplemented, and determined that additional information is needed to complete the review, as indicated in the RAIs below.

RAI 1

Section 3.1, "Enhancements," of the supplement provided a discussion of several equipment upgrades that, in part, support SNC's proposed changes to the SNC SEP. However, the NRC staff requires additional information to justify the use of certain enhancements.

- a. *SNC asserts that the improved remote monitoring that uses expanded Wi-Fi and 900 MHz radio systems to provide radiation protection (RP) personnel with the capability to remotely monitor individuals using their electronic dosimeters at a central monitoring station. In addition, SNC asserts that the Emergency Director has both real time visual monitoring of key emergency plan equipment and dose rates.*
 - i. *Are these cameras permanently located in positions that would be effective in supporting troubleshooting/repair activities for conditions that could during a radiological emergency?*

SNC Response:

All SNC sites contain temporary portable cameras that can be deployed as needed. In addition, Vogtle 1&2 and Vogtle 3&4 contain permanently installed cameras in locations that may provide remote visual coverage of troubleshooting/repair activities. However, troubleshooting is not the primary function of these cameras. The cameras are deployed for radiation and work-practice monitoring of personnel, and the ability to potentially provide troubleshooting capabilities is a secondary benefit.

Examples of permanently installed cameras include:

- Vogtle 1&2 has permanent cameras installed in the Residual Heat Removal (RHR) Pump and Heat Exchanger rooms for both units.
- Vogtle 1&2 has permanent cameras installed in the Spent Fuel Pool room.
- Vogtle 3&4 has multiple cameras permanently installed in Containment and removable-type cameras installed in the Spent Fuel Pool rooms.

Additionally, Hatch and Farley have temporary cameras that can be deployed as needed, providing flexibility to move the cameras to the area of greatest need. All SNC sites use some number of temporary deployable cameras, especially during outages. The

ability for remote monitoring and troubleshooting by video is expanding as Wi-Fi coverage in each plant becomes more robust. The expansion of Wi-Fi coverage is an ongoing initiative at SNC sites and will continue for the foreseeable future.

Mobile phone cameras can also support troubleshooting activities. SNC operators use iPhones to take rounds in the plant. Miniature cameras, such as "Go-Pros", are common-place, stored in inventory, and used by SNC operators. Some SNC sites even have helmet mounted, voice controlled, heads-up display style cameras that can record video. These mobile camera technologies have been effective in supporting troubleshooting activities.

If the LAR is approved, SNC will include the use of these technologies in the LAR Implementation Plan.

- ii. *Although the NRC staff does understand how a video of certain events, such as flooding or a fire, could explain why emergency core cooling (ECCS) equipment was not functioning, troubleshooting would not seem appropriate for equipment subject to those types of events or other failures that would be readily apparent by video observation. As such, explain how a video of equipment that is not functioning as expected could effectively support troubleshooting by the Emergency Director.*

SNC Response:

While the Emergency Director does not directly perform troubleshooting activities, the Emergency Director does provide oversight for personnel performing troubleshooting in the field, receives pertinent information from them, and then evaluates that information in conjunction with other Main Control Room (MCR)/Technical Support Center (TSC) personnel to determine what actions are needed.

Video of in-plant locations assist primarily in radiological monitoring but can be used for oversight of in-plant troubleshooting personnel. Troubleshooting in the field is essential to diagnosing issues in a quick and effective manner. These troubleshooting capabilities can be enhanced using supplemental technologies such as cameras. Depending on the scope and visibility of the equipment issue / failure, video feeds can provide useful information to remote personnel involved in diagnosing the issue. In the case of a degrading components, cameras can be installed to remotely monitor local conditions or specific local instrument gauges. This can provide early indication of continued equipment degradation that could indicate potential failures.

The use of technology, such as cameras, to supplement field troubleshooting has many benefits. Video feeds and pictures allow information being locally observed to be disseminated among a larger group than just those locally in the field. This strategy brings in additional personnel and viewpoints that can aid in properly diagnosing the issue. Remote personnel (including specific Subject Matter Experts (SMEs)) can be brought into the troubleshooting process, whether at the plant sites, the Corporate office, or at home. This technology also allows sharing with vendors and others across the industry, not only SNC employees. Communication between the field and management / supervision can occur in real-time, versus leaving the field to have discussions over a wired phone or in person. Additionally, this practice has the added benefit of reducing dose, because less personnel are required in the field to directly “put their hands on” the equipment.

iii. Does the improved system provide the Emergency Director with dose rates for areas with key emergency plan equipment?

The plant has various installed radiation monitors that indicate dose rates on the plant computer. For example, at Farley, there is a radiation monitor in the ‘C’ Charging Pump area, which is an ECCS pump. Furthermore, SNC can deploy monitoring systems to supplement installed instrumentation. SNC is going to enhance these capabilities as part of the LAR Implementation Plan. These capabilities will provide for real-time, remote monitoring of instrumented areas. Robust monitoring of area radiation is provided by instrumentation in the field, and personnel are monitored using telemetry when needed. The information from these instruments is presented in a web-based program which is available from any company computer workstation, whether on site or remotely accessed. See Figure 1 on the next page for a screenshot example of the web-based presentation. Personnel being monitored are shown on the left side of the screen, along with the accumulated dose and dose rates. Installed radiation monitor instrumentation is shown on the right side of the screen.

Enclosure 2 to NL-20-1273
 SNC Detailed Response to NRC Requests for Additional Information

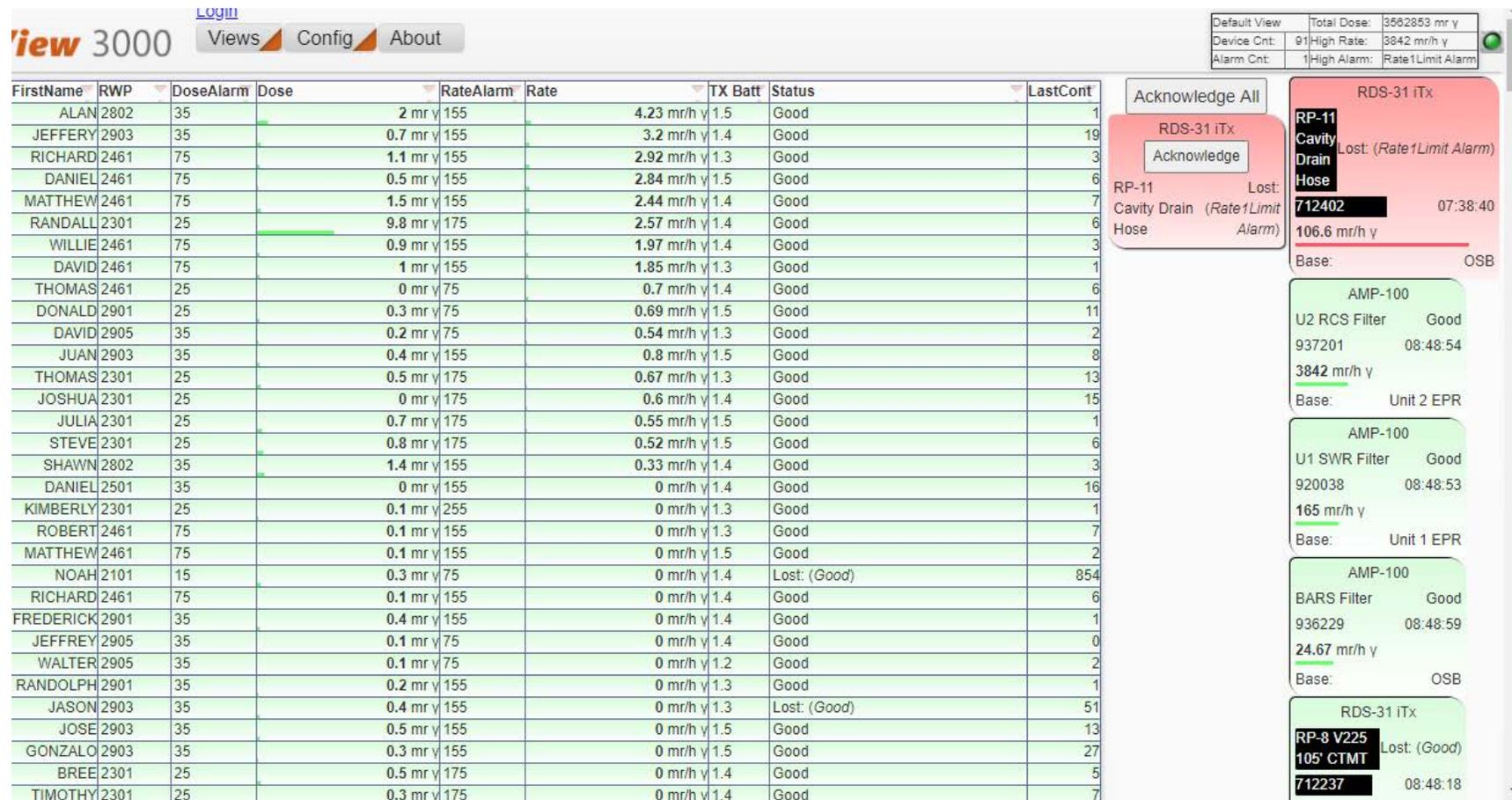


Figure 1

iv. *The Supplement states, “[t]his effectively allows all individuals wearing electronic dosimeters to be remotely monitored and provides RP with immediate indication of dose rates throughout the plants.”*

- *What is meant by “effectively”?*

SNC Response:

The desired result here is the successful remote monitoring of personnel and indication of area dose rates. The sentence in the Supplement prior to the one referenced in this question discusses the 900 MHz radio system and enhanced wi-fi capability that has been installed since 2017. The sentence in the Supplement could thus be restated as “The 900 MHz radio system and enhanced wi-fi allows all individuals wearing electronic dosimeters to be remotely monitored and provides RP with immediate indication of dose rates throughout the plants.”

- *Are all on-shift personnel assigned these remotely monitored electronic dosimeters?*

SNC Response:

During normal, non-emergency operations, all on-shift personnel are not assigned remotely monitored electric dosimeters for daily use, but the capability exists to do so. Personnel are normally issued an optically stimulated luminescence dosimeter (OSLD) which is used to provide the legal record of personnel exposure. An electronic dosimeter is used during each Radiation Controlled Area (RCA) entry to provide the wearer with the capability to self-monitor external exposure and dose rates.

During outages and other high-risk radiological activities, telemetry is generally used for all involved personnel to provide for an additional level of oversight and monitoring. This telemetry allows both the wearer of the dosimeter and remote personnel to monitor the dose received and dose rate in real time.

Although not currently required, the capability currently exists to allow response personnel re-entering the plant to be issued telemetry during emergency operations. If the LAR is approved, issuance of telemetry for emergency response will be incorporated in the LAR Implementation Plan. This change will require minimal adjustments to the current process and associated procedures, such as the revision of emergency plan RWPs to specify telemetry use.

- *Are radiation work permits (RWPs) with higher emergency dose rates and dose limits available for on-shift personnel to use and are all personnel who would reasonably be expected to enter*

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 SNC Detailed Response to NRC Requests for Additional Information

radiologically controlled areas in response to a radiological event trained on their use?

SNC Response:

Yes, each site has pre-staged radiation work permits (RWPs) for use during emergency plan activities. All personnel using the RWPs are trained and authorized for the RWP use prior to entry. An example of an RWP used during emergency plan activities is shown in Figure 2. While the example is from Plant Hatch, similar RWPs exist at all the SNC sites.

HATCH: Active RWPs

SOUTHERN NUCLEAR
 A CH2M HILL COMPANY

Radiation Work Permit UNIT **0**
20-5005

PLANT HATCH

ACTIVE REV: 0 Status Color: RED

Job Description Declared Radiological Emergencies

Location ALL RADIOLOGICAL CONTROL AREAS

HP Coverage [Authorization](#) [Briefing](#) **START DATE** 12/31/2019 12:00 AM **END DATE** 12/31/2020 11:59 PM

CONTINUOUS SINGLE USE SINGLE USE Job Supv. OPERATIONS SOS Ext. 5959

Radiological Conditions		Tasks	
> 10 DAC OR 40 DAC-HOURS FOR SINGLE ENTRY		DAD Alarms	
>= 1 RAD/HR OR ALPHA LEVEL III		Description	Dose (mR) Rate (mR/h)
>= 2000 MREM/HR OR 500 MREM/IND/ENTRY		Emergency Immediate Action	5000 5000
Dosimetry		Emergency-Protect Valuable Property	10000 10000
DIGITAL ALARMING DOSIMETER (DAD)		Emergency-Life Saving	25000 25000
WHOLE BODY OSLD		Emergency- Life Saving Voluntary Basis	50000 30000
Protective Clothing Requirements		Emergency - FIELD MONITORING TEAMS	500 2500
NO PC'S REQUIRED FOR CLEAN AREAS			
Respirators			
PAPR			
RESP			
SCBA			
Usage is Conditional per RP			

Figure 2

Does this system rely on electronic dosimeters issued to response personnel to provide an indication of dose rates?

