Southern Nuclear

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U. S. Nuclear Regulatory Commission
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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 the Emergency Plan to Change Staffing and Extend Staff Augmentation Times for Emergency Response Organization Positions

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests amendments to the licenses for the plants and units listed above. The enclosed license amendment request (LAR) proposes to revise the SNC Standard Emergency Plan, including the Site Annexes, to change the emergency response organization (ERO) staffing composition and extend staff augmentation times from 75 to 90 minutes.

SNC has determined that the proposed changes comply with the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E Section IV.

SNC requests approval of the proposed license amendments within one year and plans to implement the revisions to the Emergency Plan and Annexes within 180 days from the NRC approval. The 180-day time for implementation is desired to ensure enough time for site implementing procedures to be revised and training conducted commensurate with the proposed changes. Vogtle Unit 4 has a firm need date for approval and implementation prior to its fuel load date which is currently scheduled for September 2021.

In accordance with 10 CFR 50.91, SNC is notifying the State of Alabama and the State of Georgia of this license amendment request by transmitting a copy of this letter and enclosure and attachments to the designated State Officials. SNC has also consulted with the appropriate state and county officials from Alabama, Georgia, and South Carolina and has received their support for this LAR.

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D092
NRR

This letter contains 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 June 30, 2020.

Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Company

CAG/efb/scm

Enclosures:

1. Description and Assessment of the Proposed Changes
2. SNC Standard Emergency Plan Mark-ups
3. Farley Staffing Detailed Description, Technical Evaluation and Functional Analysis
4. Farley Standard Emergency Plan Annex Mark-ups
5. Hatch Staffing Detailed Description, Technical Evaluation and Functional Analysis
6. Hatch Standard Emergency Plan Annex Mark-ups
7. Vogtle 1-2 Staffing Detailed Description, Technical Evaluation and Functional Analysis
8. Vogtle 1-2 Standard Emergency Plan Annex Mark-ups
9. Vogtle 3-4 Staffing Detailed Description, Technical Evaluation and Functional Analysis
10. Vogtle 3-4 Standard Emergency Plan Annex Mark-ups
11. Off-site Response Organizations – Letters of Consultation and Concurrence
12. Farley PBPA Results
13. Hatch PBPA Results
14. Vogtle 1-2 PBPA Results
15. Vogtle 3-4 PBPA Results

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

Enclosure 1

Description and Assessment of the Proposed Changes

This enclosure contains 11 pages.

Description and Assessment of the Proposed Changes

Subject: License Amendment Request to change the emergency response organization (ERO) staffing composition and extend staff augmentation times from 75 to 90 minutes for certain ERO positions.

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests amendments to the licenses for Joseph M. Farley Nuclear Plant Units 1 and 2 (Farley), Edwin I. Hatch Nuclear Plant Units 1 and 2 (Hatch), Vogtle Electric Generating Plant Units 1 and 2 (Vogtle 1-2), and Vogtle Electric Generating Plant Units 3 and 4 (Vogtle 3-4). The enclosed license amendment request (LAR) proposes to revise the SNC Standard Emergency Plan, including the Site Annexes, to change the emergency response organization (ERO) staffing composition and extend staff augmentation times from 75 to 90 minutes from the time of declaration of an alert or higher emergency classification level.

SNC has evaluated the proposed changes and has determined that these changes comply with the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E Section IV. In reaching this conclusion, SNC considered applicable regulatory guidance documents, including NRC Regulatory Guide (R.G.) 1.101, NUREG-0654, Regulatory Issue Summary (RIS) 2016-10, and NRC letter to the Nuclear Energy Institute (NEI) dated June 12, 2018 in which the NRC staff provided alternative guidance for minimum ERO on-shift and augmentation staffing.

2.0 DETAILED DESCRIPTION

The SNC Standard Emergency Plan (SEP), including Site Annexes, includes a description of the on-shift staffing composition for coping with emergencies with a predetermined number of personnel and the timing of staff augmentation for relief and support in key functional areas (henceforth called the SNC ERO staffing plan). SNC proposes changes to the ERO staffing plan to more accurately define the minimum-required ERO staff composition and implement more reasonable augmentation times (i.e. extending an additional 15 minutes).

2.1 Background and Current Requirements

The SNC SEP and Annexes were reviewed and approved by the NRC as documented by the NRC Safety Evaluation (SE) dated March 14, 2017. Specifically, organization and staffing details were implemented in the SEP in Figure B.2.1.A 1,"Technical Support Center Organization", Figure B.2.2.A, "Operational Support Center Organization", Figure B.3.1.A, "Emergency Operations Facility Organization", and Figure B.3.2.A, "Joint Information Center Organization" as well as in Table 1, "TSC 75 Minute Augmentation ERO", Table 2, "OSC 75 Minute Augmentation ERO", Table 3, "EOF 75 Minute Augmentation ERO", Table 4, "JIC Staff" and Tables 2.2.A, On-Shift Staffing in the Farley, Hatch, Vogtle 1-2, and Vogtle 3-4 Annexes. These figures were based on the guidance for on-shift staffing and augmentation in Table B-1 of NUREG-0654, Revision 1. Subsequently, a modification to the Shift Technical Advisor (STA) on-shift positions was submitted to the NRC on August 9, 2018. The NRC approved this change with an SE dated April 26, 2019.

SNC has Emergency Response Facilities (ERFs) augmenting the on-shift staff: a Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF). During an emergency, the Shift Manager initially assumes the responsibility as the Site Emergency Director (SED). Emergency response by on-shift staff is directed by the SED from the control room (CR) until relieved by an augmenting staff with the subsequent activation of the ERFs.

SNC uses four standard levels of emergency classification as described in NUREG-0654, Revision 1. Augmentation of the on-shift staff for an Unusual Event is optional and is left to the discretion of the SED. Augmentation of on-shift staffing by the ERO was standardized for all eight SNC units at 75 minutes after the declaration of an Alert or higher classification when the SNC Fleet Standard Emergency Plan was approved on March 14, 2017.

2.2 Reason for the Proposed Change

SNC conducted comprehensive evaluations to determine the optimum staffing requirements for the ERO. As a result, SNC has determined that changes to the minimum ERO staff composition are justified. SNC has also determined that implementation of a more reasonable augmentation time (i.e. an extension of 15 minutes) is justified.

Upon approval of the proposed changes herein, SNC will have additional operational flexibility. Optimizing SNC's emergency plan commitments for ERO staff composition, while ensuring continued compliance with 10 CFR 50.47 (b) and 10 CFR 50 Appendix E requirements, will allow for this flexibility with no adverse impact on public safety.

SNC also proposes to revise the Standard Emergency Plan and Site Annexes to only address those positions and duties necessary to perform ERO functions. The minimum ERO staff defines the number of on-shift positions and duties necessary to ensure that the emergency plan functions can be implemented and that other assigned duties would not prevent the timely performance of the ERO duties. This proposed change aligns with the recently published guidance by the NRC in its letter to NEI dated June 12, 2018 in which the NRC staff provided alternative guidance for minimum ERO on-shift and augmentation staffing, stating:

> The minimum ERO staffing plan is that which is required to effectively implement the site-specific emergency plan (i.e. the emergency plan cannot be effectively implemented without this staff). The emergency plan should describe the minimum ERO staffing plan, while supporting implementing procedures can describe any other staff response desired by the licensee as long as this staff is not critical to effective emergency plan implementation. The augmentation times listed are intended to provide a model for applicants and licensees to consider in the development of their site-specific emergency plan. ... The number of operations staff, security force staff, or fire brigade staff on-shift

is controlled by the site-specific Technical Specifications or other licensing documents.

The proposed changes that extend augmentation times are desired to increase the efficiency and flexibility of the ERO and to address limitations on the number of personnel available to respond to the site within only 75 minutes. Increasing the augmentation times to 90 minutes will strengthen the ERO staffing plan by increasing the population of eligible personnel available to fill response positions and adding valuable expertise to the ERO pool of candidates. SNC has performed a performance-based functional analysis, as outlined by the NRC in RIS 2016-10, in order to demonstrate that extending the augmentation time an additional 15 minutes is acceptable.

2.3 Description of the Proposed Change

The proposed changes to the SNC ERO staffing plan include:

- Removing maintenance personnel from on-shift;
- Reducing the number of on-shift Radiation Protection (RP) Technicians on-shift from three (3) to two (2);
- Removing references to Chemistry personnel not performing Emergency Plan functions;
- Extending the augmentation times for Emergency Response Facilities (ERF) positions from 75 to 90 minutes;
- Extending the facility activation requirement from 75 to 90 minutes from an Alert or higher classification for the TSC, OSC, and EOF;
- Extending dispatch of the second Field Monitoring Team from 75 to 90 minutes;
- Adding a definition for performance of "Onsite (out-of-plant) Survey" to describe the area between site buildings and the Protected Area (PA) fence;
- Adding a definition for 'facility activation' criteria to align with command and control functions in the TSC, OSC and EOF;
- Removing the reference to administrative support staff in the ERFs who do not perform emergency plan functions;
- Reformatting of staffing tables to focus solely on ERO functions and better align to recently published guidance by the NRC in its letter to NEI dated June 12, 2018 in which the NRC staff provided alternative guidance for minimum ERO on-shift and augmentation staffing. Operations staff not performing ERO functions (e.g. fire brigade members and safe-shutdown operators) are removed.
- Revising figures in the SNC SEP that delineate positions associated with facility activation. (This change allows for more timely transfer of State/local notification and Protective Action Recommendations (PARs) functions from the control room in advance of 90 minutes as soon as facility minimum staffing is met.)
- For Vogtle Units 3 and 4 only: Reducing from two shift managers (one for each unit) to one shared shift manager and removing of references to resources shared with Vogtle Units 1 and 2;

3.0 TECHNICAL EVALUATION

GENERAL

SNC has completed an evaluation of the proposed changes, including a functional analysis of the augmented ERO positions based on extended response times and completion of Major Tasks as outlined in NUREG 0654/FEMA-REP-1, Revision 1, and has determined that adequate staffing to provide initial facility accident response in key functional areas is maintained, and timely augmentation of response capabilities is available.

Following the guidance in NRC R.G. 1.219, as clarified in NRC RIS 2016-10, SNC has evaluated each proposed change individually to ensure that key functions and tasks are maintained and there is timely augmentation of response capabilities. Site-specific enclosures provide information and analysis demonstrating that SNC's alternate staffing approach supports timely and effective performance of the "Major Functional Areas" and "Major Tasks" listed in Table B-1 of NUREG-0654. SNC describes how the diverse and redundant nature of the plant design reduces the need for certain on-shift personnel. For the functional analysis, SNC conducted a performance-based procedure analysis (PBPA) at all 4 sites to identify the key tasks that must be performed by available staff during an evolution such as a response to an emergency. Specifically, SNC determined when activities performed by non-operations personnel were required in response to adverse conditions as identified in site event response procedures. SNC ensured that there is sufficient on-shift staff under the proposed changes to perform the necessary tasks until augmentation staff arrives to provide assistance. The enclosed analysis provides confidence that the SNC ERO staffing plan, under the proposed changes, including both on-shift and augmented responders, can timely perform all necessary tasks to implement the site-specific event response procedures.

To ensure continued compliance with Section IV.A.9 of 10 CFR 50 Appendix E, SNC has also completed a staffing analysis of on-shift responsibilities resulting from the effects associated with the proposed changes using the methodologies of NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," endorsed by the NRC in NSIR/DPR-ISG-01. This detailed analysis demonstrates that under the proposed changes, on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

To ensure alignment with previous actions taken by SNC to ensure adequate on-site and augmented staff to respond to a multi-unit event with a loss of all alternating current power and impeded access to the site, SNC has performed a staffing analysis for the proposed changes using the methodology in NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities" which was endorsed by the NRC in a letter dated May 15, 2012, as an acceptable

method to employ when responding to the 10 CFR 50.54(f) letters regarding SRM-SECY-11-0124, "Actions to be Taken without Delay from the Near-Term Task Force Report," Recommendation 9.3, which was published after the Fukushima plant accident in Japan.

SNC Standard Emergency Plan

To facilitate the NRC review, revisions to the SNC Standard Emergency Plan are explained in the enclosed technical evaluations for each plant. The changes include those needed to better align the SNC proposed alternative staffing approach with the newly formatted table in the NRC revised NUREG-0654, Table B-1. In addition, a few changes are proposed that are not directly related to NUREG-0654 major functional areas, such as, adding a definition of "facility activation" to clarify transfer of command/control functions and removing administrative positions not required to meet minimum staffing levels. Marked-up pages for the SNC Standard Emergency Plan are provided in Enclosure 2.

Farley

Details of the proposed changes with the corresponding technical evaluations and functional analysis of the proposed changes are documented in Enclosure 3. Marked-up pages for the Farley Standard Emergency Plan Annex are provided in Enclosure 4. A summary of the Farley PBPA results are provided in Enclosure 12.

Hatch

Details of the proposed changes with the corresponding technical evaluations and functional analysis of the proposed changes are documented in Enclosure 5. Marked-up pages for the Hatch Standard Emergency Plan Annex are provided in Enclosure 6. A summary of the Hatch PBPA results are provided in Enclosure 13.

Vogtle 1-2

Details of the proposed changes with the corresponding technical evaluations and functional analysis of the proposed changes are documented in Enclosure 7. Marked-up pages for the Vogtle 1-2 Standard Emergency Plan Annex are provided in Enclosure 8. A summary of the Vogtle 1-2 PBPA results are provided in Enclosure 14.

Vogtle 3-4

Details of the proposed changes with the corresponding technical evaluations and functional analysis of the proposed changes are documented in Enclosure 9. Marked-up pages for the Vogtle 3-4 Standard Emergency Plan Annex are provided in Enclosure 10. A summary of the Vogtle 3-4 PBPA results are provided in Enclosure 15.

Offsite Response Organizations (OROs)

In accordance with 10 CFR 50 Appendix E, Section IV.A.7, SNC has evaluated the proposed changes in staffing levels and augmentation times and determined that there

was no impact on the State and local response organization's ability to effectively implement the Federal Emergency Management Agency (FEMA)-approved radiological emergency preparedness plans, specifically in regard to SNC's interface and coordination with the OROs. Further, in order to facilitate the NRC's review of the proposed changes per 10 CFR 50.54(s)(3), Enclosure 11 contains documentation of SNC's communication and coordination with the OROs.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The regulatory requirements and guidance upon which SNC based its license amendment request are provided below.

Regulatory Requirements

On-shift and augmented ERO staffing is addressed under planning standard 10 CFR 50.47(b)(2), 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 off-site support and response activities are specified.

In addition, Appendix E to 10 CFR 50, Section IV, Part A, states, in part that "The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization..."

Regulatory Guidance

Regulatory Guide 1.101, Revision 2, dated October 1981 endorses Revision 1 to NUREG-0654/FEMA-REP-1 dated November 1980. NUREG-0654 provides specific evaluation criteria for complying with the planning standards set forth in 10 CFR 50.47(b).

NUREG-0654, Section II Criteria II.B.1 and II.B.5 address the planning standard of 10 CFR 50.47(b)(2). Section II.B.5 states, in part:

Evaluation Criterion II.B.1 states:

> Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.

Evaluation Criterion II.B.5 states, in part:

> Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

Regulatory Issue Summary (RIS) 2016-10 dated August 5, 2016 provides examples of the scope and detail of information that should be provided in license amendment requests for ERO staffing changes.

In a letter to the Nuclear Energy Institute dated June 12, 2018, the NRC staff provided alternative guidance for Evaluation Criterion II.B.5 in NUREG-0654, for minimum ERO on-shift and augmentation staffing. The NRC revised Section II.B, Table B-1 and stated, in part, "Regardless of whether a licensee chooses to use the guidance contained in Revision 1 of NUREG-0654, the attached, or an alternative approach, licensees are still required to adhere to 10 CFR 50.54(q) when revising their ERO staffing plans."

<u>SNC Compliance</u>

Under the proposed changes, the SNC Emergency Plan will continue to have onsite and offsite emergency response plans that meet the above stated regulatory requirements of 10 CFR 50.47(b) and Appendix E.

SNC recognizes that its proposed ERO staffing plan constitutes an alternate staffing approach to that recommended in the NRC Revised Table B-1; however, SNC has designed the ERO staffing plan to align to the extent possible with the recently issued NRC Revised Table B-1 guidance. Following the guidance in R.G. 1.219, as clarified in RIS 2016-10, SNC has evaluated each proposed change individually to ensure that key functions and tasks are maintained at all times and there is timely augmentation of response capabilities.

The proposed SNC staffing plan also takes into consideration a) appropriate credit for the plant design criteria for initial plant response, and b) enhancements in technology, information availability, and training which have increased the effectiveness of the SNC emergency preparedness program. Hardware and software upgrades to the plant computers, software updates to the dose assessment program, improved displays of information, upgrades in the speed and quality of the automated call-out systems, procedure and training improvements, and the ever-increasing quality and quantity of general communications methods via mobile devices have provided additional safety benefits. Collectively, these enhancements speed up and improve the quality of shared information and improve the performance of ERO personnel, thereby compensating for

the proposed increase in augmentation time and changes to the on-shift staff composition.

Following the guidance in NRC R.G. 1.219, as clarified in NRC RIS 2016-10, SNC has evaluated each proposed change individually to ensure that key functions and tasks are maintained and there is timely augmentation of response capabilities. Site-specific enclosures provide information demonstrating that SNC's alternate staffing approach supports timely and effective performance of the "Major Functional Areas" and "Major Tasks" listed in Table B-1 of NUREG-0654.

In summary, maintaining an appropriate number of on-shift personnel, crediting design criteria for initial plant response, crediting technological advances available for on-shift responders, and extending response times for ERF activation for 15 minutes to gain additional and valuable expertise for the ERO are practical and prudent alternate methods of ensuring efficient and flexible staffing and effective and timely emergency response.

4.2 Precedent

The proposed SNC Emergency Plan changes are similar to changes approved for other licensees, including Susquehanna (ML030830543), Fermi (ML102700478), River Bend (ML012710218), Watts Bar (ML041810056), Point Beach (ML16118A154), Duane Arnold (ML17220A026), Monticello (ML17349A91) and Prairie Island (ML17362A202), South Texas Project (ML18159A212), Sequoyah (ML18159A461) and Diablo Canyon (ML19196A309).

4.3 No Significant Hazards Considerations Determination

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests amendments to the licenses for Joseph M. Farley Nuclear Plant Units 1 and 2 (Farley), Edwin I. Hatch Nuclear Plant Units 1 and 2 (Hatch), Vogtle Electric Generating Plant Units 1 and 2 (Vogtle 1-2), and Vogtle Electric Generating Plant Units 3 and 4 (Vogtle 3-4). The enclosed license amendment request (LAR) proposes to revise the SNC Standard Emergency Plan, including the Site Annexes, to change the emergency response organization (ERO) staffing composition and extend staff augmentation times from 75 to 90 minutes from the time of declaration of an alert or higher emergency classification level.

SNC has evaluated the proposed changes and has determined that these changes comply with the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E Section IV. In reaching this conclusion, SNC considered applicable regulatory guidance documents, including NRC R.G. 1.101, NUREG-0654, RIS 2016-10, and NRC letter to the Nuclear Energy Institute (NEI) dated June 12, 2018 in which the NRC staff provided alternative guidance for minimum ERO on-shift and augmentation staffing.

SNC has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, as

discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change to the SNC ERO staffing plan has no effect on normal plant operation or on any accident initiator or precursors and does not impact the function of plant structures, systems, or components (SSCs). As a result, the probability of an accident previously evaluated is not increased, and there is no change in the consequences of an accident previously evaluated.

   Therefore, the proposed ERO staffing plan changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed change does not impact the accident analysis. The change does not involve physical alterations to the plant or changes in the method of operation. No new or different type of equipment will be installed. The change does not introduce failure modes that could result in a new accident, and the change does not alter assumptions made in the safety analysis.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

   Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed change in the ERO staffing plan does not impact operation of the plant or its response to transients or accidents. The change does not affect the Technical Specifications. The proposed change does not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed change. Safety analysis acceptance criteria are not affected by this proposed change. There is no change in design basis or safety limits.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

4.4 Conclusion

In conclusion, based on the considerations above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed changes to the ERO staffing plan, (2) the changes will be made in compliance with the NRC's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

In accordance with 10 CFR 51, SNC has considered the impact of the proposed changes to the ERO staffing plan on the quality of the human environment. SNC has determined that the proposed change would not increase the probability or consequences of radiological accidents. The proposed amendment does not involve a significant hazards consideration or authorize a change in the types or an increase in the amounts of any effluent that may be released off-site or result in an increase in individual or cumulative occupational radiation exposure. The proposed changes would have no direct radiological impacts on the environment. There would be no changes made to plant buildings or the site property. There would be no radiological environmental impacts associated with the proposed action, and there is no significant impact on the quality of the human environment.

6.0 REFERENCES

1) 10 CFR 50.47(b)
2) 10 CFR 50, Appendix E
3) Regulatory Guide 1.101, Revision 2 (1981)
4) NUREG-0654/FEMA-REP-1 Revision 1 November 1980
5) Regulatory Issue Summary 2016-10 August 5, 2016
6) Revised Section II.B, Table B-1 of NUREG-0654 published on June 12, 2018, in a letter from Robert E. Kahler, NRC Chief of Policy and Oversight Branch in the Division of Preparedness and Response of the Office of Nuclear Security and Incident Response (NSIR) to Susan Perkins-Grew, Senior Director of Emergency Preparedness and Risk Assessment at the Nuclear Energy Institute (NEI

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

Enclosure 2

SNC Standard Emergency Plan Marked-up Pages

This enclosure contains 26 pages

Southern Nuclear Operating Company

Standard Emergency Plan

Version X

DEFINITIONS

The following are definitions of terms commonly used in this Emergency Plan and each site-specific Annex:

Area Radiation Monitoring System (ARMS)

An instrumentation system designed to detect abnormal area radiation levels and activate corresponding station alarms.

Committed Dose Equivalent (CDE)

CDE is the dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

Committed Effective Dose Equivalent (CEDE)

CEDE is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the CDE to these organs or tissues.

Deep-Dose Equivalent (DDE)

DDE is the dose equivalent at a tissue depth of 1 cm (1000 mg/cm2), which applies to external whole-body exposure.

Dose Equivalent (DE)

DE is the product of the absorbed dose in tissue, quality factor and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert (Sv).

Effective Dose Equivalent (EDE)

EDE is the sum of the products of the dose equivalent to each organ or tissue and a weighting factor applicable to each of the body organs or tissues that are irradiated.

Emergency Action Levels (EALs)

Parameters used to designate a particular classification of emergency. These parameters may include radiological dose rates, levels of airborne or waterborne activity, or instrument indications/plant parameter values.

Exclusion Area Boundary

An area surrounding the reactor in which the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property from the area.

Facility Activation

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.

Hostile Action

An act towards a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to

deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile action should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorist based EALs should be used to address such activities, (e.g., violent acts between individuals in the owner-controlled area).

Hostile Force

One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

Independent Spent Fuel Storage Installation (ISFSI)

A complex designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

Ingestion Exposure Pathway Emergency Planning Zone (IPZ)

The IPZ is the fifty-mile radius area around an SNC-operated plant site for which protective actions are planned for the general population, farmers, dairy farmers, ranchers, food processors and distributors.

Inplant

The area located within the confines of the SNC Plant Power Block Protected Area.

Letters of Agreement (LOA)

Letters of agreement include contracts, letters or other formal agreements between Southern Company and/or SNC-operated plants and certain off site resources who provide assistance during emergency events, including a Hostile Action, at SNC-operated plants.

Nuclear Administrative and Technical Manual (NATM)

The collection of onsite programs and procedures that prescribes how SNC-operated plants are controlled, operated, maintained, and tested to meet the requirements of applicable licenses, standards, codes, and guides. It establishes effective management practices.

Offsite

Any position or area not located within the confines of the Site Boundary.

Onsite

Any position or area located within the confines of the Site Boundary.

Onsite (out-of-plant) Survey

The area within the Protected Area fence and outside of the plant buildings monitored for changing radiological conditions.

Owner Controlled Area

The area owned by the licensee and located within the confines of the Site Boundary.

Plume Exposure Pathway Emergency Planning Zone (EPZ)

The Plume Exposure Pathway EPZ is the ten-mile radius area around an SNC-operated plant site for which protective actions are planned.

SECTION B: EMERGENCY RESPONSE ORGANIZATION (ERO)

B.1 Normal Plant Organization

The normal onsite organization of an SNC-operated nuclear power plant provides a staff capable of providing the initial response to an emergency event. The On-Shift staff was validated by performing a detailed staffing analysis as required by Part 50 Appendix E, IV.A.9. Organizational structures for each of the sites and the On-Shift staffing tables are provided in the Site-Specific Annex. The number and ERO position titles of personnel available within ~~75~~ 90 minutes following declaration of an Alert or higher classification are shown in Table~~s~~ 1~~,2,3, and 4~~.

SNC plants maintain 24-hour emergency response capability. The normal on-shift complement provides the initial response to an emergency. This group is trained to respond to emergency situations until the augmented Emergency Response Organization (ERO) arrives. The ERO is composed of personnel with specialties in operations, maintenance, engineering, radiochemistry, radiation protection, fire protection, and security.

B.1.1 The Shift Manager (SM) is in direct charge of shift plant operations and is directly responsible for the actions of the on-shift crew. In an emergency, the SM assumes the responsibility of the Emergency Director (ED) and takes necessary actions to identify and respond to the emergency until relieved by another qualified ED. The ED has the responsibility and authority to immediately and unilaterally initiate emergency actions, including providing notification of Protective Action Recommendations (PAR) to state and local government organizations responsible for implementing off site emergency measures. The ED, at their discretion or when procedurally required, activates the ERO.

The Emergency Director's non-delegable duties include:

- Event classification in accordance with the emergency classification system.
- Perform the duties and responsibilities of Protective Action Recommendation (PAR) determination.
- Notifications of offsite agencies and approval of state, local, and NRC notifications.
- Authorization of emergency exposures in excess of federal limits.
- Issuance of potassium iodide (KI) to plant employees as a thyroid blocking agent.
- Request federal assistance as needed.

After being relieved as Emergency Director, the Shift Manager directs the activities of the operating crew and is responsible for the safe operation of the plant. The Shift Manager, after relinquishing duties and responsibilities of the Emergency Director, functionally reports to the Operations Supervisor in the Technical Support Center (TSC).

B.1.2 Shift Supervisors, who hold Senior Reactor Operator (SRO) licenses, supervise operation of the unit and may assume the duties of the ED in the absence of the Shift Manager. Additional details of the normal on-shift organization are contained in the site-specific annexes to this Plan.

B.2 On Site Emergency Response Organization (ERO)

Augmentation of on-shift staffing will occur within ~~75~~ 90 minutes of the declaration of an Alert or higher classification by the Emergency Response Organization (ERO). ERO positions for the TSC, Operations Support Center (OSC), Emergency Operations Facility (EOF) and JIC are detailed below. A sufficient number of personnel are qualified to ensure that positions listed in this section can be staffed on a 24-hour-a-day basis for an extended event. On-shift as well as offsite state and local government interfaces are detailed in the site-specific Annexes.

Command and Control shifts from the Control Room to the TSC and the EOF for their assigned duties (See figure B.2.A). Command and Control may move in either direction, depending on conditions that would warrant passing such authority. Command and Control may be completed sequentially or in parallel, based on the discretion of the EDs. An ED in either facility can relieve the other facility of the Command and Control authority and responsibilities for which they are qualified. Figure B.2.A depicts the transition of Command and Control responsibilities between facilities. Alternative Facilities have been identified to ensure timely ERO response during a hostile action event. Details on the Alternative Facilities are included in Section H.

Figure B.2.A Transition of Command and Control Functions

CONTROL ROOM	TSC	EOF
Shift Manager / Emergency Director	**TSC Emergency Director**	**EOF Emergency Director**
Classification →	Classification	
Notifications →		State & Local Notifications
→	NRC Notifications	
PARs →		PARs
Emergency Exposure Controls →	Emergency Exposure Controls	

B.2.1 Technical Support Center (TSC)
See Figure B.2.1.A at the end of Section B.

B.2.1.1 TSC Emergency Director (ED)

The TSC ED has the authority and responsibility to immediately initiate any emergency actions. Once transfer of Command and Control has been completed, the TSC ED assumes the non-delegable duties of Event Classification, NRC Notifications, on-site Emergency Exposure Authorization, and on-site protective actions.

B.2.1.2 TSC Manager

The TSC Manager reports to the TSC ED and is responsible for coordinating activities between the TSC and other emergency response facilities, directing the activities of the TSC staff, and ensuring communications are established with applicable offsite agencies.

~~B.2.1.10 TSC Chemistry Support~~

~~The TSC Chemistry Support reports to the RP Supervisor. The TSC Chemistry Support is responsible for directing and evaluating in-plant chemistry and analyses, directing and evaluating post-accident sampling, and assisting in core damage assessment.~~

B.2.1.10~~1~~ TSC Emergency Notification System (ENS) Communicator

The ENS Communicator reports to the Operations Supervisor and is responsible for ensuring NRC notifications are completed in accordance with the requirements of 10 CFR 50.72 and 73.

B.2.1.11~~2~~ TSC Health Physics Network (HPN) Communicator

The HPN Communicator reports to the RP Supervisor and is responsible for providing radiological and environmental information to the NRC on the HPN Line.

B.2.1.12~~3~~ TSC Emergency Response Facility (ERF) Communicator

The ERF Communicator reports to the TSC ED. The ERF communicator is responsible for staffing continuous communications links with their CR, OSC and EOF counterparts.

B.2.1.13~~4~~ TSC Security Supervisor

The Security Supervisor reports to the TSC Manager. The TSC Security Supervisor is responsible for carrying out the plant security and Access Control program, maintaining personnel accountability onsite, and assisting in evacuation of onsite areas.

B.2.1.14~~5~~ TSC Support Coordinator

The Support Coordinator reports to the TSC Manager and directs the clerical and logistic activities in the TSC, ensures support staff, including clerks, status board keepers, and communicators, are available in sufficient numbers, and ensures office supplies, drawings, and other documents are available to TSC and OSC personnel.

B.2.2 Operations Support Center (OSC)

See Figure B.2.2.A at end of Section B.

B.2.2.1 OSC Manager

The OSC Manager reports to the TSC Manager and directs a staff in providing labor, tools, protective equipment, and parts needed for emergency repair, damage control, firefighting, search and rescue, first aid, and recovery.

B.2.2.2 OSC Operations Group Lead

The Operations Group Lead reports to the OSC Manager and provides oversight for non-licensed operations personnel. The position is responsible for ensuring the OSC Manager is aware of any OPS issues, concerns and priorities that could impact the setting of facility priorities for OSC response teams.

B.3.1.13 EOF Health Physics Network (HPN) Communicator

The HPN Communicator reports to the Dose Assessment Supervisor and is responsible for providing radiological and environmental information to the NRC using the HPN Line.

~~B.3.1.14 EOF Administrative Support Staff~~

~~The Administrative Support Staff report to the EOF Support Coordinator. The administrative support staff is responsible for providing clerical and administrative support to the Emergency organization, making entries to and retrieving data from the Nuclear Network, retrieval of file documents, and updating status boards using information provided from the sites.~~

B.3.1.14 State/County Liaisons

Liaisons report to the Offsite Response Coordinator and respond to the applicable state and county Emergency Operations Centers (EOCs) as required by the type and source of the event. Liaisons are assigned to the applicable state/county EOCs depending on which SNC site declared the initiating event.

B.3.1.15 EOF Emergency Response Facility (ERF) Communicator

The ERF Communicator reports to the EOF Emergency Director and is responsible for maintaining communications with their counterpart in the Control Room, TSC and OSC.

B.3.1.16 EOF Technical Supervisor

The Technical Supervisor reports to the EOF Manager and is responsible for providing engineering expertise during an emergency event at an SNC-operated plant. This may include interacting with non-SNC response groups, developing mitigation and recovery plans, and coordinating work performed by SNC and non-SNC engineering groups.

B.3.1.17 EOF News Writer

The News Writer reports to the EOF Manager, gathers information, and prepares news bulletins verified for distribution. The News Writer coordinates technical approval with the EOF Manager.

B.3.2 Joint Information Center (JIC)

See Figure B.3.2.A at end of Section B.

B.3.2.1 Public Information Director (PID)

The PID is responsible for coordination of emergency information between the utility and responding offsite organizations participating in the Corporate Media Center (CMC) or Joint Information Center (JIC). Additional duties include managing approval and dissemination of utility news bulletins, facilitating news briefings, overseeing public response, serving as liaison to the media and coordinating offsite agencies. The PID is responsible for evaluating the emergency's severity in terms of public interest and safety. The PID may delegate emergency communications approval authority to other staff members.

B.3.2.2 JIC Manager

The JIC Manager reports to the PID and supervises the activities of the technical and communications advisors~~,~~ and technical communicator ~~and an administrative staff~~. The JIC Manager responsibilities include:

- Providing the EOF Manager with an overview of the public and media impacts of plant and governmental activities.
- Advising the Nuclear Spokesperson regarding information to be released to the public.
- Maintaining up-to-date knowledge of conditions of the plant and environment, and the actions of SNC and governmental support personnel.
- Coordinating with the state to review and access media coverage of the emergency event.

B.3.2.3 JIC Assistant

The JIC Assistant reports to the JIC Manager and is responsible for supervision and direction of clerical staff in the facility; verification, approval, and distribution of news bulletins; direction of support staff activities; and maintenance of an accurate record of facility activities.

B.3.2.4 Facility Coordinator

The Facility Coordinator reports to the JIC Manager and is responsible for setting up the facility and ensuring ongoing operability, as well as providing oversight for facility Security personnel.

B.3.2.5 Public Response Coordinator

The Public Response Coordinator reports to the PID and is responsible for directing the facility's public response activities, keeping staff informed of the most current plant status, and obtaining responses for rumors and public inquiries.

B.3.2.6 Public Response Staff

The Public Response Staff reports to the Public Response Coordinator and is responsible for coordinating and developing responses to rumors and public inquiry.

B.3.2.7 Media Relations Representative

The Media Relations Representative reports to the JIC Manager and is responsible for implementing utility media response and supervision of AV staff.

B.3.2.8 Nuclear Spokesperson

The Nuclear Spokesperson speaks on behalf of the company, providing plant status updates during news briefings. The Spokesperson also may do one-on-one media interviews. The position works with the Technical Assistant in keeping abreast of the event status and keeps the Public Information Director (PID) posted on that status.

~~TSC 75 Minute Augmentation ERO~~		
~~Major Functional Area~~	~~Major Task~~	~~Position Title~~
~~Emergency Direction and Control~~		~~Emergency Director~~
		~~TSC Manager~~
		~~Operations Supervisor~~
		~~Security Supervisor~~ [1]
		~~Support Coordinator~~ [2]
~~Notification / Communication~~	~~Notify licensee, state, local and federal personnel & maintain communication~~	~~Emergency Notification System (ENS) Communicator~~
		~~Health Physics Network (HPN) Communicator~~
	~~Intra-facility Communications~~	~~Emergency Response Facility (ERF) Communicator (2)~~ [3]
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite dose assessment~~	~~Radiation Protection (RP) Supervisor~~
		~~On-shift Dose Analyst~~ [4]
	~~Offsite surveys~~	~~Not applicable for this facility~~
	~~Onsite and in-plant surveys~~	
	~~Chemistry/Radio Chemistry~~	~~Chemistry Support~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Engineering Supervisor~~
		~~Reactor Engineer~~
		~~Engineering Support (2)~~
	~~Repair and corrective actions~~	~~Maintenance Supervisor~~
~~Protective Actions~~	~~Access Control~~	~~Not applicable for this facility~~
	~~RP coverage for repair, corrective actions, search and rescue first aid, & firefighting~~	
	~~Personnel monitoring~~	
	~~Dosimetry~~	
~~Total~~		~~16~~

~~Note: Site Annexes contain any additional site specific staffing.~~
[1] ~~Security Supervisor is filled by on-shift Security Supervisor.~~
[2] ~~Support Coordinator does not have a 75-minute Augmentation Time.~~
[3] ~~One ERF Communicator to the control room; One ERF Communicator to the TSC.~~
[4] ~~Dose Analyst is filled by the on-shift Chemistry Technician who normally reports to the TSC. Dose assessment transfers directly from on-shift to the EOF.~~

~~Table 1~~

~~OSC 75 Minute Augmentation ERO~~		
~~Major Functional Area~~	~~Major Tasks~~	~~Position Title~~
~~Emergency Direction and Control~~		~~OSC Manager~~
~~Notification / Communication~~	~~Notify licensee, state, local and federal personnel & maintain communication~~	~~Not applicable for this facility~~
	~~Intra-facility communications~~	~~ERF Communicator~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite dose assessment~~	~~Not applicable for this facility~~
	~~Offsite surveys~~	~~Field Monitoring Team Lead (2)~~ ~~Field Monitoring Team Assistant (2)~~
	~~Onsite and in-plant surveys~~	~~RP Technicians (2) [1]~~
	~~Chemistry/Radio Chemistry~~	~~Chemistry Technician [2]~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Not applicable for this facility~~
	~~Repair and corrective actions~~	~~Operations Group Lead~~
		~~Mechanical Maintenance Group Lead~~
		~~Electrical Maintenance Group Lead~~
		~~I&C Maintenance Group Lead~~
~~Protective Actions~~	~~Access Control~~	~~RP/Chemistry Group Lead~~
	• ~~RP coverage for repair, corrective actions, search and rescue first aid, & firefighting~~ • ~~Personnel monitoring~~ • ~~Dosimetry~~	~~RP Technicians (2) [3]~~
~~Total~~		~~16~~
~~Note: Site Annexes contain any additional site specific staffing.~~ [1] ~~Both RP Technicians are from the on-shift staff.~~ [2] ~~The Chemistry Technician is from the on-shift staff.~~ [3] ~~1 RP Technician is used from the on-shift staff.~~		

~~Table 2~~

~~EOF 75 Minute Augmentation ERO~~		
~~Major Functional Area~~	~~Major Task~~	~~Position Title~~
~~Emergency Direction and Control~~	~~Emergency Operations Facility (EOF) Director~~	~~Emergency Director (ED)~~
		~~EOF Manager~~
		~~Support Coordinator~~
		~~Emergency Communication Coordinator~~
		~~Security Coordinator~~
		~~Offsite Response Coordinator~~
		~~Administrative Support Staff~~ [1]
		~~Liaisons (at EOCs)~~ [1] ~~GA~~ ~~AL~~ ~~SC~~ [2]
~~Notification / Communication~~	~~Notify licensee, state, local and federal personnel & maintain communication~~	~~ENN Communicator~~
		~~ENS Communicator~~
		~~HPN Communicator~~
	~~Intra-facility Communications~~	~~ERF Communicator~~
		~~News Writer~~
		~~Field Team Communicator~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite dose assessment~~	~~Dose Assessment Supervisor~~
		~~Dose Analyst~~
	~~Offsite surveys~~	~~Field Team Coordinator~~
	~~Onsite and in-plant surveys~~	~~Not required in this facility~~
	~~Chemistry/Radio Chemistry~~	~~Not required in this facility~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Technical Supervisor~~
	~~Repair and corrective actions~~	~~Not required in this facility~~
~~Protective Actions~~	~~Access Control~~	~~Not required in this facility~~
	~~RP coverage for repair, corrective actions, search and rescue first aid, & firefighting~~	
	~~Personnel monitoring~~	
	~~Dosimetry~~	
~~Total~~		~~16~~

~~Note:~~
[1] ~~Administrative Support Staff, Liaisons (at EOCs) GA, AL, SC do not have a 75 minute Augmentation Time. These are not key positions and are not included in the facility Total.~~
[2] ~~SC Liaison is dispatched from Vogtle site.~~

~~Table 3~~

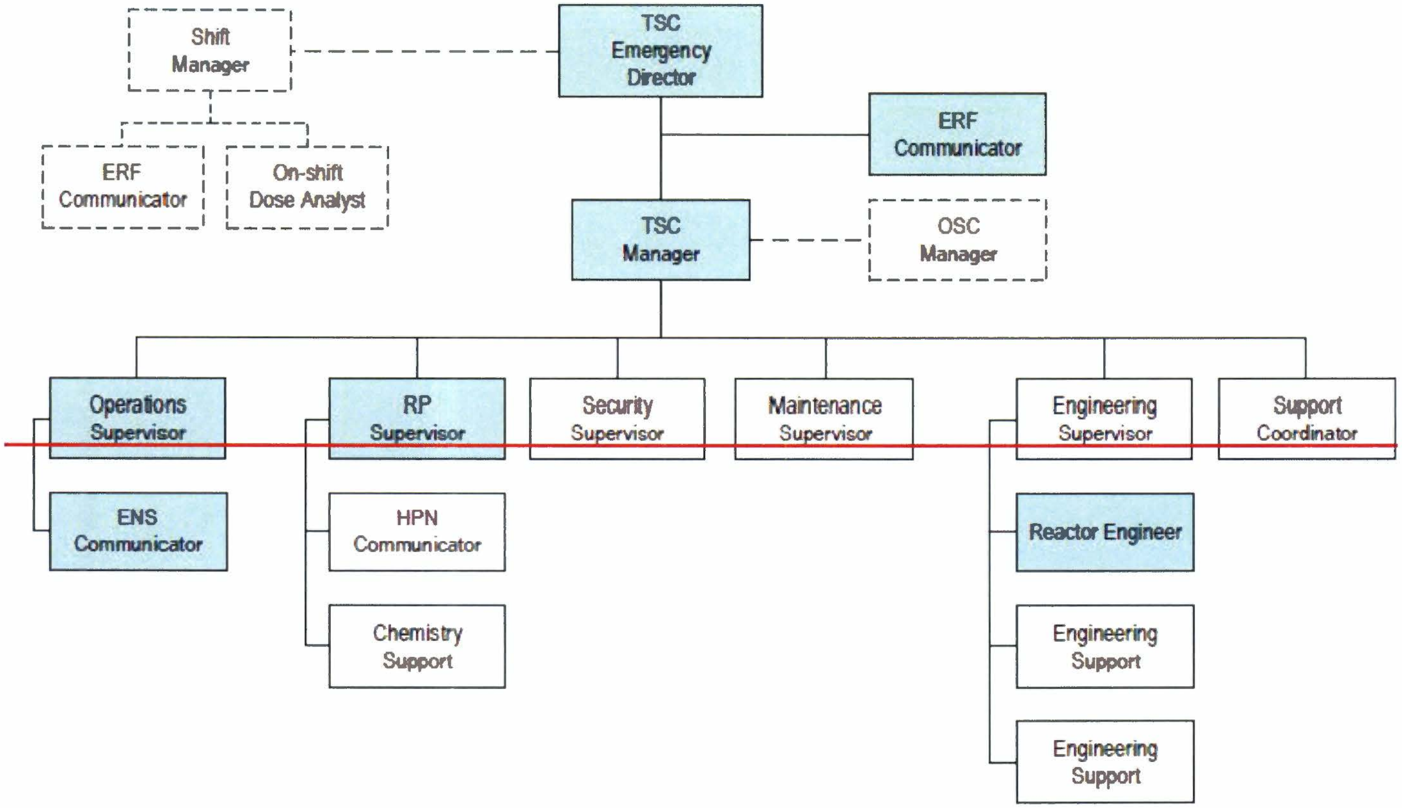
~~JIC Staff~~ [1]		
~~Functional Area~~	~~Major Task~~	~~Position Title~~
~~Media Response~~	~~Media Response~~	~~Public Information Director~~ [2]
		~~Nuclear Spokesperson~~
		~~Technical Assistant~~
		~~JIC Manager~~ [2]
		~~JIC Assistant~~
		~~Facility Coordinator~~ [2]
		~~Clerical Staff~~
		~~Security~~
		~~Public Response Coordinator~~ [2]
		~~Public Response Staff~~
		~~Media Relations Representative~~ [2]
~~Total~~		~~5~~

~~Note:~~
[1] ~~JIC Staff does not have a 75 minute Augmentation Time.~~
[2] ~~Minimum staff positions.~~

~~Table 4~~

Major Functional Area	Major Task	Position Title	Augmented Responders 90 min
Emergency Direction and Control	Command and Control	Emergency Director (TSC)	1
		Emergency Director (EOF)	1
Notification/ Communication	Licensee, Local/State and Federal communications	Emergency Communication Coordinator (EOF) ENS Communicator (EOF & TSC) ENN Communicator (EOF) ERF Communicators (OSC, TSC, & EOF)	7
Radiation Protection Actions and Supervision	Offsite Dose Assessment	RP Supervisor (TSC)	1
		Dose Assessment Supv. & Analyst (EOF)	2
		HPN Communicators (EOF & TSC)	2
	Offsite Surveys	FMT Lead and Assistant (OSC) (two each)	4
		FMT Coordinator and Communicator (EOF)	2
	In-plant / Onsite (out-of-plant) Surveys Dosimetry / Access Control	RP/Chemistry Group Lead (OSC) 6 RP Technicians (OSC) (4 augmented and 2 from on-shift)	7
Engineering	Technical Support	Engineering/Tech Supervisor (TSC & EOF)	2
		Reactor Engineer (TSC)	1
		Engineering Support (TSC)	2
Maintenance, and Other Support	Repair and Corrective Actions	ERF Manager (OSC/TSC/EOF)	3
		Mechanical Group Lead and Tech (OSC)	2
		Electrical Group Lead and Tech (OSC)	2
		I & C Group Lead and Tech (OSC)	2
		Operations Group Lead/Supv. (OSC & TSC)	2
		Security Supervisor/Coordinator (TSC & EOF)	2
		Maintenance Supervisor (TSC)	1
		ORO Coordinator and News Writer (EOF)	2
Total			**48**

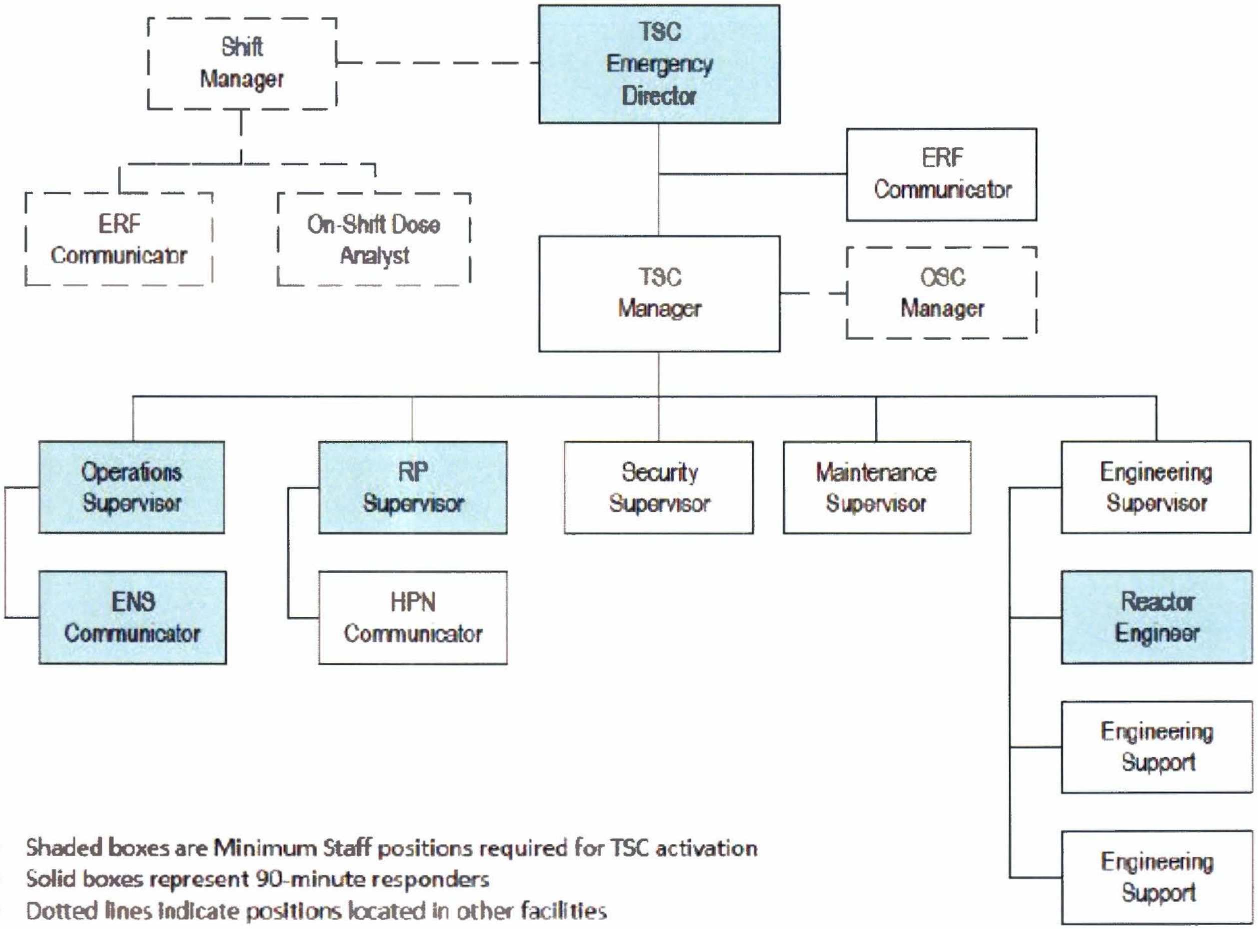
Table 1



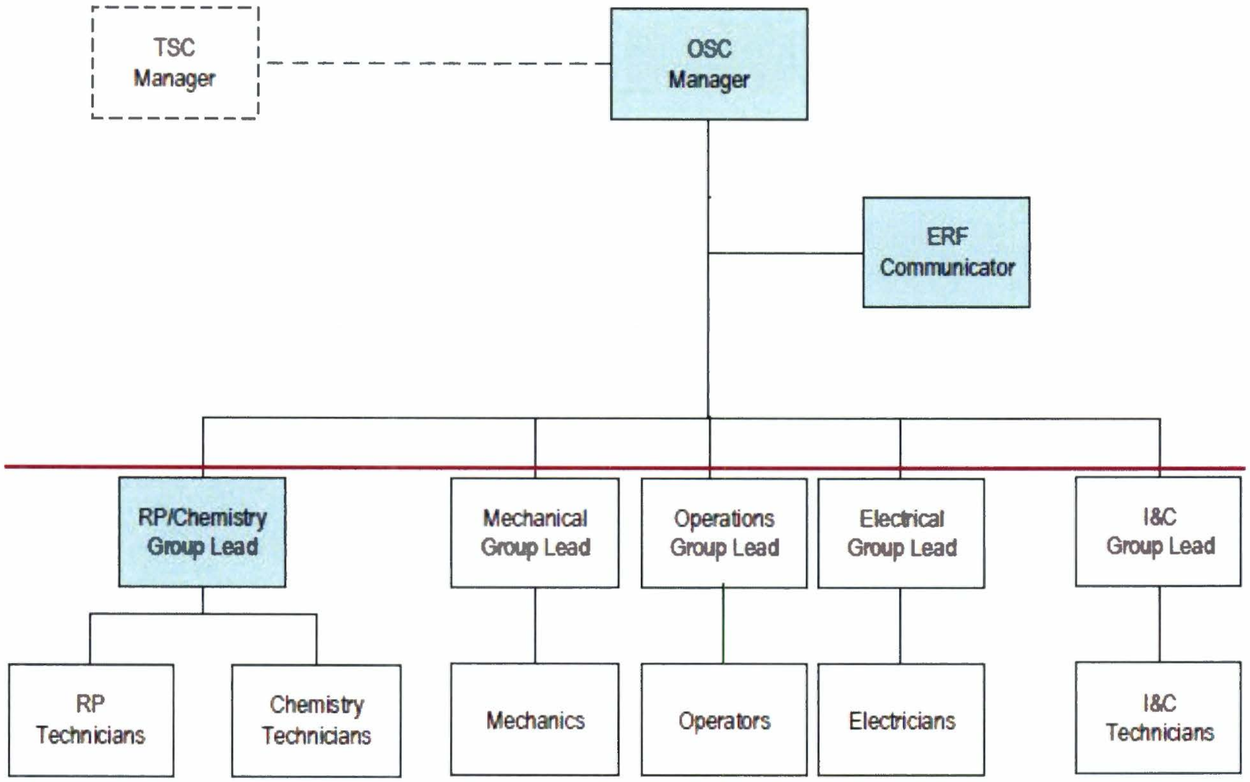
Minimum Staff positions are shaded boxes.