SNC Response:

The system does not rely entirely on electronic dosimetry issued to response personnel to provide indications of area dose rates. As the screenshot of the web-based dose monitoring program included above in Figure 1 demonstrates, the system uses both the telemetry issued to personnel and installed area radiation instrumentation to provide indications of dose rates.

Are these dose readings available for the Emergency Director to view in real time?

SNC Response:

Yes. The RP monitoring system provides the capability for real-time, remote monitoring of instrumented areas and is presented in

a web-based program which is available from any company computer workstation, whether on site or remotely accessed.

- b. *Please explain what measures are in place to ensure the Wi-Fi and 900 MHz radio systems will be maintained in an appropriate manner for equipment that supports the SNC SEP.*

SNC Response:

The Wi-Fi and radio systems are reliable and maintained by Southern Company Information Technology (IT). SNC uses the Southern Company IT Helpline and SNC Corrective Action Program to report issues that arise with this equipment. Problems are prioritized and corrected in an effective and timely manner. Mobile communications devices can be useful even if the WiFi went down. For example, a system operator could take videos of an inoperable pump and send the video to the control room.

- c. *Explain how SNC ensures that the Wi-Fi and 900 MHz radio systems, including power supplies and the central monitoring station, are reliable.*

SNC Response:

The SNC Wi-Fi and radio systems have reliable power sources. If de-energized, the power sources are prioritized and restored appropriately. Additionally, some of the area radiation monitors use battery power as a backup source to increase their robustness.

- d. *Does the use of these systems require the full attention of one of the on-shift RP personnel to monitor personnel at the central monitoring station during an event?*

SNC Response:

The system used for monitoring personnel does not require the full, undivided attention of the on-shift RP personnel for effective monitoring. Technological advances such as web-based programs mean that RP personnel are not tethered to a central station for the purpose of monitoring alone. Monitoring can be performed at any location with a computer on the Southern Company network, by anyone. The roles and responsibilities of the on-shift RP personnel are discussed in more detail in the response to RAI 3.

- e. *How are effective communications maintained between the on-shift RP personnel at the central monitoring station and the Emergency Director?*

SNC Response:

SNC's proposed strategy enhances the communications between RP and Operations through web-based capabilities that allow multiple personnel to monitor radiological conditions. Technological advances, such as mobile devices and web-based programs, mean that RP personnel are not tethered to a central station for the purpose of monitoring alone. The primary means of communications in both normal and emergency situations is by telephone. Backup methods such as mobile phones, text messages on computer or mobile phones, or plant pages / radios can be used if needed.

f. *Concerning the improved communications systems with defined bridge lines, address the following:*

i. *Explain how communications, using defined bridge lines, will be established between onsite personnel and ERO augmentation personnel who are in route to the facility.*

SNC Response:

The defined bridge lines can be accessed by any telephone, both on-site and off-site. Bridge lines are established for various on-shift positions and emergency responders. These can be accessed by responding personnel while in route, if needed by the shift staff to discuss plant status, operational strategy, etc. This is discussed in more detail below in the response to RAI 1.f.iv. Training and information materials on enhanced communications between onsite personnel and ERO augmentation personnel in route will be addressed in the LAR Implementation Plan. For example, the new training materials will include how the call-out system will communicate to the responders that they need to call-in to the pre-identified line.

ii. *Explain what specific mobile communication improvements SNC has implemented and that will support communication with the augmenting ERO members as they are in route to the site.*

SNC Response:

Since the implementation of the SEP in 2017, SNC has transitioned from using pagers as the primary method of ERO notification to mobile phones. Also, Southern Linc, which is the telecommunication entity of Southern Company, has implemented a fully digital LTE network around the operating plants, which has greatly improved cell service for all users regardless of their carrier.

During 2020, many SNC employees have been working remotely due to the COVID-19 pandemic. Use of various technologies have proven that remote working is an effective way to support the operating plants and the broader organization, regardless of where the resources are located. SNC workers are engaged in their work remotely using mobile phones and other communications technologies. These same technological advancements allow individuals to be reached quickly to provide support for an emergency. SNC employees with specialized expertise, relevant to the situation at hand, can be quickly mobilized to join a conference line (using mobile phones, collaborative software platforms and Wi-Fi) to gain understanding of a situation and provide support. The Site Duty Manager and/or the Nuclear Duty Officer aid in these communications, which is discussed in more detail in the response to RAI 1.g.

iii. *Does “Common hands-free technologies with mobile phones” refer to SNC issued phones, or with typical mobile phones?*

SNC Response:

All SNC ERO members have mobile phones. Mobile phone technology is ubiquitous, and most individuals use their personal mobile phone for ERO

response. Typical mobile phones and all SNC-issued phones have the ability, with no added equipment or hardware, to function hands-free, whether by using the speaker phone function, routing through the vehicle's speakers, or Bluetooth wireless technology.

iv. Does SNC expect the ERO to engage in emergency response-related discussions while in route to the site? If so, is there a dedicated individual on-shift who will perform these communications?

SNC Response:

SNC expects that the on-shift ERO will engage any support that is needed to mitigate an actual emergency condition. Support can be quickly mobilized within the SNC fleet in parallel with ERO augmentation. This is a superior approach to limiting the support to only ERO responders that are in route to the site. But, ERO responders can also listen and engage in response-related discussions while in-route to the site. In-route communication would serve mainly to discuss the plant status with oncoming ERO responders. However, the on-shift ERO can engage other resources, which allows for remote-working individuals to pull drawings, view plant data, review logs, engage vendors, etc.

SNC does not plan for a dedicated individual on-shift who will perform these communications. The Shift Manager/ED can use the management model, as described below in RAI 1.g., to quickly engage and then delegate the mobilization of support needs. Specifically, this would involve the Shift Manager/ED briefing the Site Duty Manager. The Site Duty Manager would then quickly engage the Corporate Nuclear Duty Officer and other station personnel. The primary reason for these prompt communications is to ensure the site receives the support it needs. This would include coordinating any support that could be provided by remote resources particularly those individuals that have specialized expertise. This support could be provided remotely or by dispatching additional individuals to the station (e.g. Emergency Diesel Generator experts, large pump experts, AOV/MOV experts, etc.).

v. Have these improved communication capabilities been demonstrated by drill performance?

SNC Response:

Use of defined bridge lines is demonstrated during drills and exercises. Improved information sharing and communication efficiencies have been observed as a result. SNC has demonstrated, during drills, some of the improved communication capabilities described above in the response to RAI 1.f.iv (e.g., text messaging between the Shift Manager Emergency Director (ED), TSC ED, and EOF ED). Also, the rapid deployment of fleet resources to provide support to the station is demonstrated on a routine basis in support of emergent non-emergency equipment issues at the stations. For example, a recent transformer issue at Vogtle resulted in texts, emails and telephone calls going out within minutes of the event. This process is available and would be used to provide support during an actual emergency. Should this LAR be approved, SNC will

implement demonstration of these capabilities into the drill program as part of the LAR Implementation Plan.

- g. *Concerning improved document and record retrieval, for engineers travelling to the site, will there be additional engineers who would be available to use remote document and record retrieval from a remote location and be capable of providing engineering support?*

SNC Response:

Yes, there would be additional engineers and other support personnel that could be engaged remotely to provide support. These remote resources can access all the same electronic content as if they were sitting at their work location. Southern Company has a robust IT infrastructure that provides this functionality (video private networks, remote desktop capability, etc.).

The SNC fleet can provide support from additional engineers not reporting to the site. This support can be provided remotely and more expeditiously than ERO responders that must commute to the site. SNC has extensive engineering and technical resources fleetwide and has demonstrated the ability to support the plants remotely (normally from their primary residences) during the COVID-19 pandemic. Since March of 2020, the SNC Corporate organization has been working remotely. Also, site personnel that perform their work on a computer have also been telecommuting intermittently. During this time, SNC has become proficient in remote work and can accomplish support activities during an emergency just like the work that is currently being conducted to support the sites during daily, normal operation. The engineering organization and other support groups routinely engage in support and work product development using a host of technological resources. These resources can be deployed rapidly using the corporate support structure and improved technologies.

SNC implements a rigorous process, as outlined in an SNC fleet procedure (NMP-GM-036 – Duty Manager), to ensure the executive team provides the appropriate oversight and to ensure the support needs of the fleet are satisfied. This would include engineering resources during a declared emergency event. This notification network is accomplished by staffing rotating positions at the site and at the corporate office. Each site maintains a Site Duty Manager on-call, on a rotating, continuous basis. This position is responsible for coordinating with the Shift Manager regarding matters of plant status, notification of events, or change in plans of the station. A primary function of the Site Duty Manager is to provide the needed support as requested by the Shift Manager/ED. The Site Duty Manager is also normally the on-call TSC Emergency Director or TSC Manager, which aids in turnover of functions and mobilization of resources due to this direct communication. The Site Duty Manager will also provide prompt external notifications for certain events including emergency events. These events, which are listed in an attachment to the procedure, direct the Site Duty Manager to notify the Nuclear Duty Officer (NDO) in the SNC Corporate organization, which again is staffed on a rotating, continuous basis. The NDO is responsible for many notifications including, but not limited to, the executive team, Emergency Planning personnel, Regulatory Affairs, Public Affairs, INPO, etc. The purpose of

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this well-defined, rigorous structure is to ensure notifications are made in a timely fashion, which ensures the commensurate level of resources and expertise are mobilized to fulfill the support needs of the nuclear stations.

SNC also uses a matrix organizational model. This is a proven management approach that involves organization by functional area. This is relevant because one responsibility of the Corporate Functional Area Manager is to provide supplemental resources between organizations, particularly from corporate groups to the nuclear stations. Support includes providing guidance and/or technical expertise and may include actual completion of a work product or project. This support structure is well defined in a fleet procedure (NMP-AD-023 – Fleet Governance, Oversight, Support and Perform).

SNC is a subsidiary of Southern Company, which has significant information technology resources and infrastructure. SNC personnel use those resources to remotely access procedures, drawings, vendor manuals, calculations, etc. SNC personnel currently use these remote access technologies, as well as other communications technologies (bridge lines, smart phone technology, text messaging, video teleconferencing/screen sharing, etc.) to complete daily tasks, projects, and other long-term initiatives. SNC employees also have remote access to the plant computer software and can monitor plant status in real time. This structure would also be used in an emergency should a site need support from another SNC location.

In summary, SNC has the infrastructure, the resources, the expertise, and the management systems in place to provide engineering support during emergency conditions.

h. Concerning procedural improvements, address the following:

i. Considering that current SNC staffing is based, in part, on previously provided procedural improvements and equipment modifications, describe what significant modifications and procedure changes have been made since the system based approach described on pages E10-17 of ML15246A059 for Vogtle 1&2, pages E7-17 for of ML15246A053 for Hatch, and pages E4-17 of ML15246A050 for Farley.

ii. Explain how these changes directly allow for more efficient implementation of emergency plan troubleshooting and repair functions.

SNC Response to h.i. and h.ii.:

SNC completely rewrote the Emergency Plan Implementing Procedures upon approval of the LAR for the Standard Emergency Plan (NL-15-1392). A new series (NMP-EP-14X) was developed that replaced the site-specific procedures for Farley, Hatch and all Vogtle units. The improvements are broad and affect every function of the plan. The following are some of the more noteworthy changes:

1. The ERO has been aligned differently since the Standard Emergency Plan was implemented. The same tasks exist but are assigned to different

individuals than they were in the site-specific Emergency Plans listed in RAI 1.h.i. Training and procedure guidance were provided when these tasks were re-assigned. Improvements that were incorporated into the procedures and training have streamlined the processes and require less time and effort to complete the tasks. An example is the development of specific scripts for plant page announcements. The ED checks the form sections to be announced and the phone talker makes the announcement. This speeds the process and ensures a more consistent message. Additionally, Initial Notification form content has been streamlined with agreement from the offsite response organizations (OROs) that also reduces time for this function.

2. All but a few administrative positions in the ERO have a position-specific checklist that identifies their initial and continuing actions. The checklists also point directly to procedures for ease of access. These improvements make the functions of troubleshooting and repair more efficient because the process is simplified and more direct. An example is the Team dispatch and debrief process used for on-shift and augmented Repair Teams.
3. Hot links were added to the Emergency Action Level (EAL) procedures that allow Emergency Directors to click a single location and be taken directly to the basis information for the chosen EAL.
4. Scripts have been incorporated into the process for plant page announcements. This speeds the process for informing the site of expected actions (e.g. assembly and accountability, and plant evacuation including specific routes).
5. Dose assessment is consolidated into an on-shift dose assessor (100% dedicated) and a team of assessors at the EOF which activates at the Alert level. This eliminated one complete turnover from the pre-Standard Plan. Dose assessment moves directly from the on-shift staff to the EOF. Improvements in the computerized dose tool also adds an automated function that allows a dose projection to be run with just a few keystrokes.
6. Bridge lines are used between the facilities to improve communication and ensure the ERO is aligned. Since they have been in place, the speed and effectiveness of the ERO has improved. The bridge line approach has been an effective improvement since the Standard Emergency Plan was implemented. These lines can be used as soon as the event is declared by responding ERO members in route to the affected station or EOF. Lines in use are:
 - a. Command bridge – Open line between the Shift Manager, TSC Emergency Director, and EOF Emergency Director. This makes the identification of priorities more efficient, improves repair team awareness and success, and allows for quick identification of needs of the facilities such that additional resources can be obtained more quickly.
 - b. ERF communicators in the Control Room (simulator), TSC, OSC, and EOF. This line alerts the facilities to rapidly changing conditions such as reactor scram/trip, the start of a release of radioactivity, high pressure injection systems starting, loss of electrical busses, etc. It supplements safety parameter display system (SPDS) information but provides quicker announcement of occurrences and ensures all in a facility are aware using “attention for an update” announcements.

- c. Operations – TSC and OSC Operations leads communicate to ensure Control Room actions are completed including looking ahead to anticipate needs. Effective use of non-licensed operators is the focus to align with priorities from the Command structure.
- d. Radiation status bridge – Used by TSC, OSC and EOF to support dose assessment, field monitoring and RP needs such as dose extensions and KI for repair and field monitoring teams or security personnel.
- e. Maintenance bridge – TSC Maintenance Supervisor and OSC Manager are primary individuals on this bridge talking about priorities, team dispatch and status, and results of team actions (inspections, troubleshooting, repair). These discussions may result in the direction to use the expedited processes described in NMP-EP-143-F14 “Deviation from Normal Work Processes” (use of human red tags, etc.). These processes may be authorized by the Emergency Director when in a Site Area Emergency, General Emergency, or a Beyond Design Basis External Event.
- f. Security, Engineering, and State/Local government bridges are also in use with similar purposes described in the supporting procedures.

Procedural guidance improvements focused on troubleshooting and repair reduced the complexity of implementation. It is a more integrated function that begins with inspection and is facilitated by simpler processes and forms. The use of technology including pictures sent via instant messaging and easily placed temporary video cameras improve the speed and accuracy of inspection, troubleshooting and repair. No single discipline (mechanical, electrical or I&C) individual is knowledgeable of all equipment and systems. This is true of Maintenance journeymen and non-licensed operators. The key element for a successful inspection, troubleshooting or repair effort is to get well-qualified technical individuals providing insight as to what is occurring to a broad range of knowledgeable individuals. Procedure changes, that were implemented after the SEP was approved, facilitate this key element. SNC continues to improve the process as new technology is integrated and changes are made from drill experience. NLOs, who are trained appropriately, perform troubleshooting functions as effectively as the Maintenance craft. The major point is that early in an event, especially one that has not yet met the Site Area criteria, all plant procedure requirements have to be followed (e.g. clearance tagging, work order use, etc.). Early event actions, less than 90-minutes, involve troubleshooting or repairs that are characteristically minor or immediate and not in-depth equipment teardowns and overhaul. Examples include: closing valves locally that may not have closed remotely, inspecting electrical flags that are tripped and identification of causes. SNC’s proposal is based on this troubleshooting strategy. SNC will have trained individuals to support inspection, troubleshooting and repair. SNC will use recent improvements in technology and continue to expand technology to monitor individuals and provide support. This includes using new, collaborative software, such as Microsoft Teams, that allows for better engagement of support staff using screen-share features, easy addition of team members, and use of SNC videoconferencing to support troubleshooting efforts.

RAI 2

Concerning the use of on-shift Senior Reactor Operators (SROs), who are trained as Emergency Directors, as a basis to support extending the Emergency Director augmentation response time, address the following:

- a. *Table 2.2.A, “[Site-Specific] On-Shift Staffing,” Note 1, states “Two Shift Supervisors are assigned to oversight of each Unit, but they can provide support to the ED [Emergency Director] without conflicting duties.” Are there two Shift Supervisors assigned oversight of each Unit, for a total of four Shift Supervisors?*

SNC Response:

There is one Shift Supervisor per unit at each fleet site (see NL-19-00226, Ecl. 3, pg. E3-9, 3.2.c and pg. E3-10, and Ecl. 5, pg. E5-10; see NL-20-0908, Ecl. 1, pg. E1-2 and Ecl. 2, pg. E2-2). The proposed mark-up of Table 2.2.A, Note 1, has been revised to clarify that there are two Shift Supervisors at the plant site, with one Shift Supervisor per unit. See Enclosure 3.

- b. *In addition to training as Emergency Directors, as provided in the Supplement, are all SROs qualified and evaluated as Emergency Directors?*

SNC Response:

All SROs are trained regarding Emergency Director duties in initial and continuing Licensed Operator training.

All active licensed personnel qualified to stand the Shift Supervisor and Shift Manager positions are currently qualified and evaluated as Emergency Directors.

- c. *Does SNC intend to have an on shift Shift Supervisor, who is not assigned any duties that would preclude him from becoming an Emergency Director, relieving the Shift Manager of Emergency Director duties within 60 minutes of the declaration of an Alert or greater classification level?*

If SNC does not intend to have one Shift Supervisor or Emergency Director relieve the Shift Manager at 60 minutes of the declaration of an Alert or greater classification level, then explain who will relieve the Shift Manager of either the Shift Manger or Emergency Director responsibilities at 60 minutes of the declaration of an Alert or greater classification level or provide an alternative solution.

SNC Response:

SNC proposes to relieve the Shift Manager at 90 minutes of the declaration of an Alert or greater. See SNC response to RAI 2.d for further justification on why this is acceptable.

The role of the Shift Manager / Emergency Director is explained in the LAR Supplement as follows: “The Emergency Director role is filled at beginning of

event classification by the Shift Manager. The primary function of overall ERO command and control resides with the Shift Manager until they are relieved by the augmented team in the TSC and EOF. Oversight of the individual units remain with the unit Shift Supervisors. All SROs on-shift are trained as Emergency Directors, so the opportunity for assistance and peer checking exists as well as other needed support. Other SROs (including the two unit Shift Supervisors and the Shift Support Supervisor filling the Fire Brigade Leader role) provide supervision and direction for other functions (e.g. plant response, EOP/AOP actions, fire response, dispatch and tracking of personnel sent to perform troubleshooting/repair actions) while the Shift Manager is dedicated to the ED role. If a fire emergency is not occurring, the SRO filling the Fire Brigade Leader role will be able to provide additional support regarding oversight, peer checks and other support. Prior to 90 minutes, advanced communication capabilities (e.g. using mobile devices) are available to support the on-shift ED.”

There is no regulatory requirement for relief of a dedicated on-shift Emergency Director within 60 minutes. The currently approved SNC Emergency Plan does not require the ED to be relieved at 60 minutes. The requirement is 75 minutes, and the SM/ED has demonstrated their capability during training and drills. SNC’s proposal requires relief within 90 minutes. However, Shift Supervisors can assist the ED in performance of duties as discussed below in response to RAI 2.d. SNC has performed an analysis of the augmentation (e.g. consultation needs from the TSC/EOF EDs) needed in the first 90 minutes for a broad spectrum of accidents/events and has concluded that the on-shift ED can effectively perform the augmentation functions from 60 to 90 minutes.

- d. *If SNC does not intend to provide augmentation for the Emergency Director for 90 minutes of the declaration of an Alert or greater classification level, then explain what unique SNC design characteristics support this reduction in effectiveness. These characteristics should be beyond the capabilities of typical operating reactors as these capabilities are subsumed in Table B-1 of NUREG-0654.*

SNC Response:

SNC’s proposed LAR complies with all regulatory requirements for emergency planning and design criteria. The SNC staffing strategy differs from the NRC generic guidance in Table B-1 and includes certain strategies that are clearly more conservative.

The relevant plant design characteristics were discussed in the original LAR. Farley, Hatch, and Vogtle 1&2 do not contain any additional unique design characteristics. Vogtle 3&4 does have additional unique design characteristics due to the advanced passive AP1000 design. These AP1000 specific design characteristics can be provided for discussion, if desired. However, advanced plant design characteristics are not required to justify extending the augmentation time for 15 minutes (from 75 to 90 minutes), as currently approved. A 90-minute augmentation of the SNC Emergency Director is justified for all sites based on the following facts:

1) SNC activates the TSC, OSC, and the EOF upon declaration of an Alert or higher classification. The Revised NUREG-0654 Table B-1 guidance is that the EOF is activated only upon declaration of a Site Area Emergency. It is much more likely that an Alert will be declared, rather than a Site Area Emergency or higher classification. Events tend to progress slowly, instead of the relatively rapid classification escalation that is typically presented in drill scenarios for the sake of time compression. The result of SNC activating the ERO facilities, including the EOF, at an Alert classification means that the turnover of Emergency Director duties will typically occur prior to when it would occur at a site following the guidance of NUREG-0654 to only augment at the Site Area Emergency level for the EOF.

2) The on-shift personnel filling the Emergency Director role (usually the Shift Manager) can perform all of the roles that would be performed by augmentation staff in the TSC or EOF for the additional time with minimal impact. The SNC staffing studies and PBPA analysis, along with the revised EP procedures, support the on-shift ED being fully dedicated to emergency plan duties until relieved. Command and control of the units remain with the Unit Supervisors. This practice does not change with the response time change from 75 to 90 minutes. This has been demonstrated in previous staffing studies and the recently performed PBPAs.

3) The ability to communicate with ERO staff (including TSC and EOF Emergency Directors) prior to augmentation team relief is available through the use of dedicated bridge lines. This provides the ability to share information with key members of the augmentation team prior to "official" turnover. Also, in addition to ERO responders, other technical support is available remotely (see response to RAI 1.f and 1.g).

4) Multiple other SROs on the on-shift team are qualified to perform the Emergency Director functions. They can provide support for the designated Emergency Director in a highly functional manner because they understand the role. While the Emergency Director has the sole authority and responsibility for addressing the emergency, that does not mean they are alone in assessing the situation and formulating a success path.

RAI 3

As provided in the LAR, as supplemented, the two on-shift Radiation Protection (RP) Technicians are assigned the following emergency plan tasks:

- *RP coverage for troubleshooting/repair team actions,*
- *Plant surveys,*
- *Protected area surveys (out-of-plant),*
- *Supporting movement of security personnel due to radioactive release,*
- *Offsite field monitoring,*
- *Issue dosimetry,*
- *Establish Radiation Work Permit (RWP) requirements,*
- *Develop dose extension documents, and*

- *Brief individuals on potassium iodide (KI) and provide documentation to the Emergency Director for KI issuance.*

Explain what unique SNC plant characteristics, not typical of current operating nuclear power plants, justify the elimination of one on-shift RP technician and extending the augmentation time of three RP Technicians from 60 minutes to 90 minutes of the declaration of an Alert or greater classification level. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

Every RP technician assigned to the on-shift staff is fully trained and qualified to perform the duties required in the Emergency Plan. The items listed in this RAI are included in their abilities as well as others required during a declared emergency. SNC is not changing “what” is performed during an event but rather “how” the functions are performed. The current Standard Emergency plan has one RP technician fully dedicated to monitoring doses at the Owner Controlled Boundary. That leaves the remaining two RP technicians to perform the RP duties. As discussed in RAI 4, this use of an RP technician at the Owner Controlled Area boundary is limited to the need for back-calculations of plumes originating from an unmonitored release. No other changes will be made to the assignment of resources. Using the existing prioritization approach, the only change will be that the Emergency Director will include in their evaluation of priorities the need to deploy an RP technician to the Owner Controlled Area boundary in the unlikely occurrence of an unmonitored release. Improvements in technology and communications are discussed elsewhere, but the frequency of performing some of the tasks and the ease at which those tasks are performed for the above list include:

1. RP coverage for troubleshooting/repair team actions - RP coverage of teams includes a broad range of actions. The use of wireless technology expands the ability of RP technicians to monitor and support individuals from any computer using SNCs web-based software, thereby allowing one RP technician to monitor more than one team simultaneously. The technology also allows an RP technician to respond with a team, and to setup and leave remote local monitors, including video cameras, to allow observation of teams in the field. This allows better use of RP personnel and broadens their abilities to cover multiple teams. The software will display information, and the ED can assign other on-shift personnel to monitor dose and dose rate of individuals in the field (see Figure 1 above). This is typical of how Operations assigns a critical value to be monitored along with a predetermined value such that the individual will let the team know when the value is reached. Actions to be taken are still expected to be taken by on-shift RP technicians and the ED, but the monitoring can be shared. This is one example of how technology allows multiple actions to be performed concurrently.
2. Plant and Protected Area Surveys - Radiation surveys will be prioritized based on the size, type and location of any releases. The two RP technicians will support the tasks as they do now but for an additional 15 minutes (from 75-90 minutes). In the NRC’s 0654 R2 guidance, the need for additional RP technicians seems to be correlated to repair team functions. Elsewhere in this response, the logic of what is and is not reasonable to expect on-shift staff to investigate, troubleshoot and repair is discussed. Based on priorities set by the Emergency Director, RP is adequately staffed for the first 90 minutes as proposed. As noted below, remote monitoring, portable area rad monitors, and portable video cameras all assist in making the RP technicians more effective at covering multiple tasks.