Dashed lines indicate positions that may be physically located in other facilities.

Figure B.2.1.A – Technical Support Center Organization



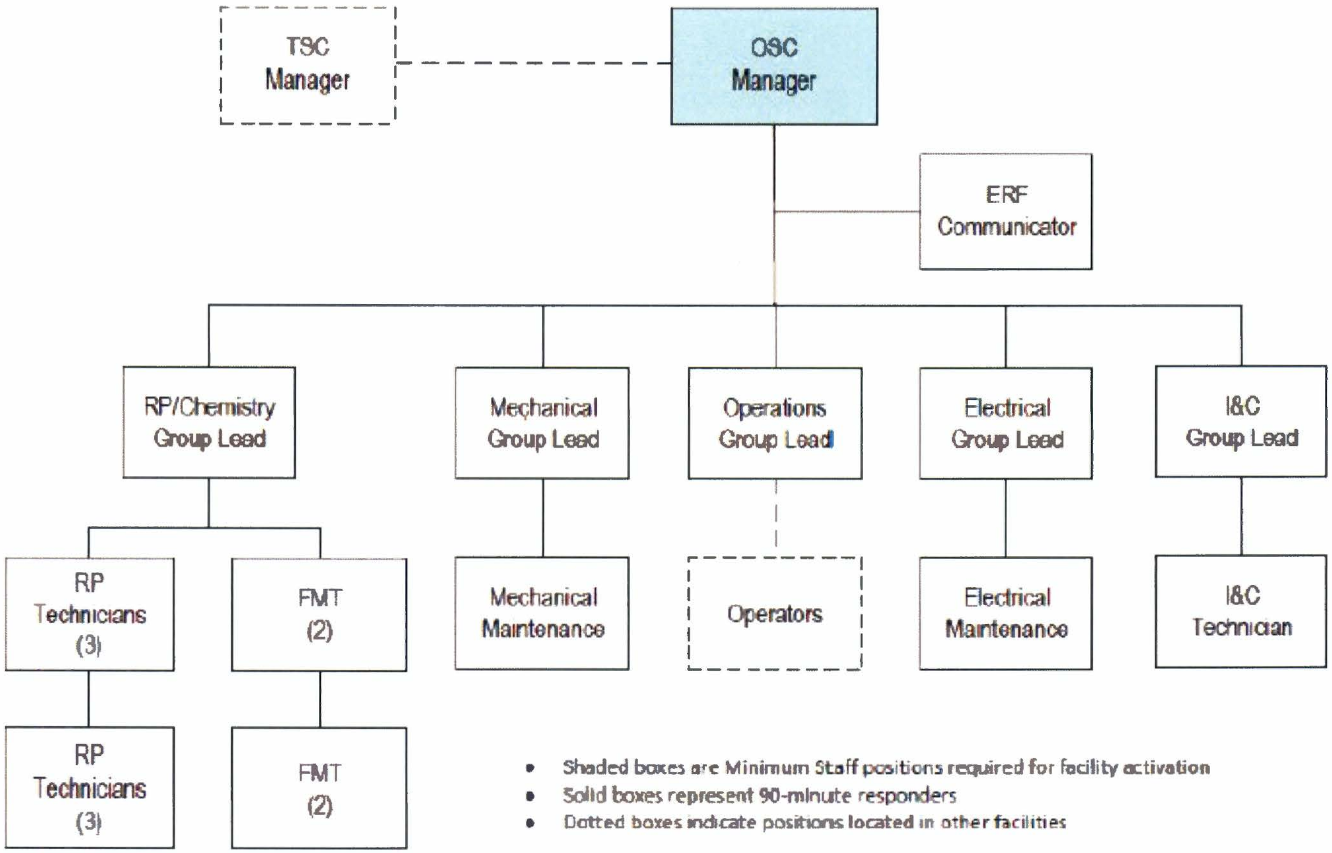
- Shaded boxes are Minimum Staff positions required for TSC activation
- Solid boxes represent 90-minute responders
- Dotted lines indicate positions located in other facilities



Minimum Staff positions are shaded boxes.

Dashed lines indicate positions that may be physically located in other facilities.

Figure B.2.2.A – Operations Support Center Organization



- Shaded boxes are Minimum Staff positions required for facility activation
- Solid boxes represent 90-minute responders
- Dotted boxes indicate positions located in other facilities

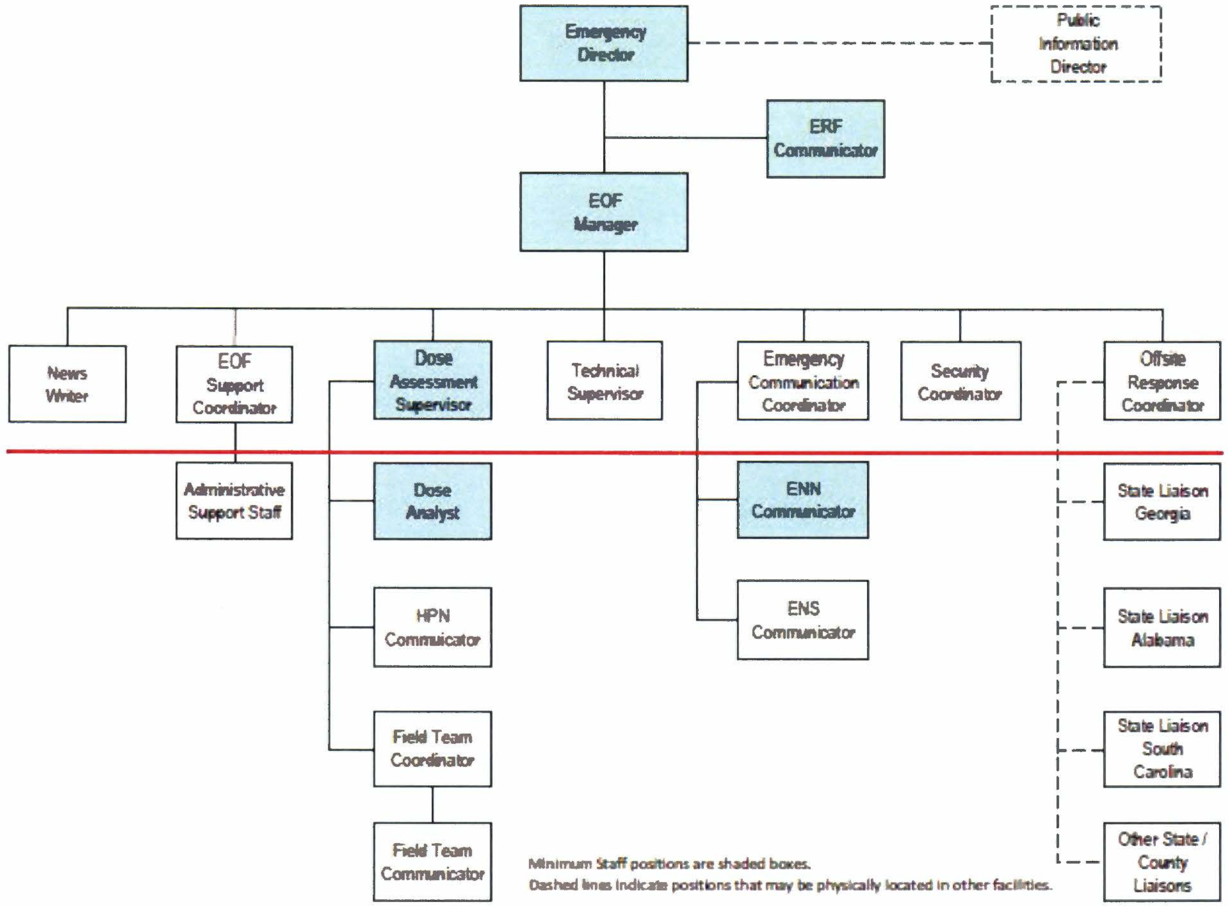
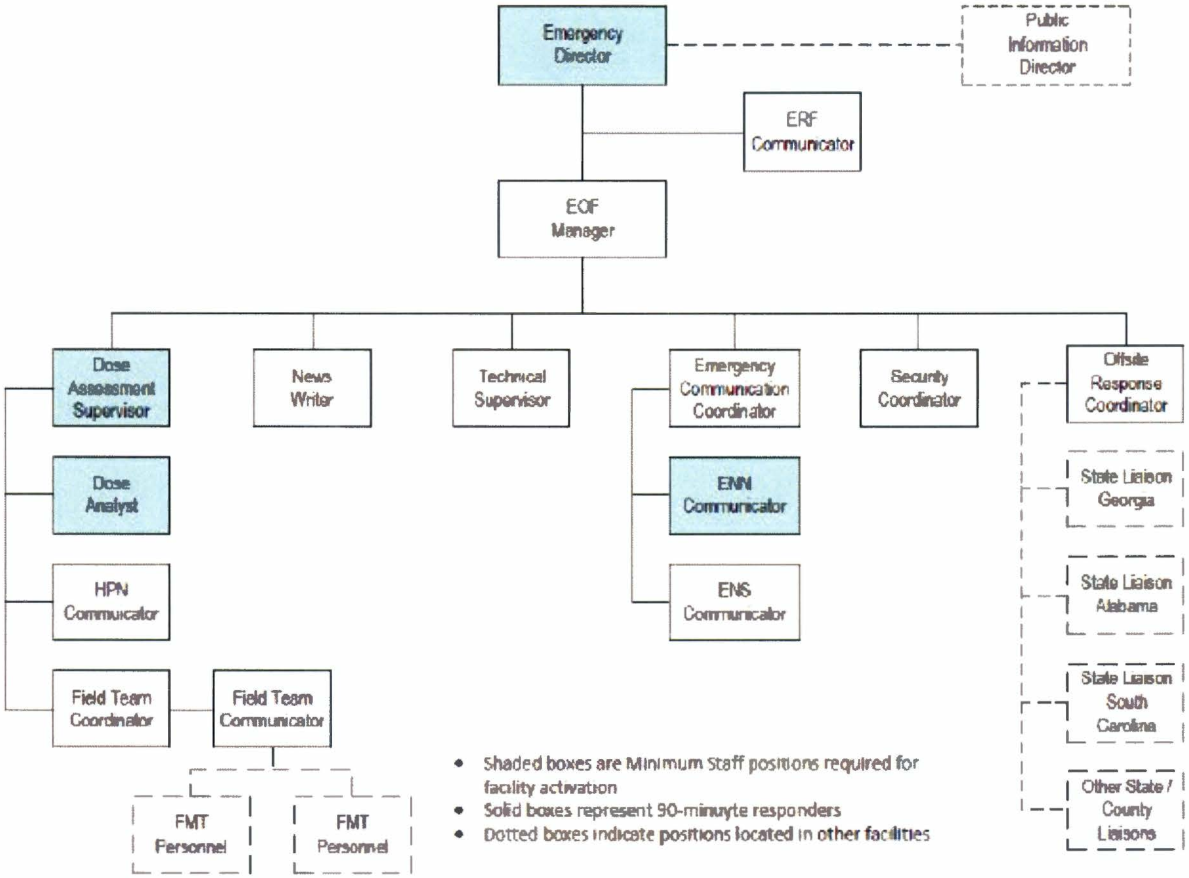
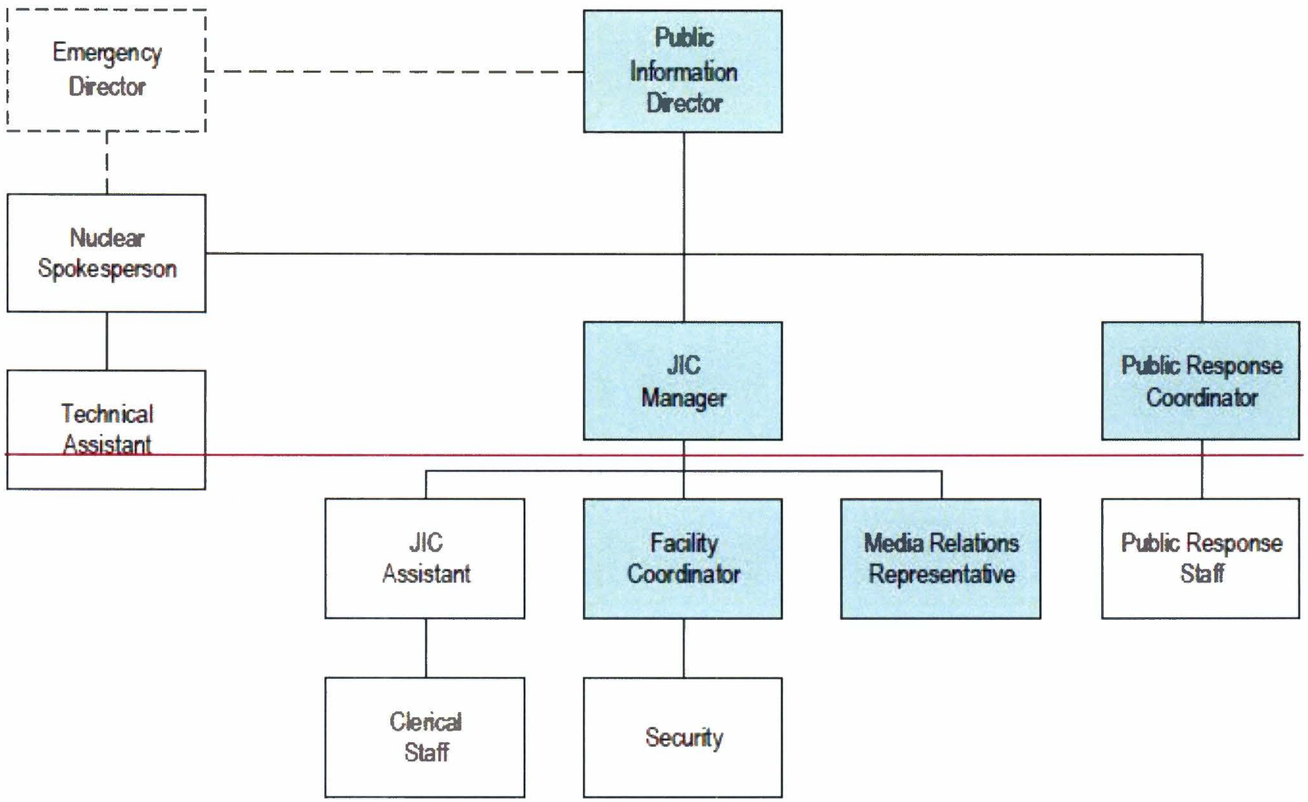


Figure B.3.1.A – Emergency Operations Facility Organization



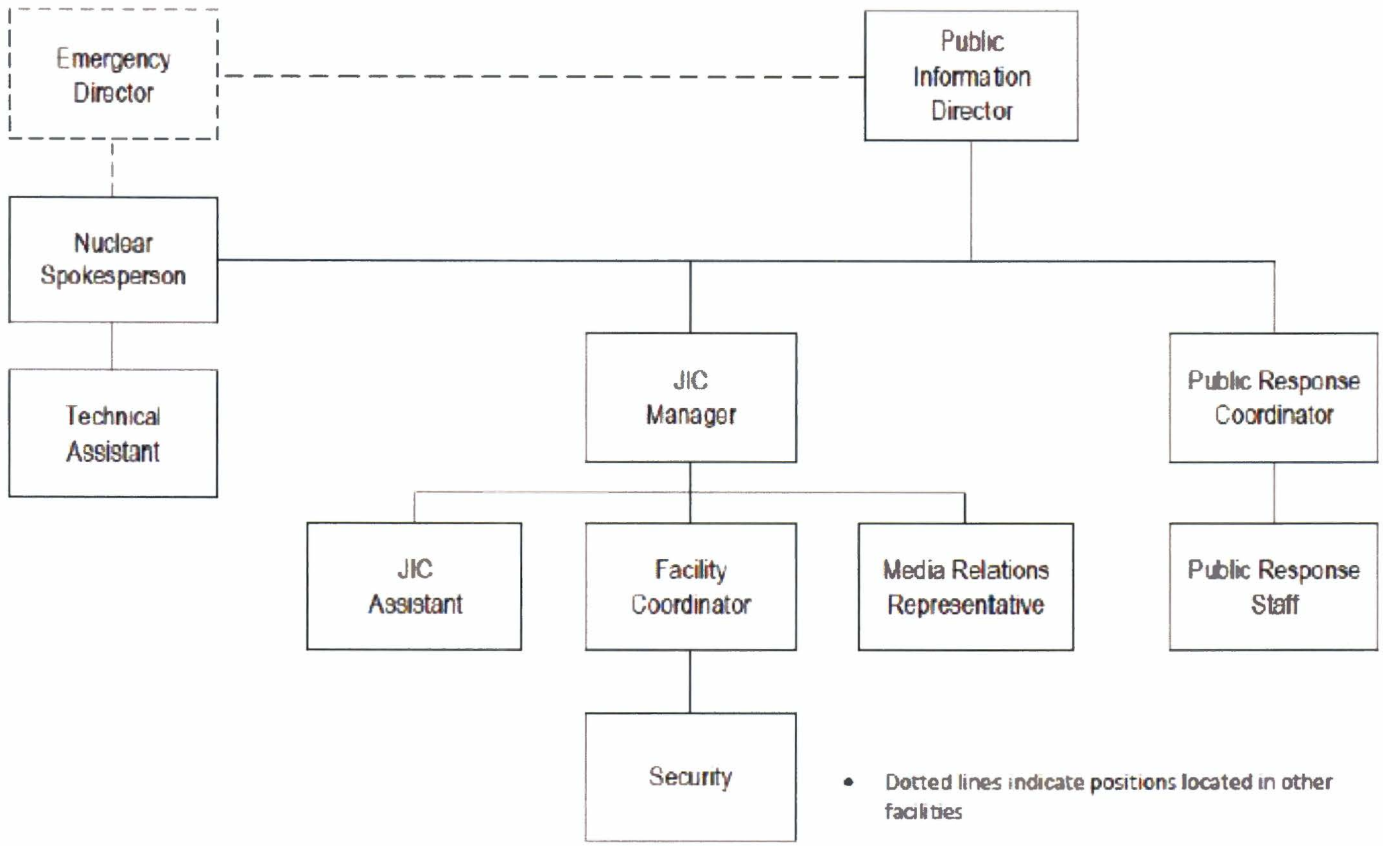
- Shaded boxes are Minimum Staff positions required for facility activation
- Solid boxes represent 90-minuyte responders
- Dotted boxes indicate positions located in other facilities



Minimum Staff Positions are shaded boxes.

Dashed lines indicate positions that may be physically located in other facilities.

Figure B.3.2.A – Joint Information Center Organization



- Dotted lines indicate positions located in other facilities

SECTION H: EMERGENCY FACILITIES AND EQUIPMENT

H.1 Onsite Emergency Response Facilities

SNC-operated nuclear power plants have established a TSC and an onsite OSC, which are staffed and activated within ~~75~~ 90 minutes of the declaration of an Alert or higher classification. Emergency Response Facilities may be activated at an Unusual Event at the discretion of the Emergency Director. Until the TSC and OSC are activated, required functions of these facilities are performed in the Control Room.

H.1.1 Control Room

The Control Room is the centralized onsite location from which the plant's reactors and major plant systems are operated. The Control Room is equipped with instrumentation to supply detailed information on the reactors and major plant systems. The Control Room is continuously staffed with qualified, licensed operators, and is the first onsite facility to respond to emergency events. Control Room personnel evaluate and effect control over emergencies until support centers can be activated. As other Emergency Response Facilities (ERFs) become activated, they will support the Control Room, and overall Command and Control of the emergency will transfer to the TSC. Offsite Agency Notification and Protective Action Recommendation determination will transfer to the EOF. Control Room activities may include:

- Reactor and plant control.
- Initial direction of plant related operations.
- Accident recognition, classification, mitigation and initial corrective actions.
- Alerting of onsite personnel.
- Notification of appropriate individuals.
- Activation of emergency response facilities and ERO notification.
- Notification of offsite agencies.
- Notification and update of the NRC via ENS.
- Continuous evaluation of the magnitude and potential consequences of any incident.
- Recommendations for immediate protective actions for the public.
- Activation of the Emergency Response Data System (ERDS).

H.1.2 Technical Support Center (TSC)

SNC-operated nuclear power plants have established a TSC for use during emergency situations by plant management, technical, and engineering support personnel. The TSC is procedurally required to be activated within ~~75~~ 90 minutes following the declaration of an Alert or higher classification. Activation for Unusual Events or unclassified incidents is optional. When activated, TSC functions include:

- Support for the Control Room's emergency response efforts.
- Performance of response management functions when in Command & Control.
- Continued evaluation of event classification.
- Assessment of the plant status and potential offsite impact.
- Coordination of emergency response actions.
- Notification of appropriate corporate and plant management.
- Notification and update of the NRC via the ENS.
- Notification and update of the NRC via Health Physics Network (HPN).

The TSC is the on-site location used to support the Control Room for assessment of plant status and for implementation of emergency actions. TSC personnel provide technical data and information to the EOF. Each TSC provides reliable voice and electronic communications to the Control Room, the OSC, the EOF, the NRC, and state Emergency Operations Centers.

The TSC is sized to accommodate ERO responders and NRC Representatives. State and county personnel are not expected to report to the TSC. Personnel in the TSC are protected from radiological hazards, including direct radiation and airborne contaminants under accident conditions, with similar radiological habitability standards as Control Room personnel.

To ensure adequate radiological protection, radiation monitoring equipment has been installed in the TSC, or periodic radiation surveys are conducted. These systems indicate radiation dose rates while in use. In addition, potassium iodide (KI) is available for use.

The TSC has access to a controlled set of drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), and electrical schematics. The TSC has the capability to display vital plant data, in real time, to be used by knowledgeable individuals responsible for engineering and management support of reactor operations, and for implementation of emergency procedures.

Details of the TSC configuration and location are in the site specific Annexes.

H.1.3 Operations Support Center (OSC)

The OSC has been established to provide an area for coordinating and planning activities and staging personnel and equipment. The OSC responders include groups such as Instrument and Control Technicians, Mechanics, Electricians, Nuclear Chemistry and RP Technicians, Operations personnel, and oncoming shift personnel. Additional space is available to accommodate personnel as required. If the OSC is deemed uninhabitable, the OSC may be moved to other locations as deemed appropriate by the OSC Manager.

Emergency supplies are maintained in the OSC. When an emergency condition exists at one SNC-operated nuclear power plant, additional supplies can be obtained from other unaffected plants and SNC resources upon request.

Details of the OSC configuration and location are in the site specific Annexes.

H.1.4 Alternative Facilities

An Alternative Facility for staging of ERO personnel has been designated at the sites. In the event of a Security or Hostile Action threat or event, the designated Alternative Facility may also serve as an evacuation location for TSC and OSC personnel. The Alternative Facility is designed to be accessible in the event of an onsite HAB event and has the capability to:

- Communicate with the Control Room, Security, and the EOF.
- Conduct engineering assessment activities including damage control team planning and preparation.

The functions of Notification and PARs will be performed from the EOF should the Alternative Facility be activated. Details of Alternative Facilities can be found in the Site Specific Annex.

H.2 Offsite Emergency Facilities

H.2.1 Emergency Operations Facility

The EOF is the central location for management of the offsite emergency response, coordination of radiological assessment, and management of initial recovery operations. The EOF is a dedicated facility located in Birmingham, Alabama, and serves as the EOF for SNC sites (VEGP, FNP, and HNP). The EOF is procedurally required to be activated within ~~75~~ 90 minutes following the declaration of an Alert or higher classification. The EOF provides for:

- Management of overall emergency response.
- Coordination of radiological and environmental assessments.
- Protective Action Recommendations.
- Notification of Offsite Agencies.
- Management of recovery operations.
- Notification and update of the NRC via ENS.
- Notification and update of the NRC via Health Physics Network (HPN).
- Coordination of emergency response activities with federal, state, and local agencies.

H.2.2 Corporate Media Center (CMC)

Upon notification of an Alert or higher classification, the Public Information Director and corporate staff assigned to JIC functions will assemble at the CMC. The CMC, located at the Atlanta/Birmingham corporate headquarters building of Georgia Power Company/Alabama Power Company, as appropriate, is the official location for coordination of emergency communications response until the site specific JIC has been staffed~~activated~~. The Public Information Director will coordinate with the EOF Emergency Director and affected OROs and determine whether to staff~~activate~~ the site specific JIC. When the decision is made to staff~~activate~~ the JIC, the CMC will maintain emergency communications response coordination until the site specific JIC is ready to assume these responsibilities. Once overall responsibility for emergency communications response transfers to the site specific JIC, the remaining CMC staff will provide support for the JIC as needed.

H.2.3 Joint Information Center (JIC)

After the initial notification of an emergency at the Alert classification or higher, the Public Information Director will coordinate with the EOF Emergency Director and affected OROs and determine whether to staff~~activate~~ the JIC. Upon the decision to staff~~activate~~ the JIC, the Public Information Director and JIC staff transfer from the CMC to the site specific JIC. Once the JIC is staffed the Public Information Director will manage the emergency communications response from the JIC in coordination with ORO public information officers (PIOs).

Site specific JIC is provided in the site specific Annexes.

H.3 State and local Emergency Operations Centers (EOC)

EOCs operated by the state and by local communities allow direction and control of emergency response functions. The states' EOCs are capable of continuous (24-hour) operations for a protracted period.

The county EOCs serve as Command and Control headquarters for local emergency response activities as well as a center for the coordination of communications to field units and to the state EOCs. Additional details for state and county EOCs are in the state and county emergency plans.

H.4 Emergency Response Facility Staffing and Activation

SNC-operated nuclear power plants have plans and procedures to ensure timely activation of its emergency response facilities. The Shift Manager, as Emergency Director, will initiate a call-out in accordance with the implementing procedures. The ERO augmentation process identifies individuals who are capable of fulfilling the specific response functions listed in Tables 2 through 5.

Although the response time will vary due to factors such as weather and traffic conditions, a goal of ~~75~~ 90 minutes for minimum staffing, following the declaration of an Alert or higher emergency classification, has been established for ERO personnel responding to ~~plant emergency facilities including~~ the TSC, OSC and EOF.

The facility can be declared activated when minimum staffing has been achieved and the facility is ready to assume its assigned functions.~~the following conditions are met:~~

- ~~Minimum staffing has been achieved.~~
- ~~Personnel have been briefed on the situation and are ready to assume Command and Control functions.~~

H.5 Onsite Monitoring

SNC-operated nuclear power plants have installed monitoring instrumentation for seismic monitoring, radiation monitoring, fire protection and meteorological monitoring, in accordance with its Final Safety Analysis Report (FSAR) and plant Technical Specifications (TS), or commitments made to the NRC. Details of these systems differ from plant to plant and are in the site-specific Annexes.

H.5.1 Geophysical Monitors

- Meteorological Instrumentation: A permanent meteorological monitoring station is located near the plant for the acquisition and recording of wind speed, wind direction, and ambient and differential temperatures for use in making offsite dose projections. Meteorological information is displayed in the CR, TSC, and EOF. Additional information located in Section H.7.
- Seismic Monitoring: The seismic monitoring system measures and records the acceleration of the structure if activated by an earthquake of sufficient magnitude. It also provides signals for immediate remote indication that specific preset response accelerations have been exceeded.
- Hydrological Monitors: SNC-operated nuclear power plants have hydrological monitors as appropriate. The design basis flood, probable maximum precipitation, and other extremes in hydrologic natural phenomena are as detailed in the FSAR as appropriate.

H.5.2 Radiological Monitors and Sampling

H.5.2.1 Radiation Monitoring System (RMS)

Radiation monitoring instruments are located at selected areas within the plant to detect, measure, and record radiation levels. The monitors are comprised of area, airborne and air particulate monitors.

- Area monitors respond to gamma radiation.
- Airborne monitors detect and measure radioactive gaseous effluent concentrations.
- Air Particulate detectors capture and measure airborne particulate.

Emergency response procedures provide methods for determining relationships between monitor readings and releases, material available for release and extent of core damage.

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

Farley Staffing Detailed Description, Technical Evaluation and Functional Analysis

This enclosure contains 19 pages.

1.0 DETAILED DESCRIPTION

SNC proposes revisions to the Farley Nuclear Plant (FNP), Units 1 and 2, Emergency Plan Annex. SNC completed a staffing analysis of on-shift responsibilities resulting from the effects associated with the proposed changes. The proposed changes are justified based on overall enhancements in technology, information availability and training; credit for the diverse and redundant nature of the Emergency Core Cooling System (ECCS) which obviates the need for maintenance activities as part of the initial response to an event as well as a performance based procedure analysis (PBPA) completed in order to determine when activities performed by non-operations personnel were required in response to adverse conditions as identified in site event response procedures. The PBPA was used to inform the functional analysis of augmented Emergency Response Organization (ERO) positions based on extended response times and completion of Major Tasks as outlined in NUREG-0654/FEMA-REP-1, Revision 1 and NRC Revised table B-1, issued June 2018 and is included in Section 3.0 of this Enclosure. The analyses supported this request to make the following changes to the ERO while maintaining the site's ability to protect public health and safety.

The wording changes applicable to the SEP are as follows:

a. "Definitions", added definition of 'facility activation' and criteria as it applies to the TSC, OSC and EOF.

b. "Definitions", added definition of 'Onsite (out-of-plant) Survey' to establish the Protected Area fence as the boundary for performance of surveys not completed by FMTs.

c. Section B.1, "Normal Plant Organization", revised to reflect reference to positions extended to 90 minutes and change in table numbers associated with augmented staffing.

d. Section B.2, "On Site Emergency Response Organization", revised Figure B.2.A to better reflect transfer of offsite notification functions.

e. Section B.2.1.10, "TSC Chemistry Support", removed reference to Chemistry staffing for sampling purposes.

f. Section B.3.1.14, "EOF Administrative Support Staff", removed references to administrative positions not performing emergency preparedness functions.

g. Section B.3.2.2, "JIC Manager", removed reference to administrative staff.

h. Section B, Table 1, "TSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

i. Section B, Table 2, "OSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

j. Section B, Table 3, "EOF 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

k. Section B, Table 4, "JIC Staff", removed as the information duplicates the facility staffing as noted in Figure B.3.2.A.

l. Section B, Figure B.2.1.A, "Technical Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

m. Section B, Figure B.2.2.A, "Operations Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation, and removed the reference to Administrative Support Staff.

n. Section B, Figure B.3.1.A, "Emergency Operations Facility Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

o. Section B, Figure B.3.2.A, "Joint Information Center Organization", revised to remove references to minimum staff positions and extend facility staffing to 90 minutes.

p. Section H.1, "Onsite Emergency Response Facilities", revised to reflect change in facility activation time.

q. Section H.1.2, "Technical Support Center (TSC)", revised to reflect change in facility activation time.

r. Section H.2.1, "Emergency Operations Facility (EOF)", revised to reflect change in facility activation time.

s. Section H.2.2, "Corporate Media Center (CMC)", replaced reference to the term "activation" of the JIC with the term "staffed".

t. Section H.2.3, "Joint Information Center (JIC)", replaced reference to activation of the JIC with the word 'staffed'.

u. Section H.4, "Emergency Response Facility Staffing and Activation", revised to better align facility activation criteria with new definition. References to facility briefings relocated to EPIPs.

The specific wording changes applicable to the Farley Annex are as follows;

a. Section 2, Table 2.2.a, "Farley Nuclear Plant On-Shift Staffing", revised format to reflect recent NRC guidance as well as removal of one (1) chemistry technician, one (1) RP technician and four (4) on-shift maintenance positions.

b. Section 5.1.6, "Joint Information Center (JIC)", replace the term 'activate' with 'staffed' as applied to the Headland, AL JIC and delete editorial detail of the exact address.

2.0 TECHNICAL EVALUATION

2.1 Technical Analysis

This section describes the technical evaluation performed to support the proposed changes. The staffing analyses completed include a performance-based procedure analysis (PBPA), an assessment of the credit that can be taken for plant systems and design; and improvements/enhancements in dose assessment and plant-monitoring through technology, information availability, and improved procedures/training. Further, NEI 10-05 and NEI 12-01 staffing assessments were conducted to support the proposed changes. The technical evaluations are described below.

2.1.1 Performance Based Procedure Analysis

FNP uses emergency response and supporting procedures developed in response to the Three Mile Island (TMI) Action Plan requirements in NUREG-0737, Supplement 1, Section I.C.1. The process for the development of these procedures was based on directed analyses of accidents and transients. The events include those contained in the Final Safety Analysis Report (FSAR), loss of instrumentation busses, and natural phenomena such as earthquakes, floods and tornadoes. In addition, events involving multiple failures were considered.

These post-TMI analyses were conducted in sufficient depth into the events to assure that all relevant thermal/hydraulic/neutronic phenomena are identified. The analyses were then used to develop guidelines that ensure an appropriate transition through procedures. These analyses were subsequently submitted to the NRC for approval. Since initial design approvals, improvements have been made to emergency procedures to address additional industry issues as they emerged, such as, Station Blackout, Interfacing System LOCAs, ECCS Sump Screen Blockage, and Design Basis Security Threat. Additionally, these procedure sets have been updated to interface with Severe Accident Management Guidelines (SAMG), and Beyond Design Basis guidelines that address Loss of Large Areas and Mitigation Strategies for Beyond-Design-Basis External Events (MBDBE). These improvements ensure that plant safety is maintained, even in multiple failure conditions, by operator response using a methodical, symptom-based approach resulting in stabilization of the plant without reliance on external or augmented resources.

In RIS-2016-10, the NRC documented the need to conduct detailed analyses of these event response procedures for proposed extension of augmentation times. In order to provide a sufficient technical basis, a detailed review of the following Farley emergency response and supporting procedures was conducted to determine if personnel resources beyond the proposed on-shift staffing were required to support any plant and radiological response actions during the first 90 minutes after an emergency declaration of an Alert or higher:

- Abnormal Operations Procedures (AOP)

- Emergency Operations Procedures (EOP)
- Emergency Contingency Actions (ECA)
- Event Specific Procedures (ES)
- Function Restoration Procedures (FRP)
- System Operations Procedures (SOP)
- Chemistry Control Procedures (CCP)
- Emergency Plan Implementing Procedures (EPIP)

A more detailed list of these procedures is provided in Enclosure 12.

Therefore, in order to analyze the minimum staffing needed to perform troubleshooting and technical support tasks requiring maintenance, chemistry, and radiation protection technicians, FNP completed a performance-based analysis (PBPA) of site event response procedures and their bases. The PBPA included the impact of equipment failures as identified in each procedure under 'response not obtained' (RNO) criteria in order to establish the sequence of actions taken where initial emergency response procedure actions were not successful.

The PBPA successfully demonstrated that the proposed staffing composition of on-shift personnel were able to perform required troubleshooting, technical tasks, and similar actions for the first 90 minutes without the need for the additional maintenance, chemistry, and radiation protection technicians. In the vast majority of actions calling for maintenance, chemistry, or radiation protection support, the event response procedures direct the operations staff to take alternate actions rather than wait for repair/restoration of any equipment/systems not responding as expected. When actions are needed in the first 90 minutes, operators, with appropriate training, were determined to be capable of performing the required actions. Details are included in Enclosure 12.

2.1.2 Plant Systems and Design Credit Analysis

Crediting the robust ECCS and Engineered Safety Features (ESFs) capability and protection against single failures provides an additional basis for reducing maintenance, chemistry, and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

Per Chapter 3 of the FNP FSAR, both FNP Unit 1 and Unit 2 are designed to conform with the General Design Criteria (GDC) in 10 CFR 50 Appendix A.

Relative to ECCS performance capabilities, GDC 35 of 10 CFR 50 Appendix A states:

> Emergency core cooling: A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with

continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts.

Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

To meet the requirements of the above stated design criteria the FNP ECCS design includes:

- 3 passive accumulators (one on each RCS loop)
- 2 redundant trains of high head safety injection (HHSI)
- 2 redundant trains of low head injection (LHSI) / residual heat removal (RHR)

The passive accumulators, which do not require any external signals or source of power for their operation, provide the short-term cooling requirements of large break loss of coolant accidents (LOCA). Following discharge of the accumulators, the two redundant trains of HHSI and the two redundant trains of LHSI/RHR provide the requisite high pressure and/or high flow core cooling for large break and small break LOCAs.

The ECCS is designed to accept a single failure following the incident without loss of its protective function. The system design will tolerate the failure of any single active component in the ECCS itself or in the necessary associated service systems at any time during the period of required system operations following the incident. With regards to long-term emergency core cooling function, the system design is based on accepting either a passive or an active failure, assuming no prior failure during the short term. This includes ensuring adequate core cooling capacity exists with one flow path removed from service whether isolated because of a leak, because of blocking of one flow path, or because failure of a line inside the containment results in a spill of the delivery of one subsystem.

Power redundancy for ECCS is provided via the transmission network to the onsite electric distribution system to Units 1 and 2 by six off-site transmission lines. Power from the switchyard is provided for the engineered safeguards for each unit through two startup auxiliary transformers via two physically independent circuits which serve alternately as the redundant source for each emergency bus. A failure of a single active component in this power system will not prevent its required functioning. In case of loss of all onsite power and of one

offsite power circuit, power requirements for ECCS loads are met from the other redundant offsite power source.

The 4160V emergency buses, which supply equipment essential for the safe shutdown of the plant, are comprised of six buses for each unit. Engineered safeguard circuits are arranged so that the loss of a single bus section results in only single losses of engineered safeguards. A redundant engineered safeguard circuit is available to perform the same function. These buses are supplied from two startup transformers per unit connected to the offsite source during normal and emergency operating conditions. No single failure of an active component will remove two startup transformers in redundant circuits at one time.

In the event both startup transformers for a unit are lost, onsite emergency AC power supply for the Units 1 and 2 emergency buses is provided by five diesel generators. The engineered safety feature loads are divided between the emergency buses of each unit in a balanced, redundant load grouping so that the failure of one emergency diesel generator or one emergency bus in each unit will not prevent the safe shutdown of both reactors.

The onsite electric dc power supply for each unit consists of two redundant battery systems, either of which is adequate to supply the dc power required for the engineered safeguards. Failure of a single component in this system will not impair control of the minimum engineered safeguards required to maintain each unit in a safe condition.

Normal ECCS operating status and deviations from this status to include associated power sources is controlled by the FNP Technical Specifications.

System performance is tracked and trended by the site and demonstrates a high degree of reliability. System health requirements are maintained based on NRC performance indicators for system availability and functional failures which are an integral part of the Reactor Oversight Process. Additionally, reliability is driven by Maintenance Rule performance criteria.

Crediting the robust ECCS system and ESFs capability and protection against single failures provides an additional basis for reducing maintenance, chemistry, and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

2.1.3 Analysis of Improvements in Dose Assessment / In-Plant Monitoring

Enhanced displays have been developed for obtaining the necessary information for performing dose assessment. These displays are available through the Integrated Plant Computer (IPC) and include specific information related to area radiation monitor readings, process radiation monitor readings, effluent release paths, associated flow rates, and meteorological data.

2.1.3.1 Previous on-shift dose assessment

The FNP dose assessment capability in place to support the SNC Standard Emergency Plan license amendment request employed a computer-based dose projection software for performing off-site dose assessments. The program estimated reactor source term, atmospheric transport, and doses resulting from radiological emergencies. The software was developed to allow consideration of the dominant aspects of source term, transport, dose, and consequences. The offsite dose assessment program addressed the relationship between effluent monitor readings, onsite and offsite exposures, and contamination for various meteorological conditions. In situations where effluent monitors are either off-scale, inoperative, or the release occurred by an unmonitored flow path, the model could use sample data to perform dose projections. In the absence of effluent sample data, the software could perform dose projections by specifying the accident category as a default. The computer-based software included the capability to perform multi-unit/multi-source dose assessments. The dose calculation model was available in the Control Room, TSC, and EOF.

2.1.3.2 Current on-shift dose assessment

Updated FNP dose projection software, which is currently in place, is an enhanced version of the computer-based software and provides user selected event specific inputs applicable at the time of the event such as release type, accident types, fuel state, partitioning, filtration status, flow rates, etc. This most recent upgrade includes the ability to simultaneously assess multiple release paths. The software uses a menu selection process to quickly step the user through each data input to support timely performance of dose projections. These improvements in dose assessment software allow for a dedicated on-shift dose assessor to more efficiently determine the impacts of offsite releases.

2.1.3.3 General Improvements

In addition to the hardware and software upgrades to the plant computer, software updates to the dose assessment program, and improved displays of information, FNP has made general improvements to the speed and quality of automated call-out systems, procedure and training improvements, and credits the ever-increasing quality and quantity of general communications methods via mobile devices that provide additional safety benefits by disseminating quality information at greater speed and convenience. Collectively, these enhancements speed up and improve the quality of shared information and improve the performance of ERO personnel, thereby compensating for the proposed 15-minute increase in augmentation time and changes to the on-shift staff composition.

2.1.4 Technical Summary

In summary, FNP has completed an analysis of the plant event procedures and required emergency actions in a PBPA, an assessment of the credit that can be taken for plant systems and design; and an assessment of the improvements in dose assessment and plant-monitoring, as well as general improvements through technology, information availability, and procedures/training. Further, FNP has completed NEI 10-05 and NEI 12-01 staffing assessments to support the proposed changes. These analyses support extension of augmented response times and the proposed changes to the ERO staffing composition.

3.0 FUNCTIONAL ANALYSIS

This section describes the functional analysis performed to support the proposed changes. The analysis evaluates the effect of the proposed staff changes and the extension of the augmentation time on the ability of the on-shift staff to perform the major tasks for the major functional areas of the SNC Emergency Plan. The PBPA, NEI 10-05 and NEI 12-01 staffing assessments were conducted to ensure that the proposed changes did not result in any conflicting duties for the on-shift staff, and that no degradation or loss of function would occur as a result of the proposed changes. The functional analysis is described below. Further detail is provided in Enclosure 12.

The following is the result of the functional analysis performed for the major functional areas as described in NUREG-0654 Revision 1, Table B-1. In general, the analysis is organized to provide details for each functional area for (a) SNC Emergency Plan Version 1, (b) the current SNC Emergency Plan, and (c) the proposed SNC Emergency Plan.

3.1 Plant Operations and Assessment of Operational Aspects

a. NUREG-0654 Revision 1 assumes the function of plant operations and assessment of operational aspects is performed by on-shift staff throughout the emergency. Compared to NUREG-0654 Revision 1, SNC Emergency Plan Version 1 had additional system operators to support this function.

b. In the current Farley Annex, the on-shift Operations staffing continues to exceed the guidance of NUREG-0654 Revision 1, Table B-1.

c. The proposed Farley Annex is revised to reflect the most recent NRC guidance in the revised Table B-1 and removes references to 12 on-shift staff positions not performing EP Functions. Specifically, the senior reactor operator (SRO) who performs the fire brigade leader (FBL) duties, the 4 reactor operators (ROs), and the 7 system operators (SOs) are removed from the proposed Table 2.2.A. The EP Functions of Command and Control and Emergency Classification are identified in the proposed Table 2.2.A along with identification of associated on-shift resources responsible for performance of the function as described below. An on-shift staffing analysis

determined that the proposed changes did not result in conflicting duties for on-shift staff. The PBPA demonstrated that on-shift operations personnel were able to effectively perform plant operations and assessment functions.