3. Dosimetry - Historically, dosimetry has been issued to on-shift personnel (e.g. pocket ion chambers), but advancements have resulted in personnel being assigned electronic dosimeters when taking the duty. Electronic dosimeters display total dose and dose-rate providing the wearer more information on radiation conditions during assigned tasks. This effectively eliminates the need to “issue dosimetry”; however, on-shift RP technicians continue to be able to perform that task should it be required.
4. Dose Extensions, RWP development, and KI Tasks - Dose extensions, RWP development and KI tasks remain the same as they are under the current Standard Emergency Plan. Those tasks are simple in nature and take little time to complete. The RP technicians are fully trained and qualified to compete these functions. Dose extensions and KI issuance would be unlikely early in an event; however, upon an Urgent or High priority, these functions would be completed quickly. These tasks would be performed in a logical sequence such that RP technicians would be able to complete multiple tasks. Example: An RP technician would first need to determine if a dose extension or KI is needed from a survey performed in support of a highly prioritized task. Local portable radiation monitors and cameras could also be deployed at the time the survey was performed to expand monitoring and limit the need for the RP technician to return to the location in the future. The survey would be performed and presented to the Emergency Director. If the task was needed to be continued, the dose extension/KI and RWP if needed would be developed (using simplified forms from the procedure changes) while the team received their technical brief. The documents would be reviewed and approved while the RP technician provided the team a radiological brief. Then, when the documents were approved, the team would be deployed.

In summary, the tasks remain unchanged and the staff needed to perform the tasks remains the same as currently approved. The difference is removal of one RP technician that is 100% dedicated to monitoring for an unmonitored release to support dose assessment. Should an Urgent need be identified to perform a dose assessment from an unmonitored release then it will be given the highest priority and performed. Otherwise, the same qualified people will do the same tasks as they do in the current emergency plan for a maximum of an additional 15 minutes. SNC’s enhancements and improvements discussed above make the resources more efficient. No tasks are eliminated, but some are significantly reduced (e.g. issuance of dosimetry). Others are pre-established or can be completed quickly due to the simplification of forms (e.g. dose extensions/KI/RWP). Finally, SNC’s staffing studies and extensive PBPAs support the removal of a dedicated on-shift FMT and the slight delay in augmentation staffing of seven additional RP technicians.

RAI 4

Enclosure 2, “Supplemental Analysis Table,” of the supplement states, in part:

First, augmentation of on-shift personnel with two Field Monitoring Teams [FMTs] will be at 90 minutes rather than one at 60 and the other at 90 minutes. Second, a dedicated on-site out-of-plant FMT will not be used, but rather SNC will use one of the two on-shift RP Technicians for this function as directed by the ED based on priorities for the 60-90 minute interim time period.

SNC has concluded that providing one offsite FMT for the period from 60-90 minutes is not necessary.

However, the original basis for the previous approval of the ERO staffing composition and staff augmentation times stated, in part [similar wording was used for each safety evaluation]:

As part of the proposed HNP [Hatch Nuclear Plant] SEP Annex, the on-shift staffing for the onsite/out-of-plant survey will be performed by a single RP technician or other appropriately trained individual.

The HNP Emergency Plan, Revision 36, provides for an on-shift offsite survey team and an augmented offsite survey team reporting within 75 minutes of declaration of an Alert or higher classification. The proposed staffing for the SNC SEP augments a single offsite survey team within 75 minutes of an Alert or higher clarification and maintains the augmentation by the EOF [Emergency Operations Facility] Field Team Coordinator and Field Team Communicator positions, as currently provided.

Since the original basis to extend the ERO augmentation times to 75 minutes was due in part to having the capability of the on-shift RP staffing to perform some type of field monitoring and this capability is removed in the proposed staffing, provide a justification that supports eliminating the capability to perform field monitoring at 60 minutes after the declaration of an Alert or greater classification level.

SNC Response:

The use of one of two on-shift RP technicians to perform on-site radiation monitoring at the site boundary fits in with the sequence of actions the on-shift Emergency Director would follow using SNC's prioritization process. That process classifies actions as Urgent, High, Medium and Low. Examples of Urgent are:

- Life Saving
- Search and Rescue
- Fire Fighting
- Bomb Search
- Hazmat Response
- Terminate a radiological release to the public

The RAI indicates that SNC is removing field monitoring capability. SNC is not eliminating any actions, but only prioritizing them to the given situation. FMT data will be available when needed using this approach. In response to RAI 1, SNC discusses the technology and communication improvements made since the Standard Emergency Plan was implemented. Those improvements reduce work for the on-shift RP staff. An example is that Operations staff will have electronic dosimetry assigned to them when they take the shift so issuance of dosimetry during the event is not needed. Other improvements such as use of remote monitoring technology also allows fewer resources to achieve the necessary functions. Additionally, one other RP technician would be available for functions like dose extensions, KI issuance, and the remainder of actions that could be needed. The need for an RP technician to go to the Owner Controlled Area would only be if a radiological release was occurring to support back calculation of the radioactive plume. If there was an unmonitored release, an Urgent priority would be assigned, and one RP technician would be assigned. The second FMT discussed in the NUREG is redundant for the first 90 minutes during the plume phase as it would provide the same type data needed by dose assessment to perform back calculations for unmonitored releases as the Urgent priority.

The off-site FMT's major role post plume phase is environmental sampling, which is performed well past the 90-minute augmentation time. SNC's experience supports the reduction of one on-shift RP technician and use of the remaining RP technician to perform tasks assigned by the ED based on priorities. Combining these improvements with the overall increase of augmented RP technicians to a total of 9 individuals at 90 minutes, versus the current staffing levels at 75 minutes, represents an overall improvement in the capabilities of the OSC and the ERO.

RAI 5

Table B.1 of NUREG-0654 provides that the Shift Manager/Emergency Director is the on-shift individual who performs the Supervision of RP Staff and Site RP function until relieved of that function by a Site Radiation Protection Coordinator [RP Supervisor/Manager] at 60 minutes of the declaration of an Alert or greater classification level. Based on a review of the LAR, as supplemented, the NRC staff could only identify dose assessment, on-site protective actions, and the need for on-site/out-of-plant surveys oversight as RP Supervisor responsibilities.

Provide clarification as to where the RP Supervisor responsibilities are clearly articulated in the SNC Standard Emergency Plan. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

NUREG 0654 Table B.1 states the responsibilities of Supervision of RP Staff and Site Radiation Protection, which would be completed by the SM/CR ED until relieved, as follows:

- Evaluate and assess plant and offsite radiological data in the development of onsite protective actions and offsite PARs, until relieved.
- Recommend onsite protective actions and offsite PARs to the applicable decisionmaker, until relieved.
- Direct all radiation protection activities, including field monitoring team (FMT) direction, until relieved.
- Provide relevant information to applicable communicators who are communicating offsite PARs to OROs, until relieved.

The RP Supervisor, as stated in SNC SEP section B.2.1.5 is defined as follows:

“reports to the TSC Manager and supervises the activities of the radiation protection staff and Health Physics Network (HPN) Communicator. The RP Supervisor assists the Radiation Protection/Chemistry Group Lead in the OSC in determining the extent and nature of radiological or hazardous conditions and assists in the establishment of offsite dose assessment activities prior to EOF activation.”

SNC's implementing procedures outline specific duties of the RP Supervisor position. Some of these duties are listed here:

- Verifying the on-shift dose analyst has initiated dose assessment
- Ensuring OSC RP/Chemistry group lead and RP technicians are staffed in the OSC
- Verifying the FMTs are briefed and dispatched
- Assessing in-plant radiological conditions including on-site protective actions

- Communicating with EOF dose assessment staff

SNC uses other positions in the EOF that have responsibilities for control of and communicating with FMTs (EOF FMT Coordinator and EOF FMT Communicator). The Control Room Emergency Director (CR ED) will transfer State and Local notifications, Dose assessment/PAR determinations, and Control of FMTs to the EOF.

Under SNC's LAR proposal, during the period of time from 60 to 90 minutes, the CR ED is responsible for RP activities that fall under the two on-shift RP Technicians and the On-shift Dose Analyst. Once the full contingent of augmented responders is staffed, the TSC RP Supervisor is responsible for the RP staff, which will consist of at least nine RP Technicians and likely more considering SNC's all-call, all-respond strategy. At no time, currently or under this proposal, is the TSC RP Supervisor responsible for off-site PARs, direction of FMTs, or providing information to ORO communicators.

RAI 6

Provide a justification that supports replacing a qualified RP Supervisor/Manager with a Shift Manager from 60 minutes to 90 minutes after the declaration of an Alert or greater classification level. This justification should indicate that the Shift Manager, in addition to his Shift Manager and Emergency Director qualifications, is qualified as a RP Supervisor. This justification should also clearly demonstrate that the Shift Manager/Emergency Director can perform the RP Supervisor/Manager Function concurrent with Emergency Director and Shift Manager functions for an extended time. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

SNC currently does not staff the shift with a qualified RP Supervisor/Manager. Also, SNC currently does not qualify a Shift Manager as an RP Supervisor/Manager. The SNC Shift Manager normally directs, oversees, and prioritizes the tasks of RP technicians on-shift and during an emergency until augmented at 75 minutes. SNC does not intend to qualify a Shift Manager as an RP Supervisor/Manager to extend the augmentation from the currently approved 75 minutes to 90 minutes. The tasks remain the same in the proposed plan as in the current plan and these tasks can be completed by on-shift personnel, with direction and oversight by the Shift Manager. This direction and oversight can be provided without specialized RP training or qualification.

SNC conducted PBPA studies to demonstrate that the Shift Manager can continue to perform the additional duties, which would be performed by an augmented RP Supervisor, from the currently approved 75-minute augmentation to the proposed 90-minute augmentation.

The following table outlines specific details of how the Shift Manager/ED, with support from the on-shift staff, accomplishes the EP functions associated with Supervision of RP Staff and Site RP from Revised NUREG-0654 Table B-1.

Supervision of RP Staff and Site RP per Revised NUREG-0654 Table B-1	How the function will be completed on-shift until 90-minute augmentation occurs	How the function is accomplished by 90-minute responders
Evaluate and assess plant and offsite radiological data in the development of onsite protective actions and offsite PARs, until relieved.	The Shift Manager (SM)/ED accomplishes these functions on-shift in accordance with fleet procedure NMP-EP-144 (Protective Actions). This procedure will have the SM/ED perform site assembly at a Site Area Emergency, or sooner at the ED's discretion. This is accomplished by directing a plant page announcement in accordance with procedure.	The TSC ED will be responsible for onsite PARs following ERO augmentation.
Recommend onsite protective actions and offsite PARs to the applicable decisionmaker, until relieved.	<p>If a General Emergency (GE) is declared, the SM/ED will assess the need for offsite PARs as directed by the initial PAR flowchart in the procedure. SNC's process uses a plant-based PAR approach for an initial GE declaration. A plant-based PAR relies on an assessment to determine if radiological fast-breaker conditions are present or if impediments exist, then utilizes wind direction to develop offsite PARs. All needed parameters are displayed on the plant computer in the Control Room. A site-specific table within the procedure provides the SM/ED the correct zones for evacuation or shelter depending on the wind direction.</p> <p>After completion of the initial GE and PAR, the SM/ED will enter the follow-up PAR flowchart. If dose assessment indicates any zones exceeding Protective Action Guidelines (PAGs) as determined by the On-shift Dose Analyst (Shift Chemist), with assistance from an RP Technician if back-calculations are needed, the SM/ED will evaluate evacuating or sheltering downwind zones that exceed PAGs. As discussed in the response to RAI 7, enhancements in dose assessment allow this to be completed more efficiently (e.g., automated interface between radiation monitor readings from the plant computer to the dose assessment software, "quick-dose" features).</p> <p>The SM/ED will develop PARs in accordance with the prioritization discussed in RAI 3. Development and recommendation of protective actions would be an Urgent priority.</p>	<p>Dose assessment, offsite PAR determinations, and control of Field Monitoring Teams will be turned over to the EOF ED, from the SM/ED. SNC uses a Command and Control Turnover and Transfer form that is one page and contains the critical elements that should be discussed during the turnover. This includes the status of assembly and accountability, site evacuation, any release in progress, etc.</p> <p>After Command and Control Turnover, the EOF ED has the non-delegable responsibility of offsite PAR determinations.</p> <p>The EOF Dose Assessment Supervisor will preliminarily determine PARs at a Site Area</p>