3.2 Emergency Direction and Control (Command and Control, Emergency Classification)

The NRC revised Table B-1 identifies a position responsible for overall command and control of the ERO, Emergency Action Level (EAL) classifications and protective action recommendation (PAR) classifications, and authorization of personnel dose extensions, until relieved.

a. In Version 1 of the SNC Emergency Plan, the Shift Manager would assume the duties of Emergency Director (ED) and was responsible for emergency response efforts until relieved by the TSC ED augmented at 75 minutes after an Alert or higher declaration.

b. The current version of the SNC Emergency Plan maintains Version 1 response requirements for the TSC, OSC and EOF.

c. Under the proposed changes, the Shift Manager assumes the Emergency Director (ED) role and is responsible for emergency plan implementation - classifications, command and control, and supervision of the on-shift ERO staff until relieved. However, the two Unit Shift Supervisors are qualified, licensed SROs and provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff. If the Shift Manager is not immediately available, the Unit 1 or Unit 2 Shift Supervisor may assume the role of Emergency Director. The proposed change extends the responsibility for performance of the command and control and classification functions on-shift for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. SNC has determined that the support of the Unit Shift Supervisors allows for focus by the Shift Manager (ED) on the command & control and classification functions and provides an adequate basis for the extension of an additional 15 minutes until relieved. Per the guidance of the Revised Table B-1, the firefighting roles, including the fire brigade leader, have been removed from the on-shift ERO staff and FNP table 2.2.A. However, if not actively fighting a fire, this (fourth) SRO becomes an on-shift resource, which provides an additional measure of safety and leadership during an emergency response that does not involve the firefighting team. Finally, technological advancements in capabilities to communicate via smartphones, tablets, texting, and teleconferencing has also expanded the ability to provide operations advice/support earlier than 90-minutes.

Classification

The PBPA demonstrated that leadership support from the Unit Shift Supervisors allow the Shift Manager to maintain better focus on ERO functions, particularly the

classification function. The proposed changes extend the responsibility for performance of the classification function for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. The PBPA analysis of site emergency response procedures determined that the Shift Manager was able to perform the classification function for the first 90 minutes with the Unit Shift Supervisors providing support as needed.

Command and Control

The Shift Manager assumes the role of Emergency Director and is responsible for command and control. The two Unit Shift Supervisors are assigned to oversight of the two Units, but they are also members of the minimum ERO staff and can provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff, without a conflict of duties. While the proposed changes extend the official on-shift command and control time period for an additional 15 minutes, FNP has also made changes to allow for more rapid relief from early-activated ERFs.

The proposed change maintains the term "activated" with respect to responder readiness to perform response actions in each ERF but re-defines the minimum staff positions as those specifically required for command and control functions. This definition is aligned with NSIR/DPR-ISG-01 guidance and reduces the number of positions required in the TSC, OSC and EOF required for facility activation (e.g. not requiring those that perform supporting inter-facility communications.) The proposed change also replaces "activated" for the JIC with "staffed" as there are no command and control functions associated with the JIC facility.

Identification of minimum staff associated specifically with command and control functions within the applicable ERF better allows for early-activation in advance of the 90-minute response time. (The remainder of augmented responders are still responsible for arriving within 90-minutes.)

The proposed revision to SNC Emergency Plan Figures B.2.1.A, B.2.2.A, B.3.1.A and B.3.2.A identifies minimum staff in the TSC, OSC and EOF which support activation of the facilities within 90 minutes of an Alert or higher classification as:

- Emergency Director (TSC)
- Operations Supervisor (TSC)
- RP Supervisor (TSC)
- ENS Communicator (TSC)
- Reactor Engineer (TSC)
- OSC Manager (OSC)
- Emergency Director (EOF)
- Dose Assessment Supervisor (EOF)
- Dose Analyst (EOF)
- ENN Communicator (EOF)

Upon activation of the EOF at the Alert or higher classification, State/local notification/communications and PAR classification functions transition from the control room to the EOF. EAL classifications, NRC notification/communications and emergency dose extension functions transition from the control room to the TSC upon activation of that facility. Responsibility for performance of oversight of the ERO in the plant transitions from the control room to the OSC. While the proposed SNC Emergency Plan extends the requirement for facility activation for all augmented ERO responders (See Table 1 of the SNC Standard Plan) from 75 to 90-minutes for the TSC, OSC and EOF, the proposed plan also facilitates and encourages the early-activation of these facilities.

Therefore, the proposed extension of the on-shift command and control functions for an additional 15 minutes is acceptable. The change continues to identify minimum activation staffing positions in the TSC, OSC and EOF and enables early transfer of the command and control functions from the control room in advance of the 90-minute activation requirement.

3.3 Notification/Communication Function

Per NUREG-0654 Revision 1, the Notification/Communication function included major tasks to notify licensee, state, local and federal personnel and maintain communications. NRC Revised Table B-1 maintains the function as described in NUREG-0654, Rev.1.

Licensee Notification

a. Version 1 of the SNC Emergency Plan identified notification of ERO members onsite, offsite or during back shift hours as being performed by on-shift personnel via automated callout system. This notification was completed at an Alert or higher classification for personnel assigned to respond to the TSC, OSC, EOF and JIC.

b. The current SNC Emergency Plan maintains notification of onsite and offsite ERO by on-shift personnel at an Alert or higher classification.

c. The proposed SNC Emergency Plan maintains the current notification process for augmented ERO in that personnel responding to the TSC, OSC, and EOF will be notified at the Alert or higher classification by on-shift personnel.

State, Local and Federal Notification

a. In Version 1 of the Farley Annex, performance of notification of State/local offsite response organizations (OROs) and federal agencies was completed as an ancillary duty by an on-shift operator. These functions were augmented at 75 minutes by the Emergency Notification System (ENS) Communicator in the TSC and the Emergency Notification Network (ENN) Communicator in the EOF.

b. The current SNC Emergency Plan maintains the on-shift and augmented organization for the State/local and federal notification functions as described in Version 1.

c. The proposed change identifies two (2) on-shift communicators that are available for notification/communications with a) state/local offsite response organizations (OROs) through the ENN and b) NRC notification/communications functions through the ENS. With two communicators on-shift, FNP determined that the on-shift time period could be extended an additional 15 minutes before relief by augmented responders. Therefore, the proposed change extends the 75-minute augmentation response time for the personnel performing these functions to 90 minutes. The SNC staffing studies demonstrated that these positions are not assigned other tasks that may prevent the timely performance of their assigned duties. The use of two (2) on-shift resources for performance of notification activities ensures there is effective communication with the OROs and the NRC for an additional 15 minutes until augmented resources are available. The proposed change is aligned with RIS 2016-10 staffing for 90 minute augmented response times for this function.

3.4 Radiation Protection and Dose Assessments/Projections

Per NUREG-0654, Revision 1, the Radiological Accident Assessment and Support of Operational Accident Assessment functional area includes the Emergency Operations Facility (EOF) Director, Off-site Dose Assessment, Off-site, On-site and Out-of-plant surveys and Chemistry/Radiochemistry major tasks. The NRC Revised Table B-1 changed the functions associated with radiological accident assessment to address radiological aspects only.

Direction of Offsite Dose Assessment

Details regarding on-shift direction and control of emergencies are discussed in Section 3.1 and 3.2 of this Enclosure. The EOF Emergency Director, upon activation within 90 minutes of declaration, assumes direction of offsite dose assessment.

Off-site Dose Assessment

a. In Version 1 of the SNC Emergency Plan, performance of dose assessment on-shift was identified as the responsibility of an on-shift chemistry technician. The Shift Manager was identified as the position responsible for oversight of this function unless relieved by the TSC. The dose assessment function transitioned to the Dose Analyst in the EOF, a 75-minute response position, upon activation of that facility.

b. The current SNC Emergency Plan maintains performance of the dose assessment function by an on-shift chemistry technician as noted in Version 1 as well as the transition of the function to the Dose Analyst in the EOF.

c. The proposed change provides for a dedicated on-shift resource for performance of the dose assessment/projection function and extends the time period for an additional 15 minutes before relived by an augmented dose assessor upon activation

of the EOF. Upon declaration, the on-shift chemistry technician (or other trained technician) performing this role, goes directly to the dose projection software location and is responsible for providing input to PAR decision-making, until relieved. This position has no collateral duties that would interfere with the dose assessment/projection tasks. FNP has determined that the use of a dedicated resource for performance of the dose assessment function provides greater focus and justifies the additional 15 minutes.

Off-site Surveys – Field Monitoring Teams

a. In Version 1 of the SNC Emergency Plan, off-site surveys were initially coordinated by the TSC RP Supervisor prior to EOF activation. Three (3) Field Monitoring Team (FMT) positions were dispatched at an Alert or higher classification for the performance of environmental sampling. One (1) of the three augmented positions formed the second FMT in combination with the on-shift position responsible for performance of onsite (out-of-plant) surveys. Upon activation of the EOF, the FMTs were directed by the FMT Coordinator in that facility.

b. In Version 2 of the SNC Emergency Plan, an additional augmented position was added as the second FMT Lead. This change allowed the on-shift RP Technician responsible for performance Off-site surveys as an FMT Lead to perform on-site, in-plant or protective active functions. The current SNC Emergency Plan and Farley Annex maintains the Version 2 requirement for on-shift and augmented staffing for performance of offsite surveys.

c. In the proposed change, the third RP Technician is removed from on-shift, and dispatch of the FMTs is extended from 75 minutes to 90 minutes after the Alert or higher classification.

   Improvements in plant monitoring capability, as well as the use of updated dose assessment software as discussed in Section 2.1.3, provide the means for the two (2) RP Technicians on-shift to track potential radioactive releases in the early stages of an event and serve as the basis for extending the augmented response time by 15 minutes. Two FMTs, each consisting of an FMT Lead and an FMT Assistant, are 90-minute augmented responders that provide adequate coverage for offsite surveys. Direction is provided by a Dose Assessment Supervisor supported by two Field Team Coordinators in the EOF.

Onsite (out of plant) and In-Plant Surveys

a. Version 1 of the Farley Annex identified two (2) on-shift RP Technicians responsible for the performance of initial onsite (out-of-plant) and in-plant monitoring. Upon arrival of augmented responders, a driver was assigned to one of the on-shift RP Technicians who transitioned from the onsite (out-of-plant) monitoring to the offsite survey function. Any subsequent on-site monitoring would be completed by

augmented OSC resources as part of event response. Oversight of this function was performed by the RP/Chemistry Group Lead in the OSC.

b. Version 2 of the SEP provided for the transition of two (2) on-shift RP Technicians to the OSC for continued performance of onsite (out-of-plant) and in-plant surveys. Oversight of this function continues to be performed by the RP/Chemistry Group Lead in the OSC after turnover.

c. The proposed change maintains the Version 2 on-shift positions responsible for performance of onsite (out-of-plant) surveys and combines this activity with the performance of the in-plant surveys and protective action functions on-shift. Additionally, the proposed change adds a definition for "Onsite (out-of-plant) Surveys" that describes the area between the plant buildings and the Protected Area (PA) fence, rather than the site area boundary. The application of this definition allows for the two (2) RP Technicians on-shift to utilize plant monitors or conduct a survey within a short walking distance to provide continued support for release determination without the need for a third RP technician to complete surveys beyond the PA fence. The 2 RP technicians performing this function, in conjunction with the protective actions function discussed in Section 3.6, will be augmented by 4 additional RP Technicians at 90 minutes for a total of 6 RP technicians in the OSC.

   Improvements in the dose assessment process as discussed in Section 2.1.2.2 facilitate simplified performance of the dose assessment function on-shift. Under the proposed change, performance of Onsite (out-of-plant) surveys can continue be used for verification of release or downwind monitoring as needed. Use of the protected area boundary as the sampling location for this purpose allows the RP technicians on-shift to quickly complete this survey due to the small size of the protected area footprint. Off-site survey data will continue to be used to validate dose assessment.

   RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

Chemistry/Radiochemistry

a. Version 1 of the Farley Annex included an on-shift Chemistry Technician responsible for the performance of chemistry sampling and radiochemistry activities. The on-shift Chemistry Technician was augmented by an additional Chemistry Technician at 75 minutes for performance of this task. Oversight of the Chemistry function was the responsibility of the RP/Chemistry Group Lead in the OSC.

b. The current Farley Annex maintains an on-shift Chemistry Technician for performance of chemistry sampling and radio chemistry activities as well as augmented response at 75 minutes. Oversight of this function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed change removes references to performance of chemistry sampling on-shift and for periods after event declaration. The PBPAs demonstrated that no chemistry/radiochemistry tasks were necessary within the first 90 minutes of an emergency declaration. The PBPAs demonstrated that chemistry tasks are either not needed in the first 90-minutes to mitigate the event or can be deferred without impacting the emergency response. An RP/Chemistry Group Lead is an augmented responder to the OSC and would supervise chemistry technicians if these resources are deemed needed. These changes are aligned with the guidance contained in NRC Revised Table B-1.

3.5 Plant System Engineering, Repair and Corrective Actions Function (Engineering, Repair Team Activities)

Per NUREG-0654 Revision 1, the Plant System Engineering, Repair and Corrective Actions functional area includes Technical Support and Repair and Corrective Actions Major Tasks. NUREG-0654, Rev 1, Table B-1 notes that Mechanical Maintenance/Radwaste Operator and Electrical Maintenance/Instrument and Control Technician expertise may be provided by shift personnel assigned other functions.

Technical Support

a. Version 1 of the Farley Annex identified Core Damage Assessment as a function of the SRO/STA on-shift. The core/thermal hydraulics function was augmented at 75 minutes by a Reactor Engineer who reported to the Engineering Supervisor in the TSC. Augmented staffing by two (2) Engineering Support positions also occurred at 75 minutes after the event. Version 4 of the Farley Annex implemented the amendment to Technical Specification 5.2.2.g, as approved by NRC letter dated April 26, 2019, which removed the 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.

b. The current SNC SEP maintains the requirement for augmentation by a Reactor Engineer position at 75 minutes from an Alert or higher classification. Additional staffing by Engineering Support positions continues to take place at 75 minutes after the event.

c. The proposed change maintains performance of the core thermal hydraulics function as an ancillary duty of an on-shift senior licensed operator and extends augmented response by the Reactor Engineer and Engineering Support positions from 75 to 90 minutes.

The PBPA demonstrated that on-shift operations personnel were able to perform

required troubleshooting activities for the first 90 minutes and that there were no technical support activities requiring additional mechanical or electrical expertise needed during this timeframe. As a result, performance of engineering and troubleshooting activities by engineering augmented responders at 90 minutes continues to support performance of the Technical Support function. The 90-minute responders include Engineering/Technical Supervisors in both the TSC and EOF, a reactor engineer in the TSC and 2 engineering support personnel in the TSC. Technological advancements in capabilities to communicate via smartphones, tablets, texting, and videoconferencing has also expanded the ability to provide technical/engineering support earlier than 90-minutes.

Repair and Corrective Actions

a. In Version 1 of the Farley Annex, on-shift plant stabilizing functions were completed by maintenance personnel. Augmented staffing included response at 75 minutes by Mechanical, Electrical and I&C Maintenance Group Leads.

b. The current Farley Annex maintains the Version 1 on-shift maintenance staffing. Augmentation of Maintenance Group Leads at 75 minutes at an Alert or higher classification is also maintained as part of the SNC SEP.

c. The proposed change would remove the Mechanical, Electrical and I&C maintenance positions as well as the Maintenance Supervisor position from on-shift and extends augmented response by the Mechanical, Electrical and I&C Maintenance from 75 to 90 minutes from declaration of an Alert or higher classification.

   As discussed in the technical evaluation Section 2.1.2, the robust design of ECCS as well as proven system reliability serve as a basis for removal of maintenance resources from on-shift. The PBPA demonstrated that there were no repair or corrective activities required for the first 90 minutes. The PBPAs demonstrated that maintenance tasks are either not needed in the first 90-minutes to mitigate the event, can be performed by on-shift system operators with appropriate training, or can be deferred without impacting the emergency response. As a result, performance of repair and corrective action activities by maintenance augmented responders at 90 minutes continues to support performance of the Repair and Corrective Action function. As seen in the proposed Table 1 of the SEP, reporting to the OSC Manager within 90 minutes will be group leads in electrical, mechanical, and I/C maintenance along with technicians in each discipline. A maintenance supervisor also reports to the TSC within 90 minutes.

3.6 Protective Actions (In-Plant) Function (See Radiological Assessment)

Per NUREG-0654 Revision 1, the Protective Actions functional area includes the Radiation Protection major task, specifically access control, radiation protection coverage for repair and corrective actions, search and rescue first aid and firefighting, personnel monitoring and dosimetry. NUREG-0654 Table B-1 notes that HP Technician

expertise may be provided by shift personnel assigned other functions. NRC Revised Table B-1 combined this function with the Radiation Protection function.

a. Version 1 of the Farley Annex provided for one (1) on-shift RP position responsible for performance of Protective Action functions. This position was augmented by two (2) RP Technicians at 75 minutes. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC. Version 2 of the SEP provided for the transition of one (1) on-shift RP Technician to the OSC for continued performance of the Protective Action functions with augmentation by an additional RP Technician at 75 minutes.

b. The current Farley Annex maintains the Version 2 on-shift and augmented RP Technicians responsible for the Protective Actions functions. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed SNC SEP and Farley Annex combines the Protective Action function with the Radiological Assessment function and uses the 2 existing on-shift RP Technicians for performance of these tasks as in the NRC Revised Table B-1 guidance and extends the response time for 4 additional RP Technicians from 75 to 90 minutes after declaration of an Alert or higher classification. These positions will continue to provide coverage for:

    - Access Control / Dosimetry
    - HP Coverage for Repair and Corrective Actions, Search and Rescue First Aid and Firefighting.
    - Personnel Monitoring / Habitability

    RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As demonstrated in the PBPA and discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

3.7 Firefighting Function

NRC Revised Table B-1 does not address firefighting as this function is more appropriately controlled by other licensing documents.

a. In Version 1, of the Farley Annex, firefighting response was provided by on-shift fire brigade personnel.

b. The current Farley Annex maintains the Version 1 firefighting organizational structure.

c. The proposed change removes the reference to the firefighting function in Table

2.2.A as this function may be more appropriately addressed in other licensing documents. This change is aligned with the guidance provided in NRC Revised Table B-1.

3.8 Rescue Operations and First Aid Function

NUREG-0654 Rev 1, Table B-1 notes that this function may be provided by shift personnel assigned other functions. NRC Revised Table B-1 removed rescue operations and first aid as these tasks are outside the purview of the Emergency Plan.

a. The Farley Annex, Version 1, provided for first aid treatment for injured personnel by as an ancillary duty of on-shift personnel.

b. The current Farley Annex maintains this requirement through the use of on-shift first aid responders.

c. The proposed change removes the reference to the Rescue Operations and First Aid function in Table 2.2.A because the activities may be more appropriately addressed in other licensing documents. This change is aligned with guidance provided in NRC Revised Table B-1.

3.9 Site Access Control and Personnel Accountability Function

NUREG-0654 Rev 1, the Site Access Control and Personnel Accountability functional area is addressed by Security personnel in accordance with the Site Security Plan. NRC Revised Table B-1 does not address site access control as this function is under the purview of the Security Plan.

a. In the Farley Annex, Version 1, site access control and accountability was identified as a function of Security as detailed in the Site Security Plan.

b. The current Farley Annex maintains this requirement through the Physical Security Plan.

c. The proposed change removes the reference to the Site Access Control and Personal Accountability function in Table 2.2.A because this function is controlled by the Site Security plan. This change is aligned with guidance provided in NRC Revised Table B-1.

4.0 Conclusions

The proposed changes continue to support the functional areas of the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel.

Elimination of on-shift Maintenance positions and extending augmented response times for maintenance positions, given the diverse and redundant capabilities of plant systems as well as the results of the event procedure analysis, does not adversely affect the site's ability to respond to an event nor do they delay essential repair and corrective action functions.

Re-alignment of RP on-shift staffing and extension of augmentation response times for the performance of in-plant, onsite (out-of-plant) surveys and protective actions includes elimination of one on-shift RP technician position and provides for a total of 6 RP technicians augmented at 90 minutes at an Alert or higher classification. The proposed ERO staffing plan reduces the need for in-plant RP support prior to augmentation and does not adversely affect the performance of radiological assessment or protective action functions on-shift, nor those associated with event response within the first 90 minutes after an event. SNC has installed in-plant monitoring capability in conjunction with improvements in dose assessment software such that the emergency response functions identified in the FNP Emergency Plan will continue to be performed in a timely manner. The proposed changes do not result in a reduced ERO capability to effectively respond to an emergency.

The proposed change extends the time at which field monitoring teams are dispatched by 15 minutes. Improvements in the ability of on-shift staff to perform dose modeling support the ability to generate accurate dose assessments such that extension of response times adequately supports the radiological assessment function.

Removal of references to chemistry positions not performing EP functions as well as chemistry activities performed as a function of other site procedures is aligned with NRC guidance. Similarly, removal of references to admin/support positions is included in the proposed change. These positions and functions are maintained in the site procedures.

Finally, the PBPA demonstrated that on-shift operations personnel, with appropriate training, were capable of troubleshooting activities for the first 90 minutes to address technical support or corrective action activities during this timeframe. The results of this analysis provide the basis for extension of augmented response by 15 minutes.

Therefore, the proposed changes continue to ensure the SNC Emergency Plan will meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

Southern Nuclear Operating Company
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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 4

Farley Standard Emergency Plan Annex Affected Marked-up Pages

This enclosure contains 4 pages.

Southern Nuclear Operating Company

STANDARD EMERGENCY PLAN ANNEX

for

Farley Nuclear Plant

Units 1 and 2

Version X

~~Table 2.2.A – Farley Nuclear Plant On Shift Staffing~~

~~Major Functional Area~~	~~Major Tasks~~	~~Position~~	~~On Shift~~
~~Emergency Direction and Control~~		~~Shift Manager (SM)/ Emergency Director (ED)~~	~~1~~
~~Plant Operations and Assessment of Operational Aspects~~		~~Shift Supervisor (SRO)~~	~~2~~
		~~Reactor Operator (RO)~~	~~4~~
		~~Shift Support Supervisor/Fire Brigade Leader (SRO/FBL) Note 1~~	~~1~~
		~~System Operator (SO) Note 1~~	~~7~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Shift Support Supervisor or other trained individual~~	~~Note 2~~
~~Notification/ Communication~~	~~Notify licensee, state, local, and federal personnel and maintain communication~~	~~Licensed Operator (RO or SRO)~~	~~Note 2~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite Dose Assessment~~	~~Chemistry Technician or other trained personnel~~	~~1~~
	~~In-plant surveys~~	~~RP Technician or other trained personnel~~	~~1~~
	~~Offsite Surveys, Onsite (out-of-plant)~~	~~RP Technician or other trained personnel~~	~~1~~
~~Protective Actions~~	~~Radiation Protection:~~ ~~a. Access Control~~ ~~b. RP Coverage for repair, corrective actions, search and rescue, first aid, and firefighting~~ ~~c. Personnel monitoring~~ ~~d. Dosimetry~~	~~RP Technician~~	~~1~~
	~~Chemistry/Radio-chemistry~~	~~Chemistry Technician~~	~~1~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Repair and Corrective Actions~~	~~Maintenance Supervisor~~	~~1~~
		~~Electrical Maintenance~~	~~1~~
		~~Mechanical Maintenance~~	~~1~~
		~~I&C Maintenance~~	~~1~~
		~~Total:~~	~~24~~
~~Fire Fighting~~		~~Fire Brigade Note 1~~	~~5~~
~~Rescue Operations and First Aid~~		~~Rescue Operations/First Aid Note 2~~	~~2~~
~~Site Access Control and Personnel Accountability~~		~~Security~~	~~Security Plan~~

~~Note 1 – Fire Brigade made up of FB Leader (SSS) and 4 System Operators not assigned safe shutdown responsibilities.~~
~~Note 2 – May be provided by shift personnel assigned other functions~~

Table 2.2.A – Farley 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	Unit Shift Supervisor (SRO)	2 Note 1
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2
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 and RP coverage	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 2
TOTAL:			**8** Note 3

Note 1 – Two Shift Supervisors are assigned to oversight of each Unit, but they can provide support to the ED without conflicting duties.

Note 2 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 3 – The number of operations, security, and fire brigade staff on-shift is controlled by other licensing documents.

5.1.3 Operations Support Center (SEP H.1.3)

The Maintenance Shop will serve as the Operations Support Center (Figure 5.1.B), from which emergency operations support will be provided. The OSC is where operational support personnel such as instrument technicians, mechanics, electricians, chemical/radiation technicians, equipment operators, and incoming shift personnel assemble to aid in the response to an emergency.

The OSC will accommodate the support and technical staff to respond to an event on one or both Units. The OSC has the capability to communicate with the control room, the Technical Support Center (TSC) and the Emergency Operations Facility (EOF). Operations at this facility will be directed by the OSC Manager.

5.1.4 Alternative Facility (SEP H.1.4)

During a security-related event or other event that precludes onsite access, the TSC and OSC ERO staff will be directed to an alternative facility. This facility is located in the Joint Information Center (JIC) Building in Headland, Alabama. The alternative facility is equipped with the necessary communications and data links to support communications with the control room, site security, and the EOF.

The available communications and data links also provide access to SNC document management resources, work planning resources, plant technical data displays, and other SNC-specific resources for performing engineering assessment activities, including damage control team planning and preparation for return to the site. Guidance for the alternative facility activation and operation is provided in implementing procedures.

5.1.5 Emergency Operations Facility (SEP H.2.1)

The EOF is the central location for management of the offsite emergency response, coordination of radiological assessment, and management of initial recovery operations. The EOF is a dedicated facility located in Birmingham, Alabama, and serves as the EOF for SNC sites (VEGP, FNP, and HNP). Additional details of the EOF are in section H.2.1 of the Emergency Plan.

A near site location is maintained at the FNP Training Center. It has space for members of an NRC Site Team and federal, state, and local responders, including space for conducting briefings with emergency response personnel and communications with other licensee and offsite emergency responders, access to plant data and radiological information, and access to copying equipment and office supplies.

5.1.6 Joint Information Center (JIC) (SEP H.2.2)

The FNP JIC is located in Headland, Alabama ~~at 16070 US Hwy 431~~. The JIC is the central location for the coordination and dissemination of information to news media and responses to public and media inquiries. Details of the JIC for FNP are in section H of the Emergency Plan. If the decision is made to ~~activate~~ staff the JIC, the CMC in Birmingham, Alabama will maintain emergency communications response coordination until the JIC is ready to assume these responsibilities.

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

Enclosure 5

Hatch Staffing Detailed Description, Technical Evaluation and Functional Analysis

This enclosure contains 20 pages

1.0 DETAILED DESCRIPTION

SNC proposes revisions to the Hatch Nuclear Plant (HNP), Units 1 and 2, Emergency Plan Annex. SNC completed a staffing analysis of on-shift responsibilities resulting from the effects associated with the proposed changes. The proposed changes are justified based on overall enhancements in technology, information availability and training; credit for the diverse and redundant nature of the Emergency Core Cooling System (ECCS) which obviates the need for maintenance activities as part of the initial response to an event as well as a performance based procedure analysis (PBPA) completed in order to determine when activities performed by non-operations personnel were required in response to adverse conditions as identified in site event response procedures. The PBPA was used to inform the functional analysis of the augmented Emergency Response Organization (ERO) positions based on extended response times and completion of Major Tasks as outlined in NUREG-0654/FEMA-REP-1, Revision 1 and NRC Revised Table B-1, issued June 2018 and is included in Section 3.0 of this Enclosure. The analyses supported this request to make the following changes to the ERO while maintaining the site's ability to protect public health and safety.

The wording changes applicable to the SEP are as follows:

a. "Definitions", added definition of 'facility activation' and criteria as it applies to the TSC, OSC and EOF.

b. "Definitions", added definition of 'Onsite (out-of-plant) Survey' to establish the Protected Area fence as the boundary for performance of surveys not completed by FMTs.

c. Section B.1, "Normal Plant Organization", revised to reflect reference to positions extended to 90 minutes and change in table numbers associated with augmented staffing.

d. Section B.2, "On Site Emergency Response Organization", revised Figure B.2.A to better reflect transfer of offsite notification functions.

e. Section B.2.1.10, "TSC Chemistry Support", removed reference to Chemistry staffing for sampling purposes.

f. Section B.3.1.14, "EOF Administrative Support Staff", removed references to administrative positions not performing emergency preparedness functions.

g. Section B.3.2.2, "JIC Manager", remove reference to administrative staff.

h. Section B, Table 1, "TSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

i. Section B, Table 2, "OSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

j. Section B, Table 3, "EOF 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

k. Section B, Table 4, "JIC Staff", removed as the information duplicates the facility staffing as noted in Figure B.3.2.A.

l. Section B, Figure B.2.1.A, "Technical Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

m. Section B, Figure B.2.2.A, "Operations Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation, and removal of the reference to Administrative Support Staff.

n. Section B, Figure B.3.1.A, "Emergency Operations Facility Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

o. Section B, Figure B.3.2.A, "Joint Information Center Organization", revised to remove references to minimum staff positions and extend facility staffing to 90 minutes.

p. Section H.1, "Onsite Emergency Response Facilities", revised to reflect change in facility activation time.

q. Section H.1.2, "Technical Support Center (TSC)", revised to reflect change in facility activation time.

r. Section H.2.1, "Emergency Operations Facility (EOF)", revised to reflect change in facility activation time.

s. Section H.2.2, "Corporate Media Center (CMC)", replaced reference to "activation" of the JIC in Vidalia, GA with the word 'staffed'.

t. Section H.2.3, "Joint Information Center (JIC)", replaced reference to activation of the JIC with the word 'staffed'.

u. Section H.4, "Emergency Response Facility Staffing and Activation", revised to better align facility activation criteria with new definition. References to facility briefings relocated to EPIPs.

The specific wording changes applicable to the Hatch Annex are as follows.

a. Section 2, Table 2.2.a, "Hatch Nuclear Plant On-Shift Staffing", revised format to reflect recent NRC guidance as well as removal of one (1) chemistry technician, one (1) RP technician and four (4) on-shift maintenance positions.

b. Section 5.1.6, "Joint Information Center (JIC)", replace the term 'activate' with 'staffed' as applied to the Vidalia, GA JIC and delete editorial detail of the exact location.

2.0 TECHNICAL EVALUATION

2.1 Technical Analysis

This section describes the technical evaluation performed to support the proposed changes. The staffing analyses completed include a performance-based procedure analysis (PBPA), an assessment of the credit that can be taken for plant systems and design; and improvements/enhancements in dose assessment and plant-monitoring through technology, information availability, and improved procedures/training. Further, NEI 10-05 and NEI 12-01 staffing assessments were conducted to support the proposed changes. The technical evaluations are described below.

2.1.1 Performance based Procedure Analysis (PBPA)

HNP uses emergency response and supporting procedures developed in response to the Three Mile Island (TMI) Action Plan requirements in NUREG-0737, Supplement 1, Section I.C.1. The process for the development of these procedures was based on directed analyses of accidents and transients. The events include those contained in the Final Safety Analysis Report (FSAR), loss of instrumentation busses, and natural phenomena such as earthquakes, floods and tornadoes. In addition, events involving multiple failures were considered.

These post-TMI analyses were conducted in sufficient depth into the events to assure that all relevant thermal/hydraulic/neutronic phenomena are identified. The analyses were then used to develop guidelines that ensure an appropriate transition through procedures. These analyses were subsequently submitted to the NRC for approval. Since initial design approvals, improvements have been made to emergency procedures to address additional industry issues as they emerged, such as, Station Blackout, Interfacing System LOCAs, BWR Core Thermal-Hydraulic Instabilities in ATWS and Design Basis Security Threat. Additionally, these procedure sets have been updated to interface with Severe Accident Management Guidelines (SAMG) and Beyond Design Basis guidelines that address Loss of Large Areas and Mitigation Strategies for Beyond-Design-Basis External Events (MBDBE). These improvements ensure that plant safety is maintained, even in multiple failure conditions, by operator response using a methodical, symptom-based approach resulting in stabilization of the plant without reliance on external or augmented resources.

In RIS-2016-10, the NRC documented the need to conduct detailed analyses of these event response procedures for proposed extension of augmentation times. In order to provide a sufficient technical basis, a detailed review of the following HNP emergency response and supporting procedures was conducted to determine if personnel resources beyond the proposed on-shift staffing were required to support any plant and radiological response actions during the first 90 minutes after an emergency declaration of an Alert or higher:

- Abnormal Operations Procedures (AOP)
- Emergency Operations Procedures (EOP)

- Emergency Contingency Actions (ECA)
- Event Specific Procedures (ES)
- Function Restoration Procedures (FRP)
- System Operations Procedures (SOP)
- Chemistry Control Procedures (CCP)
- Emergency Plan Implementing Procedures (EPIP)

A more detailed list of these procedures is provided in Enclosure 13.

Therefore, in order to analyze the minimum staffing needed to perform troubleshooting and technical support tasks requiring maintenance, chemistry, and radiation protection technicians, HNP completed a performance-based analysis (PBPA) of site event response procedures and their bases. The PBPA included the impact of equipment failures as identified in each procedure under 'response not obtained' (RNO) criteria in order to establish the sequence of actions taken where initial emergency response procedure actions were not successful.

The PBPA successfully demonstrated that the proposed staffing composition of on-shift personnel were able to perform required troubleshooting, technical tasks, and similar actions for the first 90 minutes without the need for the additional maintenance, chemistry, and radiation protection technicians. In the vast majority of actions calling for maintenance, chemistry, or radiation protection support, the event response procedures direct the operations staff to take alternate actions rather than wait for repair/restoration of any equipment/systems not responding as expected. When actions are needed in the first 90 minutes, operators, with appropriate training, were determined to be capable of performing the required actions. Details are included in Enclosure 13.

2.1.2 Plant Systems and Design Credit Analysis

Crediting the robust ECCS and Engineered Safety Features (ESFs) capability and protection against single failures provides an additional basis for reducing maintenance, chemistry, and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

HNP Unit 1 and Unit 2 have different design approval dates and as such HNP Unit 1 and Unit 2 are committed to different version of the General Design Criteria (GDC). Appendix F of the Unit 1 HNP Final Safety Analysis Report (FSAR) provides that the HNP Unit 1 design conforms to the *"General Design Criteria for Nuclear Power Plant Construction,"* issued for comment in July,1967.

Relative to Emergency Core Cooling System (ECCS) performance capabilities, the 1967 GDC 41 states:

> "Engineered safety features such as emergency core cooling and containment heat removal systems shall provide sufficient performance

> capability to accommodate partial loss of installed capacity and still fulfill the required safety function. As a minimum, each engineered safety feature shall provide this required safety function assuming a failure of a single active component."

Additionally, Appendix F of the Unit 1 HNP also provides an evaluation of HNP Unit 1 conformance with *"General Design Criteria for Nuclear Power Plants,"* effective May 21, 1971, and subsequently amended July 7, 1971. Likewise, Chapter 3 of the Unit 2 HNP FSAR provides that the HNP Unit 2 design conforms to the General Design Criteria (GDC) in 10 CFR 50 Appendix A.

Relative to ECCS performance capabilities, GDC 35 of 10 CFR 50 Appendix A states:

> Emergency core cooling. A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

To meet the requirements of the above stated ECCS design criteria HNP Unit 1 and Unit 2 both employ an ECCS design that consists of the following subsystems:

- High-pressure coolant injection (HPCI).
- Automatic depressurization (ADS).
- Core spray (CS).
- Low-pressure coolant injection (LPCI), an operating mode of the RHR system.

The HPCI system consists of a single turbine driven pump and associated system piping and components that is designed to pump water into the RPV over a wide range of pressures. For small break loss of coolant accidents (LOCA) that do not result in rapid Reactor Pressure Vessel (RPV) depressurization, the system maintains RPV water level and depressurizes the RPV until RPV

pressure is below the pressure at which either LPCI or the CS system operation can maintain core cooling.

The ADS employs safety-relief valves (SRVs) to reduce the RPV pressure to the operating range of LPCI and the CS system for events in which the HPCI system is unable to maintain RPV water level. The ADS provides a backup for the HPCI system for depressurizing the RPV.

The CS system consists of two redundant loops which provide water onto the top of the fuel assemblies to cool the core in the event of a large break LOCA. The protection extends to a small break in which the HPCI system cannot maintain RPV water level, and as a result, the ADS operates to lower RPV pressure so the CS system can provide core cooling.

The LPCI mode of RHR consists of the two redundant RHR loops designed to flood the core and prevent excessive fuel temperature in the event a large break LOCA. The protection is extended to small breaks in which the HPCI system cannot maintain RPV water level, and as a result, the ADS operates to lower RPV pressure so the LPCI system can provide core cooling.

Both onsite and offsite electric power systems are provided to permit functioning of the ECCS. Physically independent circuits are provided from the switchyard to the startup auxiliary transformers. These circuits are fed by independent transmission lines, physically separated as they approach the switchyard so that the failure of one line does not cause failure of another line. From the switchyard to the onsite electrical distribution system, separation is also provided so that failure of one circuit does not cause the failure of the other circuit. Each of the incoming transmission lines is normally connected to the switchyard. One of these lines is continually connected to a startup transformer to supply power immediately to the essential 4160V buses in the event of a LOCA. In the event of failure of the startup transformer, the essential 4160V buses are automatically transferred to a separate startup transformer. In the event that all offsite circuits are lost, the emergency buses are isolated from the remaining portion of the onsite power system and connected to the onsite emergency diesel generators.

Class 1E ac loads, which include ECCS, are powered from three 4160V essential buses for each unit providing sufficient independence and redundancy to ensure protection against a single failure. Class 1E dc loads, which include ECCS, are connected to two 250/125 Vdc essential buses and associated batteries providing sufficient independence and redundancy to ensure protection against a single failure.

In aggregate the four separate ECCS subsystems provide sufficient redundancy to ensure effective core cooling is achieved across the entire spectrum of line break sizes coincident with the most limiting single equipment failure. As such,

the robust and redundant design of the HNP Unit 1 and Unit 2 ECCS, including power supplies, meets the requirements of the applicable GDC.

Normal ECCS operating status and deviations from this status to include associated power sources is controlled by the HNP Technical Specifications.

System performance is tracked and trended by the site and demonstrates a high degree of reliability. System health requirements are maintained based on NRC performance indicators for system availability and functional failures which are an integral part of the Reactor Oversight Process. Additionally, reliability is driven by Maintenance Rule performance criteria.

Crediting the robust ECCS system and ESFs capability and protection against single failures provides an additional basis for reducing maintenance, chemistry, and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

2.1.3 Analysis of Improvements in Dose Assessment / In-Plant Monitoring

Enhanced displays have been developed for obtaining information for performing dose assessment. These displays are available through the integrated control systems and include specific information related to area radiation monitor readings, continuous air monitor readings, effluent release paths, and meteorological data.

2.1.3.1 Previous on-shift dose assessment

The HNP dose assessment capability in place to support the SNC Standard Emergency Plan license amendment request employed a computer-based dose projection software for performing off-site dose assessments. The program estimated reactor source term, atmospheric transport, and doses resulting from radiological emergencies. The software was developed to allow consideration of the dominant aspects of source term, transport, dose, and consequences. The offsite dose assessment program addressed the relationship between effluent monitor readings, onsite and offsite exposures, and contamination for various meteorological conditions. In situations where effluent monitors are either off-scale, inoperative, or the release occurred by an unmonitored flow path the model could use sample data to perform dose projections. In the absence of effluent sample data, the software could perform dose projections by specifying the accident category as a default. The computer-based software included the capability to perform multi-unit/multi-source dose assessments. The dose calculation model was available in the Control Room, TSC, and EOF.

2.1.3.2 Current on-shift dose assessment

Updated HNP dose projection software, which is currently in place, is an enhanced version of the computer-based software and provides user selected event specific inputs applicable at the time of the event such release type, accident types, fuel state, partitioning, filtration status, flow rates, etc. This most recent upgrade included the ability to simultaneously assess multiple release paths. The software uses a menu selection process to quickly step the user through each data input to support timely performance of dose projections. These improvements in dose assessment software allow for a dedicated on-shift dose assessor to more efficiently determine the impacts of offsite releases.

2.1.3.3 General Improvements

In addition to the hardware and software upgrades to the plant computer, software updates to the dose assessment program, and improved displays of information, HNP has made general improvements to the speed and quality of automated call-out systems, procedure and training improvements, and credits the ever-increasing quality and quantity of general communications methods via mobile devices that provide additional safety benefits by disseminating quality information at greater speed and convenience. Collectively, these enhancements speed up and improve the quality of shared information and improve the performance of ERO personnel, thereby compensating for the proposed 15-minute increase in augmentation time and changes to the on-shift staff composition.

2.1.4 Technical Summary

In summary, HNP has completed an analysis of the plant event procedures and required emergency actions in a PBPA, an assessment of the credit that can be taken for plant systems and design; and an assessment of the improvements in dose assessment and plant-monitoring, as well as general improvements through technology, information availability, and procedures/training. Further, HNP has completed NEI 10-05 and NEI 12-01 staffing assessments to support the proposed changes. These analyses support extension of augmented response times and the proposed changes to the ERO staffing composition.

3.0 FUNCTIONAL ANALYSIS

This section describes the functional analysis performed to support the proposed changes. The analysis evaluates the effect of the proposed staff changes and the extension of the augmentation time on the ability of the on-shift staff to perform the major tasks for the major functional areas of the SNC Emergency Plan. The PBPA, NEI 10-05 and NEI 12-01 staffing assessments were conducted to ensure that the proposed changes did not result in any conflicting duties for the on-shift staff, and that no degradation or loss of function would occur as

a result of the proposed changes. The functional analysis is described below. Further detail is provided in Enclosure 13.

The following is the result of the functional analysis performed for the major functional areas as described in NUREG-0654 Revision 1, Table B-1. In general, the analysis is organized to provide details for each functional area for (a) SNC Emergency Plan Version 1, (b) the current SNC Emergency Plan, and (c) the proposed SNC Emergency Plan.

3.1 Plant Operations and Assessment of Operational Aspects

a. NUREG-0654 Revision 1 assumes the function of plant operations and assessment of operational aspects is performed by on-shift staff throughout the emergency. Compared to NUREG-0654 Revision 1, SNC Emergency Plan Version 1 had additional system operators to support this function.

b. In the current Hatch Annex, the on-shift Operations staffing continues to exceed the guidance of NUREG-0654 Revision 1, Table B-1.

c. The proposed Hatch Annex is revised to reflect the most recent NRC guidance in the revised Table B-1 and removes references to 12 on-shift staff positions not performing EP Functions. Specifically, the senior reactor operator (SRO) who performs the fire brigade leader (FBL) duties, the 4 reactor operators (ROs), and the 7 system operators (SOs) are removed from the proposed Table 2.2.A. The EP Functions of Command and Control and Emergency Classification are identified in the proposed Table 2.2.A along with identification of associated on-shift resources responsible for performance of the function as described below. An on-shift staffing analysis determined that the proposed changes did not result in conflicting duties for on-shift staff. The PBPA demonstrated that on-shift operations personnel were able to effectively perform plant operations and assessment functions.

3.2 Emergency Direction and Control (Command and Control, Emergency Classification)

The NRC revised Table B-1 identifies a position responsible for overall command and control of the ERO, Emergency Action Level (EAL) classifications and protective action recommendation (PAR) classifications, and authorization of personnel dose extensions, until relieved.

a. In Version 1 of the SNC Emergency Plan, the Shift Manager would assume the duties of Emergency Director (ED) and was responsible for emergency response efforts until relieved by the TSC ED augmented at 75 minutes after an Alert or higher declaration.

b. The current version of the SNC Emergency Plan maintains Version 1 response requirements for the TSC, OSC and EOF.

c. Under the proposed changes, the Shift Manager assumes the Emergency Director (ED) role and is responsible for emergency plan implementation - classifications, command and control, and supervision of the on-shift ERO staff until relieved. However, the two Unit Shift Supervisors are qualified, licensed SROs, and provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff. If the Shift Manager is not immediately available, the Unit 1 or Unit 2 Shift Supervisor may assume the role of Emergency Director. The proposed change extends the responsibility for performance of the command and control and classification functions on-shift for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. SNC has determined that the support of the Unit Shift Supervisors allows for focus by the Shift Manager (ED) on the command & control and classification functions and provides an adequate basis for the extension of an additional 15 minutes until relieved. Per the guidance of the Revised Table B-1, the firefighting roles, including the fire brigade leader, have been removed from the on-shift ERO staff and HNP table 2.2.A. However, if not actively fighting a fire, this (fourth) SRO becomes an on-shift resource, which provides an additional measure of safety and leadership during an emergency response that does not involve the firefighting team. Finally, technological advancements in capabilities to communicate via smartphones, tablets, texting, and teleconferencing has also expanded the ability to provide operations advice/support earlier than 90-minutes.

Classification

The PBPA demonstrated that leadership support from the Unit Shift Supervisors allow the Shift Manager to maintain better focus on ERO functions, particularly the classification function. The proposed changes extend the responsibility for performance of the classification function for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. The PBPA analysis of site emergency response procedures determined that the Shift Manager was able to perform the classification function for the first 90 minutes with the Unit Shift Supervisors providing support as needed.

Command and Control

The Shift Manager assumes the role of Emergency Director and is responsible for command and control. The two Unit Shift Supervisors are assigned to oversight of the two Units, but they are also members of the minimum ERO staff and can provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff, without a conflict of duties. While the proposed changes extend the official on-shift command and control time period for an additional 15 minutes, HNP has also made changes to allow for more rapid relief from early-activated ERFs.

The proposed change maintains the term "activated" with respect to responder readiness to perform response actions in each ERF but re-defines the minimum staff

positions as those specifically required for command and control functions. This definition is aligned with NSIR/DPR-ISG-01 guidance and reduces the number of positions required in the TSC, OSC and EOF required for facility activation (e.g. not requiring those that perform supporting inter-facility communications.) The proposed change also replaces "activated" for the JIC with "staffed" as there are no command and control functions associated with the JIC facility.

Identification of minimum staff associated specifically with command and control functions within the applicable ERF better allows for early-activation in advance of the 90-minute response time. (The remainder of augmented responders are still responsible for arriving within 90-minutes.)

The proposed revision to SNC Emergency Plan Figures B.2.1.A, B.2.2.A, B.3.1.A and B.3.2.A identifies minimum staff in the TSC, OSC and EOF which support activation of the facilities within 90 minutes of an Alert or higher classification as:

- Emergency Director (TSC)
- Operations Supervisor (TSC)
- RP Supervisor (TSC)
- ENS Communicator (TSC)
- Reactor Engineer (TSC)
- OSC Manager (OSC)
- Emergency Director (EOF)
- Dose Assessment Supervisor (EOF)
- Dose Analyst (EOF)
- ENN Communicator (EOF)

Upon activation of the EOF at the Alert or higher classification, State/local notification/communications and PAR classification functions transition from the control room to the EOF. EAL classifications, NRC notification/communications and emergency dose extension functions transition from the control room to the TSC upon activation of that facility. Responsibility for performance of oversight of the ERO in the plant transitions from the control room to the OSC. While the proposed SNC Emergency Plan extends the requirement for facility activation for all augmented ERO responders (See Table 1 of the SNC Standard Plan) from 75 to 90-minutes for the TSC, OSC and EOF, the proposed plan also facilitates and encourages the early-activation of these facilities.

Therefore, the proposed extension of the on-shift command and control functions for an additional 15 minutes is acceptable. The change continues to identify minimum activation staffing positions in the TSC, OSC and EOF and enables early transfer of the command and control functions from the control room in advance of the 90-minute activation requirement.