Supervision of RP Staff and Site RP per Revised NUREG-0654 Table B-1	How the function will be completed on-shift until 90-minute augmentation occurs	How the function is accomplished by 90-minute responders
	<p>This process does not rely on the expertise of RP Supervision and therefore doesn't necessitate that the SM/ED have any specialized RP related qualifications. The SM/ED can perform the RP Supervisor/Manager function concurrent with Emergency Director and Shift Manager functions for an additional 15 minutes with minimal impact.</p>	<p>Emergency for the EOF ED to consider.</p> <p>Like the process described for how the SM/ED determines PARs, the EOF ED will use the same process and the EOF staff (Dose Assessment Supervisor, Dose Analyst, HPN Communicator, FMT Communicator and FMT Coordinator) to develop offsite PARs.</p>
<p>Direct all radiation protection activities, including field monitoring team (FMT) direction, until relieved.</p>	<p>The SM/ED would oversee all RP activities on-shift. For example, any NLO that is dispatched to perform troubleshooting and repair activities will either already be wearing dosimetry or can obtain it without assistance from RP. NLOs working in the radiological controlled areas of the plant will normally wear dosimetry for the whole shift. As discussed in RAI 1, RWPs are already issued and plant personnel are trained on their use. If dispatching personnel to a known, high-dose area, then the Shift Supervisor or the Shift Manager may direct an RP Technician accompany the NLO. NLOs are trained and are expected to monitor dosimetry to ensure the limits established by the RWP are not exceeded. If these limits are approached, they will engage directly with RP technicians on-shift and will engage the Shift Supervisor or the Shift Manager if direction or prioritization is needed.</p> <p>Emergency plan implementing procedures define that the On-shift Dose Analyst (Shift Chemist) is responsible for communicating with the on-shift RP Technician responsible for performing field monitoring activities. The On-shift Dose Analyst will ensure that the RP Technician is briefed on radiological release status, wind direction, and</p>	<p>After augmentation, the OSC Manager, with assistance of the RP/Chemistry Group Lead, will direct in-plant RP activities.</p> <p>The EOF will take over responsibility for FMT direction along with dose assessment.</p>

Supervision of RP Staff and Site RP per Revised NUREG-0654 Table B-1	How the function will be completed on-shift until 90-minute augmentation occurs	How the function is accomplished by 90-minute responders
	<p>location for obtaining field dose rate data, if needed. These communications are normally accomplished using a radio.</p> <p>The On-shift Dose Analyst, with input from the RP Technician performing field monitoring, will keep the SM/ED abreast of any changes regarding radiological releases. For each dose projection, the On-shift Dose Analyst will determine if a PAG threshold limit has been exceeded and will report results to the SM/ED.</p> <p>These processes do not rely on the expertise of RP Supervision and therefore do not necessitate that the SM/ED have any specialized RP related qualifications. The SM/ED can perform the RP Supervisor/Manager function concurrent with Emergency Director and Shift Manger functions for an additional 15 minutes with minimal impact.</p> <p>The SM/ED is responsible for directing RP activities in the field but need not be a qualified Health Physicist. The On-shift Dose Analyst will direct RP Technicians acting in a field monitoring capacity. This direction will be based upon the priorities of the SM/ED as communicated to the On-shift Dose Analyst (e.g., an unmonitored release necessitating FMT data and back-calculations).</p>	
<p>Provide relevant information to applicable communicators who are communicating offsite PARs to OROs, until relieved</p>	<p>After PARs are developed per NMP-EP-144 as discussed above, they will be communicated using a web-based notification system. The tools used to accomplish notification of the offsite entities has advanced over the years and has resulted in the process being more efficient and streamlined. This was discussed in LAR supplement NL-20-0908 on page E2-1; some enhancements include drop-down lists, simple PAR zone selections, as well as other enhanced features. The SM/ED may request assistance from another SRO (e.g., the unaffected unit's Shift Supervisor) to populate and peer-check the electronic ENN form. The SM/ED will then approve the form including the PAR</p>	<p>After augmentation and turnover, the EOF ED is responsible for reviewing and approving the content and accuracy of ENN forms, which contains offsite PARs for General Emergencies.</p> <p>After the PARs are determined, the</p>

Supervision of RP Staff and Site RP per Revised NUREG-0654 Table B-1	How the function will be completed on-shift until 90-minute augmentation occurs	How the function is accomplished by 90-minute responders
	<p>recommendations (for a GE). This process only takes a few minutes. A licensed operator in the control room will then verify that offsite agencies received the electronic notification form, which would contain the PAR recommendations for a GE declaration. This is performed using a push-to-talk radio system where all offsite agencies are on the same, open line.</p> <p>This process does not rely on the expertise of RP Supervision and therefore doesn't necessitate that the SM/ED have any specialized RP related qualifications. The SM/ED can perform the RP Supervisor/Manager function concurrent with Emergency Director and Shift Manger functions for an additional 15 minutes with minimal impact.</p>	<p>EOF ED will work with the Emergency Communications Coordinator, who oversees the EOF ENN Communicator, to populate, approve, and transmit the ENN Form, which will contain offsite PARs for a GE.</p>

RAI 7

Considering that the current and proposed SNC ERO augmenting positions for dose assessment include a RP Supervisor at the Technical Support Center (TSC) and two Dose Assessment Supervisor & Analysts at the EOF, it appears that the SNC ERO, as augmented, has more capability to provide dose assessment to the Emergency Director than an on-shift Chemistry Technician or other trained individual.

Explain how the on-shift Chemistry Technician, or other trained individual, can provide equivalent dose assessment information as the augmenting ERO organization for an additional 15 minutes. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

Under SNC's LAR proposal, the on-shift Chemistry technician would be responsible for dose assessment information until relieved by the EOF Dose Analyst no more than 90 minutes after declaration of an Alert or higher. The augmented contingent of dose related personnel for a single site event includes one TSC RP Supervisor, one EOF Dose Assessment Supervisor and one EOF Dose Analyst. The Chemistry technician that fills the On-shift Dose Analyst role and the EOF Dose Analyst are equally capable in their use of the dose assessment software and in providing the ED dose assessment information. Recently, the dose assessment software was updated to include automatic functionality in which plant radiation monitors feed data into the dose assessment software. This is an efficiency gain and reduces the time in which it takes to run a dose projection. Furthermore, the software includes "quick-dose" functionality that the on-

shift Dose Analyst can use when certain prerequisites are met. The on-shift Dose Analyst currently has no collateral duties or responsibilities that would interfere with providing accurate and timely dose assessment information for an additional 15 minutes. The “appearance” that the augmented staff, specifically the EOF, has more capability to provide dose assessment can be attributed to the fact that under our current plan and continuing into our proposed plan, the EOF, being a combined facility, is licensed to be capable of combating multi-site events. Should this occur, the EOF may augment with additional Dose Analysts for each site in a declared emergency at Alert level or higher.

RAI 8

Please provide clarification regarding the following SNC SEP Table 1 position titles, as it was not clear to the NRC staff what individuals and/or what qualifications were required of those individuals to staff these positions:

- *Two Dose Assessment Supervisor & Analysts at the EOF,*
- *FMT Coordinator and Communicator at the Operations Support Center (OSC),*
- *The Mechanical, Electrical, and Instrument & Control Group Leads and Technicians at the OSC,*
- *The Operations Group Lead/Supervisor at the TSC and OSC,*
- *The Security Supervisor/Coordinator at the TSC and EOF,*
- *The Offsite Response Organization Coordinator and News Writer at the EOF, and*
- *Two Engineering Support individuals at the TSC.*

For example, the two Dose Assessment Supervisor & Analysts at the EOF could either be two individuals qualified to perform the Supervisor/Analyst function or for both positions or one qualified individual to perform the Supervisor Function and another qualified individual to perform the Analyst function. For the Engineering Support positions at the TSC, the NRC staff could not determine whether these were intended to be an electrical and a mechanical engineer or some other type of engineering support.

If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

Staff Positions Questioned in RAI	Clarification
Two Dose Assessment Supervisor & Analysts at the EOF	<p>This means there will be one EOF Dose Assessment Supervisor and one Dose Analyst.</p> <p>The Dose Assessment Supervisor has a standalone ERO qualification. SNC typically fills this role with individuals with current or previous formal leadership experience that have Chemistry or RP backgrounds.</p> <p>The Dose Analyst has a standalone ERO qualification. SNC typically fills this role with individuals that have Safety Analysis and/or Nuclear Fuel backgrounds.</p>

Enclosure 2 to NL-20-1273
 SNC Detailed Response to NRC Requests for Additional Information

<p>FMT Coordinator and Communicator at the Operations Support Center (OSC)</p>	<p>There is no FMT Coordinator or FMT Communicator in the OSC. These positions are in the EOF, and the FMT function will be turned over during command and control turnover from the on-shift personnel directly to the EOF. Table 1 of the LAR states "FMT Coordinator and Communicator (EOF)". This means there will be one FMT Coordinator and one FMT Communicator in the EOF.</p> <p>The EOF FMT Coordinator has a standalone ERO qualification.</p> <p>The EOF FMT Communicator has a standalone ERO qualification.</p>
<p>The Mechanical, Electrical, and Instrument & Control Group Leads and Technicians at the OSC</p>	<p>There will be one OSC Group Lead and one tech/craft position for each discipline (Mechanical, Electrical, I&C).</p> <p>SNC's standard is that discipline-specific ERO Maintenance OSC Group Leads are filled by Maintenance Supervisors that normally supervise journeyman that work in the same craft. For example, the OSC Electrical Group Lead ERO position is normally filled by an Electrical Maintenance Supervisor that supervises electricians daily.</p> <p>The OSC Technician is a qualified Maintenance Journeyman in that craft (e.g., an Electrical Technician in the OSC is an electrical maintenance journeyman).</p> <p>OSC Group Leads have a standalone ERO qualification.</p>
<p>The Operations Group Lead/Supervisor at the TSC and OSC</p>	<p>There will be one Operations Supervisor in the TSC and one Operations Group Lead in the OSC.</p> <p>SNC typically fills this role with individuals that have Operations backgrounds (normally licensed or previously licensed individuals that work in Training, Operations, or another off-shift support organization).</p> <p>OSC Operations Group Leads have a standalone ERO qualification.</p> <p>TSC Operations Supervisors have a standalone ERO qualification.</p>
<p>The Security Supervisor/Coordinator at the TSC and EOF</p>	<p>There will be one Security Supervisor in the TSC and one Security Coordinator in the EOF.</p> <p>TSC Security Supervisors have a standalone ERO qualification. This position is filled by on-shift Security personnel.</p> <p>EOF Security Coordinators have a standalone ERO qualification. These positions are normally filled by individuals that work in the Corporate Security and Access Control organizations.</p>

Enclosure 2 to NL-20-1273
 SNC Detailed Response to NRC Requests for Additional Information

<p>The Offsite Response Organization Coordinator and News Writer at the EOF</p>	<p>There will be one ORO Coordinator in the EOF and one News writer in the EOF.</p> <p>Offsite Response Coordinators have a standalone ERO qualification.</p> <p>News writers have a standalone ERO qualification.</p>
<p>Two Engineering Support individuals at the TSC</p>	<p>There will be two engineering support individuals in the TSC. These Engineers are not discipline-specific as SNC does not qualify engineers in a specific field for ERO purposes.</p> <p>TSC Engineering Support personnel have a standalone ERO qualification that is not discipline-specific. Site Engineering personnel that are in accredited engineering training programs fill this role.</p>

RAI 9

The SNC Supplemental Analysis Table includes wording such as, “[t]he Operations STA [Shift Technical Advisor]” and “[t]he STA and other SROs,” which imply that an on shift individual will be available to perform the STA function. The SNC LAR further provides that this individual would be available to perform engineering activities, such as troubleshooting. Although the LAR implies that an STA will be available, the only reference the NRC staff found regarding an STA in the proposed SNC SEP was a note that stated, “[t]he STA is not counted in the total because this position may be performed by qualified on shift personnel assigned other functions.” Provide clarification regarding STA and engineering functions as follows:

- a. *Explain how the SNC will consistently ensure that an individual (dedicated STA) will be available in 60 minutes from the declaration of an Alert or greater classification level to evaluate reactor conditions.*

SNC Response:

SNC does not use a “dedicated STA” position, as discussed below.

On April 26, 2019, SNC received NRC approval of license amendments for Plants Farley and Hatch modifying Tech Spec 5.2.2.g (Accession Number ML19064A774). The amendments are based, in part, on Technical Specification Task Force Traveler TSTF-258, "Changes to Section 5.0, Administrative Controls," Revision 4, dated February 5, 1998. The amendments eliminate a dedicated shift technical advisor (STA) position by allowing the STA functions to be combined with one or more of the required senior licensed operator positions. The amendments also incorporate wording related to the modes of operation but allow the same individual to provide advisory technical support for both units. Plant Vogtle 1&2 already had the modified language present in TS 5.2.2.g, by letter dated June 28, 2004, where the NRC issued Amendments Nos. 132 and 111 for Vogtle Units 1 and 2, respectively.

At initial issuance of the Vogtle Units 3 & 4 COL in 2006, the STA function was already combined with one or more of the required senior licensed operator positions in TS 5.2.2.e.

The 2019 Safety Evaluation Report issued with the license amendment notes the following:

“Under SNC’s proposed change, the STA function to provide technical expertise on shift may be fulfilled by either an STA-qualified individual in the shift command structure or a separate individual. The proposed TS 5.2.2.g. revision implements Option 1 of the Commission Policy Statement on Engineering Expertise on Shift. The proposed TS 5.2.2.g. satisfies Option 1 by assigning an individual with the specified technical qualifications to provide expertise regarding thermal hydraulics, reactor engineering and plant analysis to each operating crew.”

“The NRC staff finds that the licensee’s proposed revision to TS 5.2.2.g. for Hatch, Farley, and Vogtle, Units 1 and 2, respectively, appropriately implement Option 1 of the Commission Policy Statement on Engineering Expertise on Shift as described in GL 86-04 consistent with NUREG - 0737, Enclosure 3, item I.A.1.1, and is, therefore, acceptable.”

“With the continued use of an on-shift individual, who meets the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift, to provide technical support to the Operations shift crew, the NRC staff concludes that the proposed changes will not result in a loss of function or impact the timing for the Plant System Engineering, Repair and Corrective Actions Major Functional Area and is, therefore, acceptable.”

Based on this recent change, the STA function at SNC sites is filled by an on-shift individual, who may already be in the Main Control Room or will respond there within minutes of being summoned. The on-shift individual performing the STA function will continue performing the function until relieved by another qualified individual. The SNC/ED or another SRO performing the STA function is supported by SNC Engineering and Maintenance organizations SMEs from beginning of the accident/event conditions using improvements in mobile communications and remote-working technologies during the 90-minute period prior to arrival of Engineering support.

See Response to RAI 1 and 9.b. below for a full discussion of SNC enhancements that ensure rapid engineering support to the on-shift staff.

b. *By letter dated August 9, 2018 (ADAMS Accession No. ML18226A094), SNC provided that the TSC Reactor Engineer (STA) performed the following engineering functions:*

- *Monitoring of critical safety function status trees,*
- *Verification of safety injection actuation and plant response,*
- *Tracking of hydrogen concentrations, and*
- *Oversight of reactor shut down and trip response actions.*

Although these engineering functions seem appropriate for an on-shift individual with STA expertise to evaluate reactor conditions, the electrical and mechanical engineers would provide augmentation to the above capability regarding such activities as troubleshooting and providing engineering support to maintenance personnel. Explain how SNC will ensure that electrical and mechanical engineering expertise, provided by personnel who are qualified by site specific engineering training programs, are available to support troubleshooting and repair activities in 60 minutes from the declaration of an Alert or greater classification level.

SNC Response:

The SNC/ED or another SRO performing the STA function is supported by SNC Engineering and Maintenance organizations SMEs from beginning of the accident/event conditions using improvements in mobile communications and remote-working technologies during the 90-minute period prior to arrival of Engineering support. The proposed SNC strategy is focused more on augmenting the right technical/engineering support relevant to the event conditions and equipment failures instead of relying on the qualifications of a discipline-specific engineer on-call. See RAI 1.f.iv discussion (e.g. obtaining engineering support from an AOV engineer SME prior to 90 minutes.) Furthermore, the SNC strategy is supported by the PBPAs, including analysis that demonstrates that the on-shift technical capabilities are appropriate for the work that might be performed by augmenting personnel from 60-90 minutes.

The SNC Standard Emergency Plan currently states in Step B.2.1.8 that, "The Reactor Engineer reports to the Engineering Supervisor in the TSC. The Reactor Engineer is responsible for monitoring core conditions and providing recommendations to maintain the viability of the core. The Reactor Engineer relieves the Shift Manager or Supervisor of the Core Thermal Analysis responsibilities."

On-shift SNC SROs will not be trained and qualified as Mechanical and Electrical engineers in accordance with site engineering training programs. Augmenting engineers receive base-level training on nuclear plant systems; however, engineers do not receive in-depth, discipline-specific training on mechanical, electrical, or civil concepts.

SRO's receive specific electrical and mechanical training as part of their generic fundamentals training and ongoing requalification training that focuses on electrical and mechanical components, systems training, and other knowledge, skills and abilities. SROs that complete the Initial License Training program additionally receive training on breaker racking, battery swaps, and mechanical/electrical print reading. From these building blocks, operators are able to assess troubleshooting plans during normal operations.

This level of training is appropriate for the level of troubleshooting that will be occurring in the first 90 minutes of an event. The troubleshooting performed in the first 90 minutes of an event will primarily be focused on information gathering

and taking basic actions that might restore operability/functionality. The insights gained in this time period will then be passed on to other individuals, including Subject Matter Experts, in the organization for diagnosis and troubleshooting plan development. The use of mobile communication and remote-work technologies will provide the opportunity to start this diagnosis and troubleshooting plan development with off-shift staff SMEs prior to the 90-minute augmentation time.

RAI 10

The SNC SEP appears to retain a Security Supervisor position, which would also be controlled under the Security Plan, along with a proposed Security Coordinator located at the EOF. Specific responsibilities of the Security Coordinator were not apparent in the SNC SEP. Additionally, no discussion was apparent regarding how any security-related EP functions would be transferred from the Security Supervisor to the Security Coordinator.

Explain what emergency preparedness function is performed by the Security Coordinator. Additionally, please describe how emergency preparedness function(s) is(are) transferred from the on-shift Security Supervisor to the Security Coordinator following augmentation of Alert or greater classification level.

SNC Response:

The EOF Security Coordinator is an augmented position in the current Standard Emergency Plan (SEP page 28, Table 3) as well as in the LAR proposal. This position is primarily responsible for providing access control for the EOF and providing support to the Site TSC Security Supervisor. These positions can maintain an open line of communication using the Security Status Bridge Line. There is no transfer of functions from the Site TSC Security Supervisor to the EOF Security Coordinator in the current SNC SEP nor in the proposed changes. As guided by the position checklist, the EOF Security Coordinator may perform the following activities to support both the Site TSC Security Supervisor and the emergency response staff in the EOF:

- During hostile action or security related events, coordinate security response efforts at the site, the alternative facility, and Incident Command Post.
- Support site actions associated with access restrictions.
- Coordinate with Local Law Enforcement Agencies as needed for site evacuation efforts.
- Make security-related arrangements for the NRC team at the EOF (e.g., access to the building and then the EOF).

RAI 11

The SNC Supplemental Analysis Table provides that augmenting an OSC Lead Supervisor is not necessary because operators are, or will be, trained on numerous troubleshooting, repair and corrective actions. The Supplemental Analysis further provides that “[m]any of the repair and corrective actions that go beyond the skill of the craft for NLO(s) [non-licensed operators] are more likely significant or complex enough that work sequence planning and tagging would be required.” A similar discussion was provided regarding the engineering and maintenance technician augmentation positions.

However, the original basis for the previous approval of the ERO staffing composition and staff augmentation times stated, in part [wording varied in each safety evaluation]:

HNP Emergency Plan, Revision 36, provides for one mechanical journeyman, two electrical journeymen, and one instrument and controls technician on-shift to support the Repair and Corrective Action task. The on-shift maintenance staffing numbers proposed in the HNP SEP Annex will be reduced to one on-shift electrical journeyman. A maintenance supervisor will be added to the on-shift staffing complement to provide supervisory oversight for repair and corrective actions, further enhancing the on-shift response capability.

Additionally, RIS 2016-10 provides the following considerations for “Technical Support” to support proposed extension to 90-augmentation times:

*Additionally, the change justification should address the ability of on-shift positions to perform troubleshooting activities without interfering with their primary emergency response duties (e.g., **on-shift electrical or mechanical maintenance personnel with supervisory personnel to provide oversight**).*

a. Explain how the SNC NLOs be trained and qualified to perform troubleshooting, repair and corrective actions at the same level as maintenance technicians prior to the implementation of the proposed SNC SEP. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution

SNC Response:

SNC does not intend to train and qualify NLOs to the same level as maintenance technicians. SNC can successfully mitigate emergency conditions using the proposed, on-shift resources when being augmented at 90 minutes. The basis for this is fourfold:

1. NLOs have the skills, knowledge, and training to recover or compensate for minor equipment failures or equipment degradations.
2. Unforeseen degraded conditions that necessitate the expertise of a fully qualified maintenance journeyman (beyond the skills, knowledge, and training of an NLO) would generally not allow for the initiation of maintenance, in the field, within 90 minutes of the degraded condition occurring.
3. SNC uses technologies that allow for a large portion of the work management process be completed remotely.
4. SNC conducted PBPAs to identify key maintenance tasks that must be performed by available staff (e.g, NLOs), instead of an augmented maintenance staff, during a response to an emergency.

1. NLOs have the skills, knowledge, and training to recover or compensate for minor equipment failures or equipment degradations.

NLOs are equipped with the knowledge, skills, and training to execute minor equipment repair or compensatory actions to recover situations that could be restored rapidly (not complex, likely not a catastrophic failure, doesn't require tagging, doesn't need spare parts from the warehouse, etc.). The NLO training program, including on-the-job-training, includes, but is not limited to, the following:

- Nuclear power plant fundamentals including electrical and mechanical science topics.
- Electrical science concepts including plant electrical components (sources of electrical power, distribution, switchgear components, relay and fault protection circuits)
- The NLOs also receive basic print reading, which would allow for the isolation of electrical power or hydraulic energy in fluid systems, after consulting with the Control Room.
- NLOs receive training on the operation of electrical components such as circuit breakers and electrical disconnects; NLOs operate these components on a regular basis as part of equipment tagging or system alignments such as train swaps.
- Mechanical science concepts including pumps, valves, valve operators, strainers and filters, etc. NLOs receive training on and routinely identify clogged filters and then bypass the filter and/or clean and replace strainers.
- NLOs receive training on lubrication principles and routinely determine the correct oil and make oil additions during day-to-day operation of the plant.

The failures that lend themselves to mitigation/recovery within 90 minutes (e.g., do not require equipment clearance, do not require spare parts, do not need detailed work instructions from a maintenance planner, etc.) could be completed by NLOs with assistance from the Control Room or other remote assistance.

Examples:

- Many motor driven pump fail-to-start events (Auxiliary Feedwater, ECCS, Cooling Water Pumps) are associated with failure of 4kV breakers to close and supply voltage to the motor. The most likely causes of failure for these breakers are related to loose, worn, damaged, or misaligned parts. NLOs can mitigate these events due to being trained and qualified to install and rack intermediate voltage circuit breakers (e.g., 4kV breakers, 600V load center breakers). If an Auxiliary Feedwater Pump failed to start, for example, due to an issue with the 4kV breaker, NLOs have the training and knowledge to obtain a spare breaker and install it in the place of the degraded or failed breaker. On-shift Operations personnel routinely rack and operate circuit breakers as part of day-to-day operations. Other resources may be needed to identify breaker candidates, which could be performed remotely, but the NLO could perform the breaker swap.
- Many air-operated-valve (AOV) fail-to-open events are associated with loss of air to the valve actuator (solenoid valve that ports air into the valve actuator fails to open, diaphragm failure, etc.). Operation of AOVs using the manual operator is within an NLO's skill of the craft. For example, an NLO would manually jack open an AOV that failed to open upon automatically or remotely. NLOs can also use manual operators to throttle valves per the direction of the control room.
- Many motor-operated-valve (MOV) fail-to-operate events are associated with the failure of the electrical circuit to provide power to the valve motor operator (breaker issue, thermal overloads, etc.). NLOs are trained to reset motor control center breakers and to manually operate MOVs locally.

2. Unforeseen degraded conditions that necessitate the expertise of a fully qualified maintenance journeyman (beyond the skills, knowledge, and training of an NLO) would generally not allow for the initiation of maintenance, in the field, within 90 minutes of the degraded condition occurring.

Equipment failure modes that do not lend themselves to rapid corrective action and recovery (such as those discussed above that NLOs could recover during simple troubleshooting and repair) generally would not allow for maintenance to be initiated within 90 minutes (even if the journeyman were at the component when it failed). While the work control process is expedited during emergency situations, the major elements of the process are still required to ensure the degraded condition is properly identified and documented, to initiate immediate recovery actions, and to ensure maintenance is performed safely and with quality.

The following generally describes the process for performing maintenance from the initiation of an equipment failure to the point of dispatching maintenance resources to the field.

- 1) Equipment failure occurs.
- 2) Failures associated with equipment important to emergency response will generally prompt a main control room alarm (otherwise it would be through direct observation which takes additional time to diagnose).
- 3) Operator addresses the failure using plant procedures (annunciator response procedure, abnormal operating procedure, emergency response procedure). The main control room may take immediate action as a result of the failure (start standby pumps in response to a tripped pump, attempt to open a valve using the main control room hand-switch that failed-to-open, etc.).
- 4) Control room operator dispatches NLO to the equipment to conduct initial fact-finding.
- 5) NLO traverses to the area or areas and performs visual observation to identify the cause of the issue (trip flags on protective relays, odors, leaking components, elevated temperatures, failed sub-components such as failed valve stems or pump shafts, etc.). This initial investigation may occur at multiple locations in the plant (locally at a motor-driven pump and then its power supply including a bus, disconnect, and/or circuit breaker, for example). In some cases, the pump may be in a separate location or building as its electrical support equipment. This may necessitate the dispatch of multiple operators.
- 6) NLO communicates the situation to the control room.
- 7) The control room may direct the operator to perform simple troubleshooting or to take immediate corrective action or compensatory action. This would be limited to tasks within the skill of the craft of the NLO. Actions that go beyond these simple troubleshooting and repair efforts would then go into an expedited work management process.
- 8) If actions to quickly mitigate or restore the component are unsuccessful or not feasible, then the Operations team will initiate corrective action using the broader support organization. Operations will quickly "size-up" the situation and the failure mode. If there is not a success path for the NLO to quickly restore the equipment, with direction and support of the Control Room and consistent with their training, knowledge, and skills, the Operations team will move on and not expend unnecessary resources attempting to recover a component that is not immediately recoverable. This compliments the nuclear plant's inherent defense-in-depth design and operating philosophy. For example, if Farley Nuclear Plant were experiencing a loss of secondary heat sink and is attempting to restore Auxiliary Feedwater (AFW) Pumps, and the NLO is unable to quickly identify a

success path for recovery, the Operations team will move along in their Function Restoration Procedure to mitigate the event using an alternate approach. In this example of a loss of heat sink with irrecoverable AFW pumps, the crew will attempt to initiate main feedwater or condensate in lieu of AFW. The crew will also evaluate Bleed and Feed criteria while initiating support from the broader organization to restore AFW. If AFW is not promptly recovered and main feedwater or condensate is unavailable or experiences additional failures, then the operating crew will initiate Bleed and Feed when the criteria is met (actuate ECCS actuation and open a “bleed” path using Power Operated Relief Valves). This is just one of many examples where the operating crew, as directed by the Unit Shift Supervisor, with oversight by the Shift Manager/ED, will obtain information and prioritize actions to mitigate the event.