3.3 Notification/Communication Function

Per NUREG-0654 Revision 1, the Notification/Communication function included major tasks to notify licensee, state, local and federal personnel and maintain communications. NRC Revised Table B-1 maintains the function as described in NUREG-0654, Rev. 1.

Licensee Notification

a. Version 1 of the SNC Emergency Plan identified notification of ERO members onsite, offsite or during back shift hours as being performed by on-shift personnel via automated callout system. This notification was completed at an Alert or higher classification for personnel assigned to respond to the TSC, OSC, EOF and JIC.

b. The current SNC Emergency Plan maintains notification of onsite and offsite ERO by on-shift personnel at an Alert or higher classification.

c. The proposed SNC Emergency Plan maintains the current notification process for augmented ERO in that personnel responding to the TSC, OSC and EOF will be notified at the Alert or higher classification by on-shift personnel.

State, Local and Federal Notification

a. In Version 1 of the Hatch Annex, performance of notification of State/local offsite response organizations (OROs) and federal agencies was completed as an ancillary duty by an on-shift operator. These functions were augmented at 75 minutes by the Emergency Notification System (ENS) Communicator in the TSC and the Emergency Notification Network (ENN) Communicator in the EOF.

b. The current SNC Emergency Plan maintains the on-shift and augmented organization for the State/local and federal notification functions as described in Version 1.

c. The proposed change identifies two (2) on-shift communicators that are available for notification/communications with a) state/local offsite response organizations (OROs) through the ENN and b) NRC notification/communications functions through the ENS. With two communicators on-shift, HNP determined that the on-shift time period could be extended an additional 15 minutes before relief by augmented responders. Therefore, the proposed change extends the 75-minute augmentation response time for the personnel performing these functions to 90 minutes. The SNC staffing studies demonstrated that these positions are not assigned other tasks that may prevent the timely performance of their assigned duties. The use of two (2) on-shift resources for performance of notification activities ensures there is effective communication with the OROs and the NRC for an additional 15 minutes until augmented resources are available. The proposed change is aligned with RIS 2016-10 staffing for 90-minute augmented response times for this function.

3.4 Radiation Protection and Dose Assessments/Projections

Per NUREG-0654, Revision 1, the Radiological Accident Assessment and Support of

Operational Accident Assessment functional area includes the Emergency Operations Facility (EOF) Director, Off-site Dose Assessment, Off-site, On-site and Out-of-plant surveys and Chemistry/Radiochemistry major tasks. The NRC Revised Table B-1 changed the functions associated with radiological accident assessment to address radiological aspects only.

Direction of Offsite Dose Assessment

Details regarding on-shift direction and control of emergencies are discussed in Section 3.1 and 3.2 of this Enclosure. The EOF Emergency Director, upon activation within 90 minutes of declaration, assumes direction of offsite dose assessment.

Off-site Dose Assessment Major Task

a. In Version 1 of the SNC Emergency Plan, performance of dose assessment on-shift was identified as the responsibility of an on-shift chemistry technician. The Shift Manager was identified as the position responsible for oversight of this function unless relieved by the TSC. The dose assessment function transitioned to the Dose Analyst in the EOF, a 75-minute response position, upon activation of that facility.

b. The current SNC Emergency Plan maintains performance of the dose assessment function by the on-shift chemistry technician as noted in Version 1 as well as the transition of the function to the Dose Analyst in the EOF.

c. The proposed change provides for a dedicated on-shift resource for performance of the dose assessment/projection function and extends the time period for an additional 15 minutes before relived by an augmented dose assessor upon activation of the EOF. Upon declaration, the on-shift chemistry technician (or other trained technician) performing this role, goes directly to the dose projection software location and is responsible for providing input to PAR decision-making, until relieved. This position has no collateral duties that would interfere with the dose assessment/projection tasks. HNP has determined that the use of a dedicated resource for performance of the dose assessment function provides greater focus and justifies the additional 15 minutes.

Off-site Surveys – Field Monitoring Teams

a. In Version 1 of the SNC Emergency Plan, Off-site surveys were initially coordinated by the TSC RP Supervisor prior to EOF activation. Three (3) Field Monitoring Team (FMT) positions were dispatched at an Alert or higher classification for the performance of environmental sampling. One (1) of the three augmented positions formed the second FMT in combination with the on-shift position responsible for performance of onsite (out-of-plant) surveys. Upon activation of the EOF, the FMTs were directed by the FMT Coordinator in that facility.

b. In Version 2 of the SNC Emergency Plan, an additional augmented position was added as the second FMT Lead. This change allowed the on-shift RP Technician responsible for performance of offsite surveys as an FMT Lead to perform onsite, in-

plant or protective action functions. The current SNC Emergency Plan and Hatch Annex maintains the Version 2 requirement for on-shift and augmented staffing for performance of offsite surveys.

c. In the proposed change, the third RP Technician is removed from on-shift, and dispatch of the FMTs is extended from 75 minutes to 90 minutes after the Alert or higher classification.

   Improvements in plant monitoring capability, as well as the use of updated dose assessment software as discussed in Section 2.1.3, provide the means for the two (2) RP Technicians on-shift to track potential radioactive releases in the early stages of an event and serve as the basis for extending the augmented response time by 15 minutes. Two FMTs, each consisting of an FMT Lead and an FMT Assistant, are 90-minute augmented responders that provide adequate coverage for offsite surveys. Direction is provided by a Dose Assessment Supervisor supported by two Field Team Coordinators in the EOF.

Onsite (out of plant) and In-Plant Surveys

a. Version 1 of the Hatch Annex identified two (2) on-shift RP Technicians responsible for the performance of initial onsite (out-of-plant) and in-plant monitoring. Upon arrival of augmented responders, a driver was assigned to one of the on-shift RP Technicians who transitioned from the onsite(out-of-plant) monitoring to the offsite survey function. Any subsequent on-site monitoring would be completed by augmented OSC resources as part of event response. Oversight of this function was performed by the RP/Chemistry Group Lead in the OSC.

b. Version 2 of the SEP provided for the transition of two (2) on-shift RP Technicians to the OSC for continued performance of onsite (out-of-plant) and in-plant surveys. Oversight of this function continues to be performed by the RP/Chemistry Group Lead in the OSC after turnover.

c. The proposed change maintains the Version 2 on-shift positions responsible for performance of onsite (out-of-plant) surveys and combines this activity with the performance of the in-plant surveys and protective action functions on-shift. Additionally, the proposed change adds a definition for "Onsite (out-of-plant) Surveys" that describes the area between the plant buildings and the Protected Area (PA) fence, rather than the site area boundary. The application of this definition allows for the two (2) RP Technicians on-shift to utilize plant monitors or conduct a survey within a short walking distance to provide continued support for release determination without the need for a third RP technician to complete surveys beyond the PA fence. The 2 RP technicians performing this function, in conjunction with the protective actions function discussed in Section 3.6, will be augmented by 4 additional RP Technicians at 90 minutes for a total of 6 RP technicians in the OSC.

Improvements in the dose assessment process as discussed in Section 2.1.2.2 facilitate simplified performance of the dose assessment function on-shift. Under the proposed change, performance of Onsite (out-of-plant) surveys can continue be used for verification of release or downwind monitoring as needed. Use of the protected area boundary as the sampling location for this purpose allows the RP technicians on-shift to quickly complete this survey due to the small size of the protected area footprint. Off-site survey data will continue to be used to validate dose assessment.

RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

Chemistry/Radiochemistry

a. Version 1 of the Hatch Annex included an on-shift Chemistry Technician responsible for the performance of chemistry sampling and radiochemistry activities. The on-shift Chemistry Technician was augmented by an additional Chemistry Technician at 75 minutes for performance of this task. Oversight of the Chemistry function was the responsibility of the RP/Chemistry Group Lead in the OSC.

b. The current Hatch Annex maintains an on-shift Chemistry Technician for performance of chemistry sampling and radio chemistry activities as well as augmented response at 75 minutes. Oversight of this function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed change removes references to performance of chemistry sampling on-shift and for periods after event declaration. The PBPAs demonstrated that no chemistry/radiochemistry tasks were necessary within the first 90 minutes of an emergency declaration. The PBPAs demonstrated that chemistry tasks are either not needed in the first 90-minutes to mitigate the event or can be deferred without impacting the emergency response. An RP/Chemistry Group Lead is an augmented responder to the OSC and would supervise chemistry technicians if these resources are deemed needed. These changes are aligned with the guidance contained in NRC Revised Table B-1.

3.5 Plant System Engineering, Repair and Corrective Actions Function (Engineering, Repair Team Activities)

Per NUREG-0654 Revision 1, the Plant System Engineering, Repair and Corrective Actions functional area includes Technical Support and Repair and Corrective Actions Major Tasks. NUREG-0654, Rev 1, Table B-1 notes that Mechanical

Maintenance/Radwaste Operator and Electrical Maintenance/Instrument and Control Technician expertise may be provided by shift personnel assigned other functions.

Technical Support

a. Version 1 of the Hatch Annex identified Core Damage Assessment as a function of the SRO/STA on-shift. The core/thermal hydraulics function was augmented at 75 minutes by a Reactor Engineer who reported to the Engineering Supervisor in the TSC. The Core Thermal Hydraulics function was augmented at 75 minutes by a Reactor Engineer who reported to the Engineering Supervisor in the TSC. Augmented staffing by two (2) Engineering Support positions also occurred at 75 minutes after the event. Version 4 of the Hatch Annex implemented the amendment to Technical Specification 5.2.2.g, as approved by NRC letter dated April, 26, 2019, which removed the 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.

b. The current SNC SEP maintains the requirement for augmentation by a Reactor Engineer position at 75 minutes from an Alert or higher classification. Additional staffing by Engineering Support positions continues to take place at 75 minutes after the event.

c. The proposed change maintains performance of the core thermal hydraulics function as an ancillary duty of an on-shift senior licensed operator and extends augmented response by the Reactor Engineer and Engineering Support positions from 75 to 90 minutes.

   The PBPA demonstrated that on-shift operations personnel were able to perform required troubleshooting activities for the first 90 minutes and that there were no technical support activities requiring additional mechanical or electrical expertise needed during this timeframe. As a result, performance of engineering and troubleshooting activities by engineering augmented responders at 90 minutes continues to support performance of the Technical Support function. The 90-minute responders include Engineering/Technical Supervisors in both the TSC and EOF, a reactor engineer in the TSC and 2 engineering support personnel in the TSC. Technological advancements in capabilities to communicate via smartphones, tablets, texting, and videoconferencing has also expanded the ability to provide technical/engineering support earlier than 90-minutes.

Repair and Corrective Actions

a. In Version 1 of the Hatch Annex, on-shift plant stabilizing functions were completed by maintenance personnel. Augmented staffing included response at 75 minutes by a Mechanical, Electrical and I&C Maintenance Group Lead.

b. The current Hatch Annex maintains the Version 1 on-shift maintenance staffing. Augmentation of Maintenance Group Leads at 75 minutes at an Alert or higher classification is also maintained as part of the SNC SEP.

c. The proposed change would remove the Mechanical, Electrical and I&C maintenance positions as well as the Maintenance Supervisor position from on-shift and extends augmented response by the Mechanical, Electrical and I&C Maintenance from 75 to 90 minutes from declaration of an Alert or higher classification.

   As discussed in the technical evaluation Section 2.1.2, the robust design of ECCS as well as proven system reliability serve as a basis for removal of maintenance resources from on-shift. The PBPA demonstrated that there were no repair or corrective activities required for the first 90 minutes. The PBPAs demonstrated that maintenance tasks are either not needed in the first 90-minutes to mitigate the event, can be performed by on-shift system operators with appropriate training, or can be deferred without impacting the emergency response. As a result, performance of repair and corrective action activities by maintenance augmented responders at 90 minutes continues to support performance of the Repair and Corrective Action function. As seen in the proposed Table 1 of the SEP, reporting to the OSC Manager within 90 minutes will be group leads in electrical, mechanical, and I/C maintenance along with technicians in each discipline. A maintenance supervisor also reports to the TSC within 90 minutes.

3.6 <u>Protective Actions (In-Plant) Function (See Radiological Assessment)</u>

Per NUREG-0654 Revision 1, the Protective Actions functional area includes the Radiation Protection major task, specifically access control, radiation protection coverage for repair and corrective actions, search and rescue first aid and firefighting, personnel monitoring and dosimetry. NUREG-0654 Table B-1 notes that HP Technician expertise may be provided by shift personnel assigned other functions. NRC Revised Table B-1 combined this function with the Radiation Protection function.

a. Version 1 of the Hatch Annex provided for one (1) on-shift RP position responsible for performance of Protective Action functions. This position was augmented by two (2) RP Technicians at 75 minutes. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC. Version 2 of the SEP provided for the transition of one (1) on-shift RP Technician to the OSC for continued performance of the Protective Action functions with augmentation by an additional RP Technicians at 75 minutes.

b. The current Hatch Annex maintains the Version 2 on-shift and augmented RP Technicians responsible for the Protective Actions functions. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC.

d. The proposed SNC SEP and Hatch Annex combines the Protective Action function with the Radiological Assessment function and uses the 2 existing on-shift RP Technicians for performance of these tasks as in the NRC Revised Table B-1 guidance and extends the response time for 4 additional RP Technicians from 75 to 90 minutes after declaration of an Alert or higher classification. These positions will continue to provide coverage for:

- Access Control / Dosimetry
- HP Coverage for Repair and Corrective Actions, Search and Rescue First Aid and Firefighting.
- Personnel Monitoring / Habitability

RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As demonstrated in the PBPA and discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

3.7 Firefighting Function

NRC Revised Table B-1 does not address firefighting as this function is more appropriately controlled by other licensing documents.

a. In Version 1, of the Hatch Annex, firefighting response was provided by on-shift fire brigade personnel.

b. The current Hatch Annex maintains the Version 1 firefighting organizational structure.

c. The proposed change removes the reference to the firefighting function in Table 2.2.A as this function may be more appropriately addressed in other licensing documents. This change is aligned with the guidance provided in NRC Revised Table B-1.

3.8 Rescue Operations and First Aid Function

NUREG-0654 Rev 1, Table B-1 notes that this function may be provided by shift personnel assigned other functions. NRC Revised Table B-1 removed rescue operations and first aid as these tasks are outside the purview of the Emergency Plan.

a. The Hatch Annex, Version 1, provided for first aid treatment for injured personnel by as an ancillary duty of on-shift personnel.

b. The current Hatch Annex maintains this requirement through the use of on-shift first aid responders.

c. The proposed change removes the reference to the Rescue Operations and First Aid function in Table 2.2.A because these activities may be more appropriately addressed in other licensing documents. This change is aligned with guidance provided in NRC Revised Table B-1.

3.9 Site Access Control and Personnel Accountability Function

NUREG-0654 Rev 1, the Site Access Control and Personnel Accountability functional area is addressed by Security personnel in accordance with the Site Security Plan. NRC Revised Table B-1 does not address site access control as this function is under the purview of the Site Security Plan.

a. In the Hatch Annex, Version 1, site access control and accountability was identified as a function of Security as detailed in the Site Security Plan.

b. The current Hatch Annex maintains this requirement through the Physical Security Plan.

c. The proposed change removes the reference to the Site Access Control and Personal Accountability function in Table 2.2.A because this function is controlled by the Site Security plan. This change is aligned with guidance provided in NRC Revised Table B-1.

4.0 Conclusions

The proposed changes continue to support the functional areas of the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel.

Elimination of on-shift Maintenance positions and extending augmented response times for maintenance positions, given the diverse and redundant capabilities of plant systems as well as the results of the procedure analysis, does not adversely affect the site's ability to respond to an event nor do they delay performance of repair and corrective actions functions.

Re-alignment of RP on-shift staffing and extension of augmentation response times for the performance of in-plant, onsite (out-of-plant) surveys and protective actions includes elimination of one on-shift RP technician position and provides for a total of 6 RP technicians augmented at 90 minutes at an Alert or higher classification. The proposed ERO staffing plan reduces the need for in-plant RP support prior to augmentation and does not adversely affect the performance of radiological assessment or protective action functions on-shift, nor those associated with event response within the first 90 minutes after an event. SNC has installed in-plant monitoring capability in conjunction with improvements in dose assessment software such that the emergency response functions identified in the HNP Emergency Plan will continue to be performed in a timely manner. The proposed changes do not result in a reduced ERO capability to effectively respond to an emergency.

The proposed change extends the time at which field monitoring teams are dispatched by 15 minutes. Improvements in the ability of on-shift staff to perform dose modeling support the ability to generate accurate dose assessments such that extension of response times adequately supports the radiological assessment function.

Removal of references to chemistry positions not performing EP functions as well as chemistry activities performed as a function of other site procedures is aligned with NRC guidance. Similarly, removal of references to admin/support positions is included in the proposed change. These positions and functions will be maintained in the site procedures.

Finally, the PBPA demonstrated that on-shift operations personnel, with appropriate training, were capable of troubleshooting activities for the first 90 minutes to address technical support or corrective action activities during this timeframe. The results of this analysis provide the basis for extension of augmented response by 15 minutes.

Therefore, the proposed changes continue to ensure the SNC Emergency Plan will meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

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 6

Hatch Standard Emergency Plan Annex Marked-up Pages

This enclosure contains 4 pages.

Southern Nuclear Operating Company

STANDARD EMERGENCY PLAN ANNEX

for

Hatch Nuclear Plant

Units 1 and 2

Version X

~~Table 2.2.A – Hatch Nuclear Plant On Shift Staffing~~

~~Major Functional Area~~	~~Major Tasks~~	~~Position~~	~~On-Shift~~
~~Emergency Direction and Control~~		~~Shift Manager (SM)/ Emergency Director (ED)~~	~~1~~
~~Plant Operations and Assessment of Operational Aspects~~		~~Shift Supervisor (SRO)~~	~~2~~
		~~Reactor Operator (RO)~~	~~4~~
		~~Shift Support Supervisor/Fire Brigade Leader (SRO/FBL)~~ ~~Note 1~~	~~1~~
		~~System Operator (SO)~~ ~~Note 1~~	~~7~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Shift Support Supervisor or other trained individual~~	~~Note 2~~
~~Notification/ Communication~~	~~Notify licensee, State local and Federal personnel & maintain communication~~	~~Licensed Operator (RO or SRO)~~	~~Note 2~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite Dose Assessment~~	~~Chemistry Technician or other trained personnel~~	~~1~~
	~~In-plant surveys~~	~~RP Technician or other trained personnel~~	~~1~~
	~~Offsite Surveys Onsite (out-of-plant)~~	~~RP Technician or other trained personnel~~	~~1~~
~~Protective Actions~~	~~Radiation Protection:~~ ~~a. Access Control~~ ~~b. RP Coverage for repair, corrective actions, search and rescue first aid & firefighting~~ ~~c. Personnel monitoring~~ ~~d. Dosimetry~~	~~RP Technician~~	~~1~~
	~~Chemistry/Radio- chemistry~~	~~Chemistry Technician~~	~~1~~
~~Plant System Engineering Repair and Corrective Actions~~	~~Repair and Corrective Actions~~	~~Maintenance Supervisor~~	~~1~~
		~~Electrical Maintenance~~	~~1~~
		~~Mechanical Maintenance~~	~~1~~
		~~I&C Maintenance~~	~~1~~
		~~Total:~~	~~24~~
~~Fire Fighting~~		~~Fire Brigade~~ ~~Note 1~~	~~5~~
~~Rescue Operations and First Aid~~		~~Rescue Operations/First Aid~~ ~~Note 2~~	~~2~~
~~Site Access Control and Personnel Accountability~~		~~Security~~	~~Security Plan~~

~~Note 1 – Fire Brigade made up of FB Leader (SSS) and 4 System Operators not assigned safe shutdown responsibilities.~~
~~Note 2 – May be provided by shift personnel assigned other functions.~~

Table 2.2.A – Hatch 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	Unit Shift Supervisor (SRO)	2 Note 1
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2
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 and RP coverage	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 2
TOTAL:			**8** Note 3

Note 1 – Two Shift Supervisors are assigned to oversight of each Unit, but they can provide support to the ED without conflicting duties.

Note 2 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 3 – The number of operations, security, and fire brigade staff on-shift is controlled by other licensing documents.

5.16 Joint Information Center (JIC) (SEP H.2.2)

The HNP JIC is located in Vidalia, Georgia~~, adjacent to the Georgia Power Company operating headquarters~~. The JIC is the central location for the coordination and dissemination of information to news media, and responses to public and media inquiries. Details of the JIC for HNP are in section H of the Emergency Plan. If the decision is made to ~~activate~~ staff the JIC, the CMC in Atlanta, Georgia will maintain emergency communications response coordination until the JIC is ready to assume these responsibilities.

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 7

Vogtle 1-2 Staffing Detailed Description, Technical Evaluation and Functional Analysis

This enclosure contains 19 pages.

1.0 DETAILED DESCRIPTION

SNC proposes revisions to the Vogtle Electric Generating Plant (VEGP), Units 1 and 2, Emergency Plan Annex. SNC completed a staffing analysis of on-shift responsibilities resulting from the effects associated with the proposed changes. The proposed changes are justified based on overall enhancements in technology, information availability and training; credit for the diverse and redundant nature of the Emergency Core Cooling System (ECCS) which obviates the need for maintenance activities as part of the initial response to an event as well as a performance based procedure analysis (PBPA) completed in order to determine when activities performed by non-operations personnel were required in response to adverse conditions as identified in site event response procedures. The PBPA was used to inform the functional analysis of augmented Emergency Response Organization (ERO) positions based on extended response times and completion of Major Tasks as outlined in NUREG-0654/FEMA-REP-1, Revision 1 and NRC Revised table B-1, issued June 2018 and is included in Section 3.0 of this Enclosure. The analyses supported this request to make the following changes to the ERO while maintaining the site's ability to protect public health and safety.

The wording changes applicable to the SEP are as follows:

a. "Definitions", added definition of 'facility activation' and criteria as it applies to the TSC, OSC and EOF.

b. "Definitions", added definition of 'Onsite (out-of-plant) Survey' to establish the Protected Area fence as the boundary for performance of surveys not completed by FMTs.

c. Section B.1, "Normal Plant Organization", revised to reflect reference to positions extended to 90 minutes and change in table numbers associated with augmented staffing.

d. Section B.2, "On Site Emergency Response Organization", revised Figure B.2.A to better reflect transfer of offsite notification functions.

e. Section B.2.1.10, "TSC Chemistry Support", removed reference to Chemistry staffing for sampling purposes.

f. Section B.3.1.14, "EOF Administrative Support Staff", removed references to administrative positions not performing emergency preparedness functions.

g. Section B.3.2.2, "JIC Manager", removed reference to administrative staff.

h. Section B, Table 1, "TSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

i. Section B, Table 2, "OSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

j. Section B, Table 3, "EOF 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

k. Section B, Table 4, "JIC Staff", removed as the information duplicates the facility staffing as noted in Figure B.3.2.A.

l. Section B, Figure B.2.1.A, "Technical Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

m. Section B, Figure B.2.2.A, "Operations Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation, and removed the reference to Administrative Support Staff.

n. Section B, Figure B.3.1.A, "Emergency Operations Facility Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

o. Section B, Figure B.3.2.A, "Joint Information Center Organization", revised to remove references to minimum staff positions and extend facility staffing to 90 minutes.

p. Section H.1, "Onsite Emergency Response Facilities", revised to reflect change in facility activation time.

q. Section H.1.2, "Technical Support Center (TSC)", revised to reflect change in facility activation time.

r. Section H.2.1, "Emergency Operations Facility (EOF)", revised to reflect change in facility activation time.

s. Section H.2.2, "Corporate Media Center (CMC)", replaced reference to the term "activation" of the JIC with the term "staffed".

t. Section H.2.3, "Joint Information Center (JIC)", replaced reference to activation of the JIC with the word 'staffed'.

u. Section H.4, "Emergency Response Facility Staffing and Activation", revised to better align facility activation criteria with new definition. References to facility briefings relocated to EPIPs.

The specific wording changes applicable to the Vogtle 1 & 2 Annex are as follows;

a. Section 2, Table 2.2.a, "Vogtle 1 & 2 Nuclear Plant On-Shift Staffing", revised format to reflect recent NRC guidance as well as removal of one (1) chemistry technician, one (1) RP technician and four (4) on-shift maintenance positions.

b. Section 5.1.6, "Joint Information Center (JIC)", replace the term 'activate' with 'staffed' as applied to the Waynesboro, GA JIC and delete editorial detail of the exact location.

2.0 TECHNICAL EVALUATION

2.1 Technical Analysis

This section describes the technical evaluation performed to support the proposed changes. The staffing analyses completed include a performance-based procedure analysis (PBPA), an assessment of the credit that can be taken for plant systems and design; and improvements/enhancements in dose assessment and plant-monitoring through technology, information availability, and improved procedures/training. Further, NEI 10-05 and NEI 12-01 staffing assessments were conducted to support the proposed changes. The technical evaluations are described below.

2.1.1 Performance Based Procedure Analysis

VEGP 1&2 uses emergency response and supporting procedures developed in response to the Three Mile Island (TMI) Action Plan requirements in NUREG-0737, Supplement 1, Section I.C.1. The process for the development of these procedures was based on directed analyses of accidents and transients. The events include those contained in the Final Safety Analysis Report (FSAR), loss of instrumentation busses, and natural phenomena such as earthquakes, floods and tornadoes. In addition, events involving multiple failures were considered.

These post-TMI analyses were conducted in sufficient depth into the events to assure that all relevant thermal/hydraulic/neutronic phenomena are identified. The analyses were then used to develop guidelines that ensure an appropriate transition through procedures. These analyses were subsequently submitted to the NRC for approval. Since initial design approvals, improvements have been made to emergency procedures to address additional industry issues as they emerged, such as, Station Blackout, Interfacing System LOCAs, ECCS Sump Screen Blockage, and Design Basis Security Threat. Additionally, these procedure sets have been updated to interface with Severe Accident Management Guidelines (SAMG), and Beyond Design Basis guidelines that address Loss of Large Areas and Mitigation Strategies for Beyond-Design-Basis External Events (MBDBE). These improvements ensure that plant safety is maintained, even in multiple failure conditions, by operator response using a methodical, symptom-based approach resulting in stabilization of the plant without reliance on external or augmented resources.

In RIS-2016-10, the NRC documented the need to conduct detailed analyses of these event response procedures for proposed extension of augmentation times. In order to provide a sufficient technical basis, a detailed review of the following Vogtle 1-2 emergency response and supporting procedures was conducted to determine if personnel resources beyond the proposed on-shift staffing were required to support any plant and radiological response actions during the first 90 minutes after an emergency declaration of an Alert or higher:

- Abnormal Operations Procedures (AOP)
- Emergency Operations Procedures (EOP)

- Emergency Contingency Actions (ECA)
- Event Specific Procedures (ES)
- Function Restoration Procedures (FRP)
- System Operations Procedures (SOP)
- Chemistry Control Procedures (CCP)
- Emergency Plan Implementing Procedures (EPIP)

A more detailed list of these procedures is provided in Enclosure 14.

Therefore, in order to analyze the minimum staffing needed to perform troubleshooting and technical support tasks requiring maintenance, chemistry, and radiation protection technicians, VEGP 1-2 completed a performance-based analysis (PBPA) of site event response procedures and their bases. The PBPA included the impact of equipment failures as identified in each procedure under 'response not obtained' (RNO) criteria in order to establish the sequence of actions taken where initial emergency response procedure actions were not successful.

The PBPA successfully demonstrated that the proposed staffing composition of on-shift personnel were able to perform required troubleshooting, technical tasks, and similar actions for the first 90 minutes without the need for the additional maintenance, chemistry, and radiation protection technicians. In the vast majority of actions calling for maintenance, chemistry, or radiation protection support, the event response procedures direct the operations staff to take alternate actions rather than wait for repair/restoration of any equipment/systems not responding as expected. When actions are needed in the first 90 minutes, operators, with appropriate training, were determined to be capable of performing the required actions. Details on the nature of required training are included in Enclosure 14.

2.1.2 <u>Plant Systems and Design Credit Analysis</u>

Crediting the robust ECCS and Engineered Safety Features (ESFs) capability and protection against single failures provides an additional basis for reducing maintenance, chemistry, and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

Per chapter 3 of the VEGP FSAR both VEGP Unit 1 and Unit 2 are designed to conform with the General Design Criteria (GDC) in 10 CFR 50 Appendix A.

Relative to ECCS performance capabilities, GDC 35 of 10 CFR 50 Appendix A states:

> "Emergency core cooling. A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant

at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts.

Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure."

To meet the requirements of the above stated design criteria the VEGP ECCS design includes:

- 4 passive accumulators (one on each RCS loop)
- 2 redundant trains of charging
- 2 redundant trains of safety injection
- 2 redundant trains of residual heat removal (RHR)

A passive system of four accumulators which do not require any external signals or source of power to operate provide the short-term cooling requirements for large reactor coolant pipe system breaks. Three independent and redundant pumping systems are provided: the charging system, safety injection system, and residual heat removal system. The charging system is a high-pressure, low-flow system capable of providing the required emergency cooling for small breaks. The safety injection system is an intermediate-pressure, intermediate-flow system capable of providing the required emergency cooling for medium-sized breaks. The charging system can be operated to complement the safety injection system. The RHR system is a low-pressure, high-flow system capable of providing the required emergency cooling for large breaks. The charging system and safety injection system can be operated to complement the RHR system. These systems are arranged so that the single failure of any active component does not interfere with meeting the short-term cooling requirements.

The ECCS is designed to accept a single failure following the incident without loss of its protective function. The system design will tolerate the failure of any single active component in the ECCS itself or in the necessary associated service systems at any time during the period of required system operations following the incident. With regards to long-term emergency core cooling function, the system design is based on accepting either a passive or an active failure, assuming no prior failure during the short term. This includes ensuring adequate core cooling capacity exists with one flow path removed from service whether isolated because of a leak, because of blocking of one flow path, or

because failure of a line inside the containment results in a spill of the delivery of one subsystem.

An onsite electric power system and an offsite electric power system are provided to permit the functioning of ESFs to include ECCS. The VEGP Unit 1 and Unit 2 design includes a Class 1E electric power system designed with adequate independence, capacity, and redundancy to ensure the functioning of engineered safety features (ESFS) which includes ECCS. The system is divided into two independent AC power trains, each fed from an independent Class 1E bus.

Each Class 1E bus is provided with two (normal and alternate) offsite preferred power sources and a standby onsite power source. Offsite power for sources for VEGP Class 1E AC power is supplied from either the VEGP switchyard through reserve auxiliary transformers (RAT) or from the Georgia Power Company Plant Wilson switchyard via the VEGP standby auxiliary transformer (SAT). Each Class 1E bus is supplied from a separate reserve auxiliary transformer (RAT). However, one Class 1E bus may be directly connected to the SAT instead of a RAT for its offsite preferred power source feed. A failure of a single component will not prevent the safety-related systems from performing their function. Each of the connected preferred offsite power circuits is designed to be available in sufficient time, following a loss of all onsite power sources and the other offsite electric power circuit.

Emergency onsite AC power is furnished by two diesel generators per unit. Each diesel generator is connected to a Class 1E bus. The ESF loads are divided between the Class 1E buses in balanced, redundant load groupings. Each diesel generator is capable of supplying sufficient power in sufficient time for the operation of required ESFs. The diesel generators are arranged so that a failure of a single component will not prevent the safe shutdown of the reactor.

The onsite Class 1E dc power supply consists of four independent battery systems. Failure of a single component in the dc power supply will not impair function of the ESF required to maintain the reactor in a safe condition.

Normal ECCS operating status and deviations from this status to include associated power sources is controlled by the HNP Technical Specifications.

System performance is tracked and trended by the site and demonstrates a high degree of reliability. System health requirements are maintained based on NRC performance indicators for system availability and functional failures which are an integral part of the Reactor Oversight Process. Additionally, reliability is driven by Maintenance Rule performance criteria.

Crediting the robust ECCS system and ESFs capability and protection against single failures provides an additional basis for reducing maintenance, chemistry,

and radiation protection technicians from on-shift and supports extending augmentation response times by an additional 15 minutes.

2.1.3 Analysis of Improvements in Dose Assessment / In-Plant Monitoring

Enhanced displays have been developed for obtaining information for performing dose assessment. These displays are available through the Integrated Plant Computer (IPC) and include specific information related to area radiation monitor readings, process radiation monitor readings, effluent release paths, associated flow rates, and meteorological data.

2.1.3.1 Previous on-shift dose assessment

The VEGP 1-2 dose assessment capability in place to support the SNC Standard Emergency Plan license amendment request employed a computer-based dose projection software for performing off-site dose assessments. The program estimated reactor source term, atmospheric transport, and doses resulting from radiological emergencies. The software was developed to allow consideration of the dominant aspects of source term, transport, dose, and consequences. The offsite dose assessment program addressed the relationship between effluent monitor readings, onsite and offsite exposures, and contamination for various meteorological conditions. In situations where effluent monitors are either off-scale, inoperative, or the release occurred by an unmonitored flow path the model could use sample data to perform dose projections. In the absence of effluent sample data, the software could perform dose projections by specifying the accident category as a default. The computer-based software included the capability to perform multi-unit/multi-source dose assessments. The dose calculation model was available in the Control Room, TSC, and EOF.

2.1.3.2 Current On-Shift Dose Assessment

Updated VEGP 1-2 dose projection software, which is currently in place, is an enhanced version of the computer-based software and provides user selected event specific inputs applicable at the time of the event such as release type, accident types, fuel state, partitioning, filtration status, flow rates, etc. This most recent upgrade includes the ability to simultaneously assess multiple release paths. The software uses a menu selection process to quickly step the user through each data input to support timely performance of dose projections. These improvements in dose assessment software allow for a dedicated on-shift dose assessor to more efficiently determine the impacts of offsite releases.

2.1.4 Technical Summary

In summary, VEGP 1-2 has completed an analysis of the plant event procedures

and required emergency actions in a PBPA, an assessment of the credit that can be taken for plant systems and design; and an assessment of the improvements in dose assessment and plant-monitoring, as well as general improvements through technology, information availability, and procedures/training. Further, VEGP 1-2 has completed NEI 10-05 and NEI 12-01 staffing assessments to support the proposed changes. These analyses support extension of augmented response times and the proposed changes to the ERO staffing composition.

3.0 FUNCTIONAL ANALYSIS

This section describes the functional analysis performed to support the proposed changes. The analysis evaluates the effect of the proposed staff changes and the extension of the augmentation time on the ability of the on-shift staff to perform the major tasks for the major functional areas of the SNC Emergency Plan. The PBPA, NEI 10-05 and NEI 12-01 staffing assessments were conducted to ensure that the proposed changes did not result in any conflicting duties for the on-shift staff, and that no degradation or loss of function would occur as a result of the proposed changes. The functional analysis is described below. Further detail is provided in Enclosure 12.

The following is the result of the functional analysis performed for the major functional areas as described in NUREG-0654 Revision 1, Table B-1. In general, the analysis is organized to provide details for each functional area for (a) SNC Emergency Plan Version 1, (b) the current SNC Emergency Plan, and (c) the proposed SNC Emergency Plan.

3.1 <u>Plant Operations and Assessment of Operational Aspects</u>

a. NUREG-0654 Revision 1 assumes the function of plant operations and assessment of operational aspects is performed by on-shift staff throughout the emergency. Compared to NUREG-0654 Revision 1, SNC Emergency Plan Version 1 had additional system operators to support this function.

b. In the current Vogtle 1&2 Annex, the on-shift Operations staffing continues to exceed the guidance of NUREG-0654 Revision 1, Table B-1.

c. The proposed Vogtle 1&2 Annex is revised to reflect the most recent NRC guidance in the revised Table B-1 and removes references to 12 on-shift staff positions not performing EP Functions. Specifically, the senior reactor operator (SRO) who performs the fire brigade leader (FBL) duties, the 4 reactor operators (ROs), and the 7 system operators (SOs) are removed from the proposed Table 2.2.A. The EP Functions of Command and Control and Emergency Classification are identified in the proposed Table 2.2.A along with identification of associated on-shift resources responsible for performance of the function as described below. An on-shift staffing analysis determined that the proposed changes did not result in conflicting duties for on-shift staff. The PBPA demonstrated that on-shift operations personnel were able to effectively perform plant operations and assessment functions.

3.2 Emergency Direction and Control (Command and Control, Emergency Classification)

The NRC revised Table B-1 identifies a position responsible for overall command and control of the ERO, Emergency Action Level (EAL) classifications and protective action recommendation (PAR) classifications, and authorization of personnel dose extensions, until relieved.

a. In Version 1 of the SNC Emergency Plan, the Shift Manager would assume the duties of Emergency Director (ED) and would be responsible for emergency response efforts until relieved by the TSC ED augmented at 75 minutes after an Alert or higher declaration.

b. The current version of the SNC Emergency Plan maintains Version 1 response requirements for the TSC, OSC and EOF.

c. Under the proposed changes, the Shift Manager assumes the Emergency Director (ED) role and is responsible for emergency plan implementation - classifications, command and control, and supervision of the on-shift ERO staff until relieved. However, the two Unit Shift Supervisors are qualified, licensed SROs and provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff. If the Shift Manager is not immediately available, the Unit 1 or Unit 2 Shift Supervisor may assume the role of Emergency Director. The proposed change extends the responsibility for performance of the command and control and classification functions on-shift for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. SNC has determined that the support of the Unit Shift Supervisors allows for focus by the Shift Manager (ED) on the command & control and classification functions and provides an adequate basis for the extension of an additional 15 minutes until relieved. Per the guidance of the Revised Table B-1, the firefighting roles, including the fire brigade leader, have been removed from the on-shift ERO staff and VEGP 1-2 table 2.2.A. However, if not actively fighting a fire, this (fourth) SRO becomes an on-shift resource, which provides an additional measure of safety and leadership during an emergency response that does not involve the firefighting team. Finally, technological advancements in capabilities to communicate via smartphones, tablets, texting, and teleconferencing has also expanded the ability to provide operations advice/support earlier than 90-minutes.

Classification

The PBPA demonstrated that leadership support from the Unit Shift Supervisors allow the Shift Manager to maintain better focus on ERO functions, particularly the classification function. The proposed changes extend the responsibility for performance of the classification function for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. The PBPA analysis of site emergency response procedures determined that the Shift Manager

was able to perform the classification function for the first 90 minutes with the Unit Shift Supervisors providing support as needed.

Command and Control

The Shift Manager assumes the role of Emergency Director and is responsible for command and control. The two Unit Shift Supervisors are assigned to oversight of the two Units, but they are also members of the minimum ERO staff and can provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff, without a conflict of duties. While the proposed changes extend the official on-shift command and control time period for an additional 15 minutes, VEGP 1-2 has also made changes to allow for more rapid relief from early-activated ERFs.

The proposed change maintains the term "activated" with respect to responder readiness to perform response actions in each ERF but re-defines the minimum staff positions as those specifically required for command and control functions. This definition is aligned with NSIR/DPR-ISG-01 guidance and reduces the number of positions required in the TSC, OSC and EOF required for facility activation (e.g. not requiring those that perform supporting inter-facility communications.) The proposed change also replaces "activated" for the JIC with "staffed" as there are no command and control functions associated with the JIC facility.

Identification of minimum staff associated specifically with command and control functions within the applicable ERF better allows for early-activation in advance of the 90-minute response time. (The remainder of augmented responders are still responsible for arriving within 90-minutes.)

The proposed revision to SNC Emergency Plan Figures B.2.1.A, B.2.2.A, B.3.1.A and B.3.2.A identifies minimum staff in the TSC, OSC and EOF which support activation of the facilities within 90 minutes of an Alert or higher classification as:

- Emergency Director (TSC)
- Operations Supervisor (TSC)
- RP Supervisor (TSC)
- ENS Communicator (TSC)
- Reactor Engineer (TSC)
- OSC Manager (OSC)
- Emergency Director (EOF)
- Dose Assessment Supervisor (EOF)
- Dose Analyst (EOF)
- ENN Communicator (EOF)

Upon activation of the EOF at the Alert or higher classification, State/local notification/communications and PAR classification functions transition from the control room to the EOF. EAL classifications, NRC notification/communications and emergency dose extension functions transition from the control room to the TSC

upon activation of that facility. Responsibility for performance of oversight of the ERO in the plant transitions from the control room to the OSC. While the proposed SNC Emergency Plan extends the requirement for facility activation for all augmented ERO responders (See Table 1 of the SNC Standard Plan) from 75 to 90-minutes for the TSC, OSC and EOF, the proposed plan also facilitates and encourages the early-activation of these facilities.

Therefore, the proposed extension of the on-shift command and control functions for an additional 15 minutes is acceptable. The change continues to identify minimum activation staffing positions in the TSC, OSC and EOF and enables early transfer of the command and control functions from the control room in advance of the 90-minute activation requirement

3.3 Notification/Communication Function

Per NUREG-0654 Revision 1, the Notification/Communication function included major tasks to notify licensee, state, local and federal personnel and maintain communications. NRC Revised Table B-1 maintains the function as described in NUREG-0654, Rev. 1.

Licensee Notification

a. Version 1 of the SNC Emergency Plan identified notification of ERO members onsite, offsite or during back shift hours as being performed by on-shift personnel via automated callout system. This notification was completed at an Alert or higher classification for personnel assigned to respond to the TSC, OSC, EOF and JIC.

b. The current SNC Emergency Plan maintains notification of onsite and offsite ERO by on-shift personnel at an Alert or higher classification.

c. The proposed SNC Emergency Plan maintains the current notification process for augmented ERO in that personnel responding to the TSC, OSC and EOF will be notified at the Alert or higher classification by on-shift personnel.

State, Local and Federal Notification

a. In Version 1 of the Vogtle 1&2 Annex, performance of notification of State/local and Federal agencies was completed as an ancillary duty by an on-shift operator. These functions were augmented at 75 minutes by the ENS Communicator in the TSC and the Emergency Notification Network (ENN) Communicator in the EOF.

b. The current SNC Emergency Plan maintains the on-shift and augmented organization for the State/local and federal notification functions as described in Version 1.

c. The proposed change identifies two (2) on-shift communicators that are available for notification/communications with a) state/local offsite response organizations (OROs) through the ENN and b) NRC notification/communications functions through the ENS. With two communicators on-shift, VEGP 1-2 determined that the on-shift time period could be extended an additional 15 minutes before relief by augmented

responders. Therefore, the proposed change extends the 75-minute augmentation response time for the personnel performing these functions to 90 minutes. The SNC staffing studies demonstrated that these positions are not assigned other tasks that may prevent the timely performance of their assigned duties. The use of two (2) on-shift resources for performance of notification activities ensures there is effective communication with the OROs and the NRC for an additional 15 minutes until augmented resources are available. The proposed change is aligned with RIS 2016-10 staffing for 90-minute augmented response times for this function.

3.4 Radiological Accident Assessment and Support of Operational Accident Assessment Function (Dose Assessments/Projections, Field Monitoring Teams, Radiation Protection)

Per NUREG-0654, Revision 1, the Radiological Accident Assessment and Support of Operational Accident Assessment functional area includes the Emergency Operations Facility (EOF) Director, Off-site Dose Assessment, Off-site, On-site and Out-of-plant surveys and Chemistry/Radiochemistry major tasks. The NRC Revised Table B-1 changed the functions associated with radiological accident assessment to address radiological aspects only.

Direction of Offsite Dose Assessment

Details regarding on-shift direction and control of emergencies are discussed in Section 3.1 and 3.2 of this Enclosure. The EOF Emergency Director, upon activation within 90 minutes of declaration, assumes direction of offsite dose assessment.

Off-site Dose Assessment

a. In Version 1 of the SNC Emergency Plan, performance of dose assessment on-shift was identified as the responsibility of the on-shift chemistry technician. The TSC RP Supervisor was identified as the position responsible for oversight of this function in the TSC until it was transferred to the EOF. The dose assessment function transitioned to the Dose Analyst in the EOF, a 75-minute response position, upon activation of that facility.

b. The current SNC Emergency Plan and Vogtle 1&2 Annex maintain the Version 1 requirement for performance of the dose assessment function by the on-shift chemistry technician as well as the transition of the function to the Dose Analyst in the EOF.

c. The proposed change provides for a dedicated on-shift resource for performance of the dose assessment/projection function and extends the time period for an additional 15 minutes before relived by an augmented dose assessor upon activation of the EOF. Upon declaration, the on-shift chemistry technician (or other trained technician) performing this role, goes directly to the dose projection software location and is responsible for providing input to PAR decision-making, until relieved. This position has no collateral duties that would interfere with the dose

assessment/projection tasks. VEGP 1-2 has determined that the use of a dedicated resource for performance of the dose assessment function provides greater focus and justifies the additional 15 minutes.

Off-site Surveys – Field Monitoring Teams

a. In Version 1 of the SNC Emergency Plan, Off-site surveys were initially coordinated by the TSC RP Supervisor prior to EOF activation. Three (3) Field Monitoring Team (FMT) positions were dispatched at an Alert or higher classification for the performance of environmental sampling. One (1) of the three augmented positions formed the second FMT in combination with the on-shift position responsible for performance of onsite (out-of-plant) surveys. Upon activation of the EOF, the FMTs were directed by the FMT Coordinator in that facility.

b. In Version 2 of the SNC Emergency Plan, an additional augmented position was added as the second FMT Lead. This change allowed the on-shift RP Technician responsible for performance of Off-site surveys as an FMT Lead to perform onsite, in-plant or protective action functions. The current SNC Emergency Plan and Vogtle 1&2 Annex maintains the Version 2 requirement for on-shift and augmented staffing for performance of offsite surveys.

c. In the proposed change, the third RP Technician is removed from on-shift, and dispatch of the FMTs is extended from 75 minutes to 90 minutes after the Alert or higher classification.

   Improvements in plant monitoring capability, as well as the use of updated dose assessment software as discussed in Section 2.1.3, provide the means for the two (2) RP Technicians on-shift to track potential radioactive releases in the early stages of an event and serve as the basis for extending the augmented response time by 15 minutes. Two FMTs, each consisting of an FMT Lead and an FMT Assistant, are 90-minute augmented responders that provide adequate coverage for offsite surveys. Direction is provided by a Dose Assessment Supervisor supported by two Field Team Coordinators in the EOF.

Onsite (out of plant) and In-Plant Surveys

a. Version 1 of the Vogtle 1&2 Annex identified two (2) on-shift RP Technicians as being responsible for the performance of initial onsite (out-of-plant) and in-plant monitoring. Upon arrival of augmented responders, a driver was assigned to the one of the on-shift RP Technicians who transitioned from the onsite (out-of-plant) monitoring to the offsite survey function. Any subsequent on-site monitoring would be completed by augmented OSC resources as part of event response. Oversight of this function was performed by the RP/Chemistry Group Lead in the OSC.

b. Version 2 of the SEP provided for the transition of two (2) on-shift RP Technicians to the OSC for continued performance of onsite (out-of-plant) and in-plant surveys. Oversight of this function continues to be performed by the RP/Chemistry Group Lead in the OSC after turnover.

c. The proposed change maintains the Version 2 on-shift positions responsible for performance of onsite (out-of-plant) surveys and combines this activity with the performance of the in-plant surveys and protective action functions on-shift. Additionally, the proposed change adds a definition for "Onsite (out-of-plant) Surveys" that describes the area between the plant buildings and the Protected Area (PA) fence, rather than the site area boundary. The application of this definition allows for the two (2) RP Technicians on-shift to utilize plant monitors or conduct a survey within a short walking distance to provide continued support for release determination without the need for a third RP technician to complete surveys beyond the PA fence. The 2 RP technicians performing this function, in conjunction with the protective actions function discussed in Section 3.6, will be augmented by 4 additional RP Technicians at 90 minutes for a total of 6 RP technicians in the OSC.

   Improvements in the dose assessment process as discussed in Section 2.1.2.2 facilitate simplified performance of the dose assessment function on-shift. Under the proposed change, performance of Onsite (out-of-plant) surveys can continue be used for verification of release or downwind monitoring as needed. Use of the protected area boundary as the sampling location for this purpose allows the RP technicians on-shift to quickly complete this survey due to the small size of the protected area footprint. Off-site survey data will continue to be used to validate dose assessment.

   RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

Chemistry/Radiochemistry

a. Version 1 of the Vogtle 1&2 Annex included an on-shift Chemistry Technician responsible for the performance of chemistry sampling and radiochemistry activities. The on-shift Chemistry Technician was augmented by an additional Chemistry Technician at 75 minutes for performance of this task. Oversight of the Chemistry function was the responsibility of the RP/Chemistry Group Lead in the OSC.

b. The current Vogtle 1&2 Annex maintains an on-shift Chemistry Technician for performance of chemistry sampling and radio chemistry activities. Oversight of this

function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed change removes references to performance of chemistry sampling on-shift and for periods after event declaration. The PBPAs demonstrated that no chemistry/radiochemistry tasks were necessary within the first 90 minutes of an emergency declaration. The PBPAs demonstrated that chemistry tasks are either not needed in the first 90-minutes to mitigate the event or can be deferred without impacting the emergency response. An RP/Chemistry Group Lead is an augmented responder to the OSC and would supervise chemistry technicians if these resources are deemed needed. These changes are aligned with the guidance contained in NRC Revised Table B-1.

3.5 Plant System Engineering, Repair and Corrective Actions Function (Engineering, Repair Team Activities)

Per NUREG-0654 Revision 1, the Plant System Engineering, Repair and Corrective Actions functional area includes Technical Support and Repair and Corrective Actions Major Tasks. NUREG-0654, Rev 1, Table B-1 notes that Mechanical Maintenance/Radwaste Operator and Electrical Maintenance/Instrument and Control Technician expertise may be provided by shift personnel assigned other functions.

Technical Support

a. Version 1 of the Vogtle 1-2 Annex identified Core Damage Assessment as a function of the SRO/STA on-shift. The core/thermal hydraulics function was augmented at 75 minutes by a Reactor Engineer who reported to the Engineering Supervisor in the TSC. Augmented staffing by two (2) Engineering Support positions also occurred at 75 minutes after the event. Version 4 of the Vogtle 1-2 Annex implemented the amendment to Technical Specification 5.2.2.g, as approved by NRC letter dated April 26, 2019, which removed the 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.

b. The current SNC SEP maintains the requirement for augmentation by a Reactor Engineer position at 75 minutes from an Alert or higher classification. Additional staffing by Engineering Support positions continues to take place at 75 minutes after the event.

c. The proposed change maintains performance of the core thermal hydraulics function as an ancillary duty of an on-shift senior licensed operator and extends augmented response by the Reactor Engineer and Engineering Support positions from 75 to 90 minutes.

   The PBPA demonstrated that on-shift operations personnel were able to perform required troubleshooting activities for the first 90 minutes and that there were no technical support activities requiring additional mechanical or electrical expertise

needed during this timeframe. As a result, performance of engineering and troubleshooting activities by engineering augmented responders at 90 minutes continues to support performance of the Technical Support function. The 90-minute responders include Engineering/Technical Supervisors in both the TSC and EOF, a reactor engineer in the TSC and 2 engineering support personnel in the TSC. Technological advancements in capabilities to communicate via smartphones, tablets, texting, and videoconferencing has also expanded the ability to provide technical/engineering support earlier than 90-minutes.

Repair and Corrective Actions

a. In Version 1 of the Vogtle 1&2 Annex, on-shift plant stabilizing functions were completed by maintenance personnel. Augmented staffing included response at 75 minutes by a Mechanical, Electrical and I&C Maintenance Group Leads.

b. The current Vogtle 1&2 Annex maintains the Version 1 on-shift maintenance staffing. Augmentation of Maintenance Group Leads at 75 minutes at an Alert or higher classification is also maintained as part of the SNC SEP.

c. The proposed change would remove the Mechanical, Electrical and I&C maintenance positions as well as the Maintenance Supervisor position from on-shift and extends augmented response by the Mechanical, Electrical and I&C Maintenance from 75 to 90 minutes from declaration of an Alert or higher classification.

As discussed in the technical evaluation Section 2.1.2, the robust design of ECCS as well as proven system reliability serve as a basis for removal of maintenance resources from on-shift. The PBPA demonstrated that there were no repair or corrective activities required for the first 90 minutes. The PBPAs demonstrated that maintenance tasks are either not needed in the first 90-minutes to mitigate the event, can be performed by on-shift system operators with appropriate training, or can be deferred without impacting the emergency response. As a result, performance of repair and corrective action activities by maintenance augmented responders at 90 minutes continues to support performance of the Repair and Corrective Action function. As seen in the proposed Table 1 of the SEP, reporting to the OSC Manager within 90 minutes will be group leads in electrical, mechanical, and I/C maintenance along with technicians in each discipline. A maintenance supervisor also reports to the TSC within 90 minutes.

3.6 Protective Actions (In-Plant) Function (See Radiological Assessment)

Per NUREG-0654 Revision 1, the Protective Actions functional area includes the Radiation Protection major task, specifically Access Control, HP Coverage for repair and corrective actions, search and rescue first aid and firefighting, personnel monitoring and dosimetry. NUREG-0654 Table B-1 notes that HP Technician expertise may be provided by shift personnel assigned other functions. NRC Revised Table B-1 combined this function with the Radiation Protection function.

a. Version 1 of the Vogtle 1&2 Annex provided for one (1) on-shift RP position responsible for performance of Protective Action functions. This position was augmented by two (2) RP Technicians at 75 minutes. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC. Version 2 of the SEP provided for the transition of one (1) on-shift RP Technician to the OSC for continued performance of the Protective Action functions with augmentation by an additional RP Technician at 75 minutes.

b. The current Vogtle 1&2 Annex maintains the on-shift and augmented RP Technicians responsible for the Protective Actions functions. Oversight of this function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

e. The proposed SNC SEP and Vogtle Annex combines the Protective Action function with the Radiological Assessment function and uses the 2 existing on-shift RP Technicians for performance of these tasks as in the NRC Revised Table B-1 guidance and extends the response time for 4 additional RP Technicians from 75 to 90 minutes after declaration of an Alert or higher classification. These positions will continue to provide coverage for:

   - Access Control / Dosimetry
   - HP Coverage for Repair and Corrective Actions, Search and Rescue First Aid and Firefighting.
   - Personnel Monitoring / Habitability

   RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As demonstrated in the PBPA and discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

3.7 Firefighting Function

NRC Revised Table B-1 does not address firefighting as this function is more appropriately controlled by other licensing documents.

a. In Version 1, of the Vogtle 1&2 Annex, Fire Fighting response was provided by on-shift fire brigade personnel.

b. The current Vogtle 1&2 Annex maintains the Version 1 Firefighting organizational structure.

c. The proposed change removes the reference to the firefighting function in Table 2.2.A as this function may be more appropriately addressed in other licensing

documents. This change is aligned with the guidance provided in NRC Revised Table B-1.

3.8 Rescue Operations and First-Aid Function

NUREG-0654 Rev 1, Table B-1 notes that this function may be provided by shift personnel assigned other functions. NRC Revised Table B-1 removed rescue operations and first aid as these tasks are outside the purview of the Emergency Plan.

a. The Vogtle 1&2 Annex, Version 1, provided for first aid treatment for injured personnel by as an ancillary duty of on-shift personnel.

b. The current Vogtle 1&2 Annex maintains this requirement. through the use of on-shift First Aid responders.

c. The proposed change removes the reference to the Rescue Operations and First Aid function in Table 2.2.A because the activities may be more appropriately addressed in other licensing documents. This change is aligned with guidance provided in NRC Revised Table B-1.

3.9 Site Access Control and Personnel Accountability Function

NUREG-0654 Rev 1, the Site Access Control and Personnel Accountability functional area is addressed by Security personnel in accordance with the Site Security Plan. NRC Revised Table B-1 does not address site access control as this function is under the purview of the Site Security Plan.

a. In the Vogtle 1&2 Annex, Version 1, site access control and accountability was identified as a function of Security as detailed in the Site Security Plan.

b. The current Vogtle 1&2 Annex maintains this requirement through the Physical Security Plan.

c. The proposed change removes the reference to the Site Access Control and Personal Accountability function in Table 2.2.A because this function is controlled by the Site Security plan. This change is aligned with guidance provided in NRC Revised Table B-1.

4.0 Conclusions

The proposed changes continue to support the functional areas of the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel.

Elimination of on-shift Maintenance positions and extending augmented response times for maintenance positions, given the diverse and redundant capabilities of plant systems as well as the results of the event procedure analysis, does not adversely affect the site's ability to respond to an event nor do they delay essential repair and corrective action functions.

Re-alignment of RP on-shift staffing and extension of augmentation response times for the performance of in-plant, onsite (out-of-plant) surveys and protective actions includes elimination of one on-shift RP technician position and provides for a total of 6 RP technicians augmented at 90 minutes at an Alert or higher classification. The proposed ERO staffing plan reduces the need for in-plant RP support prior to augmentation and does not adversely affect the performance of radiological assessment or protective action functions on-shift, nor those associated with event response within the first 90 minutes after an event. SNC has installed in-plant monitoring capability in conjunction with improvements in dose assessment software such that the emergency response functions identified in the VEGP 1-2 Emergency Plan will continue to be performed in a timely manner. The proposed changes do not result in a reduced ERO capability to effectively respond to an emergency.

The proposed change extends the time at which field monitoring teams are dispatched by 15 minutes. Improvements in the ability of on-shift staff to perform dose modeling support the ability to generate accurate dose assessments such that extension of response times adequately supports the radiological assessment function.

Removal of references to chemistry positions not performing EP functions as well as chemistry activities performed as a function of other site procedures is aligned with NRC guidance. Similarly, removal of references to admin/support positions is included in the proposed change. These positions and functions are maintained in the site procedures.

Finally, the PBPA demonstrated that on-shift operations personnel, with appropriate training, were capable of troubleshooting activities for the first 90 minutes to address technical support or corrective action activities during this timeframe. The results of this analysis provide the basis for extension of augmented response by 15 minutes.

Therefore, the proposed changes continue to ensure the SNC Emergency Plan will meet the requirements of 10 CFR 50.54(q)(2), 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

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 8

Vogtle 1-2 Standard Emergency Plan Annex Marked-up Pages

This enclosure contains 4 pages.

Southern Nuclear Operating Company

STANDARD EMERGENCY PLAN ANNEX

for

Vogtle Electric Generating Plant

Units 1 and 2

Version X

~~Table 2.2.A Vogtle Electric Generating Plant On Shift Staffing~~

~~Vogtle 1 & 2~~			
~~Major Functional Area~~	~~Major Tasks~~	~~Position~~	~~On Shift~~
~~Emergency Direction and Control~~		~~Shift Manager (SM)/ Emergency Director (ED)~~	~~1~~
~~Plant Operations and Assessment of Operational Aspects~~		~~Shift Supervisor (SRO)~~	~~2~~
		~~Reactor Operator (RO)~~	~~4~~
		~~Shift Support Supervisor/Fire Brigade Leader (SRO/FBL) Note 1~~	~~1~~
		~~System Operator (SO) Note 1~~	~~7~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Shift Technical Advisor~~	~~Note 2~~
~~Notification/ Communication~~	~~Notify licensee, State local and Federal personnel & maintain communication~~	~~Licensed Operator (RO or SRO)~~	~~Note 2~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite Dose Assessment~~	~~Chemistry Technician or other trained personnel~~	~~1~~
	~~In-plant surveys~~	~~RP Technician or other trained personnel~~	~~1~~
	~~Offsite Surveys Onsite (out of plant)~~	~~RP Technician or other trained personnel~~	~~1~~
~~Protective Actions~~	~~Radiation Protection:~~ ~~a. Access Control~~ ~~b. RP Coverage for repair, corrective actions, search and rescue first-aid & firefighting~~ ~~c. Personnel monitoring~~ ~~d. Dosimetry~~	~~RP Technician~~	~~1~~
	~~Chemistry/Radio- chemistry~~	~~Chemistry Technician~~	~~1~~
~~Plant System Engineering, Repair and Corrective Actions~~	~~Repair and Corrective Actions~~	~~Maintenance Supervisor~~	~~1~~
		~~Mechanic~~	~~1~~
		~~Electrician~~	~~1~~
		~~I&C Technician~~	~~1~~
~~Total:~~			~~24~~
~~Fire Fighting~~		~~Fire Brigade Note 1~~	~~5~~
~~Rescue Operations and First Aid~~		~~Rescue Operations/First Aid Note 2~~	~~2~~
~~Site Access Control and Personnel Accountability~~		~~Security~~	~~Security Plan~~

~~Note 1 – Fire Brigade made up of FB Leader (SSS) and 4 System Operators not assigned safe shutdown responsibilities~~
~~Note 2 – May be provided by shift personnel assigned other functions~~

Table 2.2.A – Vogtle 1-2 On-Shift Staffing

Functional Area	Major Tasks	Emergency Positions	On-Shift Staffing
Command and Control	Emergency Direction; Classification; and Supervision of ERO staff	Shift Manager (Emergency Director (ED))	1
	Support for Command and Control	Unit Shift Supervisor (SRO)	2 Note 1
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2
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 and RP coverage	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 2
TOTAL:			**8** Note 3

Note 1 – Two Shift Supervisors are assigned to oversight of each Unit, but they can provide support to the ED without conflicting duties.

Note 2 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 3 – The number of operations, security, and fire brigade staff on-shift is controlled by other licensing documents.

5.1.4 Alternative Facility (SEP H.1.4)

During a security-related event or other event that precludes onsite access, the TSC and OSC ERO staff will be directed to an alternative facility. This facility is located in the near site media center in Waynesboro, Georgia. The alternative facility is equipped with the necessary communications and data links to support communications with the control room, site security, and the EOF. The available communications and data links also provide access to the SNC document management resources, work planning resources for performing engineering assessment activities including damage control team planning and preparation for return to the site. Guidance for use of the facility is contained in site procedures.

5.1.5 Emergency Operations Facility (SEP H.2.1)

The EOF is the central location for management of the offsite emergency response, coordination of radiological assessment, and management of initial recovery operations. The EOF is a dedicated facility located in Birmingham, Alabama, and serves as the EOF for SNC sites (VEGP, FNP, and HNP). Additional details of the EOF are contained in section H.2.1 of the Emergency Plan.

A near site location is maintained at the Vogtle Training Center for members of an NRC Site Team and federal, state, and local responders. The facility has space for conducting briefings with emergency response personnel and communications with other licensee and offsite emergency responders, access to plant data and radiological information, and access to copying equipment and office supplies.

5.1.6 Joint Information Center (JIC) (SEP H.2.2)

The VEGP JIC is located in Waynesboro, Georgia~~, adjacent to the Georgia Power Company operating headquarters~~. The JIC is the central location for the coordination and dissemination of information to news media, and responses to public and media inquiries. Details of the JIC for VEGP are in section H of the Emergency Plan. If the decision is made to ~~activate~~ staff the JIC, the CMC in Atlanta, Georgia will maintain emergency communications response coordination until the JIC is ready to assume these responsibilities.

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

Enclosure 9

Vogtle 3&4 Staffing Detailed Description, Technical Evaluation and Functional Analysis

This enclosure contains 17 pages

1.0 DETAILED DESCRIPTION

SNC proposes revisions to the Vogtle Electric Nuclear Plant (VEGP), Units 3 and 4, Emergency Plan Annex. SNC completed a staffing analysis of on-shift responsibilities resulting from the effects associated with the proposed changes. The proposed changes are justified based on overall enhancements in technology, information availability and training; credit for the diverse and redundant nature of the Emergency Core Cooling System (ECCS) which obviates the need for maintenance activities as part of the initial response to an event as well as a performance based procedure analysis (PBPA) completed in order to determine when activities performed by non-operations personnel were required in response to adverse conditions as identified in site event response procedures. The PBPA was used to inform the functional analysis of augmented Emergency Response Organization (ERO) positions based on extended response times and completion of Major Tasks as outlined in NUREG-0654/FEMA-REP-1, Revision 1 and NRC Revised table B-1, issued June 2018 and is included in Section 3.0 of this Enclosure. The analyses supported this request to make the following changes to the ERO while maintaining the site's ability to protect public health and safety.

The wording changes applicable to the SEP are as follows:

a. "Definitions", added definition of 'facility activation' and criteria as it applies to the TSC, OSC and EOF.

b. "Definitions", added definition of 'Onsite (out-of-plant) Survey' to establish the Protected Area fence as the boundary for performance of surveys not completed by FMTs.

c. Section B.1, "Normal Plant Organization", revised to reflect reference to positions extended to 90 minutes and change in table numbers associated with augmented staffing.

d. Section B.2, "On Site Emergency Response Organization", revised Figure B.2.A to better reflect transfer of offsite notification functions.

e. Section B.2.1.10, "TSC Chemistry Support", removed reference to Chemistry staffing for sampling purposes.

f. Section B.3.1.14, "EOF Administrative Support Staff", removed references to administrative positions not performing emergency preparedness functions.

g. Section B.3.2.2, "JIC Manager", removed reference to administrative staff.

h. Section B, Table 1, "TSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

i. Section B, Table 2, "OSC 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

j. Section B, Table 3, "EOF 75 Minute Augmentation ERO", removed and replaced with revised Table 1 that identifies 90-minute minimum staff responders.

k. Section B, Table 4, "JIC Staff", removed as the information duplicates the facility staffing as noted in Figure B.3.2.A.

l. Section B, Figure B.2.1.A, "Technical Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

m. Section B, Figure B.2.2.A, "Operations Support Center Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation, and removed the reference to Administrative Support Staff.

n. Section B, Figure B.3.1.A, "Emergency Operations Facility Organization", revised to reflect minimum staff positions associated with command and control functions and required for facility activation.

o. Section B, Figure B.3.2.A, "Joint Information Center Organization", revised to remove references to minimum staff positions and extend facility staffing to 90 minutes.

p. Section H.1, "Onsite Emergency Response Facilities", revised to reflect change in facility activation time.

q. Section H.1.2, "Technical Support Center (TSC)", revised to reflect change in facility activation time.

r. Section H.2.1, "Emergency Operations Facility (EOF)", revised to reflect change in facility activation time.

s. Section H.2.2, "Corporate Media Center (CMC)", replaced reference to the term "activation" of the JIC with the term "staffed".

t. Section H.2.3, "Joint Information Center (JIC)", replaced reference to activation of the JIC with the word 'staffed'.

u. Section H.4, "Emergency Response Facility Staffing and Activation", revised to better align facility activation criteria with new definition. References to facility briefings relocated to EPIPs.

The specific wording changes applicable to the Vogtle 3&4 Annex are as follows.

a. Section 2, Table 2.2.a, "Vogtle 3&4 Nuclear Plant On-Shift Staffing", revised format to reflect recent NRC guidance as well as removal of one (1) chemistry technician, one (1) RP technician and four (4) on-shift maintenance positions.

b. Section 5.1.6, "Joint Information Center (JIC)", replace the term 'activate' with 'staffed' as applied to the Waynesboro, GA JIC and delete editorial detail of the exact location.

2.0 TECHNICAL EVALUATION

2.1 Technical Analysis

This section discusses the technological evaluation performed to support the proposed changes. The staffing analyses completed include a performance-based procedure analysis (PBPA), an assessment of the credit that can be taken for plant systems and design; and improvements/enhancements in dose assessment and plant-monitoring through technology, information availability, and improved procedures/training. Further, NEI 10-05 and NEI 12-01 staffing assessments were conducted to support the proposed changes. The technical evaluations are described below.

2.1.1 Performance Based Procedure Analysis

VEGP 3&4 uses emergency operating procedures developed to respond to events that include those accidents and transients contained in the VEGP 3-4 Final Safety Analysis Report (FSAR).

In RIS-2016-10, the NRC documented the need to conduct detailed analyses of event response procedures for proposed extension of augmentation times. In order to provide a sufficient technical basis, a detailed review of the following VEGP 3&4 emergency response and supporting procedures was conducted to determine if personnel resources beyond the proposed on-shift staffing were required to support any plant and radiological response actions during the first 90 minutes after an emergency declaration of an Alert or higher:

- Abnormal Operations Procedures (AOP)
- Emergency Operations Procedures (EOP)
- Emergency Contingency Actions (ECA)
- Event Specific Procedures (ES)
- Function Restoration Procedures (FRP)
- System Operations Procedures (SOP)
- Chemistry Control Procedures (CCP)
- Emergency Plan Implementing Procedures (EPIP)

A more detailed list of these procedures is provided in Enclosure 15.

Therefore, in order to analyze the minimum staffing needed to perform troubleshooting and technical support tasks requiring maintenance, chemistry, and radiation protection technicians, VEGP 3-4 completed a performance-based analysis (PBPA) of site event response procedures and their bases. The PBPA included the impact of equipment failures as identified in each procedure under 'response not obtained' (RNO) criteria in order to establish the sequence of actions taken where initial emergency response procedure actions were not successful.

The PBPA successfully demonstrated that the proposed staffing composition of on-shift personnel were able to perform required troubleshooting, technical tasks, and similar actions for the first 90 minutes without the need for the additional maintenance, chemistry, and radiation protection technicians. In the vast majority of actions calling for maintenance, chemistry, or radiation protection support, the event response procedures direct the operations staff to take alternate actions rather than wait for repair/restoration of any equipment/systems not responding as expected. When actions are needed in the first 90 minutes, operators, with appropriate training, were determined to be capable of performing the required actions. Details on the nature of required training are included in Enclosure 15.

2.1.2 Plant Systems and Design Credit Analysis

The Vogtle 3-4 advanced passive safety features, described in the VEGP 3-4 FSAR, require less operator intervention to mitigate accidents in the event of malfunction. These passive features are based on natural forces, making safety functions less dependent on active systems and components, such as pumps and valves. The passive features allow operators more time to perform safety actions.

Crediting the robust VEGP 3-4 AP-1000 safety features and their capability and protection against single failures provides a basis for removal of maintenance personnel from on-shift and extending augmentation response times for these positions to 90 minutes.

2.1.3 Analysis of Advanced Dose Assessment/ In-Plant Monitoring

VEGP 3-4 advanced displays were developed for obtaining the necessary information for performing dose assessment. These displays are available through the Enterprise Data Server (EDS) and include specific information related to area radiation monitor readings, continuous air monitor readings, effluent release paths, and meteorological data.

2.1.3.1 Previous on-shift dose assessment

The VEGP 3-4 dose assessment capability described in support of the SNC Standard Emergency Plan license amendment request was a computer-based dose projection software for performing off-site dose assessments. The program estimated reactor source term, atmospheric transport, and doses resulting from radiological emergencies. The software was developed to allow consideration of the dominant aspects of source term, transport, dose, and consequences. The offsite dose assessment program addressed the relationship between effluent monitor readings, onsite and offsite exposures, and contamination for various meteorological conditions. In situations where effluent monitors are either off-scale, inoperative, or the release occurred by an unmonitored flow

path, the model could use sample data to perform dose projections. In the absence of effluent sample data, the software could perform dose projections by specifying the accident category as a default. The computer-based software included the capability to perform multi-unit/multi-source dose assessments.

2.1.3.2 Updated on-shift dose assessment

Updated VEGP 3-4 dose projection software is an enhanced version of the computer-based software and provides user selected event specific inputs applicable at the time of the event such as release type, accident types, fuel state, partitioning, filtration status, flow rates, etc. This most recent software upgrade includes the ability to simultaneously assess multiple release paths. The software uses a menu selection process to quickly step the user through each data input to support timely performance of dose projections. These improvements in dose assessment software allow for a dedicated on-shift dose assessor to more efficiently determine the impacts of offsite releases.

2.1.3.3 General Improvements

In addition to the software updates to the dose assessment program, and advanced displays of information, VEGP 3-4 benefits from improvements to the speed and quality of automated call-out systems, and credits the ever-increasing quality and quantity of general communications methods via mobile devices that provide additional safety benefits by disseminating quality information at greater speed and convenience. Collectively, these enhancements speed up and improve the quality of shared information and improve the performance of ERO personnel, thereby compensating for the proposed 15-minute increase in augmentation time and changes to the on-shift staff composition.

2.1.4 Technical Summary

In summary, VEGP 3-4 has completed an analysis of the plant event procedures and required emergency actions in a PBPA, an assessment of the credit that can be taken for plant systems and design; and an assessment of the improvements in dose assessment, as well as general technological improvements. Further, VEGP 3-4 has completed NEI 10-05 and NEI 12-01 (VEGP 3 only) staffing assessments to support the proposed changes. These analyses support extension of augmented response times and the proposed changes to the ERO staffing composition.

3.0 FUNCTIONAL ANALYSIS

This section describes the functional analysis performed to support the proposed changes. The analysis evaluates the effect of the proposed staff changes and the extension of the augmentation time on the ability of the on-shift staff to perform the major tasks for the major functional areas of the SNC Emergency Plan. The PBPA, NEI 10-05 and NEI 12-01 staffing assessments were conducted to ensure that the proposed changes did not result in any conflicting duties for the on-shift staff, and that no degradation or loss of function would occur as a result of the proposed changes. The functional analysis is described below. Further detail is provided in Enclosure 15.

The following is the result of the functional analysis performed for the major functional areas as described in NUREG-0654 Revision 1, Table B-1. In general, the analysis is organized to provide details for each functional area for (a) SNC Emergency Plan Version 1, (b) the current SNC Emergency Plan, and (c) the proposed SNC Emergency Plan.

3.1 Plant Operations and Assessment of Operational Aspects

a. NUREG-0654 Revision 1 assumes the function of plant operations and assessment of operational aspects is performed by on-shift staff throughout the emergency. Compared to NUREG-0654 Revision 1, SNC Emergency Plan Version 1 had additional senior reactor operators to support this function.

b. In the current Vogtle 3&4 Annex, the on-shift Operations staffing continues to exceed the guidance of NUREG-0654 Revision 1, Table B-1 with two Shift Managers, two Unit shift supervisors, an additional SRO/RO position, and the SRO who has the fire brigade duties. Further, Table 2.2.A envisions additional shared resources with Unit 1 and 2.

c. The proposed Vogtle 3&4 Annex is revised in consideration of the recent NRC guidance in the revised Table B-1 and removes positions that are not required to meet the emergency plan requirements. References to shared positions with Unit 1 and 2 have been removed. The Unit-specific Table 2.2.A format has been removed to align Vogtle 3-4 with the SNC operating fleet tables. References to 14 on-shift staff positions not performing EP Functions have been removed to better align with the format in the NRC Revised Table B-1. Specifically, the senior reactor operator (SRO) who performs the fire brigade leader (FBL) duties, the second Shift Manager, the 4 reactor operators (ROs), and the 8 system operators (SOs) are removed from the proposed Table 2.2.A. The EP Functions of Command and Control and Emergency Classification are identified in the proposed Table 2.2.A along with identification of associated on-shift resources responsible for performance of the function as described below. An on-shift staffing analysis determined that the proposed changes did not result in conflicting duties for

on-shift staff. The PBPA demonstrated that on-shift operations personnel were able to effectively perform plant operations and assessment functions.

3.2 Emergency Direction and Control (Command and Control, Emergency Classification)

NUREG-0654 Revision 1 guidance indicates that the on-shift Emergency Coordinator assumes this function as a collateral duty where responsibility for overall direction of facility response may be transferred when ERFs are activated. The NRC Revised Table B-1 identifies a position responsible for overall command and control of the Emergency Response Organization (ERO), Emergency Action Level (EAL) approval and authorization of personnel dose extensions, as well as a position responsible for evaluation of plant conditions and classification recommendations as an ancillary duty.

a. In Version 1 of the SNC Emergency Plan, one of the two Shift Managers would assume the duties of Emergency Director (ED) and was responsible for emergency response efforts until relieved by the TSC ED augmented at 75 minutes after an Alert or higher declaration.

b. The current version of the SNC Emergency Plan maintains Version 1 response requirements related to Emergency Direction and Control for the TSC, OSC and EOF.

c. Under the proposed changes, a single Shift Manager assumes the Emergency Director (ED) role and is responsible for emergency plan implementation - classifications, command and control, and supervision of the on-shift ERO staff until relieved. However, the two Unit Shift Supervisors and a third senior reactor operator (SRO) are qualified, licensed SROs and provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff. The third supporting SRO is assigned in alignment with the emergency response priorities, but would typically be located in the other control room not occupied by the ED. If the Shift Manager is not immediately available, the Unit 1 or Unit 2 Shift Supervisor or the third SRO may assume the role of ED. The proposed change extends the responsibility for performance of the command and control and classification functions on-shift for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. SNC has determined that the support of the Unit Shift Supervisors and a third SRO allows for focus by the Shift Manager (ED) on the command & control and classification functions and provides an adequate basis for the extension of an additional 15 minutes until relieved. Per the guidance of the Revised Table B-1, the firefighting roles, including the fire brigade leader, have been removed from the on-shift ERO staff and VEGP 3-4 table 2.2.A. However, if not actively fighting a fire, this (fifth) SRO becomes an on-shift resource, which provides an additional measure of safety and leadership during an emergency response that does not involve the firefighting team. Finally, technological advancements in capabilities to communicate

via smartphones, tablets, texting, and teleconferencing has also expanded the ability to provide operations advice/support earlier than 90-minutes.

Classification

The PBPA demonstrated that leadership support from the Unit Shift Supervisors and a third SRO allows the Shift Manager to maintain better focus on ERO functions, particularly the classification function. The proposed changes extend the responsibility for performance of the classification function for an additional 15 minutes and the activation times for the TSC, OSC and EOF from 75 to 90 minutes. The PBPA analysis of site emergency response procedures determined that the Shift Manager was able to perform the classification function for the first 90 minutes with the Unit Shift Supervisors and a third SRO providing support as needed.

Command and Control

The Shift Manager assumes the role of Emergency Director and is responsible for command and control. The two Unit Shift Supervisors and the third SRO are assigned to oversight of the two Units, but they are also members of the minimum ERO staff and can provide support to the Shift Manager for command and control duties, including oversight of the plant response to the emergency and supervision of the responding plant staff, without a conflict of duties. While the proposed changes extend the official on-shift command and control time period for an additional 15 minutes, VEGP 3-4 has also made changes to allow for more rapid relief from early-activated ERFs.

The proposed change maintains the term "activated" with respect to responder readiness to perform response actions in each ERF but re-defines the minimum staff positions as those specifically required for command and control functions. This definition is aligned with NSIR/DPR-ISG-01 guidance and reduces the number of positions required in the TSC, OSC and EOF required for facility activation (e.g. not requiring those that perform supporting inter-facility communications.) The proposed change also replaces "activated" for the JIC with "staffed" as there are no command and control functions associated with the JIC facility.

Identification of minimum staff associated specifically with command and control functions within the applicable ERF better allows for early-activation in advance of the 90-minute response time. (The remainder of augmented responders are still responsible for arriving within 90-minutes.)

The proposed revision to SNC Emergency Plan Figures B.2.1.A, B.2.2.A, B.3.1.A and B.3.2.A identifies minimum staff in the TSC, OSC and EOF which support activation of the facilities within 90 minutes of an Alert or higher classification as:

- Emergency Director (TSC)
- Operations Supervisor (TSC)
- RP Supervisor (TSC)
- ENS Communicator (TSC)

- Reactor Engineer (TSC)
- OSC Manager (OSC)
- Emergency Director (EOF)
- Dose Assessment Supervisor (EOF)
- Dose Analyst (EOF)
- ENN Communicator (EOF)

Upon activation of the EOF at the Alert or higher classification, State/local notification/communications and PAR classification functions transition from the control room to the EOF. EAL classifications, NRC notification/communications and emergency dose extension functions transition from the control room to the TSC upon activation of that facility. Responsibility for performance of oversight of the ERO in the plant transitions from the control room to the OSC. While the proposed SNC Emergency Plan extends the requirement for facility activation for all augmented ERO responders (See Table 1 of the SNC Standard Plan) from 75 to 90-minutes for the TSC, OSC and EOF, the proposed plan also facilitates and encourages the early-activation of these facilities.

Therefore, the proposed extension of the on-shift command and control functions for an additional 15 minutes is acceptable. The change continues to identify minimum activation staffing positions in the TSC, OSC and EOF and enables early transfer of the command and control functions from the control room in advance of the 90-minute activation requirement.

3.3 Notification/Communication Function

Per NUREG-0654 Revision 1, the Notification/Communication function included major tasks to notify licensee, state, local and federal personnel and maintain communications. NRC Revised Table B-1 maintains the function as described in NUREG-0654, Rev. 1.

Licensee Notification

a. Version 1 of the SNC Emergency Plan identified notification of ERO members onsite, offsite or during back shift hours as being performed by on-shift personnel via automated callout system. This notification was completed at an Alert or higher classification for personnel assigned to respond to the TSC, OSC, EOF and JIC.

b. The current SNC Emergency Plan maintains notification of onsite and offsite ERO by on-shift personnel at an Alert or higher classification.

c. The proposed SNC Emergency Plan maintains the Version 3 notification process for augmented ERO in that personnel responding to the TSC, OSC, EOF and JIC will be notified at the Alert or higher classification by on-shift personnel.

State, Local and Federal Notification

a. In Version 1 of the VEGP 3-4 Annex, performance of notification of State/local offsite response organizations (OROs) and federal agencies was completed as an ancillary

duty by an on-shift operator. These functions were augmented at 75 minutes by the Emergency Notification System (ENS) Communicator in the TSC and the Emergency Notification Network (ENN) Communicator in the EOF.

b. The current SNC Emergency Plan maintains the on-shift and augmented organization for the State/local and federal notification functions as described in Version 1.0.

c. The proposed change identifies two (2) on-shift communicators that are available for notification/communications with a) state/local offsite response organizations (OROs) through the ENN and b) NRC notification/communications functions through the ENS. With two communicators on-shift, VEGP 3-4 determined that the on-shift time period could be extended an additional 15 minutes before relief by augmented responders. Therefore, the proposed change extends the 75-minute augmentation response time for the personnel performing these functions to 90 minutes. The SNC staffing studies demonstrated that these positions are not assigned other tasks that may prevent the timely performance of their assigned duties. The use of two (2) on-shift resources for performance of notification activities ensures there is effective communication with the OROs and the NRC for an additional 15 minutes until augmented resources are available. The proposed change is aligned with RIS 2016-10 staffing for 90-minute augmented response times for this function.

3.4 Radiation Protection and Dose Assessments/Projections)

Per NUREG-0654, Revision 1, the Radiological Accident Assessment and Support of Operational Accident Assessment functional area includes the Emergency Operations Facility (EOF) Director, Off-site Dose Assessment, Off-site, On-site and Out-of-plant surveys and Chemistry/Radiochemistry major tasks. The NRC Revised Table B-1 changed the functions associated with radiological accident assessment to address radiological aspects only.

Direction of Offsite Dose Assessment

Details regarding on-shift direction and control of emergencies are discussed in Section 3.1 and 3.2 of this Enclosure. The EOF Emergency Director, upon activation within 90 minutes of declaration, assumes direction of offsite dose assessment.

Off-site Dose Assessment

a. In Version 1 of the SNC Emergency Plan, performance of dose assessment on-shift was identified as the responsibility of an on-shift chemistry technician. The Shift Manager was identified as the position responsible for oversight of this function unless relieved by the TSC. The dose assessment function transitioned to the Dose Analyst in the EOF, a 75-minute response position, upon activation of that facility.

b. The current SNC Emergency Plan maintains performance of the dose assessment function by an on-shift chemistry technician as noted in Version 1 as well as the transition of the function to the Dose Analyst in the EOF.

c. The proposed change provides for a dedicated on-shift resource for performance of the dose assessment/projection function and extends the time period for an additional 15 minutes before relived by an augmented dose assessor upon activation of the EOF. Upon declaration, the on-shift chemistry technician (or other trained technician) performing this role, goes directly to the dose projection software location and is responsible for providing input to PAR decision-making, until relieved. This position has no collateral duties that would interfere with the dose assessment/projection tasks. VEGP 3-4 has determined that the use of a dedicated resource for performance of the dose assessment function provides greater focus and justifies the additional 15 minutes.

Off-site Surveys – Field Monitoring Teams

a. In Version 1 of the SNC Emergency Plan, Off-site surveys were initially coordinated by the TSC RP Supervisor prior to EOF activation. Three (3) Field Monitoring Team (FMT) positions were dispatched at an Alert or higher classification for the performance of environmental sampling. One (1) of the three augmented positions formed the second FMT in combination with the Unit 1&2 on-shift position responsible for performance of onsite (out-of-plant) surveys. Upon activation of the EOF, the FMTs were directed by the FMT Coordinator in that facility.

b. In Version 2 of the SNC Emergency Plan, an additional augmented position was added as the second FMT Lead. This change allowed the on-shift RP Technician responsible for performance of off-site surveys as an FMT Lead to perform onsite, in-plant or protective action functions. The current SNC Emergency Plan and Vogtle 3&4 Annex maintains the Version 2 requirement for on-shift and augmented staffing for performance of offsite surveys.

c. In the proposed change, the third RP Technician is removed from on-shift, and dispatch of the FMTs is extended from 75 minutes to 90 minutes after the Alert or higher classification.

   New plant monitoring capability, as well as the use of updated dose assessment software as discussed in Section 2.1.3, provide the means for the two (2) RP Technicians on-shift to track potential radioactive releases in the early stages of an event and serve as the basis for extending the augmented response time by 15 minutes. Two FMTs, each consisting of an FMT Lead and an FMT Assistant, are 90-minute augmented responders that provide adequate coverage for offsite surveys. Direction is provided by a Dose Assessment Supervisor supported by two Field Team Coordinators in the EOF.

Onsite (out of plant) and In-Plant Surveys

a. Version 1.0 of the Vogtle 3&4 Annex identified two (2) on-shift RP Technicians as being responsible for the performance of initial onsite (out-of-plant) and in-plant monitoring. Upon arrival of augmented responders, a driver was assigned to one of the on-shift RP Technicians who transitioned from the onsite (out-of-plant) monitoring

to the offsite survey function. Any subsequent on-site monitoring would be completed by augmented OSC resources as part of event response. Oversight of this function was performed by the RP/Chemistry Group Lead in the OSC.

b. Version 2 of the SEP provided for the transition of two (2) on-shift RP Technicians to the OSC for continued performance of onsite (out-of-plant) and in-plant surveys. Oversight of this function continues to be performed by the RP/Chemistry Group Lead in the OSC after turnover.

c. The proposed change maintains the Version 2 on-shift positions responsible for performance of onsite (out-of-plant) surveys and combines this activity with the performance of the in-plant surveys and protective action functions on-shift. Additionally, the proposed change adds a definition for "Onsite (out-of-plant) Surveys" that describes the area between the plant buildings and the Protected Area (PA) fence, rather than the site area boundary. The application of this definition allows for the two (2) RP Technicians on-shift to utilize plant monitors or conduct a survey within a short walking distance to provide continued support for release determination without the need for a third RP technician to complete surveys beyond the PA fence. The 2 RP technicians performing this function, in conjunction with the protective actions function discussed in Section 3.6, will be augmented by 4 additional RP Technicians at 90 minutes for a total of 6 RP technicians in the OSC.

   Improvements in the dose assessment process as discussed in Section 2.1.2.2 facilitate simplified performance of the dose assessment function on-shift. Under the proposed change, performance of onsite (out-of-plant) surveys can continue be used for verification of release or downwind monitoring as needed. Use of the protected area boundary as the sampling location for this purpose allows the RP technicians on-shift to quickly complete this survey due to the small size of the protected area footprint. Off-site survey data will continue to be used to validate dose assessment.

   RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

Chemistry/Radiochemistry Major Task

a. Version 1.0 of the Vogtle 3&4 Annex included an on-shift Chemistry Technician responsible for the performance of chemistry sampling and radiochemistry activities. The on-shift Chemistry Technician was augmented by an additional Chemistry Technician at 75 minutes for performance of this task. Oversight of the Chemistry function was the responsibility of the RP/Chemistry Group Lead in the OSC.

b. The current Vogtle 3&4 Annex maintains an on-shift Chemistry Technician for performance of chemistry sampling and radio chemistry activities as well as augmented response at 75 minutes. Oversight of this function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed change removes references to performance of chemistry sampling on-shift and for periods after event declaration. The PBPAs demonstrated that no chemistry/radiochemistry tasks were necessary within the first 90 minutes of an emergency declaration. The PBPAs demonstrated that chemistry tasks are either not needed in the first 90-minutes to mitigate the event or can be deferred without impacting the emergency response. An RP/Chemistry Group Lead is an augmented responder to the OSC and would supervise chemistry technicians if these resources are deemed needed. These changes are aligned with the guidance contained in NRC Revised Table B-1.

3.5 Plant System Engineering, Repair and Corrective Actions Function (Engineering, Repair Team Activities)

Per NUREG-0654 Revision 1, the Plant System Engineering, Repair and Corrective Actions functional area includes Technical Support and Repair and Corrective Actions Major Tasks. NUREG-0654, Rev 1, Table B-1 notes that Mechanical Maintenance/Radwaste Operator and Electrical Maintenance/Instrument and Control Technician expertise may be provided by shift personnel assigned other functions.

Technical Support

a. Version 1 of the Vogtle 3&4 Annex identified Core Damage Assessment as a function of the SRO/STA on-shift. The core/thermal hydraulics function was augmented at 75 minutes by a Reactor Engineer who reported to the Engineering Supervisor in the TSC. Augmented staffing by two (2) Engineering Support positions also occurred at 75 minutes after the event.

b. The current SNC SEP maintains the requirement for augmentation by a Reactor Engineer position at 75 minutes from an Alert or higher classification. Additional staffing by Engineering Support positions continues to take place at 75 minutes after the event.

c. The proposed change maintains performance of the core thermal hydraulics function as an ancillary duty of an on-shift senior licensed operator and extends augmented response by the Reactor Engineer and Engineering Support positions from 75 to 90 minutes.

   The PBPA demonstrated that on-shift operations personnel were able to perform required troubleshooting activities for the first 90 minutes and that there were no technical support activities requiring additional mechanical or electrical expertise needed during this timeframe. As a result, performance of engineering and troubleshooting activities by engineering augmented responders at 90 minutes

continues to support performance of the Technical Support function. The 90-minute responders include Engineering/Technical Supervisors in both the TSC and EOF, a reactor engineer in the TSC and 2 engineering support personnel in the TSC. Technological advancements in capabilities to communicate via smartphones, tablets, texting, and videoconferencing has also expanded the ability to provide technical/engineering support earlier than 90-minutes.

Repair and Corrective Actions Major Task

a. In Version 1.0 of the Vogtle 3&4 Annex, on-shift plant stabilizing functions were completed by Unit 1 & 2 maintenance personnel. Augmented staffing included response at 75 minutes by a Mechanical, Electrical and I&C Maintenance Group Lead.

b. The current Vogtle 3&4 Annex maintains the Version 1.0 reference to Unit 1&2 on-shift maintenance staffing. Augmentation of Maintenance Group Leads at 75 minutes at an Alert or higher classification is also maintained as part of the SNC SEP.

c. The proposed change would remove the references to Unit 1&2 Mechanical, Electrical and I&C Maintenance positions as well as the Maintenance Supervisor position on-shift and extend the Mechanical, Electrical and I&C Maintenance as well as the Maintenance Group Leads positions from 75 to 90 minutes from declaration of an Alert of higher classification.

   As discussed in the technical evaluation the robust design of ECCS as well as proven system reliability serve as a basis for removal of maintenance resources from on-shift. The PBPA demonstrated that there were no repair or corrective activities required for the first 90 minutes. As a result, performance of repair and corrective action activities by maintenance responders at 90 minutes continued to support performance of the Repair and Corrective Action function.

3.6 Protective Actions (In-Plant) Function (See Radiological Assessment)

Per NUREG-0654 Revision 1, the Protective Actions functional area includes the Radiation Protection major task, specifically access control, radiation protection coverage for repair and corrective actions, search and rescue first aid and firefighting, personnel monitoring and dosimetry. NUREG-0654 Table B-1 notes that HP Technician expertise may be provided by shift personnel assigned other functions. NRC Revised Table B-1 combined this function with the Radiation Protection function.

a. Version 1.0 of the Vogtle 3&4 provided for one (1) on-shift RP position responsible for performance of Protective Action functions. This position was augmented by two (2) RP Technicians at 75 minutes. Oversight for this function was the responsibility of the RP/Chemistry Group Lead in the OSC. Version 2 of the SEP provided for the transition of one (1) on-shift RP Technician to the OSC for continued performance of

the Protective Action functions with augmentation by an additional RP Technician at 75 minutes.

b. The current SEP and Vogtle 3&4 Annex maintains the on-shift and augmented RP technicians responsible for the Protective Actions functions. Oversight of this function continues to be the responsibility of the RP/Chemistry Group Lead in the OSC.

c. The proposed SNC SEP and Vogtle 3&4 Annex combines the Protective Action function with the Radiological Assessment function and uses the 2 existing on-shift RP Technicians for performance of these tasks as in the NRC Revised Table B-1 guidance and extends the response time for 4 additional RP Technicians from 75 to 90 minutes after declaration of an Alert or higher classification. These positions will continue to provide coverage for:

   - Access Control / Dosimetry
   - HP Coverage for Repair and Corrective Actions, Search and Rescue First Aid and Firefighting.
   - Personnel Monitoring / Habitability

   RIS 2016-10 notes that augmentation of additional RP qualified resources for performance of protective actions is needed to ensure radiological protection for added on-shift maintenance and technical staff to compensate for the extended augmentation time. As demonstrated in the PBPA and discussed in Section 2.1.1, augmentation of existing on-shift resources is not required in advance of 90 minutes from the declaration of an Alert or higher classification. As a result, the need for additional RP qualified resources for performance of in-plant surveys can also be extended to 90 minutes to coincide with staffing of other responding disciplines.

3.7 Firefighting Function

NRC Revised Table B-1 does not address firefighting as this function is more appropriately controlled by other licensing documents.

a. In Version 1.0 of the Vogtle 3&4 Annex, firefighting response was provided by on-shift fire brigade personnel.

b. The current Vogtle 3&4 Annex maintains the Version 1 firefighting organizational structure.

c. The proposed change removes the reference to the firefighting function in Table 2.2.A as this function may be more appropriately addressed in other licensing documents. This change is aligned with the guidance provided in NRC Revised Table B-1.

3.8 Rescue Operations and First-Aid Function

NUREG-0654 Rev 1, Table B-1 notes that this function may be provided by shift personnel assigned other functions. NRC Revised Table B-1removed rescue operations and first aid as these tasks are outside the purview of the Emergency Plan.

a. The Vogtle 3&4 Annex, Version 1.0, provided for first aid treatment for injured personnel by as an ancillary duty of on-shift personnel assigned to Units 1&2.

b. The current Vogtle 3&4 Annex maintains this requirement through the use of Units 1&2 on-shift First Aid responders.

c. The proposed change removes the reference to the Rescue Operations and First Aid function in Table 2.2.A because the activities may be more appropriately addressed in other licensing documents. This change is aligned with guidance provided in NRC Revised Table B-1.

3.9 Site Access Control and Personnel Accountability Function

NUREG-0654 Rev 1, the Site Access Control and Personnel Accountability functional area is addressed by Security personnel in accordance with the Site Security Plan. NRC Revised Table B-1 does not address site access control as this function is under the purview of the Site Security Plan.

a. In the Vogtle 3&4 Annex, Version 1.0, site access control and accountability was identified as a function of Security as detailed in the Site Security Plan.

b. The current Vogtle 3&4 Annex maintains this requirement through the Physical Security Plan.

c. The proposed change removes the reference to the Site Access Control and Personal Accountability function in Table 2.2.A because this function is controlled by the Site Security plan. This change is aligned with guidance provided in NRC Revised Table B-1.

4.0 Conclusions

The proposed changes continue to support the functional areas of the Emergency Plan, continue to ensure the protection of the health and safety of the public and site personnel, and will not present a significant burden to the on-shift personnel.