- 9) A condition report is written – proper problem identification is very important to ensure the appropriate corrective actions are implemented.
- 10) A work order is generated and then planned if required, which most likely it will be at this point (the failure mode is more significant and/or more complex than an issue that could be quickly corrected by an NLO with input and direction from licensed operators in the Control Room). The planning process would include identification of any needed spare parts, a written work sequence as necessary, and a clearance and tagging boundary if needed to allow the maintenance to be conducted safely. This work could be performed remotely by qualified maintenance planners and additional operations support.
- 11) In parallel with the maintenance planning efforts, Operations can begin the tagging process. While Operations may not know the full extent of the tagging boundary needed, they can begin the first revision of the tagout with information provided by the NLO. For example, if the NLO smells an acrid odor at the motor and then identifies trip flags at the breaker, Operations will suspect some sort of motor fault and will initiate a clearance by tagging the hand-switches and power supplies (main power to motor, control power to motor and breaker, motor heater supply breaker, etc.). Operations personnel can write tagging orders remotely if requested by the shift.
- 12) If required, a clearance will then be hung by NLOs after being authorized by an SRO.
- 13) If spare parts are needed, a warehouseman would be dispatched to the site to locate and issue the correct spare part from inventory.
- 14) When Maintenance has a work order in hand, is signed onto a clearance, and has any needed spare parts, they can then approach Operations for work start authorization.

In summary, equipment failure events that can be recovered rather quickly (within 60 to 90 minutes), are within the knowledge, skills, and experience of an NLO. The above portion of this RAI response outlines the general sequence of events that follow an equipment failure. Because of this sequence of events, it is highly unlikely that a maintenance technician could begin work at 90 minutes, much less 60 minutes. Furthermore, control room operators are trained and proficient in using plant procedures, their support organizations, their ability to prioritize activities, and their resources to effectively mitigate the event. This includes engaging resources not physically located at the plant by utilizing the Site Duty Manager. A Shift Manager essentially has access to all SNC employees. As discussed in the response to RAI 1.g., the Corporate Nuclear Duty Officer will ensure fleet resources are appropriated to mitigate an emergency event. This is part of SNC’s process and is also used in day-to-day, non-emergency situations.

3. SNC uses technologies that allow for a large portion of the work management process to be completed remotely.

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SNC personnel that perform their work on a computer have the capability to work remotely. This includes the remote capability of developing tag-outs, planning work orders, etc. Many of the organizations that work at our site locations are currently telecommuting as a result of the pandemic.

4. SNC conducted PBPA to identify key maintenance tasks that must be performed by available staff (e.g. NLOs), instead of an augmented maintenance staff, during a response to an emergency.

The PBPA reviews determined that there is enough on-shift staff under the proposed changes to perform the necessary augmentation tasks until augmentation occurs within 90 minutes. The analysis provides that the SNC ERO staffing plan, under the proposed changes, including both on-shift and augmented responders, can perform all necessary tasks to implement the site-specific event response procedures. As a result of performing this analysis SNC identified several tasks that would need to be transferred from Maintenance to another on-shift group, upon implementing the proposed changes. Some of these examples are listed in the table below. The LAR Implementation Plan will ensure that the necessary training is conducted prior to implementing the changes.

Maintenance Task Descriptions	Proposed Group
Monitor batteries and inverters during loss of control board annunciators	Operations (NLO)
Unlatch control room relays	Operations (RO)
Establish contingency electrical lineups and/or relocate breakers between cabinets	Operations (NLO)
Calculate remaining battery capacity	Operations
Defeat feedwater isolation by installing jumpers	Operations (RO)
Install spool piece to drain torus through purification system	Operations (NLO)
Check and replace fuses	Operations (NLO)
Check, clean, lubricate EDG air distributor pilot valves	Operations (NLO)
Remove damaged TDAFWP exhaust pipe	Operations (NLO)
Operate heavy equipment during Beyond Design Basis Events	Security

b. Explain how the on-shift SNC SROs be trained and qualified at mechanical and electrical engineers in accordance with site specific engineering training programs. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution

SNC Response:

On-shift SNC SROs will not be trained and qualified as mechanical and electrical engineers in accordance with site-engineering training programs. This is not needed as the Shift Technical Advisor (STA) training program provides sufficient training to provide

engineering expertise on-shift until ERO augmentation occurs. This is discussed in more detail in the response to RAI 9.b.

Table B-1 of NUREG-0654 delineates that Engineering expertise may be provided by on shift individuals. This is currently accomplished by the STA with input and assistance from other operators on shift. Individuals performing the STA function are trained in accordance with the SNC STA training program, which meets industry standards and was briefly discussed in the LAR supplement (NL-20-0908 Enclosure 2 Page E2-8).

Currently, the STA provides engineering expertise on-shift with ERO augmentation occurring at 75 minutes. SNC proposes that the STA can perform this function for an additional 15 minutes, from what is currently approved, until augmentation can occur at 90 minutes. This is supported by the fact that SNC has extensive engineering resources fleet-wide that can provide support remotely. The RAI states "Explain how the on-shift SNC SROs be trained and qualified at mechanical and electrical engineers ...". There is an implication that the ERO engineering responder will be able to provide expertise in all things mechanical and electrical and the question is asking how this can be accomplished on-shift. This is an extremely broad scope of subject matter (mechanical and electrical engineering). In an actual emergency event, SNC will provide resources based upon the specific needs of the station and these resources can provide engineering support remotely. This has been demonstrated for months since the beginning of the COVID-19 pandemic. For the majority of 2020, the SNC Corporate organization has been performing their duties remotely. SNC believes that by incorporating all available remote engineering resources into the emergency response process, a net benefit is achieved with respect to the currently approved Emergency Plan requirements. For example, if an SNC plant experiences an issue with a critical AOV during an emergency, the engineering responder on the ERO will likely not be an expert in AOVs (it is possible, but unlikely). However, SNC has several AOV experts that could be engaged remotely by using the protocols described in RAI 1.g (using the Site Duty Manager and the Corporate Nuclear Duty Officer). SNC contends that providing remote engineering resources is a very effective model. While the on-call engineering resource commutes to the site, remote resources can be engaged in parallel. Remote engineering resources can begin providing support more expeditiously than on-call ERO responders.

c. If SNC NLOs and SROs will not be trained as maintenance technicians and engineers, respectively, explain how will SNC ensure that qualified maintenance technicians and engineers provide augmentation within 60 minutes of an Alert or greater classification level. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution

SNC Response:

SNC does not propose training NLOs and SROs as fully qualified maintenance technicians and engineers. SNC performed extensive analysis and concluded that on-shift resources can manage emergency events with a 90-minute augmentation time. This was discussed in detail above in the response to RAI 11.a. and 11.b and was addressed in the PBPAs as summarized in the LAR.

d. Please explain how SNC will ensure that the proposed ERO organization will provide maintenance and/or engineering support within 60 minutes of an Alert or greater emergency classification. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

SNC will ensure that maintenance and/or engineering support can provide assistance to mitigate a nuclear plant emergency. As discussed in the response to RAI 11.a., NLOs can provide simple troubleshooting and repair functions for equipment issues that allow for rapid restoration. For more complex or more significant equipment issues, on-shift resources will initiate an expedited work management process in parallel with ERO augmentation. If needed, the process would include remote assistance to prepare tagging orders, to plan work orders, to identify spare parts, etc. Engineers can support the on-shift ERO staff beginning shortly after the beginning of plant conditions (i.e. prior to 60 minutes) and perform their work from any remote location that has internet. Internet access is universal and all SNC employees that work remotely are expected to have it. The SNC IT infrastructure allows for access to procedures, drawings, vendor manuals, etc.

RAI 12

Based on a review of the SNC LAR, as supplemented, the NRC staff determined that SNC proposes to have a News Writer report to the EOF within 90 minutes. The SNC SEP provides that the News Writer reports to the EOF Manager, gathers information and prepares news bulletins verified for distribution. Based on a further review of the SNC SEP, it appears that the Public Information Director is the appropriate individual to manage and coordinate media information related to the event. Considering that one of this individual's responsibilities is to manage approval and disseminate news bulletins, it does not appear that the News Writer will not be able to perform their designated function unless the Public Information Director is available. Although the supplement provides that SNC currently uses a Joint Information System approach and will continue to provide media information within 60 minutes of an Alert or greater classification level, the NRC staff could not identify an individual designated to perform this function in the proposed SNC SEP within 60 minutes of an Alert of higher classification level.

Explain what individual will be available within 60 minutes of the declaration of an Alert or greater classification level to manage and coordinate media information related to the event. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

The public information director (PID) is the ultimate approver of information disseminated to the media. Using the joint information system (JIS) approach, which uses resources and technology outside of the physical facility approach, the PID is available and capable of disseminating media information within 60 minutes of an Alert classification or greater. During an Alert actual event at Plant Farley in November of 2016, the PID disseminated the initial news bulletin from their vehicle prior to arriving at the CMC facility. Conversely, the News Writer can perform their

designated function without a PID being physically available in the CMC/JIC facility based on the ability to publish/disseminate PID pre-approved news bulletins.

RAI 13

The SNC SEP provides that upon the notification of an Alert or higher classification, the Public Information Director and corporate staff assigned JIC functions assemble at the Corporate Media Center (CMC). Considering that the SNC SEP does not provide augmentation times for the Joint Information Center (JIC) nor does the SNC SEP identify minimum position for the JIC, the NRC staff could not determine who, other than the Public Information Director, was required to assemble at the CMC.

Provide a description of the CMC staffing that would be required to perform the JIC function when media information related to the event is being managed and coordinated from the CMC.

SNC Response:

Because there is no time requirement to staff the CMC in the current plan, the proposed LAR does not contain minimum positions for the JIC. The following positions would be required to manage and coordinate media information related to the event in the CMC:

- Public Information Director
- CMC/JIC Manager
- Facility Coordinator
- Media Relations Representative
- Public Response Coordinator

The LAR proposal does not differ from the current emergency plan related to CMC/JIC functions. The CMC is the JIC until the decision is made to activate the near site facility.

RAI 14

Table B-1 of NUREG 0654 states, "IT [information technology] staff is only required to be described in the emergency plan if critical digital assets are identified per 10 CFR 73.54 [Protection of digital computer and communication systems and networks]." The proposed SNC SEP does not appear to describe IT staff.

- a. *Does the SNC SEP rely on any critical digital assets identified per 10 CFR 73.54?*
- b. *If SNC SEP does rely on any critical digital assets identified per 10 CFR 73.54, identify where a description of IT staff, including augmentation timing, is located in the proposed SNC SEP. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.*

SNC Response:

SNC does currently rely on CDAs identified per 10 CFR 73.54. However, SNC is implementing a plan to declassify the CDAs which will be completed prior to implementation of this LAR. The CDAs related to EP are being declassified using the NRC-approved NEI White Paper that identified changes to NEI 10-02 and NEI 13-10. CDA declassification will be included in the LAR

Implementation Plan. While not specifically identified in the SEP organizational charts, SNC currently includes IT individuals in the ERO all-call system at the sites and at corporate. When an Alert or higher classification is declared, these individuals receive notification and respond to the Emergency Response Facilities. This IT support routinely aids ERO members during drills and exercises (to troubleshoot and correct issues with overhead monitors, computers, bridge-lines, etc.).

RAI 15

The SNC LAR, as supplemented, provides that the Firefighting, and the Rescue Operations and First Aid Functions are more appropriately addressed in other licensing documents. Please explain what licensing documents address appropriately address the Firefighting, and the Rescue Operations and First Aid Functions. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

In reviewing RAI 15, SNC has decided that the firefighting, rescue operations, and first aid functions will remain as described and approved in the current emergency plan. Attached in Enclosure 3 are revised tables for the four emergency plan Annexes which reinsert the on-shift Operations staff and corresponding notes and clarifies how the firefighting, rescue operations, and first aid functions fit in with the emergency planning functions. No other changes to the firefighting, rescue operations, and first aid functions are proposed.