Elimination of on-shift Maintenance positions and extending augmented response times for maintenance positions, given the advanced capabilities of plant systems as well as the results of the event procedure analysis, does not adversely affect the site's ability to respond to an event nor do they delay essential repair and corrective action functions.

Re-alignment of RP on-shift staffing and extension of augmentation response times for the performance of in-plant, onsite (out-of-plant) surveys and protective actions includes elimination of one on-shift RP technician position and provides for a total of 6 RP technicians augmented at 90 minutes at an Alert or higher classification. The proposed

ERO staffing plan reduces the need for in-plant RP support prior to augmentation and does not adversely affect the performance of radiological assessment or protective action functions on-shift, nor those associated with event response within the first 90 minutes after an event. New in-plant monitoring capability in conjunction with upgraded dose assessment software ensure that the emergency response functions identified in the VEGP 3-4 Emergency Plan will continue to be performed in a timely manner. The proposed changes do not result in a reduced ERO capability to effectively respond to an emergency.

The proposed change extends the time at which field monitoring teams are dispatched by 15 minutes. Improvements in the ability of on-shift staff to perform dose modeling support the ability to generate accurate dose assessments such that extension of response times adequately supports the radiological assessment function.

Removal of references to chemistry positions not performing EP functions as well as chemistry activities performed as a function of other site procedures is aligned with NRC guidance. Similarly, removal of references to admin/support positions is included in the proposed change. These positions and functions are maintained in the site procedures.

Finally, the PBPA demonstrated that on-shift operations personnel, with appropriate training, were capable of troubleshooting activities for the first 90 minutes to address technical support or corrective action activities during this timeframe. The results of this analysis provide the basis for extension of augmented response by 15 minutes.

Therefore, the proposed changes continue to ensure the SNC Emergency Plan will meet the requirements of 10 CFR 50.54(q)(2), 10 CFR 50 Appendix E, and the planning standards of 10 CFR 50.47(b).

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 10

Vogtle 3-4 Standard Emergency Plan Annex Marked-up Pages

This enclosure contains 4 pages.

Southern Nuclear Operating Company

STANDARD EMERGENCY PLAN ANNEX

for

Vogtle Electric Generating Plant

Units 3 and 4

Version X

Enclosure 10 to NL-19-0226
Vogtle 3-4 Standard Emergency Plan Annex Marked-up Pages

Table 2.2.A - Vogtle Electric Generating Plant On-Shift Staffing

~~Vogtle 3 & 4~~					
~~Major Functional Area~~	~~Major Tasks~~	~~Position~~	~~On-Shift Unit 3~~	~~On-Shift Unit 4~~	~~Shared Resources with Unit 1&2~~
~~Emergency Direction and Control~~		~~Shift Manager (SM)/ Emergency Director (ED)~~	~~1~~	~~1~~	~~1 Note 3~~
~~Plant Operations and Assessment of Operational Aspects~~		~~Shift Supervisor (SRO)~~	~~1~~	~~1~~	
		~~Shift Support Supervisor / Fire Brigade (SRO/FBL)~~	~~1~~		~~1 Note 3~~
		~~Licensed Operator (SRO or RO)~~	~~1~~		
		~~Reactor Operators (RO)~~	~~2~~	~~2~~	
		~~System Operators (SO)~~	~~2~~	~~2~~	
		~~System Operators / Fire Brigade (SO/FBM)~~	~~4~~		
~~Plant System Engineering, Repair and Corrective Actions~~	~~Technical Support~~	~~Shift Technical Advisor~~	~~Note 1~~		
~~Notification/ Communication~~	~~Notify licensee, state local and Federal personnel & maintain communication~~	~~Licensed Operator (SRO or RO)~~	~~Note 1~~		~~1 Note 3~~
~~Radiological Accident Assessment and Support of Operational Accident Assessment~~	~~Offsite Dose Assessment~~	~~Chemistry Technician or other trained personnel~~			~~1~~
	~~In-plant surveys~~	~~RP Technician or other trained personnel~~	~~1~~		
	~~Offsite Surveys Onsite (out of plant)~~	~~RP Technician or other trained personnel~~			~~1~~
~~Protective Actions~~	~~Radiation Protection:~~ ~~a. Access Control~~ ~~b. RP Coverage for repair, corrective actions, search and rescue first-aid & firefighting~~ ~~c. Personnel monitoring~~ ~~d. Dosimetry~~	~~RP Technician~~	~~1~~		
	~~Chemistry/Radio-chemistry~~	~~Chemistry Technician~~	~~1~~		
~~Plant System Engineering, Repair and Corrective Actions~~	~~Repair and Corrective Actions~~	~~Maintenance Supervisor~~			~~1~~
		~~Mechanic~~			~~1~~
		~~Electrician~~			~~1~~
		~~I & C Technician~~			~~1~~
		~~Total:~~	~~21~~		~~8~~
~~Firefighting~~		~~Fire Brigade Note 2~~	~~5~~		
~~Rescue Operations and First Aid~~		~~Rescue Operations/First Aid Note 1~~			~~2~~
~~Site Access and Personnel Accountability~~		~~Security~~	~~Security Plan~~		

~~Note 1 – May be provided by shift personnel assigned other functions~~

~~Note 2 – Fire Brigade made up of Fire Brigade Leader (SSS) and 4 System Operators~~

~~Note 3 – Vogtle Unit 1&2 resources may be used for events impacting multiple units~~

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

Functional Area	Major Tasks	Emergency Positions	On-Shift Staffing
Command and Control	Emergency Direction; Classification; and Supervision of ERO staff	Shift Manager (Emergency Director (ED))	1
	Support for Command and Control	Unit Shift Supervisor (SRO)	3 Note 1
Communications	Communicate EAL and PAR classifications with NRC and Local/State OROs	Communicator	2
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 and RP coverage	RP Technician or other trained personnel	2
Engineering	Technical Support; Reactor Core/Thermal Hydraulics evaluation	Shift Technical Advisor (STA)	Note 2
TOTAL:			**9** Note 3

Note 1 – Two Shift Supervisors are assigned to oversight of each Unit. In response to a declared emergency, the third SRO would typically be assigned to the Unit not occupied by the ED; however, the third SRO may perform duties for either Unit.
These 3 licensed SROs can provide support to the ED without conflicting duties.

Note 2 – The STA is not counted in the total because this position may be performed by qualified on-shift personnel assigned other functions.

Note 3 – The number of operations, security, and fire brigade staff on-shift is controlled by other licensing documents.

communications with the control room, site security and the EOF. The available communications and data links also provide access to the SNC document management resources, work planning resources for performing engineering assessment activities including damage control team planning and preparation for return to the site. Guidance for use of the facility is contained in site procedures.

5.1.5 Emergency Operations Facility (SEP H.2.1)

The EOF is the central location for management of the offsite emergency response, coordination of radiological assessment, and management of initial recovery operations. The EOF is a dedicated facility located in Birmingham, Alabama, and serves as the EOF for SNC sites (VEGP, FNP, and HNP). Additional details of the EOF are contained in section H.2.1 of the Emergency Plan.

The near site location is maintained at the Vogtle Training Center for members of an NRC Site Team and federal, state, and local responders. The facility has space for conducting briefings with emergency response personnel and communications with other licensee and offsite emergency responders, access to plant data and radiological information, and access to copying equipment and office supplies.

5.1.6 Joint Information Center (JIC) (SEP H.2.2)

The VEGP JIC is located in Waynesboro, Georgia ~~adjacent to the Georgia Power Company operating headquarters~~. The JIC is the central location for the coordination and dissemination of information to news media and responses to public and media inquiries. Details of the JIC for VEGP are in section H of the Emergency Plan. If the decision is made to ~~activate~~ staff the JIC, the CMC in Atlanta, Georgia will maintain emergency communications response coordination until the JIC is ready to assume these responsibilities.

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 11

Off-site Response Organizations – Letters of Consultation and Concurrence

This enclosure contains 16 pages

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jlwheat@southernco.com

Date: 2/18/2020

Quinton Dailey
Emergency Management Coordinator
Alabama Emergency Management Agency
P.O. Box 2160
Clanton, AL 35046

Dear Quinton Dailey,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Alabama Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Sr. EP Specialist John Perkins at 334-661-2796. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: Alabama Emergency Management Agency
Name: Quinton Dailey
Title: Technical Hazards Coordinator
Date February 19, 2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Chris Judah
Director
Dothan-Houston County Emergency Management Agency
405 E Adams St.
Dothan, AL 36303

Dear Mr. Judah,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Dothan-Houston County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Sr. EP Specialist John Perkins at 334-661-2796. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

ACKNOWLEDGED AND AGREED

Agency: Houston Cty EMA
Name: Chris Judah
Title: Director
Date 02-19-2020

Justin Wheat

Manager – Fleet Emergency Preparedness

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Ronnie Dollar
Director
Henry County Emergency Management Agency
101 North Doswell St
Abbeville, AL 36310

Dear Mr. Dollar,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Henry County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Sr. EP Specialist John Perkins at 334-661-2796. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: Henry EMA
Name: Jonathan Taylor
Title: Dept D.r
Date 2/19/20

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Tony Gentry
Director
Early County Emergency Management Agency
18610 E South Blvd
Blakely, GA 39823

Dear Mr. Gentry,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Early County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Sr. EP Specialist John Perkins at 334-661-2796. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: Early County EMA
Name: [illegible]
Title: EMA Director
Date 2-19-2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/24/2020

Gidget Stanley
Allendale County EMA Director
911B Main Street North
Allendale, SC 29810

Dear Ms. Stanley,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to the Allendale County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall (Vogtle 3&4 EP Supervisor) at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Gidget Stanley-Barker

Agency: Allendale County EMA

Name: Gidget Stanley

Title: Allendale Co. EMA Director

Date: 03/02/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Jeff Morrison
Radiological Emergency Preparedness Manager
Georgia Emergency Management Agency and Homeland Security Agency
935 United Ave. SE
Atlanta, Ga 30316

Dear Mr. Morrison,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Georgia Emergency Management ~~Agency~~ and Homeland Security Agency. JM

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Sr. EP Specialist John Perkins at 334-661-2796. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

ACKNOWLEDGED AND AGREED

Agency: GEMA
Name: JEFF MORRISON
Title: REP MGR
Date 2/24/2020

Justin Wheat

Manager – Fleet Emergency Preparedness

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Mr. Darrell Holcomb, Director
Appling County Emergency Management Agency
P. O. Box 747
Baxley, Georgia 31515

Dear Mr. Holcomb,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Appling County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Mrs. Rachelle Reddick at 912-453-5918 or Mr. Darron Moore at 912-453-2847. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat
Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Signature: Darrell Holcomb

Agency: Appling County EMA

Name: Darrell Holcomb

Title: Appling County EMA Director

Date: 02/20/20

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/24/2020

Paul Matthews
Aiken County EMA Director
1930 University Pkwy, Aiken, SC 29801

Dear Mr. Matthews,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to the Aiken County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall (Vogtle 3&4 EP Supervisor) at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: Aiken County EMA

Name: PAUL MATTHEWS

Title: DIRECTOR

Date: 2/24/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/24/2020

Roger Riley
Barnwell County EMA Director
57 Wall St, Barnwell, SC 29812

Dear Mr. Riley,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to the Barnwell County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall (Vogtle 3&4 EP Supervisor) at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: Barnwell County EMA

Name: Roger Riley

Title: Emergency Management Director

Date: 2-24-2020

Southern Nuclear
Justin Wheat
Manager, Emergency Preparedness
3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/24/2020

Nathan Nienhius
Fixed Nuclear Facilities Manager
South Carolina Emergency Management Division
2779 Fish Hatchery Road, West Columbia, SC 29172

Dear Mr. Nienhius,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to the South Carolina Emergency Management Division.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall (Vogtle 3&4 EP Supervisor) at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Agency: South Carolina EMD

Name: NATHAN NIENHIUS

Title: FNF Manager

Date: 2/26/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/24/2020

Rusty Sanders
Burke County EMA Director
277 GA-24, Waynesboro, GA 30830

Dear Mr. Sanders,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

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If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall (Vogtle 3&4 EP Supervisor) at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Rusty Sanders

Agency: Burke County EMA

Name: Rusty Sanders

Title: Burke County EMA Director

Date: 02/24/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Cornelius (Neal) Gilmore
Emergency Services Manager
Savannah River Nuclear Solutions, LLC
Savannah River Site
Building 703-45A
Aiken, SC 29808

Dear Mr. Gilmore,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your organization's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Savannah River Site.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Hall, Vogtle 3&4 EP Supervisor at 706-848-5738. Otherwise, if you concur with the proposed License Amendment Request, please evidence your organization's concurrence by signing this letter below and returning to John Hall via email at jghall@southernco.com

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Cornelius T. Gilmore
Organization: Savannah River Site

Name: Cornelius (Neal) Gilmore

Title: Emergency Services Manager
Savannah River Nuclear Solutions, LLC

Date: 3/4/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Mr. Charles Wasdin, Director
Jeff Davis County Emergency Management Agency
10 Public Safety Drive
Hazlehurst, Georgia 31515

Dear Mr. Wasdin,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

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If you have any questions regarding the proposed License Amendment Request, please feel free to contact Mrs. Rachelle Reddick at 912-453-5918 or Mr. Darron Moore at 912-453-2847. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Signature:

Agency: Jeff Davis County EMA

Name: Charles Wasdin

Title: Jeff Davis County EMA Director

Date: 2-24-19

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Mr. Walt Rogers, Director
Tattnall County Emergency Management Agency
194 John O. Parker Rd.
Reidsville, Georgia 30453

Dear Mr. Rogers,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

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If you have any questions regarding the proposed License Amendment Request, please feel free to contact Mrs. Rachelle Reddick at 912-453-5918 or Mr. Darron Moore at 912-453-2847. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat
Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Signature:
Agency: Tattnall County EMA
Name: Walt Rogers
Title: Tattnall County EMA Director
Date: 2/24/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 2/18/2020

Mr. Lynn Moore, Director
Toombs County Emergency Management Agency
321 North West Street
Lyons, Georgia 30436

Dear Mr. Moore,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

This proposed license amendment was discussed and presented in person by a member of the SNC Emergency Preparedness Staff during the SNC Radiological Emergency Program Summit held in Birmingham 3/5/2019-3/6/2019. The proposed changes are consistent with current regulatory requirements and applicable guidance; however, they will require review and approval by the Nuclear Regulatory Commission. The proposed changes would not occur until final approval is received from the NRC. There will not be any required changes to your agency's emergency response plan, will not change any actions that you would take in the unlikely event of an emergency at one of SNC's plant sites, and will have no impact to any existing SNC agreements or commitments to Toombs County Emergency Management Agency.

If you have any questions regarding the proposed License Amendment Request, please feel free to contact Mrs. Rachelle Reddick at 912-453-5918 or Mr. Darron Moore at 912-453-2847. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

Signature: Lynn Moore

Agency: Toombs County EMA

Name: Lynn Moore

Title: Toombs County EMA Director

Date: 02/24/2020

Southern Nuclear

Justin Wheat
Manager, Emergency Preparedness

3535 Colonnade Parkway
Birmingham, AL 35243
205 992 5998 tel
205 992 7601 fax

jtwheat@southernco.com

Date: 3/18/2020

David A. Turberville
Director
Office of Radiation Control
Alabama State Department of Public Health
The RSA Tower, 201 Monroe Street, Suite 1250
Montgomery, AL 36104

Dear Mr. Turberville,

Pursuant to Nuclear Regulatory Commission (NRC) regulations, Southern Nuclear Operating Company (SNC) is requesting amendments to the licenses for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) and Vogtle Electric Generating Plant, Units 1, 2, 3, and 4 (Vogtle) to reduce mandatory required on-shift staffing. Additionally, it will request extension of augmented ERO response time from 75 minutes to 90 minutes post declaration of an Alert or higher emergency classification.

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If you have any questions regarding the proposed License Amendment Request, please feel free to contact John Perkins at 334-550-8682. Otherwise, if you concur with the proposed License Amendment Request, please evidence your agency's concurrence by signing this letter below and returning to me in the self-addressed, stamped envelope.

As always, your continued support of SNC's Emergency Preparedness program is greatly appreciated.

Sincerely,

Justin Wheat

Manager – Fleet Emergency Preparedness

ACKNOWLEDGED AND AGREED

David A Turberville

Agency: Office of Radiation Control

Name: David Turberville

Title: Director

Date: 3/23/2020

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 12

Farley PBPA Results

This enclosure contains 55 pages

Farley PBPA Results

Introduction

A performance based procedural analysis (PBPA) was conducted at Farley Nuclear Plant (FNP) in accordance with the guidance in Regulatory Issue Summary (RIS) 2016-10, "*License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation*" to determine the impacts on event response and verify that event response functions continue to be addressed under the proposed staffing changes.

Executive Summary

The PBPA analysis was completed for 216 site specific procedures (See Table 1). The procedures were assessed to determine whether the proposed changes impact the performance of event mitigation activities associated with event classification. The analysis of FNP event response and supporting procedures determined that on-shift personnel, with appropriate training, were capable of performing required trouble shooting and event mitigation activities and can effectively implement the SNC Emergency Plan.

PBPA Analysis Process

Based on guidance in RIS 2016-10, a justification is required to support any changes in ERO staffing or augmentation times. In accordance with this guidance, the PBPA process is designed to identify event response procedure steps that could potentially require resources exceeding on-shift staffing levels as noted in the site Emergency Plan and determine whether the timing of the procedure activity has an impact on event mitigation. The analysis considers the impact on event mitigation activities resulting from proposed changes in current on-shift staffing levels and identifies actions used to ensure troubleshooting activities are addressed. The analysis consists of four steps:

1. Collection of site event response procedures (EOPs), including:
    - Emergency Procedures
    - Abnormal Procedures
    - Operating Procedures
    - System Procedures
    - Emergency Plan Implementing Procedures (EPIPs)

2. Identification and documentation of steps and referenced sub-procedures citing resources outside on-shift staffing that are related to classifiable events in the Emergency Plan or are needed to ensure safety functions are addressed.

3. Analysis of identified steps with site personnel to determine:
    - the basis for the action
    - the approximate timeframe in which the action is expected to take place
    - whether the timing of the action impacts event response

- any additional actions that can be initiated to ensure safety functions are addressed

4. Document the results of the analysis associated with each applicable procedure step.

This process is graphically depicted in Figure 1, below.

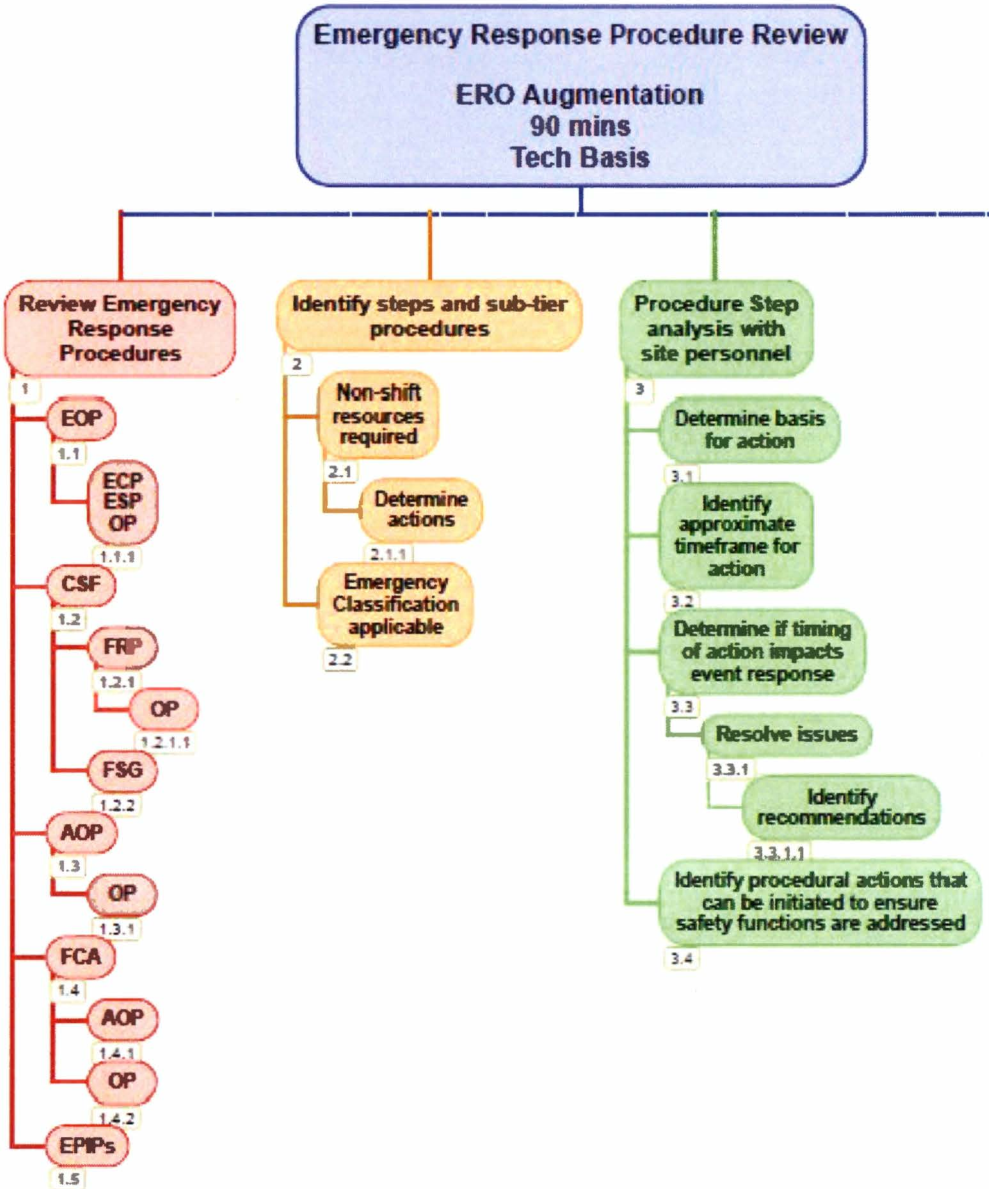

Figure 1
Emergency Response Procedures Review PBPA Process

Farley Application

1. Review of emergency response and supporting procedures containing requirements for on-shift and augmented resources

   FNP emergency response procedures were reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review included identification of sub-tier procedures such as System Operating Procedures (SOPs), Chemistry Procedures, and RP procedures referenced in the controlling emergency event procedure that may direct actions for resources outside Operations. These procedures were then also reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review also included actions identified in the 'response not obtained' (RNO) steps of the procedures to allow the analysis to include multiple failure conditions.

2. Subsequent review of procedures identified in Step 1 for applicability to classified events

   Each procedure containing references to resources external to the Operations Department was reviewed in additional detail to identify the specific resources and activity required. This review also included a review of the associated background documents to determine the intent of the affected step/action. Procedures used to respond to a plant condition that could result in declaration of an Alert or higher classification were noted in the analysis.

3. Analysis of applicable procedures

   Procedure steps that required actions by resources outside Operations were reviewed with a team of station personnel to include subject matter experts from Operations, Maintenance, RP and Chemistry to determine if the referenced actions were:

   - Required to be performed to implement the affected emergency response or supporting procedure
   - Required to be performed prior to arrival of augmented resources at 90 minutes
   - Performed by the on-shift staff as part of their normal response duties
   - Discretionary actions or otherwise performed during the recovery phase

4. FNP's Time Critical Operator Actions (TCA) validation documentation was reviewed to determine if any of the TCAs required support from resources outside of Operations or otherwise relied on augmented resources. The review determined that the FNP TCAs were completed by on-shift Operations personnel within the specified time requirements.

Results

SNC conducted a detailed review of EOPs, including other supporting documents (ECPs, ESPs, FRPs, CCPs and SOPs) with Farley personnel. The focus of this review was on determining whether the procedure steps were needed to support emergency response actions (i.e. classifications or event mitigation, etc.) or whether the procedure steps were directed for a different purpose, such as, for the long-term maintenance needs of the plant.

- The analysis first determined whether the procedure actions could be deferred until after augmented ERO resources are available with no impact on emergency response.
- If the procedure action was required to be performed prior to augmented ERO resources being available (within 90 minutes of event declaration) in order to mitigate the event or to stabilize the plant, then an analysis was performed to ensure that the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

The full list of procedures reviewed is in Table 1 below. A summary of the results of the analysis for each procedure impacted by the proposed changes immediately follows.

Table 1
FNP PBPA Procedure Listing

Proc Number	Procedure Title
FNP-0-AOP-2.1	Contingency Plans for Minimizing and Controlling Contaminated Secondary Condensate
FNP-0-AOP-21.0	Severe Weather
FNP-0-AOP-26.0	Toxic/Asphyxiant/Flammable Gas Release
FNP-0-AOP-29.0	Plant Fire
FNP-0-AOP-31.0	Loss of Service Water Pond
FNP-0-AOP-42.0	Shutdown Core Cooling
FNP-0-AOP-43.0	Shutdown Power Availability
FNP-0-AOP-49.0	Security Threat
FNP-0-AOP-49.1	Airborne Security Threat
FNP-0-AOP-79.0	Plant Flooding
FNP-0-CCP-201	Schedule, Chemistry and Water Treatment Plant Activities
FNP-0-CCP-31	Leak Rate Determination
FNP-0-CCP-645	Main Steam Abnormal Environmental Release
FNP-0-CCP-9.0	Determination of Boron
FNP-0-EMP-1340.10	Auxiliary Building Battery Capacity Calculation for Emergency Discharge Conditions
FNP-0-MP-112.1	DFS Equipment Malfunction Guidance
FNP-0-RCP-25	Radiation Protection Activities During A Radiological Accident
FNP-0-SOP-0.12	Cold Weather Contingencies
FNP-0-SOP-38.0	Diesel Generators
FNP-0-SOP-38.0-1-2A	1-2A Diesel Generator and Auxiliaries
FNP-0-SOP-38.0-1B	1B Diesel Generator and Auxiliaries
FNP-0-SOP-38.0-1C	1C Diesel Generator and Auxiliaries
FNP-0-SOP-38.0-2B	2B Diesel Generator and Auxiliaries
FNP-0-SOP-38.0-2C	2C Diesel Generator and Auxiliaries
FNP-0-SOP-56.1	Technical Support Center HVAC Systems
FNP-0-SP-27.0	Control Room Emergency Security Procedure
FNP-0-UOP-4.0	General Outage Operations Guidance
FNP-1-AOP-1.0	RCS Leakage
FNP-1-AOP-10.0	Loss of Service Water
FNP-1-AOP-100.0	Instrumentation Malfunction
FNP-1-AOP-12.0	Residual Heat Removal System Malfunction
FNP-1-AOP-16.0	CVCS Malfunction
FNP-1-AOP-17.1	Rapid Turbine Power Reduction
FNP-1-AOP-19.0	Malfunction of Rod Control System
FNP-1-AOP-2.0	Steam Generator Tube Leakage
FNP-1-AOP-25.0	Abnormal Primary or Secondary Chemistry
FNP-1-AOP-27.0	Emergency Boration
FNP-1-AOP-28.0	Control Room Inaccessibility
FNP-1-AOP-28.1	Fire or Inadvertent Fire Protection System Actuation in the Cable Spreading Room

Proc Number	Procedure Title
FNP-1-AOP-28.2	Fire in the Control Room
FNP-1-AOP-30.0	Refueling Accident
FNP-1-AOP-32.0	High Reactor Coolant Activity
FNP-1-AOP-35.0	Loss of Main Control Board Annunciators
FNP-1-AOP-36.0	Loss of Spent Fuel Pool Cooling
FNP-1-AOP-4.0	Loss of Reactor Coolant Flow
FNP-1-AOP-4.1	Abnormal Reactor Coolant Pump Seal Leakage
FNP-1-AOP-49.3	Spent Fuel Pool Emergency
FNP-1-AOP-5.0	Loss of Electrical Train A or B
FNP-1-AOP-5.3	Loss of All AC Power While on Shutdown Cooling
FNP-1-AOP-9.0	Loss of Component Cooling Water
FNP-1-ARP-1.5	Annunciator EA2
FNP-1-ARP-1.8	Annunciator HB2
FNP-1-ARP-1.8	Annunciator HD1
FNP-1-ARP-1.8	Annunciator HC1
FNP-1-CCP-1300	Chemistry and Environmental Activities During a Radiological Accident
FNP-1-CCP-335	Zinc Addition System
FNP-1-CCP-651	Sampling the Reactor Coolant System
FNP-1-CCP-651.1	Routine Sampling of the Reactor Coolant System
FNP-1-ECP-0.0	Loss of All AC Power
FNP-1-ECP-0.1	Loss of All AC Power Recovery Without SI Required
FNP-1-ECP-1.1	Loss of Emergency Coolant Recirculation
FNP-1-ECP-1.2	LOCA Outside Containment
FNP-1-ECP-1.3	Loss of Emergency Coolant Recirculation Caused by Sump Blockage
FNP-1-ECP-2.1	Uncontrolled Depressurization of All Steam Generators
FNP-1-ECP-3.1	SGTR With Loss of Reactor Coolant – Subcooled Recovery Desired
FNP-1-ECP-3.2	SGTR With Loss of Reactor Coolant – Saturated Recovery Desired
FNP-1-ECP-3.3	SGTR Without Pressurizer Pressure Control
FNP-1-EEP-0	Reactor Trip or Safety Injection
FNP-1-EEP-1	Loss of Reactor or Secondary Coolant
FNP-1-EEP-2	Faulted Steam Generator Isolation
FNP-1-EEP-3	Steam Generator Tube Rupture
FNP-1-ESP-0.1	Reactor Trip Response
FNP-1-ESP-0.2	Natural Recirculation Cooldown to Prevent Reactor Vessel Head Steam Voiding
FNP-1-ESP-1.1	SI Termination
FNP-1-ESP-1.2	Post LOCA Cooldown and Depressurization
FNP-1-ESP-1.3	Transfer to Cold Leg Recirculation
FNP-1-ESP-1.4	Transfer to Simultaneous Cold and Hot Leg Recirculation
FNP-1-ESP-3.1	Post-SGTR Cooldown Using Backfill
FNP-1-ESP-3.2	Post-SGTR Cooldown Using Blowdown
FNP-1-ESP-3.3	Post-SGTR Cooldown Using Steam Dump
FNP-1-FRP-C.1	Response to Inadequate Core Cooling
FNP-1-FRP-C.2	Response to Degraded Core Cooling
FNP-1-FRP-C.3	Response to Saturated Core Cooling
FNP-1-FRP-H.1	Response to Loss of Secondary Heat Sink

Proc Number	Procedure Title
FNP-1-FRP-H.2	Response to Steam Generator Overpressure
FNP-1-FRP-H.3	Response to Steam Generator High Level
FNP-1-FRP-H.4	Response to Loss of Normal Steam Release Capabilities
FNP-1-FRP-H.5	Response to Steam Generator Low Level
FNP-1-FRP-I.1	Response to High Pressurizer Level
FNP-1-FRP-I.2	Response to Low Pressurizer Level
FNP-1-FRP-I.3	Response to Voids in Reactor Vessel
FNP-1-FRP-P.1	Response to Imminent Pressurized Thermal Shock
FNP-1-FRP-P.2	Response to Anticipated Pressurized Thermal Shock
FNP-1-FRP-S.1	Response to Nuclear Power Generation/ATWS
FNP-1-FRP-S.2	Response to Loss of Core Shutdown
FNP-1-FRP-Z.1	Response to High Containment Pressure
FNP-1-FRP-Z.1	Response to High Containment Pressure
FNP-1-FRP-Z.2	Response to Containment Flooding
FNP-1-FRP-Z.3	Response to Containment High Radiation Level
FNP-1-FRP-Z.3	Response to Containment High Radiation Level
FNP-1-SOP-16.1	Steam Generator Blowdown Processing System
FNP-1-SOP-2.1	Chemical and Volume Control System Plant Startup and Operation
FNP-1-SOP-2.3	Chemical and Volume Control System Reactor Makeup Control System
FNP-1-SOP-2.3	Chemical and Volume Control System Reactor Makeup Control System
FNP-1-SOP-2.5	RCS Chemical Addition, VCT Gas Control, And Demineralizer Operation
FNP-1-SOP-2.7	Chemical and Volume Control System Excess Letdown
FNP-1-SOP-21.0	Condensate and Feedwater System
FNP-1-SOP-22.0	Auxiliary Feedwater System
FNP-1-SOP-40.0	Reactor Control and Protection System
FNP-1-SOP-5.0	Demineralized Makeup Water System
FNP-1-SOP-51.0	Waste Gas System
FNP-1-SOP-60.0	Penetration Room Filter System
FNP-1-SOP-62.0	Emergency Air System
FNP-1-SOP-62.1	Back-up Air or Nitrogen Supply to The Pressurizer Power Operate Relief Valves
FNP-1-SOP-7.0	Residual Heat Removal System
FNP-1-STP-35.0	Reactor Coolant System Pressure and Temperature/ Pressurizer Temperature Limits Verification
FNP-1-STP-70.0	Containment Sump Surveillance
FNP-1-STP-9.0	RCS Leakage Test
FNP-1-UOP-2.1	Shutdown of Unit from Minimum Load to Hot Standby
FNP-1-UOP-3.1	Power Operation
FNP-2-AOP-1.0	RCS Leakage
FNP-2-AOP-10.0	Loss of Service Water
FNP-2-AOP-100.0	Instrumentation Malfunction
FNP-2-AOP-12.0	Residual Heat Removal System Malfunction
FNP-2-AOP-16.0	CVCS Malfunction
FNP-2-AOP-17.1	Rapid Turbine Power Reduction
FNP-2-AOP-19.0	Malfunction of Rod Control System
FNP-2-AOP-2.0	Steam Generator Tube Leakage

Proc Number	Procedure Title
FNP-2-AOP-25.0	Abnormal Primary or Secondary Chemistry
FNP-2-AOP-27.0	Emergency Boration
FNP-2-AOP-28.0	Control Room Inaccessibility
FNP-2-AOP-28.1	Fire or Inadvertent Fire Protection System Actuation in the Cable Spreading Room
FNP-2-AOP-28.2	Fire in the Control Room
FNP-2-AOP-30.0	Refueling Accident
FNP-2-AOP-32.0	High Reactor Coolant Activity
FNP-2-AOP-35.0	Loss of Main Control Board Annunciators
FNP-2-AOP-36.0	Loss of Spent Fuel Pool Cooling
FNP-2-AOP-4.0	Loss of Reactor Coolant Flow
FNP-2-AOP-4.1	Abnormal Reactor Coolant Pump Seal Leakage
FNP-2-AOP-49.3	Spent Fuel Pool Emergency
FNP-2-AOP-5.0	Loss of Electrical Train A or B
FNP-2-AOP-5.3	Loss of All AC Power While on Shutdown Cooling
FNP-2-AOP-9.0	Loss of Component Cooling Water
FNP-2-ARP-1.5	Annunciator EA2
FNP-2-ARP-1.8	Annunciator HB2
FNP-2-ARP-1.8	Annunciator HD1
FNP-2-ARP-1.8	Annunciator HC1
FNP-2-CCP-1300	Chemistry and Environmental Activities During a Radiological Accident
FNP-2-CCP-335	Zinc Addition System (ZAS)
FNP-2-CCP-651	Sampling the Reactor Coolant System
FNP-2-CCP-651.1	Routine Sampling of the Reactor Coolant System
FNP-2-ECP-0.0	Loss of All AC Power
FNP-2-ECP-0.1	Loss of All AC Power Recovery Without SI Required
FNP-2-ECP-1.1	Loss of Emergency Coolant Recirculation
FNP-2-ECP-1.2	LOCA Outside Containment
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FNP-2-ECP-3.2	SGTR With Loss of Reactor Coolant – Saturated Recovery Desired
FNP-2-ECP-3.3	SGTR Without Pressurizer Pressure Control
FNP-2-EEP-0	Reactor Trip or Safety Injection
FNP-2-EEP-1	Loss of Reactor or Secondary Coolant
FNP-2-EEP-2	Faulted Steam Generator Isolation
FNP-2-EEP-3	Steam Generator Tube Rupture
FNP-2-ESP-0.1	Reactor Trip Response
FNP-2-ESP-0.2	Natural Recirculation Cooldown to Prevent Reactor Vessel Head Steam Voiding
FNP-2-ESP-1.1	SI Termination
FNP-2-ESP-1.2	Post LOCA Cooldown and Depressurization
FNP-2-ESP-1.3	Transfer to Cold Leg Recirculation
FNP-2-ESP-1.4	Transfer to Simultaneous Cold and Hot Leg Recirculation
FNP-2-ESP-3.1	Post-SGTR Cooldown Using Backfill
FNP-2-ESP-3.2	Post-SGTR Cooldown Using Blowdown

Proc Number	Procedure Title
FNP-2-ESP-3.3	Post-SGTR Cooldown Using Steam Dump
FNP-2-FRP-C.1	Response to Inadequate Core Cooling
FNP-2-FRP-C.2	Response to Degraded Core Cooling
FNP-2-FRP-C.3	Response to Saturated Core Cooling
FNP-2-FRP-H.1	Response to Loss of Secondary Heat Sink
FNP-2-FRP-H.2	Response to Steam Generator Overpressure
FNP-2-FRP-H.3	Response to Steam Generator High Level
FNP-2-FRP-H.4	Response to Loss of Normal Steam Release Capabilities
FNP-2-FRP-H.5	Response to Steam Generator Low Level
FNP-2-FRP-I.1	Response to High Pressurizer Level
FNP-2-FRP-I.2	Response to Low Pressurizer Level
FNP-2-FRP-I.3	Response to Voids in Reactor Vessel
FNP-2-FRP-P.1	Response to Imminent Pressurized Thermal Shock
FNP-2-FRP-P.2	Response to Anticipated Pressurized Thermal Shock
FNP-2-FRP-S.1	Response to Nuclear Power Generation/ATWS
FNP-2-FRP-S.2	Response to Loss of Core Shutdown
FNP-2-FRP-Z.2	Response to Containment Flooding
FNP-2-SOP-16.1	Steam Generator Blowdown Processing System
FNP-2-SOP-2.1	Chemical and Volume Control System Plant Startup and Operation
FNP-2-SOP-2.5	RCS Chemical Addition, VCT Gas Control, And Demineralizer Operation
FNP-2-SOP-2.7	Chemical and Volume Control System Excess Letdown
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FNP-2-SOP-62.0	Emergency Air System
FNP-2-SOP-62.1	Back-up Air or Nitrogen Supply to The Pressurizer Power Operate Relief Valves
FNP-2-SOP-7.0	Residual Heat Removal System
FNP-2-STP-35.0	Reactor Coolant System Pressure and Temperature/ Pressurizer Temperature Limits Verification
FNP-2-STP-70.0	Containment Sump Surveillance
FNP-2-STP-9.0	RCS Leakage Test
FNP-2-UOP-2.1	Shutdown of Unit from Minimum Load to Hot Standby
FNP-2-UOP-3.1	Power Operation
NMP-AD-031	SNC Reportability Roles and Responsibilities
NMP-EN-704	Spill Response
NMP-FLS-005	Confined Space
NMP-OS-014-001	FNP Time Critical Operator Action Program
NMP-OS-019-104	Farley Unit 1 FSG-4 ELAP DC Load Shed/Management
NMP-OS-019-105	Farley Unit 1 FSG-5, Initial Assessment and Flex Equipment Staging
NMP-OS-019-111	Farley Unit 1 FSG-11, Alternate SFP Makeup and Cooling
NMP-OS-019-124	Farley Unit 2 FSG-4 ELAP DC Load Shed/Management
NMP-OS-019-125	Farley Unit 2 FSG-5, Initial Assessment and Flex Equipment Staging

Procedure Analysis Detail

Event 1 – Flooding of Safety Systems

Procedure: FNP-0-AOP-21.0, Severe Weather

Step: Appendix I (High River Level), Step 6

Resource: Maintenance Supervision

Action: Contact Maintenance Supervision to walk down the River Water Structure and deenergize any exterior temporary power equipment or cables in service.

Analysis: Action taken is implemented to initiate site preparation for flooding based on forecasted high river level. Action would be performed well in advance of flooding at the site and prior to any emergency declaration. Therefore, this activity precedes any emergency plan function support. If needed, additional resources would be notified to report to the site to support this action. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 2 – Tornado

Procedure: FNP-0-AOP-21.0, Severe Weather

Step: Appendix II (Potential Tornado Contingencies), Step 6.2.2

Resource: Maintenance

Action: If any Diesel Fuel Oil Tank vent is obstructed/pinched, direct Maintenance to correct problem.

Analysis: During the review of the AOP with SNC personnel, it was determined that this step would occur once it was determined that the vent was obstructed. This determination would occur post-event, during the survey of the site for plant damage, which would be post-ERO activation. Performance of this task would occur with augmented ERO resources. Furthermore, per FSAR section 9.5.4.1, each diesel generator contains a day tank that is sized with a capacity sufficient for at least 4 hours of operation. Per FSAR section 9.5.4.3, each day tank is sized to provide adequate capacity to preclude excessive cycling of the transfer pump and at least 2 hours of operation after the low-level alarm to allow sufficient time for manual operator action(s) in response to system or equipment problems. The low-low level alarm will warn the operator that at least a 1-hour supply remains in the tank. These actions are within the response time of 90 minutes from emergency declaration. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 3 – Toxic/Flammable Gas

Procedure: FNP-0-AOP-26.0, Toxic/Asphyxiant/Flammable Gas Release

Step: Appendix A, Step 5

Resource: RP

Action: Direct RP to check for leaks using portable detectors.

Analysis: Site personnel determined that the bounding event that would result in an emergency classification of an Alert would be a release of a toxic gas (e.g., Ammonia) that impacts access to RHR system components (HA5). Per Table H1 of NMP-EP-141-001, Farley Emergency Action Levels and Basis, there are no Turbine Building Rooms identified, which excludes consideration of Chemistry personnel in the analysis. Therefore, in accordance with (IAW) FNP-0-AOP-26.0, only RP resources were required to respond because RP is responsible for actions inside the Auxiliary Building. The PBPA demonstrated that sufficient RP resources were available to respond without issue. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 4 – Security Response

Procedure: FNP-0-AOP-49.0, Security Threat

Step: Attachment 12, Step 1.3

Resource: Maintenance Team Leader and Electricians

Action: Contact Maintenance Team Leader to have Electricians shutdown Service Building Ventilation

Analysis: Attachment 12 is initiated IAW Step 19 of FNP-0-AOP-49.0. The Note applicable to Attachment 12 Step 1 actions states: "The steps in this attachment can be performed in any order as necessary or as personnel are available". Additionally, implementation of this procedure step would occur after plant personnel have been directed to 'take cover' in response to the security event IAW Step 8.2 of ENP-0-AOP-49.0. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 5 – Aircraft Security Threat

Procedure: FNP-0-AOP-49.1, Aircraft Security Threat

Step: RNO 28

Resource: Chemistry

Action: Contact Chemistry to maximize make up to both unit's condensate storage tanks

Analysis: Step 12.2 of FNP-0-AOP-49.1 directs shift personnel not immediately needed in the control room to assemble at the Training Center. The Chemistry Supervisor supporting the EOP/AOP review stated that this action is performed by Vendor support personnel and would require notification of the vendor to accomplish this action (e.g. not time critical). The action is not performed by the on-shift Chemistry technician who would continue to perform dose assessments without conflict. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Attachment 5, Step 1.3

Resource: Maintenance Team Leader and Electricians

Action: Contact Maintenance Team Leader to have Electricians shutdown Service Building Ventilation

Analysis: Step 29 of FNP-0-AOP-49.1 provides guidance to secure site HVAC systems IAW Attachment 5. The Note applicable to Attachment 5 Step 1 actions states: "The steps in this attachment can be performed in any order as necessary or as personnel are available". Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 6 – Loss of AC Power

Procedure: FNP-1/2-AOP-5.0, Loss of Electrical Train A or B

Step: 19.2

Resource: Electrical Maintenance

Action: Direct electrical maintenance personnel to calculate remaining battery capacity using FNP-0-EMP-1340.10, Auxiliary Building Battery Capacity Calculation for Emergency Discharge Conditions

Analysis: A review of this procedure determined that this procedure would be implemented during outage conditions whenever a loss of power occurs without an automatic reactor trip. The analysis team also discussed the availability of DC calculations that support FLEX. It was recommended that these battery calculations be used as an alternate if electrical maintenance personnel were not available to support this action. The analysis also determined that this action could be deferred until ERO augmented resources are available. In addition, it was determined that this event would be bounded by Event 16, Loss of All AC Power. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 30.3

Resource: Maintenance

Action: Shift Manager/Emergency Director will coordinate with maintenance to determine time to restore any emergency diesel generator(s).

Analysis: The PBPA conducted for Event 16, Loss of All AC Power, determined that this action would occur after augmented ERO resources are available. This action would not affect the ability to stabilize the plant in this situation. The Shift Manager/Emergency Director supporting the analysis determined that without maintenance resources available on-shift, Operations personnel would perform actions to restore the diesel generator to service until augmented resources were available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

<u>Event 7 – Control Room Inaccessibility</u>

Procedure: FNP-1/2-AOP-28.0, Control Room Inaccessibility

Step: 17.1

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: During the analysis of this event/procedure it was determined that ZAS is used for long term protection of systems and that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System (ZAS), the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 17.2, 17.12

Resource: Chemistry personnel

Action: Direct Chemistry personnel to sample the RCS for boron concentration using applicable procedure based on plant conditions. NOTE – Options include FNP-0-CCP-9.0, Determination of Boron OR FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident.

Analysis: The Shift Manager/Emergency Director stated that the daily RCS boron result posted in the control room would be used as the initial boron concentration and the remaining steps verifying boron concentration could be deferred until after ERO augmentation, especially if they start emergency boration at the maximum rate available. Additional research by the Shift Manager/Emergency Director determined, that IAW Technical Specifications Surveillance Control Program, immediate confirmation (within 90 minutes) of shutdown margin boron

concentration is not required. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 8 – Cable Spreading Room Fire

Procedure: FNP-1/2-AOP-28.1, Fire or Inadvertent Fire Protection System Actuation in the Cable Spreading Room

Step: 27.7

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: During the analysis of this event/procedure it was determined that ZAS is used for long term protection of systems and that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System (ZAS), the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 8 – Cable Spreading Room Fire (Continued)

Step: 33.2

Resource: Electrical Maintenance personnel

Action: Direct Electrical Maintenance personnel to replace the control power fuses in the associated MCC cubicle.

Analysis: This step is related to actions taken if any charging pump is running and its associated room cooler is not running. This step is based on a loss of ESF Room Coolers due to the control power fuse(s) having performed its design function to protect the coolers due to faults related to plant conditions (e.g., fire, overcurrent). To enable restoration of the ESF Room Cooler, this step directs Electrical Maintenance personnel to replace the control power fuse(s). During the analysis of this event/procedure with SNC personnel it was determined that IAW TS 3.7.19A there is a 72-hour completion time to restore the ESF Room Cooler Subsystem Train to an Operable status if one train is inoperable. Per TS 3.7.19B, the unit is required to be in Mode 3 within 6 hours if two trains of ESF Room Cooler Subsystems are not returned to service. Furthermore, the Shift Manager/Emergency Director determined that while the TS addresses operability, the affected pump would still be considered available and placed in service as needed to support event response with Operations personnel implementing mitigative cooling actions as needed, such as propping open the pump room door and using a portable fan. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response. Additionally, procedure step to mitigate cooling loss can be performed by on shift Operations personnel.

Step: 37.1, 37.10, 39.1, 39.10

Resource: Chemistry personnel

Action: Direct Chemistry personnel to sample the RCS for boron concentration

Analysis: These procedure steps direct sampling in response to establishing RCS at hot standby (Steps 37.1 and 37.10) and cold shutdown (Steps 39.1 and 39.10) boron concentrations. The Shift Manager/Emergency Director stated that the daily RCS boron result posted in the control room would be used as the initial boron concentration and the remaining steps verifying boron concentration could be deferred until after ERO augmentation, especially if they start emergency boration at the maximum rate available. Additional research by the Shift Manager/Emergency Director determined, that IAW Technical Specifications Surveillance Control Program, immediate confirmation (within 90 minutes) of shutdown margin boron concentration is not required. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 9 – Control Room Fire

Procedure: FNP-1/2-AOP-28.2, Fire in the Control Room

Step: 27.7

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: During the analysis of this event/procedure it was determined that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System (ZAS), the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 33.2

Resource: Electrical Maintenance personnel

Action: Direct Electrical Maintenance personnel to replace the control power fuses in the associated MCC cubicle.

Analysis: This step is related to actions taken if any charging pump is running and its associated room cooler is not running. This step is based on a loss of ESF Room Coolers due to the control power fuse(s) having performed its design function to protect the coolers due to faults related to plant conditions (e.g., fire, overcurrent). To enable restoration of the ESF Room Cooler, this step directs Electrical Maintenance personnel to replace the control power fuse(s). During the analysis of this event/procedure with SNC personnel it was determined that IAW TS 3.7.19A there is a 72-hour completion time to restore the ESF Room Cooler Subsystem Train to

an Operable status if one train is inoperable. Per TS 3.7.19B, the unit is required to be in Mode 3 within 6 hours if two trains of ESF Room Cooler Subsystems are not returned to service. Furthermore, the Shift Manager/Emergency Director determined that while the TS addresses operability, the affected pump would still be considered available and placed in service as needed to support event response with Operations personnel implementing mitigative cooling actions as needed, such as propping open the pump room door and using a portable fan. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response. Additionally, procedure step to mitigate cooling loss can be performed by on shift Operations personnel.

Step: 37.1, 37.10, 39.1, 39.10

Resource: Chemistry personnel

Action: Direct Chemistry personnel to sample the RCS for boron concentration

Analysis: These procedure steps direct sampling in response to establishing RCS at hot standby (Steps 37.1 and 37.10) and cold shutdown (Steps 39.1 and 39.10) boron concentrations. The Shift Manager/Emergency Director stated that the daily RCS boron result posted in the control room would be used as the initial boron concentration and the remaining steps verifying boron concentration could be deferred until after ERO augmentation, especially if they start emergency boration at the maximum rate available. Additional research by the Shift Manager/Emergency Director determined, that IAW Technical Specifications Surveillance Control Program, immediate confirmation (within 90 minutes) of shutdown margin boron concentration is not required. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 10 – Loss of Annunciators

Procedure: FNP-1/2-AOP-35, Loss of Main Control Board Annunciators

Step: 14.0

Resource: Electrical Maintenance

Action: Direct Electrical Maintenance to monitor batteries and inverters

Analysis: The Shift Manager/Emergency Director determined that monitoring of the batteries and inverters would include periodic checks of the equipment to verify that they are within normal operating parameters provided in the operator logs to identify degrading performance that may generate an alarm condition that would otherwise not be identified due to the loss of annunciator event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 11 – Loss of Spent Fuel Pool Cooling

Procedure: FNP-1/2-AOP-36.0, Loss of Spent Fuel Pool Cooling

Step: RNO 1.1-1.3

Resource: Radiation Protection personnel

Action: Initiate and continue radiation surveys of the SFP area and surrounding rooms until normal SFP levels are restored.

Analysis: The Shift Manager/Emergency Director will prioritize on shift RP resources to provide support for this action. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 15.1.1, 15.2

Resource: Chemistry personnel

Action: Notify Chemistry to begin sampling the SFP water to ensure a boron concentration of 2000 ppm or greater.

Analysis: This procedure provides action for response to a loss of spent fuel pool cooling. PCB-1/2-VOL1-CRV79, Unit 1 and 2 Spent Fuel Pool – Time to 200 °F Curves, indicates that for an initial SFP temperature of 130 °F, the time to reach 200 °F is greater than 4 hours. Guidance in FNP-1/2-AOP-36.0 states that entry into this procedure may be delayed until actual SFP temperature is verified to be greater than or equal to 130 °F. Shift Manager/Emergency Director determined that entry into this AOP would be delayed until after augmented resources are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 12 – SFP Emergency

Procedure: FNP-1/2-AOP-49.3, Spent Fuel Pool Emergency

Step: 1.2, 1.3, 1.4

Resource: Radiation Protection personnel

Action: Initiate and continue radiation surveys of the SFP area and surrounding rooms until normal SFP levels are restored.

Analysis: The purpose of this procedure is to provide methods for stopping a spent fuel pool leak and for emergency make up to the spent fuel pool due to damage caused by an external threat gaining access to the spent fuel pool. It assumes the external threat has been eliminated and access to the areas outside the spent fuel pool are accessible (Beyond Design Basis - BDB). The Shift Manager/Emergency Director will prioritize on shift RP resources to

provide support for this action. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 4 Note, 4.2.1

Resource: Maintenance and Health Physics personnel

Action: Maintenance delivers sheet metal or other sheet type material to the spent fuel pool/Health Physics provides continuous job coverage during performance of this step

Analysis: The purpose of this procedure is to provide methods for stopping a spent fuel pool leak and for emergency make up to the spent fuel pool due to damage caused by an external threat gaining access to the spent fuel pool. On shift individuals will be in a duck and cover posture until the external threat has been eliminated and access to the areas outside the spent fuel pool are accessible (BDB). The Shift Manager/Emergency Director determined that actions will occur after the threat is neutralized and augmentation is allowed on site. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 13 – Instrument Malfunction

Procedure: FNP-1/2-AOP-100.0,

Step: 27.7

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: Analysis of this event/procedure determined that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System (ZAS), the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Additionally, A review of this step by the Shift Manager/Emergency Director determined that this action occurs in Mode 5 whenever additional resources are on-shift to support shutdown activities. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 14 – Loss of Reactor or Secondary Coolant

Procedure: FNP-1/2-EEP-1.0, Loss of Reactor or Secondary Coolant

Step: RNO 6.2

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 °F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 13.3.1, 18.1, 21

Resource: TSC Staff

Action: 13.3.1 – Consult TSC staff to evaluate need for RCS Sampling

18.1 – Consult TSC to evaluate reactor vessel head vent requirements

21 – Consult TSC to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that these steps are not required to be performed within 90 minutes to support event response actions. In addition, the Shift Manager/Emergency Director also determined that the Senior Reactor Operators could perform this evaluation without impacting event response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 13.3.2

Resource: Chemistry personnel

Action: If RCS sample required, then direct Chemistry to sample RCS using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 17.2

Resource: Counting Room (i.e., Chemistry) personnel

Action: Direct Counting Room to sample SGs for radioactivity using FNP-0-CCP-31, Leak Rate Determination

Analysis: The purpose of this procedure is to determine a steam generator tube leak rate in support of performing Step 17.3 which develops a release permit for the leaking SG(s) and determining actions for Step 17.4. Use of the historical trend data for the SG radiation monitors can be used in lieu of sampling. In addition, the Shift Manager/Emergency Director determined that holding at Step 17.4 of the procedure until additional augmented resources were available to complete Steps 17.2 and 17.3 was acceptable and did not affect event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 17.3, RNO 17.5.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Direct Counting Room to perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release for each SG

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. RNO 17.4 states "Do not dump steam from a SG with an unacceptable dose projection". Furthermore, a CAUTION statement preceding step 17.5 states "To prevent release of radioactive material, steam should not be released from any SG with high radiation indication". The operators will not dump steam and will not continue past step 17.4/17.4 RNO. The Shift Manager/Emergency Director determined that at this point in the procedure the plant was stable, and they would hold at step 17.4 and not dump steam until Chemistry resources were available to support performance of FNP-0-CCP-645. Plant conditions would continue to be monitored per the Foldout Page and the crew would transition to the applicable procedure as necessary. See Event 15 for additional information. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>Event 15 – Steam Generator Tube Rupture</u>

Procedure: FNP-1/2-EEP-3.0, Steam Generator Tube Rupture

Step: 2.3

Resource: HP (e.g., RP)

Action: Direct HP to monitor main steam lines for high radiation using FNP-0-RCP-25, Health Physics Activities During a Radiological Accident

Analysis: This step provides a second option to control room personnel in identifying the ruptured SG. Indications are readily available in the control room (e.g., SG radiation monitors;

SG level; SG pressure) that would enable a quicker identification of the ruptured SG then HP surveys. The Shift Manager/Emergency Director determined that control room indications would be used to make the determination. However, if the Shift Manager/Emergency Director wanted a survey they can prioritize on shift RP resources to provide support for this action. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 2.4

Resource: Chemistry personnel

Action: Direct to sample SGs for radioactivity using FNP-0-CCP-31, Leak Rate Determination

Analysis: It was determined that the purpose of this procedure is to determine a steam generator gross activity to identify the ruptured steam generator(s). This procedure action is the third and last procedure option used to support the evaluation of the SGs to determine which one is ruptured. Indications are readily available in the control room (e.g., SG radiation monitors; SG level; SG pressure) that would enable a quicker identification of the ruptured SG then Chemistry sampling and analysis. The Shift Manager/ Emergency Director determined that Dose Assessment had a higher priority and use of this option would not be utilized. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 3.2.1, 3.2.3, RNO 6.4.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: Step 3.2.1 was initiated within 10-15 minutes after event initiation and was the most limiting action (earliest identified action requiring support from non-Operations personnel) required to be performed by augmented resources. During the analysis of this event/procedure it was determined that the intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further it was determined that CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - the Chemistry Technician remains available to perform the Emergency Plan function of Dose Assessment and the procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 41

Resource: TSC Staff

Action: Consult TSC staff for appropriate cooldown procedure

Analysis: The Shift Manager/Emergency Director determined that this step is not required to be performed within 90 minutes to support event response actions. In addition, the Shift Manager/Emergency Director also determined that the Senior Reactor Operators could perform this evaluation without impacting event response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 16 – Loss of All AC Power

Procedure: FNP-1/2-ECP-0.0, Loss of All AC Power

Step: 9.2

Resource: Maintenance

Action: Coordinate with Maintenance to determine time to restore any emergency diesel generator(s)

Analysis: The Shift Manager/Emergency Director determined that this action is used as one of two inputs to support determination of an Extended Loss of AC Power (ELAP) condition for the site (i.e., can power be restored within 4 hours). The Shift Manager/Emergency Director determined that in the absence of on-shift Maintenance personnel, system operators would troubleshoot the affected diesel generator(s) IAW existing procedure guidance. The results of this troubleshooting effort would be used to make a determination of diesel generator availability until augmented resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 13

Resource: HP

Action: Direct HP to monitor main steam lines for high radiation using FNP-0-RCP-25, Health Physics Activities During a Radiological Accident

Analysis: This step provides a second option to control room personnel to determine if a SG is ruptured. It was determined that indications are readily available in the control room (e.g., SG level; SG pressure) that would enable a quicker identification of a ruptured SG then HP surveys. The Shift Manager/Emergency Director determined that control room indications would be used to make the determination. However, if the Shift Manager/Emergency Director wanted a survey they can prioritize on shift RP resources to provide support for this action.

Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 15.2

Resource: Electrical Maintenance

Action: Direct Electrical Maintenance to monitor batteries and inverters

Analysis: The Shift Manager/Emergency Director determined that the design basis for the FNP DC system was 2 hours assuming implementation of normal (non-FLEX) load shedding therefore this action can occur once additional resources are available (after 90 minutes) without affecting plant response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 17.2.1

Resource: TSC Staff

Action: Consult TSC staff to determine when to begin plant cooldown

Analysis: The Shift Manager/Emergency Director determined that this step is not required to be performed within 90 minutes to support event response actions. In addition, the Shift Manager/Emergency Director also determined that the Senior Reactor Operators could perform this evaluation without impacting event response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 17 – Loss of All AC Power Recovery Without SI Required

Procedure: FNP-1/2-ECP-0.1, Loss of All AC Power Recovery Without SI Required

Step: 18.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-651, Sampling the Reactor Coolant System

Analysis: The Shift Manager/Emergency Director determined that this procedure would not be implemented within 90 minutes of event initiation. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 18 – Loss of Emergency Coolant Recirculation

Procedure: FNP-1/2-ECP-1.1, Loss of Emergency Coolant Recirculation

Step: 12.2

Resource: TSC Staff

Action: Consult TSC staff to determine alternate method of makeup to the RWST

Analysis: It was determined that this action is the second option available for makeup to the RWST. The primary method would be through use of guidance in FNP-1/2-SOP-2.1, Chemical and Volume Control System Reactor Makeup Control which only contains operator response actions. The Shift Manager/Emergency Director also determined that, if required, control room personnel would evaluate and implement available methods to makeup to the RWST without impacting event response until TSC resources are available since there is no time limit imposed on implementing the action. The Shift Manager/Emergency Director stated that following procedure actions would continue and that control room personnel would evaluate and implement RWST makeup until the TSC staff is available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 15.3.2.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: It was determined that the intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step can be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - the Chemistry Technician remains available to perform the Emergency Plan function of Dose Assessment and the procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 21.2.10

Resource: TSC Staff

Action: Consult TSC staff to determine if additional options are available or needed to further minimize SI flow and conserve RWST inventory

Analysis: The Shift Manager/Emergency Director determined this action could occur once TSC staff are available without impacting plant response. Control Room personnel would continue implementation of the remaining procedure steps. In addition, it was determined that Control Room personnel could perform this evaluation until TSC staff are available. Conclusion

- Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 29.3, 41.3

Resource: TSC Staff

Action: Consult TSC staff to determine if RHR system should be place in service

Analysis: The Shift Manager/Emergency Director determined this action would occur after 90 minutes. With a maximum cooldown rate of 100 °F/hr, the hot leg temperature would be ≈ 400 °F, which is greater than the minimum hot leg temperature of < 350 °F specified in Step 29.1/41.1. If hot leg temperature is > 350 °F, RNO 29.1/41.1 directs the operators to Step 34. Therefore, control room personnel would continue to implement procedure actions until TSC staff are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 30.2.2

Resource: TSC Staff

Action: Consult TSC staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 35.1 (Continuous Action Step)

Resource: TSC Staff

Action: Consult TSC staff to determine alternate method of RCS makeup

Analysis: The Shift Manager/Emergency Director determined this action would be performed by the Shift Manager/Emergency Director until additional TSC resources were available. This is a troubleshooting action type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Troubleshooting is not required for event mitigation but rather provides options to consider and as such is not required in the

first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 35.2.1.3

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-651, Sampling the Reactor Coolant

Analysis: Operators would establish makeup flow to the RCS through normal charging and continue implementation of the procedure borating the reactor to ensure shutdown margin. Sample results provide information such that boration can be adjusted down however it is not necessary to implement the procedure. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 36.3.1, RNO 40.2.1, 42.2.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors and is not used for Emergency Response determinations or actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 43.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 °F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the

first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 44

Resource: TSC Staff

Action: Consult TSC staff to determine long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 19 – Loss of Emergency Coolant Recirculation Caused By Sump Blockage

Procedure: FNP-1/2-ECP-1.3, Loss of Emergency Coolant Recirculation Caused by Sump Blockage

Step: 8

Resource: TSC Staff

Action: Consult TSC Staff to determine optimum SI and spray alignment

Analysis: Guidance in the Note for this step states that performance of subsequent steps should continue while the TSC performs this evaluation. The Shift Manager/Emergency Director determined that control room personnel (Operators) would continue with performance of this procedure until the TSC is staffed and has evaluated plant status, made a recommendation which is not time dependent to mitigate the event. This action is consistent with the guidance in the procedure Note. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 10.2

Resource: TSC Staff

Action: Consult TSC staff to determine alternate method of makeup to the RWST

Analysis: It was determined that this action is the second option available for makeup to the RWST. The primary method would be through use of guidance in FNP-1/2-SOP-2.1, Chemical and Volume Control System Reactor Makeup Control which only contains operator response actions. The Shift Manager/Emergency Director also determined that, if required, control room personnel would evaluate and implement available methods to makeup to the RWST without impacting event response until TSC resources are available since there is no

time limit imposed on implementing the action. The Shift Manager/Emergency Director stated that following procedure actions would continue and that control room personnel would evaluate and implement RWST makeup until the TSC staff is available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 20.3.1, 20.4; 26.3

Resource: TSC Staff

Action: RNO 20.3.1 – Consult TSC Staff to determine desired SI termination sequence

20.4 – Consult TSC Staff to determine desired SI and CVCS alignment following SI termination

26.3 – Consult TSC Staff to determine if charging/SI pump suction should be realigned to RWST

Analysis: The Shift Manager/Emergency Director determined that control room personnel would continue with performance of the procedure until the TSC is staffed and has evaluated plant status and made a recommendation. It is not time critical and the TSC input would effectively be a peer check on the on-shift crew's procedural actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 11.2, RNO 36.3.1, RNO 37.2.1, RNO 40.2.1, RNO 43.2.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 30.3, 42.3

Resource: TSC Staff

Action: Consult TSC Staff to determine if RHR should be placed in service

Analysis: The Shift Manager/Emergency Director determined this action would occur after 90 minutes. With a maximum cooldown rate of 100 °F/hr, the hot leg temperature would be ≈ 400 °F, which is greater than the minimum hot leg temperature of < 350 °F specified in Step 30.1/42.1. If hot leg temperature is > 350 °F, RNO 30.1/42.1 directs the operators to Step 31.

Therefore; control room personnel would continue to implement procedure actions until TSC staff are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 31.2.1, RNO 39.2.1

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 34.1

Resource: TSC Staff

Action: Consult TSC Staff for alternate method of RCS makeup

Analysis: The Shift Manager/Emergency Director determined this action would be performed by the Shift Manager/Emergency Director until additional TSC resources were available. This is a troubleshooting action type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Troubleshooting is not required for event mitigation but rather provides options to consider and as such is not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 34.2.1.3

Resource: TSC Staff

Action: Consult TSC Staff for RCS boron concentration

Analysis: The Shift Manager/Emergency Director determined this action would be performed by the Shift Manager/Emergency Director until additional TSC resources were available. This is a troubleshooting action type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event.

Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Troubleshooting is not required for event mitigation but rather provides options to consider and as such is not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 44.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 °F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 45

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 20 – SGTR With Loss of Reactor Coolant Subcooled Recovery Desired

Procedure: FNP-1/2-ECP-3.1, SGTR with Loss of Reactor Coolant Subcooled Recovery Desired

Step: 10.5.1

Resource: TSC Staff

Action: Consult TSC staff to evaluate need for RCS sampling

Analysis: The Shift Manager/Emergency Director determined that this step is not required to be performed within 90 minutes to support event response actions. Therefore, performance of this step could be deferred until TSC resources are available. In addition, the Shift Manager/Emergency Director also determined that, if required, the Senior Reactor Operators could perform this evaluation without impacting event response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 10.5.2

Resource: Chemistry personnel

Action: If RCS sample required, then direct Chemistry to sample RCS using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 10.6

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 °F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 13.4.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 14.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate the need to transition to FNP-1/2-ECP-3.2, SGTR with Loss of Reactor Coolant Saturated Recovery Desired

Analysis: This step is a continuous action step. The Shift Manager/Emergency Director determined that in the absence of TSC staff, control room operators would continue with subsequent procedure steps. Performance of this step would be deferred until TSC resources are available. In addition, the Shift Manager/Emergency Director also determined that, if required, the Senior Reactor Operators could perform this evaluation without impacting event response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 27.1, 28.4

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 30.4.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 38.3

Resource: TSC Staff

Action: Consult TSC staff to determine if RHR system should be place in service

Analysis: The Shift Manager/Emergency Director determined this action would occur after 90 minutes. With a maximum cooldown rate of 100 °F/hr, the hot leg temperature would be ≈ 400 °F, which is greater than the minimum hot leg temperature of < 350 °F specified in Step 38.1. If hot leg temperature is > 350 °F, RNO 38.1 directs the operators to Step 9. Therefore, control room personnel would continue to implement procedure actions until TSC staff are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 40.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 21 – SGTR With Loss of Reactor Coolant Saturated Recovery Desired

Procedure: FNP-1/2-ECP-3.2, SGTR with Loss of Reactor Coolant Saturated Recovery Desired

Step: RNO 1.2

Resource: TSC Staff

Action: Consult TSC staff to determine alternate method of makeup to the RWST

Analysis: It was determined that this action is the second option available for makeup to the RWST. The primary method would be through use of guidance in FNP-1/2-SOP-2.1, Chemical and Volume Control System Reactor Makeup Control which only contains operator response actions. The Shift Manager/Emergency Director also determined that, if required, control room personnel would evaluate and implement available methods to makeup to the RWST without impacting event response until TSC resources are available since there is no time limit imposed on implementing the action. The Shift Manager/Emergency Director stated that following procedure actions would continue and that control room personnel would evaluate and implement RWST makeup until the TSC staff is available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 6.4.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 19.1, 20.4

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director

also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 22.4.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 30.3

Resource: TSC Staff

Action: Consult TSC staff to determine if RHR system should be place in service

Analysis: The Shift Manager/Emergency Director determined this action would occur after 90 minutes. With a maximum cooldown rate of 100 °F/hr, the hot leg temperature would be ≈ 400 °F, which is greater than the minimum hot leg temperature of < 350 °F specified in Step 30.1. If hot leg temperature is > 350 °F, RNO 30.1 directs the operators to Step 31. Therefore; control room personnel would continue to implement procedure actions until TSC staff are available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 31.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only

relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 ˚F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 33.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>Event 22 – SGTR Without Pressurizer Pressure Control</u>

Procedure: FNP-1/2-ECP-3.3, SGTR Without Pressurizer Pressure Control

Step: RNO 21.1

Resource: TSC Staff

Action: Consult TSC Staff to evaluate if further attempts should be made to restore pressurizer control OR to continue with this procedure

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 22.4.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 23.1, 24.2, 36.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 25.2.1, RNO 33a, RNO 37.4.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore, this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 30.1

Resource: TSC Staff

Action: Consult TSC Staff for appropriate method of RCS pressure reduction if letdown is unavailable

Analysis: The Shift Manager/Emergency Director determined this evaluation would be performed by Senior Reactor Operators, including the Shift Manager/Emergency Director, until additional TSC resources were available. In the absence of TSC staff, control room personnel would continue with procedure implementation. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 41.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed because this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 23 – SI Termination/LOCA

Procedure: FNP-1/2-ESP-1.1, SI Termination

Step: RNO 1.2

Resource: I&C

Action: Manually unlatch slave relays IAW FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI

Analysis: RNO 1.2 directs control room personnel to reset SI using guidance in Appendix 2 of FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI. Step 7 of this attachment directs I&C to check that the slave relays are unlatched and to manually unlatch any identified slave relays that are not unlatched. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the I&C maintenance resource. The detailed analysis/review of this procedure by the Shift Manager/Emergency Director and I&C Instructor determined that with appropriate training and qualifications a reactor operator can perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 13.1.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 16.3

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-651, Sampling the Reactor Coolant

Analysis: Operators establish makeup flow to the RCS IAW Step 16.1 and continue implementation of the procedure. When sample results are available, as stated in Step 16.4, the boration rate will be adjusted. Therefore, performance of this step could occur after additional resources are available without impacting plant response. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 35.1.1

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: During the analysis of this event/procedure it was determined that ZAS is used for long term protection of systems and that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System, the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 24 – Post LOCA Cooldown and Depressurization

Procedure: FNP-1/2-ESP-1.2, Post LOCA Cooldown and Depressurization

Step: Attachment 1 RNO 1.12.4

Resource: Electrical Maintenance

Action: Direct Electrical Maintenance to support energizing 1(2)G 600 V Load Center (LC) from 1(2)F 600V LC IAW FNP-1/2-SOP-36.3, 600, 480 and 208/120 Volt AC Electrical Distribution System

Analysis: Attachment 1 RNO 1.12.4 provides guidance to control room personnel on reestablishing Instrument Air due to 1(2)G 600 V LC. Appendix 18 of FNP-1/2-SOP-36.3 provides directions that require Electrical Maintenance to support reenergizing 1(2)G from 1(2)F 600 V LC. The Shift Manager/Emergency Director stated this action involves relocating breakers within the load centers. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the electrical maintenance resource. The detailed analysis/review of this procedure by the Shift Manager/Emergency Director determined that with appropriate training and qualifications a systems operator can perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 9.3.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 23.1, RNO 23.7

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: These steps are implemented as sub-steps of Continuous Action Step 23 which directs the establishment of adequate shutdown margin. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 25.4.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 25 – Transfer to Cold Leg Recirculation

Procedure: FNP-1/2-ESP-1.3, Transfer to Cold Leg Recirculation

Step: RNO 11.b, 12.1, RNO 12.2, RNO 13.1

Resource: TSC Staff

Action: RNO 11.b – Consult with TSC to isolate source of leakage while maintaining at least one train of recirculation

12.1 – Consult TSC staff to determine if RWST refill should be initiated

RNO 12.2 – Consult TSC staff to determine alternate method of makeup to the RWST

RNO 13.1 – Consult TSC to determine Transfer to Simultaneous Cold and Hot Leg Recirculation requirements.

Analysis: The Shift Manager/Emergency Director determined this evaluation would be performed by Senior Reactor Operators, including the Shift Manager/Emergency Director, until additional TSC resources were available. In the absence of TSC staff, control room personnel would continue with procedure implementation. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 26 – Transfer to Simultaneous Cold and Hot Leg Recirculation

Procedure: FNP-1/2-ESP-1.4, Transfer to Simultaneous Cold and Hot Leg Recirculation

Step: RNO 4, RNO 5

Resource: TSC personnel

Action: RNO 4 – Consult TSC and return to Step 1 If simultaneous cold and hot leg recirculation not established

RNO 5 – Consult TSC and return to Step 1 If neither train of simultaneous cold and hot leg recirculation established

Analysis: The Shift Manager/Emergency Director determined that plant conditions would not support this action until 7.5 hours into the event. Therefore, this action would be performed by TSC personnel. Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 27 – Post-SGTR Cooldown Using Backfill

Procedure: FNP-1/2-ESP-3.1, Post-SGTR Cooldown Using Backfill

Step: RNO 3.3.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of Continuous Action Step 4 which directs the establishment of adequate shutdown margin. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 5.2

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of the WHEN step 5. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 7.4.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 14.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 28 – Post-SGTR Cooldown Using Blowdown

Procedure: FNP-1/2-ESP-3.1, Post-SGTR Cooldown Using Backfill

Step: RNO 3.3.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of Continuous Action Step 4 which directs the establishment of adequate shutdown margin. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available.

Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 5.2

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of the WHEN step 5. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 7.3.1, RNO 16.3.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 18.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 29 – Post-SGTR Cooldown Using Steam Dump

Procedure: FNP-1/2-ESP-3.1, Post-SGTR Cooldown Using Backfill

Step: RNO 3.3.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.1

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS and ruptured SG(s) for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of Continuous Action Step 4 which directs the establishment of adequate shutdown margin. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 5.2

Resource: Chemistry personnel

Action: Direct Chemistry to sample RCS for boron concentration using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This step is implemented as a sub-step of the WHEN step 5. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be

completed within 3 hours. Therefore, this task could be deferred until additional augmented resources are available. The Shift Manager/Emergency Director also determined that control room operators would continue performance of the subsequent steps related with boration until sample results were available. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 7.3.1, RNO 11.a, RNO 16.3.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 18.2

Resource: TSC Staff

Action: Consult TSC staff to evaluate long term plant status

Analysis: The Shift Manager/Emergency Director determined that control room personnel would stop at this point (last step in procedure) and wait until the TSC is staffed since this is a long-term consideration and not needed to evaluate or mitigate the event. Procedure actions to this point have stabilized the plant. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 30 – Response to Inadequate Core Cooling

Procedure: FNP-1/2-FRP-C.1, Response to Inadequate Core Cooling

Step: RNO 10.1

Resource: Chemistry

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: Analysis of this event/procedure by the Chemistry Supervisor that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Additionally, implementation of this step is in response to an inability to place the hydrogen analyzers in service. The basis document for FNP-1/2-EEP-1 states that the hydrogen sample is only

relevant if inadequate core cooling is indicated based on the fifth hottest CETC >1200 °F (RED path on CSF C.1). In this condition operators would be performing FNP-1/2-FRP-C.1. RNO 10.1 of the FRP also directs Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300 and is preceded by a note that states "The procedure should be continued while determining the containment hydrogen concentration." Even with a LOCA or a Loss of All AC event without TDAFWP, event progression to a RED path on C.1 is not expected within the first 90 minutes. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 14.2.1, RNO 17.1.1, RNO 22.1.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 15.2.2, RNO 24.2.2

Resource: I&C

Action: Manually unlatch slave relays IAW FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI

Analysis: RNO 15.2.2 and 24.2.2 direct control room personnel to reset SI using guidance in Appendix 2 of FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI. Step 7 of this attachment directs I&C to check that the slave relays are UNLATCHED and to manually unlatch any identified slave relays that are not unlatched. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the I&C maintenance resource. The Shift Manager/Emergency Director and I&C Instructor determined that with appropriate training and qualifications a reactor operator could perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 31 – Degraded Core Cooling

Procedure: FNP-1/2-FRP-C.2, Response to Degraded Core Cooling

Step: RNO 12.3.1, RNO 16.2.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 14.2.2

Resource: I&C

Action: Manually unlatch slave relays IAW FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI

Analysis: RNO 15.2.2 and 24.2.2 direct control room personnel to reset SI using guidance in Appendix 2 of FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI. Step 7 of this attachment directs I&C to check that the slave relays are unlatched and to manually unlatch any identified slave relays that are not unlatched. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the I&C maintenance resource. The Shift Manager/Emergency Director and I&C Instructor determined that with appropriate training and qualifications a reactor operator could perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 14.3.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event

mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 32 – Loss of Secondary Heat Sink

Procedure: FNP-1/2-FRP-H.1, Response to Loss of Secondary Heat Sink

Step: 3.0

Resource: I&C

Action: Direct I&C personnel to defeat the feedwater isolation by installing jumpers IAW Attachment 1

Analysis: Procedure review/analysis determined that this action is not required to respond to the event. Per the applicable Note, this defeats the feedwater isolation signal to ensure the main feedwater path remains open if SI has not actuated. The Note also states that a subsequent SI will cause the trip of an operating SG feedwater pump. Per the FRP-H.1 background document, Step 3.0 was added as an enhancement to enable implementation of this action prior to Step 6.0 which is a continuous action step that attempts to establish main feedwater flow to mitigate the loss of heat sink. The Shift Manager/Emergency Director determined that the installation of the jumpers would be directed if I&C were available and the operators would continue with the procedure. The Shift Manager/Emergency Director further added that the jumpers would prevent auto closure of the main feedwater regulating valves but if they were to close the operators would re-open them from the control room. The installation of the jumpers is not immediately required due to the ability of operators to re-open the main feedwater regulating valves from the control room, During the procedure review/analysis it was identified that this action, jumper installation, could be performed by trained and qualified reactor operators consistent with the process already used at Plant Hatch. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 8.12.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 13.2.3, RNO 15.3

Resource: I&C

Action: Manually unlatch slave relays IAW FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI

Analysis: RNO 13.2.3 and 15.3 direct control room personnel to reset SI using guidance in Appendix 2 of FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI. Step 7 of this attachment directs I&C to check that the slave relays are UNLATCHED and to manually unlatch any identified slave relays that are not unlatched. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the I&C maintenance resource. The Shift Manager/Emergency Director and I&C Instructor determined that with appropriate training and qualifications a reactor operator could perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 33 – Response to Steam Generator Overpressure

Procedure: FNP-1/2-FRP-H.2, Response to Steam Generator Overpressure

Step: 4.1.1, 4.3.1, RNO 8.1.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. This action is also a Yellow-Path CSFST response action. The Shift Manager/Emergency Director stated that Yellow-Path actions are discretionary actions and not required to be immediately implemented. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 34 – Response to Loss of Normal Steam Release Capabilities

Procedure: FNP-1/2-FRP-H.4, Response to Loss of Normal Steam Release Capabilities

Step: 1.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. Therefore; this step could be deferred until additional augmented resources were available without an impact to event mitigation response actions. This action is also a Yellow-Path CSFST response action. During the procedure analysis/ review the Shift Manager/Emergency Director stated that, based on current practice, Yellow-Path actions are discretionary actions and not required to be immediately implemented. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 35 – Response to Voids in Reactor Vessel

Procedure: FNP-1/2-FRP-I.3, Response to Voids in Reactor Vessel

Step: RNO 6.3.1.1, RNO 7.3.1.1, RNO 7.4.1.1, RNO 16.3.1.1, RNO 16.4.1.1

Resource: Counting Room (i.e., Chemistry) personnel

Action: Perform FNP-0-CCP-645, Main Steam Abnormal Environmental Release

Analysis: The Shift Manager/Emergency Director that this procedure would not be implemented within 90 minutes of an event. Therefore, this step would be performed by augmented resources. The intent of FNP-0-CCP-645 is to develop a release permit to satisfy ODCM requirements. Further, CCP-645 procedure guidance allows for post-event performance of the procedure using the historical trend data for the SG radiation monitors. This action is also a Yellow-Path CSFST response action. During the procedure analysis/ review the Shift Manager/Emergency Director stated that, based on current practice, Yellow-Path actions are discretionary actions and not required to be immediately implemented. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 13.1

Resource: Chemistry

Action: Direct Chemistry to sample containment atmosphere for hydrogen using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Shift Manager/Emergency Director that this procedure would not be implemented within 90 minutes of an event. Therefore, this step would be performed by augmented resources. It was also noted that implementation of this step is in response to an inability to place the hydrogen analyzers in service and that, IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. This action is also a Yellow-Path CSFST response action. The Shift Manager/Emergency Director stated that, based on current practice, Yellow-Path actions are discretionary actions and not required to be immediately

implemented. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 36 – Response to Imminent Pressurized Thermal Shock

Procedure: FNP-1/2-FRP-P.1, Response to Imminent Pressurized Thermal Shock

Step: RNO 7.2

Resource: I&C

Action: Manually unlatch slave relays IAW FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI

Analysis: RNO 7.2 directs control room personnel to reset SI using guidance in Appendix 2 of FNP-1/2-SOP-40.0, Response to Inadvertent SI and Inability to Reset or Block SI. Step 7 of this attachment directs I&C to check that the slave relays are unlatched and to manually unlatch any identified slave relays that are not unlatched. This action would occur prior to 90 minutes and could delay plant stabilization efforts. This SOP action requires an on-shift resource to replace the I&C maintenance resource. The Shift Manager/Emergency Director and I&C Instructor determined that with appropriate training and qualifications a reactor operator could perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: RNO 16.4.2

Resource: TSC Staff

Action: Consult TSC Staff to determine contingency actions if an accumulator cannot be isolated or vented

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available based on it being a trouble shooting type action. On shift operators would not wait for TSC input but rather would continue to implement actions to stop or mitigate the event. Troubleshooting is a supplemental action and is done based on priorities set by the Emergency Director. Engineering resources are used for these type actions. Contingency actions are not required for event mitigation but rather are options to consider and as such are not required in the first 90 minutes of an event. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 37 – Response to Nuclear Power Generation /ATWT

Procedure: FNP-1/2-FRP-S.1, Response to Nuclear Power Generation/ATWT

Step: 11.2

Resource: Chemistry personnel

Action: Direct Chemistry personnel to secure the zinc addition system (ZAS)

Analysis: During the analysis of this event/procedure it was determined that ZAS is used for long term protection of systems and that immediate isolation of ZAS is not required. Per guidance in FNP-1/2-CCP-335, Zinc Addition System (ZAS), the discharge flow rate of ZAS is normally maintained at a maximum of 1.7 gph. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 38 – Response to Containment Flooding

Procedure: FNP-1/2-FRP-Z.2, Response to Containment Flooding

Step: 2

Resource: Chemistry personnel

Action: Direct Chemistry to sample containment sump for radioactivity, chromates and boron using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: This procedure is entered if containment sump level is greater than 7.6 feet. The Chemistry Supervisor determined that IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. The Shift Manager/Emergency Director determined that implementation of this step is not required within 90 minutes to mitigate the event. Results of this sampling is used by TSC staff to recommend response actions. Therefore, this step would be performed by augmented resources. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3

Resource: TSC Staff

Action: Notify TSC Staff of sump level and activity level to obtain recommended action

Analysis: The Shift Manager/Emergency Director determined this action would be performed by control room personnel until additional TSC resources were available. The communication of plant conditions is part of good command and control and is dependent on the TSC being staffed. The action is not time dependent nor is it needed for event classification

or mitigation. In the absence of TSC staff, control room personnel would continue with procedure implementation. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 39 – Response to High Containment Radiation Level

Procedure: FNP-1/2-FRP-Z.3, Response to High Containment Radiation Level

Step: 2

Resource: Chemistry

Action: Direct Chemistry to sample containment atmosphere using FNP-1/2-CCP-1300, Chemistry and Environmental Activities During a Radiological Accident

Analysis: The Shift Manager/ Emergency Director that since this procedure was a Yellow-Path CSFST response action, implementation is discretionary and not required to be addressed within 90 minutes. Therefore; this step would be performed by augmented resources. It was also noted that, IAW FNP-1/2-CCP-1300, sampling and analysis is required to be completed within 3 hours. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3

Resource: TSC Staff

Action: Notify TSC Staff of containment radiation levels and sample results

Analysis: The Shift Manager/ Emergency Director that since this procedure was a Yellow-Path CSFST response action, implementation is discretionary and not required to be addressed within 90 minutes. Therefore; this step would be performed by augmented resources. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4

Resource: TSC Staff

Action: Consult TSC Staff for recommended action including evaluating the use of the process filtration system

Analysis: The Shift Manager/ Emergency Director that since this procedure was a Yellow-Path CSFST response action, implementation is discretionary and not required to be addressed within 90 minutes. Therefore; this step would be performed by augmented resources. Conclusion - Procedure action can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

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 13

Hatch PBPA Results

This enclosure contains 63 pages

Hatch PBPA Results

Introduction

A performance based procedural analysis (PBPA) was conducted at Hatch Nuclear Plant (HNP) in accordance with the guidance in Regulatory Issue Summary (RIS) 2016-10, "*License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation*" to determine the impacts on event response and verify that event response functions continue to be addressed under the proposed staffing changes.

Executive Summary

The PBPA analysis was completed for 300 site specific procedures (See Table 1). The procedures were assessed to determine whether the proposed changes impact the performance of event mitigation activities associated with event classification. The analysis of HNP event response and supporting procedures determined that on-shift personnel, with appropriate training, were capable of performing required trouble shooting and event mitigation activities and can effectively implement the SNC Emergency Plan.

PBPA Analysis Process

Based on guidance in RIS 2016-10, a justification is required to support any changes in ERO staffing or augmentation times. In accordance with this guidance, the PBPA process is designed to identify event response procedure steps that could potentially require resources exceeding on-shift staffing levels as noted in the site Emergency Plan and determine whether the timing of the procedure activity has an impact on event mitigation. The analysis considers the impact on event mitigation activities resulting from proposed changes in current on-shift staffing levels and identifies actions used to ensure troubleshooting activities are addressed. The analysis consists of four steps:

1. Collection of site event response procedures (EOPs), including:
    - Emergency Procedures
    - Abnormal Procedures
    - Operating Procedures
    - System Procedures
    - Emergency Plan Implementing Procedures (EPIPs)
2. Identification and documentation of steps and referenced sub-procedures citing resources outside on-shift staffing that are related to classifiable events in the Emergency Plan or are needed to ensure safety functions are addressed.
3. Analysis of identified steps with site personnel to determine:
    - the basis for the action
    - the approximate timeframe in which the action is expected to take place
    - whether the timing of the action impacts event response
    - any additional actions that can be initiated to ensure safety functions are addressed

4. Document the results of the analysis associated with each applicable procedure step.

This process is graphically depicted in Figure 1, below.

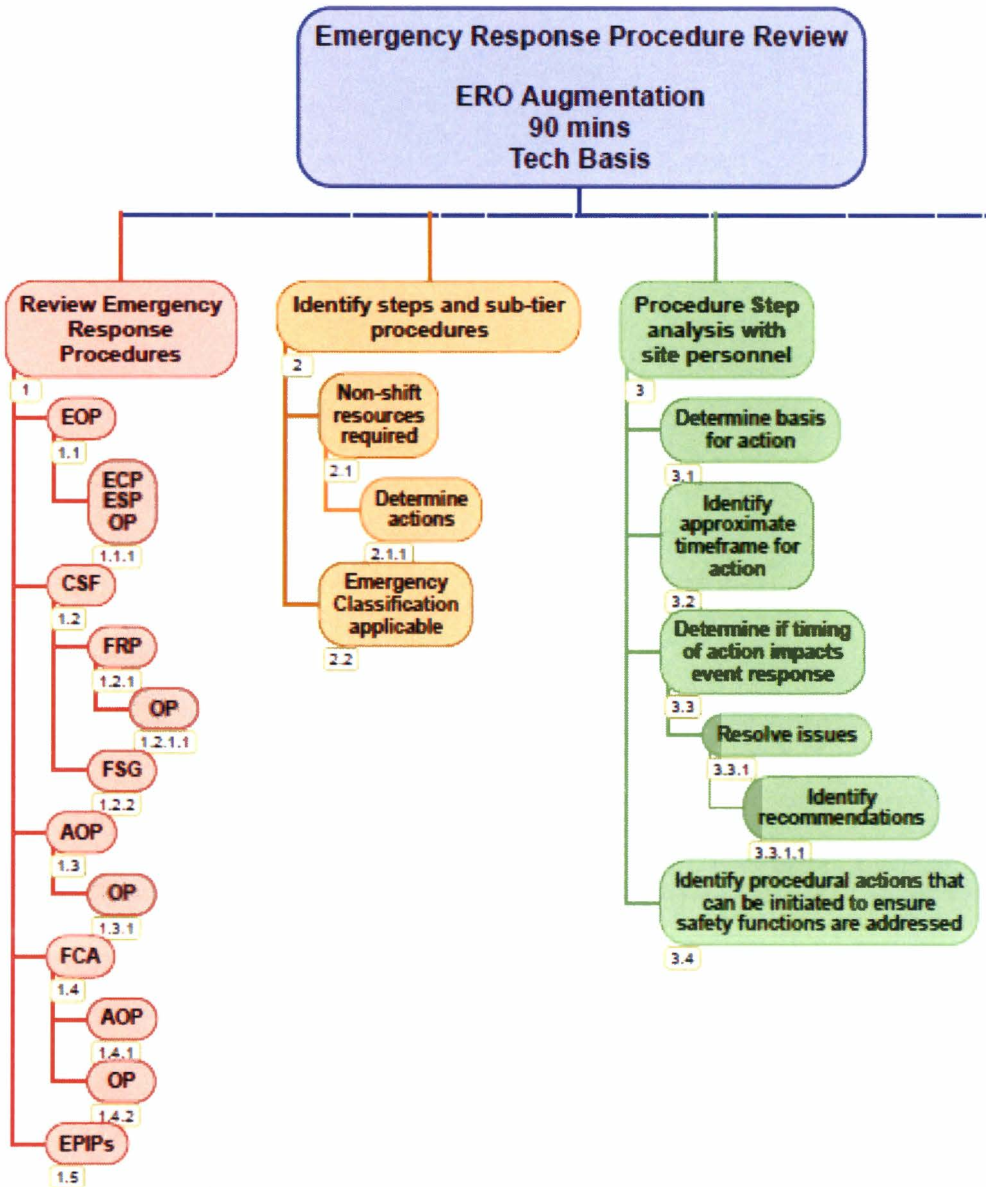

Figure 1
Emergency Response Procedures Review PBPA Process

Hatch Application

1. Review of emergency response and supporting procedures containing requirements for on-shift and augmented resources

   HNP emergency response procedures were reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review included identification of sub-tier procedures such as System Operating Procedures (SOPs), Chemistry Procedures, and RP procedures referenced in the controlling emergency event procedure that may direct actions for resources outside Operations. These procedures were then also reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review also included actions identified in the 'response not obtained' (RNO) steps of the procedures to allow the analysis to include multiple failure conditions.

2. Subsequent review of procedures identified in Step 1 for applicability to classified events

   Each procedure containing references to resources external to the Operations Department was reviewed in additional detail to identify the specific resources and activity required. This review also included a review of the associated background documents to determine the intent of the affected step/action. Procedures used to respond to a plant condition that could result in declaration of an Alert or higher classification were noted in the analysis.

3. Analysis of applicable procedures

   Procedure steps that required actions by resources outside Operations were reviewed with a team of station personnel to include subject matter experts from Operations, Maintenance, RP and Chemistry to determine if the referenced actions were:
   - Required to be performed to implement the affected emergency response or supporting procedure
   - Required to be performed prior to arrival of augmented resources at 90 minutes
   - Performed by the on-shift staff as part of their normal response duties
   - Discretionary actions or otherwise performed during the recovery phase

4. HNP's Time Critical Operator Actions (TCA) validation documentation was reviewed to determine if any of the TCAs required support from resources outside of Operations or otherwise relied on augmented resources. The review determined that the HNP TCAs were completed by on-shift Operations personnel within the specified time requirements.

Results

SNC conducted a detailed review of EOPs, including other supporting documents (ECPs, ESPs, FRPs, CCPs and SOPs) with Hatch personnel. The focus of this review was on

determining whether the procedure steps were needed to support emergency response actions (i.e. classifications or event mitigation, etc.) or whether the procedure steps were directed for a different purpose, such as, for the long-term maintenance needs of the plant.

- The analysis first determined whether the procedure actions could be deferred until after augmented ERO resources are available with no impact on emergency response.
- If the procedure action was required to be performed prior to augmented ERO resources being available (within 90 minutes of event declaration) in order to mitigate the event or to stabilize the plant, then an analysis was performed to ensure that the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

The full list of procedures reviewed is in Table 1 below. A summary of the results of the analysis for each procedure impacted by the proposed changes immediately follows.