RAI 16

Although the SNC LAR states, "SNC has evaluated each proposed change individually to ensure that key functions and tasks are maintained and there is timely augmentation of response capabilities," relevant details associated with that evaluation were not provided for the areas listed below. The justification for these changes should provide sufficient detail for the NRC staff to independently determine that the proposed changes are reasonable.

a. *Provide a justification that supports the removal of the following positions from the SNC SEP:*

- *TSC Support Coordinator,*
- *TSC Chemistry Support,*
- *EOF Support Coordinator,*
- *EOF Administrative Support Staff, and*
- *JIC Clerical Staff.*

SNC Response:

- TSC Support Coordinator

The TSC Support Coordinator is not currently a required 75-minute responder and thus would not be a required 90-minute responder. The TSC Support Coordinator does not appear in the TSC organizational chart because only required 90-minute responders are represented in the chart. The TSC Support Coordinator would continue to be a non-90-minute required position in the proposed LAR.

- TSC Chemistry Support
The on-shift Chemistry Technician performs dose assessment as the On-Shift Dose Analyst in the TSC under the direction of the Shift Manager until relieved by the EOF Dose Assessment Staff, at which time they assume the Chemistry Support role. This function does not change under the proposed LAR.
- EOF Support Coordinator
The EOF Support Coordinator is not currently a required 75-minute responder and thus would not be a required 90-minute responder. The EOF Support Coordinator does not appear in the EOF organizational chart because only required 90-minute responders are represented in the chart. The EOF Support Coordinator would continue to be a non-90-minute required position in the proposed LAR.
- EOF Administrative Support Staff
EOF Administrative Support Staff is not currently a required 75-minute responder and thus would not be a required 90-minute responder. EOF Administrative Support Staff does not appear in the EOF organizational chart because only required 90-minute responders are represented in the chart. EOF Administrative Support Staff are called in as needed upon the direction of the EOF Manager.
- JIC Clerical Staff
JIC Clerical Staff are called in as needed upon the direction of the JIC Manager.

b. *Provide a justification that supports elimination of the following as minimum staff positions:*

- *TSC Manager,*
- *TSC Emergency Response Facility (ERF) Communicator,*
- *OSC ERF Communicator,*
- *OSC RP/Chemistry Group Lead,*
- *EOF Manager,*
- *EOF ERF Communicator,*
- *JIC Manager,*
- *JIC Facility Coordinator,*
- *JIC Media Relations Representative,*
- *JIC Public Response Coordinator, and*
- *Public Information Director.*

SNC Response:

A minimum staff position is a position that is required to be staffed prior to a particular emergency response facility being activated. Minimum staff positions would relieve a function from an on-shift position (e.g., TSC ED relieving the Shift Manager/ED of EAL classification and declaration, EOF ENN Communicator Relieving Control Room ENN Communicator of off-site notification). The positions listed above are not relief positions, but rather support positions. The above-mentioned TSC/OSC/EOF positions are 90-minute required responders; however, the TSC/OSC/EOF can activate prior to the above-mentioned positions being present. The philosophy of maintaining a relatively smaller minimum staffing is a net safety benefit. This is because a smaller minimum staffing has a higher likelihood of being activated more expeditiously, which allows functions to be

transferred to the EOF and/or the TSC sooner. For example, assume the proposed EOF minimum staffing is established 45 minutes after event declaration. However, assume that other support staff members have not yet arrived at the facility (e.g., EOF Manager, EOF ERF Communicator). This situation would allow the EOF to activate and take control of ENN Communications, which relieves the Control Room ENN Communicator from performing this function. This is important because the ENN Communicator function is normally provided by an on-shift Licensed Operator. Relieving the shift of this function gives the Shift Manager that resource back to assist in event mitigation in the Control Room. This is an example of why the philosophy of maintaining a smaller minimum staffing represents a net safety benefit.

With respect to the JIC positions mentioned above, the JIC does not have a response time requirement and therefore would not have identified minimum staff positions.

RAI 17

The proposed SNC SEP OSC only has the OSC Manager indicated as a minimum staffing position. The SNC SEP provides that the OSC has been established to provide for coordinating and planning activities and staging personnel and equipment. Explain how the OSC can be considered as activated when the only individual required to be present is the OSC Manager. If the licensee determines that this request identifies a concern with the current LAR, then the staff requests the licensee to either propose a change to the LAR or another solution.

SNC Response:

SNC has extensive experience with OSC staffing since the 75-minute augmentation time was established in the Standard Emergency Plan. We also reviewed the additional 15 minutes being requested in the LAR. The OSC Manager is the key position for the facility to be able take the turnover of duties from the on-shift staff. RAI 18 discusses the approach which supplements this RAI response. SNCs OSC Managers are experienced maintenance leaders that have the same capabilities as the discipline Maintenance Group Leads. Immediate actions needed are to identify the individuals dispatched by the Control Room so they can be assigned team tracking numbers, contact the TSC Maintenance Supervisor on a bridge line to determine what are the current priorities, what if any inspections, troubleshooting, repair actions have been performed, are in progress, etc. The OSC Manager is capable of these tasks for the short duration until full augmentation. As with other facilities, the OSC's primary goal is to get activated and begin to unload the Control Room as soon as possible. Drill experience following implementation of the Standard Emergency Plan indicates that the OSC Managers can perform as described above for the short duration of time until full augmentation. The approach of using the all call/all respond ensures the facility is fully augmented in the shortest period of time. Activating the OSC early can only benefit the ERO, and the OSC will be fully staffed within 90 minutes or less.

RAI 18

The definitions section of the proposed SNC Standard Plan states, in part:

Facility Activation

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An Emergency Response Facility (ERF) is activated when minimum staff positions as noted in Figures B.2.1.A, B.2.2.A, and B.3.1.A are available, and the facility is ready to assume its assigned functions. Although the facility is activated, the on-shift staff may prioritize completion of critical tasks prior to turnover.

Those ERO positions designated as minimum staffing in the SNC SEP are those required to activate their respective ERF. Specifically, these are the ERO positions that are the minimum needed to implement the SNC SEP (i.e., if any position or function is not staffed then the Emergency Plan may not be effectively implemented). The planning standard in paragraph 50.47(b)(14) of Title 10 of the Code of Federal Regulations states:

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

Section N, "Exercises and Drills," of the SNC SEP reviewed and approved by the NRC in letter dated March 14, 2017 (ADAMS Accession No. ML16141A090), states

SNC-operated nuclear power plants will conduct a biennial exercise and additional periodic drills. An exercise is an event that tests integrated capability, and a major portion of the basic elements of emergency preparedness plans and organizations. Drills and exercises shall:

- Test the adequacy of timing and content of implementing procedures and methods.*
- Test emergency equipment and communications networks.*
- Test the public notification system.*
- Ensure emergency organization personnel are familiar with their duties.*

*However, this plan does not address whether these periodic drills or exercises will be used on a continuing basis **to specifically evaluate the adequacy of the minimum staffing levels to ensure that they continue to** retain the necessary key skills to perform required major functions prior to full augmentation.*

Describe how SNC plans to specifically evaluate the adequacy of the minimum staffing levels to perform required functions until full augmentation, with the proposed ERO staffing changes to ensure continued effective implementation of the respective emergency plans for each site.

SNC Response:

SNC assesses the adequacy of the minimum staffing during drill scenarios. The staff normally activates when it is verified by the facility manager that minimum staffing is present in the facility. After the minimum staffing has verified that they can perform their function, the Emergency Directors will pursue a transfer of Command and Control. This transfer occurs regardless of the status of the remaining responders. SNC does not plan to perform any special drills to see if the minimum staffing can perform satisfactorily for either the time from minimum staffing to full staffing or for times greater than 90 minutes as this it would be inconsistent with the strategy employed by the Emergency Plan.

SNC uses the minimum staffing approach to aid in removing work from the Control Room. The minimum staff can perform duties needed to facilitate the transfer of functions for the short duration of time between when minimum staffing is met until full staffing is required. This

approach provides for a more expeditious turnover of certain functions from the Control Room, which was discussed previously in RAI 16 by use of an example that demonstrates how this philosophy provides a net safety benefit. SNC expects the time between minimum staffing and full staffing to be short. The basis for activating at minimum staffing is that early in the event, individuals are getting turnover from on-shift individuals, reviewing and evaluating existing priorities, determining actions necessary to combat the event with focus on stopping further degradation of systems and stopping a radioactive release, if one is in progress. SNC currently follows the minimum staff approach described above during every drill. Facilities activate at minimum staff, turnover from the Control Room begins, reviewing of plant conditions and priorities, etc. as the remainder of the facilities full augmentation staff arrive. SNC uses an all-call, all-respond approach which facilitates full staffing of the facilities in the most expeditious manner possible. When full staffing is met, and a 24-hour relief roster is established, extra staff members are sent home. The SNC Standard Emergency Plan establishes the maximum time from minimum staffing to full staffing and this LAR continues this approach. SNC plans to continue to activate facilities as soon as minimum staff are available and expect full staffing by the time identified in the Standard Emergency Plan.

**Southern Nuclear Operating Company
Joseph M. Farley Nuclear Plant - Units 1 and 2
Edwin I. Hatch Nuclear Plant - Units 1 and 2
Vogtle Electric Generating Plant - Units 1 and 2
Vogtle Electric Generating Plant - Units 3 and 4**

**License Amendment Request to Revise Standard Emergency Plan
To Change Staffing and Extend Augmentation Times**

Enclosure 3

Proposed Table 2.2.A Staffing Tables

Table 2.2.A – Farley, Hatch and Vogtle 1-2 On-Shift Staffing

Functional Area	Major Tasks	Emergency Positions	Staffing
Command and Control	Emergency Direction; Classification; and Supervision of ERO staff	Shift Manager (Emergency Director (ED))	1
	Support for: Emergency Direction, Classification, and Supervision of ERO staff	Unit Shift Supervisor (SRO)	2 Note 1
Repair Team Activities	Troubleshooting, limited repairs, and corrective actions	Shift Support Supervisor (SRO) System Operators (SOs)	1 7 Note 2
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2 Note 3
Dose Assessments and Projections	Dose Assessment and Input to PARs	Chemistry Technician or other trained personnel	1
Radiation Protection	Onsite (out-of-plant) and in-plant surveys, RP coverage and first aid/rescue.	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 4
TOTAL:			16 Note 5

Note 1 – Two Shift Supervisors, one for each Unit, are assigned to oversight of their respective Unit, but they can provide support to the ED for EP tasks during an emergency. For example, the Shift Supervisor of an unaffected Unit would typically provide assistance to the ED.

Note 2 – During an event involving fire, the Shift Support Supervisor-SRO is the fire brigade leader and 4 of the 7 SOs, not performing safe-shutdown activities, would perform firefighting duties prior to beginning troubleshooting, limited repairs, and corrective actions. Only 6 SOs were credited in the 10 CFR 50 Appendix E staffing studies.

Note 3 – There are 2 licensed reactor operators at each Unit for a total of 4 ROs. Two of the ROs are dedicated to Communicator roles or an SRO may perform a Communicator role if available depending on the emergency priorities.

Note 4 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 5 – The number of security force staff are not counted in the total because these positions are controlled by the site security plan. First aid and rescue operations staff are not counted in the total as these functions may be provided by shift personnel assigned other functions.

Table 2.2.A – Vogtle 3-4 On-Shift Staffing

Functional Area	Major Tasks	Emergency Positions	Staffing
Command and Control	Emergency Direction; Classification; and Supervision of ERO staff	Shift Manager (Emergency Director (ED))	1
	Support for: Emergency Direction, Classification, and Supervision of ERO staff	Unit Shift Supervisor (SRO)	3 Note 1
Repair Team Activities	Troubleshooting, limited repairs, and corrective actions.	Shift Support Supervisor (SRO) System Operators (SOs)	1 6 Note 2
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2 Note 3
Dose Assessments and Projections	Dose Assessment and Input to PARs	Chemistry Technician or other trained personnel	1
Radiation Protection	Onsite (out-of-plant) and in-plant surveys, RP coverage and first aid/rescue.	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 4
TOTAL:			16 Note 5

Note 1 – Two Shift Supervisors, one for each Unit, are assigned to oversight of their respective Unit, but they can provide support to the ED for EP tasks during an emergency. A third SRO will typically be assigned to the Unit not occupied by the ED, but they can provide support to the ED for EP tasks during an emergency as well.

Note 2 – During an event involving fire, the Shift Support Supervisor-SRO is the fire brigade leader and 4 of the 6 SOs would perform firefighting duties prior to beginning troubleshooting, limited repairs, and corrective actions. Only 5 SOs were credited in the 10 CFR 50 Appendix E staffing studies.

Note 3 – There are 2 licensed reactor operators at each Unit for a total of 4 ROs. Two of the ROs are dedicated to Communicator roles or an SRO may perform a Communicator role if available depending on the emergency priorities.

Note 4 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 5 – The number of security force staff are not counted in the total because these positions are controlled by the site security plan. First aid and rescue operations staff are not counted in the total as these functions may be provided by shift personnel assigned other functions.