Table 1
HNP PBPA Procedure Listing

Proc Number	Procedure Title
31EO-EOP-010-1(2)	RC RPV Control (Non-ATWS)
31EO-EOP-011-1(2)	RC RPV Control (ATWS)
31EO-EOP-012-1(2)	PC Primary Containment Control
31EO-EOP-014-1(2)	Secondary Containment/ Radiation Release Control
31EO-EOP-015-1(2)	CP-1, Alternate Level/Pressure Control
31EO-EOP-016-1(2)	CP-2 RPV Flooding
31EO-EOP-017-1(2)	CP-3 ATWS Level Control
31EO-EOP-100-1(2)	Miscellaneous Overrides
31EO-EOP-101-1(2)	Emergency Containment Venting
31EO-EOP-102-1/2	RPV Venting During Containment Flooding
31EO-EOP-103-1(2)	EOP Control Rod Insertions Method
31EO-EOP-104-1(2)	Primary Containment Venting For Hydrogen and Oxygen Control
31EO-EOP-105-1(2)	Primary Containment Water Level Determination
31EO-EOP-106-1(2)	Restoration Of RPV Water Level Following RPV Flooding
31EO-EOP-107-1(2)	Alternative RPV Pressure Control
31EO-EOP-108-1(2)	Alternate RPV Depressurization
31EO-EOP-109-1(2)	Alternate Boron Injection
31EO-EOP-110-1(2)	Alternate RPV Water Level Control
31EO-EOP-111-1(2)	Emergency Opening of MSIVs
31EO-EOP-112-1(2)	Primary Containment Flooding
31EO-EOP-113-1(2)	Terminating And Preventing Injection Into The RPV
31EO-EOP-114-1(2)	Preventing Injection Into The RPV From Core Spray And LPCI
31GO-OPS-010-0	Scram/Transient Analysis
31RS-E41-001-1(2)	HPCI Operation from Outside Control Room
31RS-OPS-001-1S(2S)	Shutdown From Outside Control Room
34AB-B21-001-1(2)	Main Steam Line High Radiation or Suspected Fuel Element Failure
34AB-B21-002-1(2)	RPV Water Level Correction
34AB-B21-002-1(2)	RPV Water Level Corrections
34AB-B21-003-1(2)	Failure of Safety/Relief Valves
34AB-B21-004-0	Jet Pump Failure
34AB-B31-001-1(2)	Reactor Recirculation Pump(s) Trip, OR Recirc Loops Flow Mismatch, OR ASD Power Cell Failure
34AB-C11-001-1(2)	Loss of CRD System
34AB-C11-002-1(2)	RPIS Failure
34AB-C11-003-1(2)	Inability to Move a Control Rod
34AB-C11-004-1(2)	Mispositioned Control Rods
34AB-C11-005-1(2)	Control Rod Insertion Methods
34AB-C32-001-1(2)	Reactor Water Level above +60 Inches
34AB-C51-001-1(2)	Entry Into The Region of Potential Instabilities (RPI) or Reactor Operations With Inoperable OPRM System
34AB-C71-001-1(2)	Scram Procedure

Proc Number	Procedure Title
34AB-C71-002-1(2)	Loss of RPS
34AB-D11-001-1(2)	Radioactivity Release Control
34AB-E10-001-1(2)	Inadvertent Initiation of ECCS/RCIC
34AB-E10-002-1(2)	ECCS Torus Suction Strainer Clogging
34AB-E11-001-1(2)	Loss of Shutdown Cooling
34AB-E11-002-0	RHRSW Pump Degradation
34AB-F18-001-0	Dry Cask Storage and Handling Equipment Abnormal Conditions
34AB-G31-001-1(2)	RWCU System Isolation
34AB-G41-001-1(2)	Loss of Fuel Pool Cooling
34AB-G41-002-1(2)	Decreasing Rx Well/Fuel Pool Level
34AB-H11-001-1(2)	Loss of Power to Annunciators in Main Control Room
34AB-J11-001-1(2)	Irradiated Fuel Damage During Handling
34AB-N21-001-1(2)	Loss of Feedwater Heating
34AB-N21-002-1(2)	Feedwater/Reactor Water Level Control Issues
34AB-N61-001-1(2)	Condenser Tube Leaks/Chemical Intrusion
34AB-N61-002-1(2)	Main Condenser Vacuum Low
34AB-N62-001-1(2)	Failure of Recombiner and Control of Sustained Combustion in the Off Gas System
34AB-N62-002-1(2)	Off Gas Explosion (External To The System)
34AB-N71-001-1(2)	Circulating Water System Failure
34AB-P41-001-1(2)	Loss of Plant Service Water
34AB-P42-001-1(2)	Loss of Reactor Building Closed Cooling Water
34AB-P51-001-1(2)	Loss of Instrument And Service Air System Or Water Intrusion Into Service Air System
34AB-P63-001-1(2)	Loss of Turbine Building Chillers
34AB-R22-001-1(2)	Loss of DC Power
34AB-R22-002-1(2)	Loss of 4160V Emergency Bus
34AB-R22-003-1(2)	Station Blackout
34AB-R22-004-1(2)	Loss of 4160V Bus 1/2A, 1/2B, 1/2C, or 1/2D
34AB-R23-001-1(2)	Loss of 600 Volt Emergency Bus
34AB-R23-002-1(2)	Loss of 600V Bus 1A/2A, 1AA/2AA, 1BB/2BB, or 1B/2B
34AB-R24-001-1(2)	Loss of Essential AC Distribution Buses
34AB-R24-002-1(2)	Loss of Non Essential AC Distribution Buses
34AB-R25-001-1(2)	Loss of Vital AC Bus
34AB-R25-002-1(2)	Loss of Instrument Buses
34AB-R42-001-0	Location of Grounds
34AB-R43-001-1(2)	Diesel Generator Recovery
34AB-R81-001-0	Loss of 12KV Supplemental Power System
34AB-S11-001-0	Operations with Degraded System Voltage
34AB-T22-001-1(2)	Primary Coolant System Pipe Break Reactor Building
34AB-T22-002-1(2)	Loss of Secondary Containment Integrity
34AB-T22-003-1(2)	Secondary Containment Control
34AB-T23-001-1(2)	Loss of Primary Containment Integrity
34AB-T23-002-1(2)	Small Break Inside Primary Containment
34AB-T23-004-1(2)	Torus Water Level

Proc Number	Procedure Title
34AB-T41-001-1(2)	Loss of ECCS, MCREC, or Area Ventilation Systems
34AB-X43-001-1(2)	Fire Procedure
34AB-X43-002-0	Fire Protection System Failures
34AB-Y22-001-0	Man-Made Hazards To Plant Operations and Personnel
34AB-Y22-002-0	Naturally Occurring Phenomenon
34AB-Y22-004-0	Intruder Based Security Threat
34AB-Y22-005-0	Airborne Security Threat
34AB-Z41-003-1S(2S)	Station Service Battery Rooms 1A/1B (2A/2B) High H_2
34GO-OPS-004-1(2)	Nuclear Boiler Lineup & Reference Leg Backfill
34GO-OPS-005-1(2)	Power Changes
34GO-OPS-013-1(2)	Normal Plant Shutdown
34GO-OPS-014-1(2)	Fast Reactor Shutdown
34GO-OPS-042-1(2)	MSR Extraction Steam and Heater Drain System
34GO-OPS-065-0	Control Rod Movement
34GO-OPS-087-1(2)	Torus Fill and Drain
34GO-OPS-087-1(2)	Torus (Suppression Chamber) Fill and Drain
34IT-B21-003-0	Reactor Water Level Cold Reference Leg Keepfill System Test
34SO-B31-001-1(2)	Reactor Recirculation System
34SO-C11-005-1(2)	Control Rod Hydraulic System
34SO-C41-003-1(2)	Standby Liquid Control System
34SO-C71-001-1(2)	120 VAC RPS Supply System
34SO-E11-010-1(2)	Residual Heat Removal System
34SO-E21-001-1(2)	Core Spray System
34SO-E41-001-1(2)	High Pressure Coolant Injection System
34SO-E51-001-1(2)	Reactor Core Isolation Cooling System
34SO-G31-003-1(2)	Reactor Water Cleanup System
34SO-G41-003-1(2)	Fuel Pool Cooling and Cleanup System
34SO-G41-003-1(2)	Fuel Pool Cooling And Cleanup System
34SO-G71-001-0	Decay Heat Removal
34SO-N21-007-1(2)	Condensate and Feedwater System
34SO-N30-001-1(2)	Main Turbine Operation
34SO-N33-001-1(2)	Seal Steam System
34SO-N34-004-1(2)	EHC And Lube Oil System
34SO-N43-001-1(2)	Generator Hydrogen And Carbon Dioxide System
34SO-N43-003-1(2)	Stator Cooling System
34SO-N61-001-1(2)	Main Condenser System
34SO-N62-001-1(2)	Off Gas System
34SO-P11-001-1(2)	Condensate Transfer System
34SO-P33-001-1(2)	Primary Containment Atmosphere H202 Analyzer System
34SO-P42-001-1(2)	Reactor Building Closed Cooling Water (RBCCW) System
34SO-P51-002-1(2)	Instrument and Service Air Systems
34SO-P64-001-1(2)	Primary Containment Chilled Water System
34SO-P70-001-1(2)	Drywell Pneumatic System

Proc Number	Procedure Title
34SO-P73-001-1(2)	Hydrogen Water Chemistry Hydrogen Injection System
34SO-P73-001-1(2)	Hydrogen Water Chemistry Hydrogen Injection System
34SO-R22-001-1(2)	4160V AC System Operation
34SO-R23-001-1(2)	600V AC System
34SO-R23-001-1(2)	600/480 AC System
34SO-R24-001-1(2)	208V AC System
34SO-R24-003-1	1R24-S018A/B 600 Volt MCC Operation
34SO-R24-003-2	2R23-S018A/B 600 Volt MCC Operation
34SO-R25-001-1(2)	120/208 VAC Essential Power System
34SO-R25-002-1(2)	120/240 Volt Vital AC System
34SO-R42-001-1(2)	125 VDC and 125/250 VDC System
34SO-R43-001-1(2)	Diesel Generator Standby AC System
34SO-S22-001-1(2)	230KV Substation Switching
34SO-T41-005-1(2)	Reactor Building Ventilation System
34SO-T41-006-1(2)	Refueling Floor Ventilation System
34SO-T46-001-1(2)	SBGT System
34SO-T47-001-1(2)	Drywell Cooling System
34SO-T48-002-1(2)	Containment Atmosphere Control and Dilution Systems
34SO-U41-001-1(2)	Turbine Building Ventilation System
34SO-Z41-001-1(2)	Control Room Ventilation System
34SO-Z41-004-0	Control Building Ventilation System
34SO-Z41-006-0	Health Physics HVAC System Operation
34SO-Z43-002-0	Turbine And Control Building Carbon Dioxide System
34SV-E11-004-1(2)	RHR Service Water Pump Operability
34SV-SUV-019-1(2)	Surveillance Checks, D/W Floor Drain Leakage Calculation
34SV-SUV-020-0	Core Parameter Surveillance
34SV-SUV-023-1(2)	Jet Pump and Recirculation Flow Mismatch Operability
42CC-ERP-010-0	Shutdown Margin Demonstration
52GM-F18-186-0	DFS Equipment Malfunction and Guidance
57CM-N40-001-0	Generator Temp Monitoring System
57GM-MIC-005-1(2)	Turbine Testing
57SV-D11-016-1(2)	MSL Radiation Monitor FT
62HI-OCB-117-0	ITX Operation and Calibration
64CH-SAM-025-0	Reactor Coolant Sampling and Analysis
64CI-OCB-007-0	Main Steam Line Radiation Monitors
73EP-RAD-001-0	Radiological Event
NMP-OS-014-002	HNP Time Critical Operator Action Program
NMP-OS-017	Severe Weather
NMP-OS-019-255	Hatch Unit C, MCR Ventilation
NMP-OS-019-263	Hatch Unit 1 SIG-3, Core Cooling
NMP-OS-019-264	Hatch Unit 1 SIG-4, RPV Makeup
NMP-OS-019-283	Hatch Unit 2 SIG-3, Core Cooling
NMP-OS-019-284	Hatch Unit 2 SIG-4, RPV Makeup

Failure

Step: 4.5

Resource: Rx Engineering

Action: Reduce reactor power as follows to reduce Off Gas AND MSL rad levels: Maintain pretreatment radiation level ≤ 200 mr/hr OR Per the recommendation of Rx Engineering

Analysis: The SM/ED determined that operations personnel would continue with subsequent procedure steps. Operations would contact the duty Rx Engineer to determine if unit should be shutdown. This action can occur prior to augmentation if needed. Due to the magnitude of the event, the SM/ED determined that the ERO would be activated to support response actions, especially since leaking fuel is suspected. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Procedure: 34AB-B21-001-1(2), Main Steal Line High Radiation or Suspected Fuel Element Failure
34GO-OPS-014-1(2), Fast Reactor Shutdown

Step: 34AB-B21-001-1(2), Step 4.6
34GO-OPS-014-1(2), Step 7.2

Resource: Chemistry

Action: If Off-Gas or MSL activity levels cannot be maintained or reduced, enter 34GO-OPS-014-1(2). Actions in 34GO-OPS-014-1(2) are performed by Operations personnel. Step 7.2 directs operators to notify Chemistry within 1 hour if power is reduced > 15 % to perform TS sampling (TS 3.4.6).

Analysis: The SM/ED and Chemistry representative verified that the Tech spec requirement is to sample reactor coolant within 2 hours of power reduction. Sample is then required to be counted within 4 hours. Therefore, based on these time frames, it was determined that this action can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Procedure: 34AB-B21-001-1(2), Main Steal Line High Radiation or Suspected Fuel Element Failure

Step: 4.13

Resource: Chemistry

Action: Notify Chemistry to sample and perform appropriate analyses

Analysis: The SM/ED determined that the sample is additional information as there are main steam line radiation monitors available to identify increases in radiation levels. The sample is not used to classify events. Dose assessment is performed by the on shift chemist which is unaffected. If a release is determined, then the SM/ED would direct performance of dose assessment since it has priority and sampling/analysis would be deferred until augmented resources are available. Operations would continue to maintain stable plant conditions at hot shutdown conditions. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Procedure: 34AB-B21-001-1(2), Main Steal Line High Radiation or Suspected Fuel Element Failure
343GO-OPS-003-1(2), Reactor Water Cleanup System

Step: 34AB-B21-001-1(2) Step 4.14
34GO-OPS-003-1(2) Step 7.2.19

Resource: Chemistry

Action: Confirm or place RWCU system in service at maximum capacity per 34SO-G31-

deferred until after augmented ERO resources are available with no impact on Emergency Response.

Procedure: 34AB-B21-001-1(2), Main Steal Line High Radiation or Suspected Fuel Element Failure
Step: 4.16
Resource: RP
Action: Notify RP of the suspected fuel element failure and to initiate new rad surveys and change radiological posting as required.
Analysis: The SM/ED determined that RP resources would be managed and directed based on event response priorities. On shift RP would support primary focus which would be to support operations activities. Plant radiological postings are not time critical and would be performed as augmented resources are available.
Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 2 – Control Room Fire With Evacuation, Remote Shutdown And Failure Of Secondary Containment Isolation

Procedure: 334AB-T22-003-1(2), Secondary Containment Control
Step: 4.6
Resource: HP Tech
Action: Dispatch a SO and HP Tech IF required to affected area to investigate.
Analysis: The Shift Manager/ED determined that on shift RP would provide job coverage as needed based on event priorities. The SM/ED would manage on-shift resources as appropriate until additional resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Procedure: 334AB-T22-003-1(2), Secondary Containment Control
Step: Attachment 7, Step 1.1 Note; Step 1.2 Note (applicable to Unit 1 only); Step 2.0 Note
Resource: Maintenance
Action: IF any of the following actions have failed to occur, contact maintenance to assist in placing the equipment in the desired position
Analysis: The analysis determined that if at least one valve was closed, then this action would be performed as augmented resources are available. However, the loss of both the inboard and outboard containment valves occurs actions may be required. The procedure step simply directs use of resources to assist SOs in completion of the task. It does not have Maintenance performing the function independently. Timely closure of at least one isolation valve is required to minimize the potential radiological release to the environment. On shift SOs would attempt to close isolation valves. Additionally, the Shift Manager determined that if Main Control Room (MCR) and local actions were unsuccessful, Stand By Gas Treatment (SBGT) would be started by on shift Operations mitigating release impact and continue with other procedure actions until augmented resources are available. 31EO-EOP-014-1, Secondary Containment Control provides guidance to mitigate the event until augmented resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

event/procedure. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

34AB-C71-001-1(2), SCRAM Procedure

Step: 4.30 (U1)
4.29 (U2)
Resource: Chemistry
Action: Make the following notifications as required: Chemistry Lab, for Iodine Sample, IF power was reduced by greater than 15% in one hour (TS 3.4.6).
Analysis: The SM/ED and Chemistry representative verified that this is a Tech Spec requirement which is to sample reactor coolant within 2 hours of power reduction. The sample is then required to be counted within 4 hours. Therefore, based on these time frames it was determined that this action can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.33 (U1)
4.32 (U2)
Resource: Chemistry
Action: U1 – Contact chemistry lab to isolate Durability Monitoring System as required.
U2 – Contact Chemistry lab to isolate MMS System as required.
Analysis: Both of these systems are used for long term monitoring of reactor vessel internals and are not used for emergency response. The Chemistry representative determined that this task can be performed as resources are available and is not required within 90 minutes. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

34AB-D11-001-1(2), Radioactivity Release Control

Supporting Procedure: 73EP-RAD-001-0, Radiological Event
Step: 4.2
Resource: RP
Action: Enter 73EP-RAD-001-0. 73EP-RAD-001-0 provides additional guidance for RP personnel.
Analysis: Guidance is consistent with RP functions (personnel monitoring, area surveys, etc.) The SM/ED and RP representative determined that on shift resources would be used as needed based on event priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 4.8.1
Resource: RP
Action: Notify Radiation Protection (RP) to monitor release rate through the nonmonitored path using portable survey instruments.
Analysis: This action supports dose assessment activities. The SM/ED determined that on shift RP resources would be used as needed based on event priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 4.8.4

necessary actions.

Supporting
Procedure: 34GO-OPS-014-1(2), Fast Reactor Shutdown
Step: 34AB-D11-001-1(2), Step 4.12
34GO-OPS-014-1(2), Step 7.2
Resource: Chemistry
Action: If reactor shutdown is required due to system isolation, enter 34GO-OPS-014-1(2). Actions in 34GO-OPS-014-1(2) are performed by Operations personnel. Step 7.2 directs operators to notify Chemistry within 1 hour if power is reduced > 15 % to perform TS sampling (TS 3.4.6).
Analysis: The SM/ED and Chemistry representative verified that the Tech Spec requirement is to sample reactor coolant within 2 hours of power reduction. The sample is then required to be counted within 4 hours. Therefore, based on these time frames, it was determined that this action can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>34AB-E10-002-1(2), ECCS Torus Suction Strainer Clogging</u>

Step: 4.4 Caution
Resource: RP
Action: Re-aligning Core Spray to the CST requires local manual actions. Ensure the proper Health Physics/Radiological control support is obtained for the current plant conditions.
Analysis: The SM/ED determined that on shift RP resources would be used as needed based on event priorities. No time frame for re-alignment is defined so plant priorities will determine when to perform the task. RP would support SOs when the re-alignment is determined to be needed. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

<u>34AB-G41-001-1(2), Loss of Fuel Pool Cooling</u>

Step: 4.2.c
Resource: RP
Action: Have RP assess the radiological conditions on the refueling floor at least once per hour or as assigned by the Shift Supervisor and establish a manned access control point to the refueling floor.
Analysis: The SM/ED and RP representative determined that this action would be performed during fuel movement, dry cask storage evolutions, and Tri-Nuke filter movements. These functions are not related to emergency response functions. The activities occur when the site is staffed with additional resources to support the evolution which is beyond minimum on-shift staff. If needed, the task will be performed by supplemented outage staff. Conclusion - procedure actions can be completed by outage personnel or deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.10
Resource: I&C
Action: If either (G41-N400 or G41-N401) of these indicators is unavailable, then have I&C install two (2) calibrated temporary digital temperature monitoring instruments with thermocouples in the fuel pool
Analysis: It was determined that this task is not required until well after 90 minutes from any

Step: Attachment 5, Step 1.5 Caution
Resource: Electrical Maintenance
Action: Notify Electrical Maintenance for assistance, IF necessary, to support transfer of the DHR System to the Standby Diesel.

Analysis: It was determined that this activity is a Refueling Outage Task that would be performed by staff used to supplement on shift resources during outages. During RFOs, a standby diesel is setup to ensure DHR System availability. Therefore, this action occurs when additional resources, beyond minimum on-shift staff, are available on-site. Conclusion - procedure actions can be completed by outage personnel or deferred until after augmented ERO resources are available with no impact on Emergency Response.

34AB-G41-002-1(2), Decreasing Rx Well/Fuel Pool Water Level

Step: 4.1.2.c
Resource: RP
Action: Have RP assess the radiological conditions on the refueling floor at least once per hour or as assigned by the Shift Supervisor and establish a manned access control point to the refueling floor.
Analysis: The SM/ED and RP representative determined that this action would be performed during fuel movement, dry cask storage evolutions, and Tri-Nuke filter movements. These functions are not related to emergency response functions. The activities occur when the site is staffed with additional resources to support the evolution which is beyond minimum on-shift staff. If needed the task will be performed by supplemented outage staff. However, if the event occurs whenever these evolutions are not in progress, then the SM/ED would direct RP to perform surveys as needed based on plant priorities. These actions would occur prior to event classification. Conclusion - procedure actions can be completed by outage personnel or the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

34AB-H11-001-1(2), Loss of Power to Annunciators in Main Control Room

Note: An emergency classification is not applicable to this event. The following analyses is used to support the basis and conclusions.

Step: 4.3.2 (U1)
4.2.2 (U2)
Resource: Maintenance
Action: Notify Maintenance to investigate the loss of the normal AND/OR alternate power supplies to Panel 1(2)H11-P630.
Analysis: The SM/ED stated that operators would continue with subsequent procedure steps and maintain the plant in a stable condition until Maintenance resources are available. The task is not time critical nor does it affect classification. The SM/ED would notify the duty team for the site, using this process to obtain additional resources since the event would not result in a classification and activation of the ERO. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions or non-ERO call out of additional resources can be used as the action is not related to an emergency response condition.

Action: Notify Maintenance to investigate the loss of the normal AND/OR alternate power supplies to Panel 1(2)H21-P237.

Analysis: The SM/ED stated that operators would continue with subsequent procedure steps and maintain the plant in a stable condition until Maintenance resources are available. The task is not time critical nor does it affect classification. The SM/ED would notify the duty team for the site, using this process to obtain additional resources since the event would not result in a classification and activation of the ERO. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions or non-ERO call out of additional resources can be used as the action is not related to an emergency response condition.

34AB-N61-002-1(2), Main Condenser Vacuum Low

Note: An emergency classification is not applicable to this event. The following analyses is used to support the basis and conclusions.

Step: 4.13 (U1)
4.12.1 (U2)

Resource: I&C

Action: Notify I&C to vent condenser waterbox dP instrument lines

Analysis: The SM/ED stated that operators would continue with subsequent procedure steps and maintain the plant in a stable condition until Maintenance resources are available. The task is not time critical nor does it affect classification. The SM/ED would notify the duty team for the site, using this process to obtain additional resources since the event would not result in a classification and activation of the ERO. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions or non-ERO call out of additional resources can be used as the action is not related to an emergency response condition.

34AB-N62-001-1(2), Failure of Recombiner and Control of Sustained Combustion in the Off Gas System

Step: Section I, Step 4.1 Note (U1)
Section I, Step 4.1 Caution (U2)

Resource: HP

Action: Notify Health Physics as soon as possible that entry is being/will be made.

Analysis: On shift HP responds to the fire scene to provide radiological and first-aid support to the Fire Brigade. The only classification applicable to this event is HU4(3) or HU4(4) which requires a fire duration of 60 minutes. The SM/ED determined, that first, the on shift HP is available to support the fire per the staffing study analysis. Second, the ERO is not required during a Notice of Unusual Event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: Section I, Step 4.6.3.2 (U1)
Section I, Step 4.4.3.2 (U2)

Supporting Procedure: 34SO-N62-001-1(2), Off Gas System

Resource: I&C

Analysis: The SM/ED determined that this action is part of normal plant operations and is not required for response to a classifiable event. Therefore, it can be deferred until additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section I, Step 4.6.5 (U1)
Section I, Step 4.5 (U2)

Supporting Procedure: 34SO-N62-001-1(2), Off Gas System

Resource: I&C

Action: The identified steps in 34AB-N62-001-1(2) direct CR personnel to swap Recombiner/PRHTRS per 34SO-N62-001-1(2) if recombiner temperatures do not start increasing. 34SO-N62-001-1(2) actions are performed by Operations personnel except step 7.2.1.1.13 which directs notification of I&C to reset the Recombiner Low Temperature alarm.

Analysis: The SM/ED determined that this action is not associated with an emergency event nor is it required for response to the non-emergency event and can be deferred until additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section I, Step 4.6.7 (U1)
Section I, Step 4.7 (U2)

Resource: Chemistry

Action: If the charcoal beds are bypassed and the Reactor is not shutdown, notify Chemistry to obtain any required samples on the main stack effluent

Analysis: It was determined that the Main Stack Effluent monitors would still be available to support dose assessment. The SM/ED and Chemistry determined that the Chemistry Technician would perform the emergency plan function of dose assessment. Sampling of the Main Stack Effluent would be performed as augmented resources are available as it is not required to implement the emergency plan. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section III, Step 4.3 (U1)
Section III, Step 4.2 (U2)

Supporting Procedure: 34GO-OPS-013-1(2), Normal Plant Shutdown

Step(s): 4.1.5, 4.3.2.5.a, 4.3.2.5.b., 4.3.2.5.d.

Resource: I&C, Chemistry

Action: The identified steps in 34AB-N62-001-1(2) direct CR personnel to reduce reactor power IAW 34GO-OPS-013-1(2). 34GO-OPS-013-1(2) actions are performed by Operations personnel except for the following steps:
4.1.5 which directs I&C to perform 57SV-D11-016-1(2) if power will be reduced to < 21% RTP;
4.3.2.5.a. which directs notification of the Chemistry Foreman to calculate new MSL Rad Monitor setpoints per 64CI-OCB-007-0
4.3.2.5.b. which directs I&C to adjust the MSL Rad Monitor Hi-Hi setpoints
4.3.2.5.d. which directs Operators to check that I&C completed step 4.3.2.5.b.

Analysis: The SM/ED determined that actions to reach 10% RTP IAW 34GO-OPS-013-1(2) would take ≈ 12 hours. Therefore, these actions can be performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section III, Step 4.6 (U1)
Section III, Step 4.6 (U2)

Resource: HP/RP

Action: Monitor Recombiner Building and Waste Gas Treatment Building internal areas/monitor off gas equipment area

Analysis: On shift HP responds to the fire scene to provide radiological and first-aid support to the fire brigade. The only classification applicable to this event is HU4(3) or HU4(4) which requires a fire duration of 60 minutes. The SM/ED determined, that first, the on shift HP is available to support the fire per the staffing study analysis. Second, the ERO is not required during a Notice of Unusual Event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: Section IV, Step 4.4 (U1)
Section IV, Step 4.3 (U2)

Supporting Procedure: 34GO-OPS-014-1(2), Fast Reactor Shutdown

Step(s): 7.2

Resource: Chemistry

Action: The identified steps in 34AB-N62-001-1(2) direct CR personnel to initiate a fast reactor shutdown IAW 34GO-OPS-014-1(2). 34GO-OPS-014-1(2) actions are performed by Operations personnel except for Step 7.2 which directs notification of Chemistry within 1 hour if power is reduced > 15%. This action initiates chemistry

sampling per TS. Per TS 3.4.6 DEI I-131 is required to be performed at least once every 4 hours.

Analysis: The SM/ED determined that this step is initiated to meet the Tech Spec requirement to sample reactor coolant within 2 hours of power reduction. The sample is then required to be counted within 4 hours. Therefore, based on these time frames, this action can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section IV, Step 4.7.5 (U1)
Section III, Step 4.6.4 (U2)

Resource: Chemistry

Action: Isolate the Off Gas System Post Treatment Radiation Monitor

Analysis: The SM/ED and Chemistry representative determined that this task is not associated with emergency classification and is not immediately required for normal event response and can be performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>34AB-N62-002-1(2), Off Gas Explosion (External To The System)</u>

Step: 4.3.5

Resource: HP

Action: Notify Health Physics for support

Analysis: On shift HP responds with the fire brigade at the scene to provide radiological and first-aid support to the fire brigade. The only classification applicable to this event is HU4(3) or HU4(4) which requires a fire duration of 60 minutes. The SM/ED determined, that first, the on shift HP is available to support the fire per the staffing study analysis. Second, the ERO is not required during a Notice of Unusual Event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 4.4.1

Supporting Procedure: 34GO-OPS-013-1(2), Normal Plant Shutdown

Step(s): 4.1.5, 4.3.2.5.a, 4.3.2.5.b., 4.3.2.5.d.

Resource: I&C, Chemistry

Action: The identified steps in 34AB-N62-001-1(2) direct CR personnel to reduce reactor power IAW 34GO-OPS-013-1(2). 34GO-OPS-013-1(2) actions are performed by Operations personnel except for the following steps:

4.1.5 which directs I&C to perform 57SV-D11-016-1(2) if power will be reduced to < 21% RTP;

4.3.2.5.a. which directs notification of the Chemistry Foreman to calculate new MSL Rad Monitor setpoints per 64CI-OCB-007-0

4.3.2.5.b. which directs I&C to adjust the MSL Rad Monitor Hi-Hi setpoints
4.3.2.5.d. which directs Operators to check that I&C has completed step 4.3.2.5.b.

Analysis: The SM/ED determined that actions to reach 10% RTP IAW 34GO-OPS-013-1(2) would take ≈ 12 hours. Therefore, these actions can be performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.4.3.6
Supporting Procedure: 34SO-N62-013-1(2), Off Gas System
Step: 7.2.1.1.13
Resource: I&C
Action: The identified step in 34AB-N62-002-1(2) directs CR personnel to shift to the standby Recombiner IAW 34SO-N62-001-1(2). 34SO-N62-001-1(2) actions are performed by Operations personnel except step 7.2.1.1.13 which directs notification of I&C to reset the Recombiner Low Temperature alarm.
Analysis: The SM/ED determined that this action is not required for emergency plan response and that normal plant response to the event and can be deferred until additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.4.3.11 and 4.4.4.5
Supporting Procedure: 34SO-N62-013-1(2), Off Gas System
34GO-OPS-013-1(2), Normal Plant Shutdown
Step(s): 34SO-N62-013-1(2) – 7.3.1.5
Resource: I&C, Chemistry
Action: The identified step in 34AB-N62-002-1(2) directs CR personnel to shutdown the reactor IAW 34GO-OPS-013-1(2) and to isolate the Off Gas System IAW 34SO-N62-001-1(2). See above analysis for non-ops actions directed by 34GO-OPS-013-1(2). 34SO-N62-001-1(2) actions are performed by Operations personnel except step 7.3.1.5 which directs notification of I&C to reset the Recombiner Low Temperature alarm.
Analysis: The SM/ED determined that actions to shutdown the reactor IAW 34GO-OPS-013-1(2) would take > 12 hours. Additionally, it was determined that the 34SO-N62-001-1(2) action to reset the Recombiner Low Temperature alarm is not required for response to the event and can be deferred until additional resources are available. Therefore; these actions can be performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

34AB-P41-001-1(2), Loss of Plant Service Water

Step: 4.15.2 (U1)
4.14.2 (U2)
Resource: Electrical Maintenance
Action: Assist checking the PSW Pump Breakers
Analysis: The SM/ED determined that this action is implemented in response to a loss of offsite power. Because the loss of the PSW Pump is due to a loss of offsite power, this step is not applicable and can be prioritized for performance once additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

34AB-R22-003-1(2), Station Blackout

Step: Attachment 3, Step 8.d
Attachment 4, Step 6.c.(3); Step 7.d.(4) – U1/Step 17.e. – U2
Attachment 5, Step 7.d – U1/Step 8.d – U2
Supporting Procedure: 34SO-R42-001-1(2), 125 VDC and 125/250 VDC System
Step(s): 2.1.3 Precaution
Resource: Maintenance
Action: Identified 34AB-R22-003-1(2) steps direct actions to initiate 34SO-R42-001-1(2) if the previous steps did not energize the Battery Chargers. The identified step in 34SO-R42-001-1(2) directs maintenance to remove battery fuses.
Analysis: The SM/ED determined that Sections 4.3.1 and 4.3.2 of 34SO-R42-001-1(2) would be used to energize Division I and Division II. These actions are performed by operations personnel without any additional assistance needed. Therefore, Maintenance resources would not be required to perform these actions. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: Attachment 6, Step 1.b
Resource: RP
Action: Confer with RP for entry into RCIC if steam is leaking into RCIC room
Analysis: The SM/ED and RP representative determined that this notification enables RP to assess plant conditions and determine any additional radiological controls for potential field actions. The SM/ED would manage RP resources based on plant priorities to support procedure actions until additional resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

34AB-R22-004-1(2), Loss of 4160V Bus 1A, 1B, 1C, or 1D

Analysis: An emergency classification is not applicable to this procedure/event. The various sections in the procedure provide guidance on restoring the specific bus. This

guidance directs various site groups to perform actions. The SM/ED determined that this event would result in a significant transient that, although not classified, would require additional support. The SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions or non-ERO call out of additional resources can be used as the action is not related to an emergency response condition.

34AB-R23-002-1(2), Loss of 600V Bus 1A/2A, 1AA/2AA, 1BB/2BB, or 1B/2B

Analysis: An emergency classification is not applicable to this procedure/event. Various sections of this procedure require support from Maintenance Electrical personnel. The SM/ED determined that additional resources would be required to perform this task. The SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions or non-ERO call out of additional resources can be used as the action is not related to an emergency response condition.

34AB-R25-002-1, Loss of Instrument Buses

Step: Section 4.1, Step 4.1.4.12
Section 4.2, Step 4.2.4.9
Resource: Electrician
Action: Check fuses listed in procedure step
Analysis: The SM/ED determined that, if an event were declared, operators would continue with subsequent procedure steps, maintaining stable plant conditions, and the action would be completed as additional resources are available. If an event is not declared, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Additionally, the SM/ED determined that a trained SO/NPO can perform this action because they are already trained to pull fuses for tagouts. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

Step: Section 4.3, Step 4.3.4.5
Section 4.4, Step 4.4.1.3.a.(2) and Step 4.4.4.4
Resource: Maintenance
Action: Investigate and resolve overload issue in an Inverter 'Overload' condition is indicated

Analysis: The SM/ED determined that this action is not required to stabilize the plant and not needed during the first 90 minutes of a declared event. Operators would continue with subsequent procedure steps, maintaining stable plant conditions, and action would be completed as additional resources are available. If an event is not declared, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

34AB-R25-002-2, Loss of Instrument Buses

Step: Section 4.1, Step 4.1.4.9.n.(1)
Resource: I&C
Action: Perform a system restart, per 57CM-N40-001-0, If the system displays a File Error or other software message
Analysis: The SM/ED determined that this action is not required to stabilize the plant. Additional indications are available in the control room for operators to monitor turbine systems. If an emergency classification is determined this action can be deferred and performed as additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section 4.2, Step 4.2.4.3
Section 4.2, Step 4.2.4.9
Resource: Electrician
Action: Check fuses listed in procedure step
Analysis: The SM/ED determined that, if an event were declared, operators would continue with subsequent procedure steps, maintaining stable plant conditions, and the action would be completed as additional resources are available. If an event is not declared, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Additionally, the SM/ED determined that a trained SO/NPO can perform this action because they are already trained to pull fuses for tagouts. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

Step: Section 4.3, Step 4.3.1.4.a.(2)
Resource: Maintenance
Action: Investigate cause of power loss
Analysis: The SM/ED determined that this action is not required to stabilize the plant and not needed during the first 90 minutes of a declared event. Operators would continue

with subsequent procedure steps, maintaining stable plant conditions, and action would be completed as additional resources are available. If an event is not declared, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

Step: Section 4.3, Step 4.3.4.3
Section 4.4, Step 4.4.1.4.a.(2) and Step 4.4.4.3
Resource: Maintenance
Action: Investigate and resolve overload issue in an Inverter 'Overload' condition is indicated
Analysis: The SM/ED determined that this action is not required to stabilize the plant and not needed during the first 90 minutes of a declared event. Operators would continue with subsequent procedure steps, maintaining stable plant conditions, and action would be completed as additional resources are available. If an event is not declared, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

<u>**34AB-R43-001-1(2), Diesel Generator Recovery**</u>

Step: 4.8.2.11.k. Note (U1)
4.10.10.k. Note (U2)
Resource: Diesel Maintenance Technician
Action: May be required to check/clean/lubricate Aire Distributor Pilot Valves
Analysis: The SM/ED determined that this action is not required within 90 minutes. Stable plant conditions are maintained, and this task can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 4.8.3.9.b. (U1)
4.11.8.b. (U2)
Resource: Electrical Maintenance (implied)
Action: Lift wire 4F from relay in terminal box
Analysis: The Shift Manager determined that Electrical Maintenance support is required to Lift wires. The SM/ED determined that if Electrical Maintenance personnel are not available, SOs can be used to perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: Attachment 2 (Hard Card posted at 1(2)H11-P652)
Resource: Maintenance
Action: Support Diesel Generator recovery
Analysis: The SM/ED determined that if Division I and Division II D/G's are unavailable (LOOP condition – SS1(1) applicable), then an ELAP condition exists and efforts to restore the D/G would be abandoned. If one D/G is available (and is the only power source – SA1(1) applicable) then this action would be performed by on shift resources for the first 90 minutes based on station priorities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

34AB-T23-002-1(2), Small Break Inside Primary Containment

Step: 4.15
Resource: Engineering
Action: Evaluate for SRV Bellows Seal failure
Analysis: The SM/ED determined that this action is not required to stabilize the plant and not needed during the first 90 minutes of a declared event. Operators would continue with subsequent procedure steps, maintaining stable plant conditions, and action would be completed as additional resources are available. The SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

34AB-X43-001-1(2), Fire Procedure

Step: 4.14, 8.4.8.1.3
Resource: Radiation Protection
Action: Respond to fire area
Analysis: On shift RP responds with the fire brigade at the scene to provide radiological and first-aid support to the Fire Brigade. The SM/ED determined, that first, the on shift RP is available to support the fire per the staffing study analysis. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 5.15.2.1
Resource: Chemistry
Action: Begin continuous monitoring of oxygen levels in the Main Control Room IAW 62HI-OCB-117-0, ITX Operation and Calibration.
Analysis: It was determined that numerous personnel, including SOs, are trained to perform continuous monitoring of areas IAW 62HI-OCB-117-0. If a radiological release is not in progress, using guidance in Step 4.2.2 of NMP-EP-141, the SM/ED can

direct the Chemistry technician to perform this sampling instead of dose assessment if needed. If a radiological release is in progress, then the Chemistry technician would perform dose assessment, and this task would be performed by an SO. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 5.15.8
Attachment 1, Step 5.16.1.1
Resource: Augmented Resources
Action: Provide additional ventilation to MCR in accordance with NMP-OS-019-255, Hatch Unit C MCR Ventilation
Analysis: The SM/ED determined that this task is a recovery action that utilizes a FLEX strategy to provide ventilation to the MCR. Implementation of this action is not required within the first 90 minutes of an event and would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 7.3.2
Supporting Procedure: 34GO-OPS-014-1(2), Fast Reactor Shutdown
34AB-P41-001-1(2), Loss of Plant Service Water
Step(s): 7.2
Resource: Chemistry
Action: Step 7.3.2 directs CR personnel to initiate a fast reactor shutdown IAW 34GO-OPS-014-1(2). 34GO-OPS-014-1(2) actions are performed by Operations personnel except for Step 7.2 which directs notification of Chemistry within 1 hour if power is reduced > 15%. This action initiates chemistry sampling per TS. Per TS 3.4.6, DEI I-131 is required to be performed at least once every 4 hours.
Analysis: The SM/ED determined that this step is initiated to meet the Tech spec requirement to sample reactor coolant within 2 hours of power reduction. Sample is then required to be counted within 4 hours. Therefore, based on these time frames this action can be deferred until augmented resources are available.
It was also determined during the PBPA that immediate response actions (completed within 90 minutes) of 34AB-P41-001-1(2) are performed by operations personnel. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 7.6.1, 7.7.3, 7.18.4
Supporting Procedure: 34GO-OPS-014-1(2), Fast Reactor Shutdown
Step(s): 7.2
Resource: Chemistry
Action: Step 7.6.1 directs CR personnel to shutdown the reactor IAW 34GO-OPS-014-1(2). 34GO-OPS-014-1(2) actions are performed by Operations personnel except

for Step 7.2 which directs notification of Chemistry within 1 hour if power is reduced > 15%.

Analysis: The SM/ED determined that this step is initiated to meet the Tech spec requirement to sample reactor coolant within 2 hours of power reduction. Sample is then required to be counted within 4 hours. Therefore, based on these time frames this action can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 9.2.1. 9.2.2.1, 9.2.4,
Supporting Procedure: 34AB-C71-001-1(2), SCRAM Procedure
Resource: See analysis for 34AB-C71-001-1(2)
Action: See analysis for 34AB-C71-001-1(2)
Analysis: The only classification applicable to this event is HU4(3) or HU4(4) which requires a fire duration of 60 minutes. The ERO is not required during a Notice of Unusual Event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: 9.7.1. 9.8.1
Supporting Procedure: 34GO-OPS-005-1(2), Power Changes
Resource: Operations
Action: Reduce power to < 65% reactor power
Analysis: The only classification applicable to this event is HU4(3) or HU4(4) which requires a fire duration of 60 minutes. The ERO is not required during a Notice of Unusual Event. In addition, actions to reduce power to < 65% IAW 34GO-OPS-005-1(2) are performed by operations personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions

Step: Attachment 5.1, Step 5.8.6.1; Step 5.11.1.3.1; Step 5.19.3.1; 6.5.4.1;
Supporting Procedure: 34SO-Z41-004-0, Control Building Ventilation System
Resource: Operations
Action: Restore Control Building HVAC
Analysis: Th SM/ED determined that these actions would be performed after 90 minutes to ensure that a reflash does not occur, i.e., restoring HVAC any sooner has the potential to re-ignite a smoldering fire. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions

34AB-Y22-001-1(2), Man Made Hazards to Plant Operations and Personnel

Step: Section 4.3, Step 4.3.1.1; Step 4.3.2.1
Resource: Chemistry

Action: Begin continuous monitoring of oxygen levels in the Main Control Room IAW 62HI-OCB-117-0, ITX Operation and Calibration.

Analysis: It was determined that numerous personnel, including SOs, are trained to perform continuous monitoring of areas IAW 62HI-OCB-117-0. If a radiological release is not in progress, using guidance in Step 4.2.2 of NMP-EP-141, the SM/ED can direct the Chemistry technician to perform this sampling instead of dose assessment if needed. If a radiological release is in progress, then the Chemistry technician would perform dose assessment, and this task would be performed by an SO. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step: Section 4.3, Step 4.3.7

Resource: Chemistry; RP: Site Environmentalist

Action: Perform spill control measures: RP is responsible for events inside the RCA; and Chemistry is responsible for events outside the RCA.

Analysis: It was determined that this action would be deferred until additional resources are available because it is an industrial safety issue and is not a classifiable emergency. The SM/ED would notify the duty team for the site, using this process to obtain additional resources. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used if the action is not related to an emergency response condition.

<u>34AB-Y22-002-0, Naturally Occurring Phenomenon</u>

Step: Section 2.0, Step 2.4.7

Resource: Maintenance; Facilities

Action: Remove or secure equipment in the Protected and outside areas

Analysis: It was determined that these actions would be performed prior to event classification. If resources are needed and time permits, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. The actions in the procedure are preventative in nature and as such do not impact the classification of an emergency. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO call out of additional resources can be used, if time is available since the action is not related to an emergency response condition and is preventative in nature.

Step: Section 2.0, Step 2.4.16

Supporting Procedure: NMP-OS-017 , Severe Weather

Resource: Various Site Groups/Personnel

Action: Perform actions as identified in NMP-OS-017 to prepare site for a tornado
Analysis: It was determined that these actions would be performed prior to event classification. If resources are needed and time permits, the SM/ED would notify the duty team for the site, using this process to obtain additional resources. The actions in the procedure are preventative in nature and as such do not impact the classification of an emergency. Additional guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO call out of additional resources can be used, if time is available since the action is not related to an emergency response condition and is preventative in nature.

Step: Section 2.0, Step 2.4.18
Section 3.0, Step 3.4.26
Supporting Procedure: 52GM-F18-186-0, ISFSI
Resource: Various Site Groups/Personnel
Action: Inspect ISFSI IAW 52GM-F18-186-0 and the switchyard for damages
Analysis: This action is a post-event actions that will be performed as resources are available. It was determined that these actions would be performed prior to event classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section 4.0, Step 4.4.1.a
Supporting Procedure: 34GO-OPS-005-1(2), Power Changes
Step(s): 7.2.12
Resource: Chemistry/I&C
Action: Chemistry – provide recommendations for HWC Hydrogen Injection System flowrate adjustments
I&C – Check FW Heater Levels to ensure controls are normal
Analysis: Section 4.0 is entered in response to an Earthquake. Per Step 4.4.1.a of 34AB-Y22-002-0, operations is directed to reduce reactor power to 40-50% per 34GO-OPS-005-1(2). The SM/ED determined that reaching this power level will take greater than 90 minutes. Therefore, I&C actions can be performed as resources are available. Chemistry provides recommendations to operators based on notification from the control room and can perform this action as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section 4.0, Step 4.4.1.b
Supporting Procedure: 34GO-OPS-013-1(2), Power Changes
Step(s): 4.1.3, 4.3.2.5.a., 4.3.2.5.b., 4.3.2.5.d., 4.3.2.7.a., 4.3.3.1, 4.3.3.4.a., 4.3.3.4.b., 4.3.3.4.d., 4.3.3.4.h.(1), 4.3.4.14

Resource: Chemistry/I&C/Rx Engineering

Action: 4.1.3 - Notify Chemistry lab of power reduction plans (Notification step)
4.3.2.5.a. - Prior to reducing reactor power below 21% RTP, notify the Chemistry Foreman to calculate new MSL Rad Monitor Setpoints per 64CI-OCB-007-0.
4.3.2.5.b. - Notify I&C to adjust the MSL Rad Monitor Hi-Hi Setpoints per 57SV-CAL-005-0.
4.3.2.5.d. - Check I&C has adjusted MSL Rad Monitor Hi-Hi Setpoints.
4.3.2.7.a. - At the direction of the SS AND per Rx Engineering recommendations, continue control rod insertion.
4.3.3.1 - Start and continue control rod insertion at the direction of the SS and per Rx Engineering.
4.3.3.4.a. - Prior to reducing reactor power below 21% RTP, notify the Chemistry Foreman to calculate new MSL Rad Monitor Setpoints per 64CI-OCB-007-0.
4.3.3.4.b. - Notify I&C to adjust the MSL Rad Monitor Hi-Hi Setpoints per 57SV-CAL-005-0.
4.3.3.4.d. - Check I&C has adjusted MSL Rad Monitor Hi-Hi Setpoints.
4.3.3.4.h.(1) - At the direction of the SS AND per Rx Engineering recommendations, continue control rod insertion.
4.3.4.14 - Insert control rods per approved sequence provided by Rx Engineering.

Analysis: Section 4.0 is entered in response to an Earthquake. Per Step 4.4.1.b of 34AB-Y22-002-0, CR operators are directed to shutdown the plant per 34GO-OPS-013-1(2) based on availability of identified transformers and transmission lines. The SM/ED determined that actions to reach 10% RTP IAW 34GO-OPS-013-1(2) would take ≈ 12 hours. Therefore, these actions would be performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section 4.0, Step 4.4.5
Section 8.0, Step 8.4.5

Supporting Procedure: 52GM-F18-186-0, ISFSI

Resource: Maintenance

Action: Inspect ISFSI for damage in accordance with 52GM-F18-186-0

Analysis: This action is a post-event actions that will be performed as resources are available. It was determined that these actions would be performed prior to event classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: Section 4.0, Step 4.4.8

Resource: Chemistry

Action: Sample and analyze reactor coolant for indications of fuel failure

Analysis: It was determined that this is a Tech spec requirement to sample reactor coolant within 2 hours of power reduction. Sample is then required to be counted within 4 hours. Therefore, based on these time frames this action can be deferred until

augmented resources are available. In addition, if a radiological release is not in progress, using guidance in Step 4.2.2 of NMP-EP-141, the SM/ED can direct the Chemistry technician to perform this sampling instead of dose assessment if needed. If a radiological release is in progress, then the Chemistry technician would perform dose assessment, and this task would be performed as augmented resources are available. The intent of this step is to assess fuel conditions and deferring this action does not affect plant status/operations because a power reduction/shutdown has been initiated in previous steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-010-1/2, RC RPV Level Control (Non-ATWS)

Supporting Procedure(s): 34SO-E11-010-1/2, Residual Heat Removal System
34SO-N62-001-1, Off Gas System

Step(s): 31EO-EOP-010-1/2, RC/P Leg

Resource: Chemistry, I&C

Action: Begin reactor pressure reduction per 34GO-OPS-013-1/2 AND maintain the cooldown rate below 100 °F/hr, defeating isolations and restoring drywell pneumatics if necessary, per 31EO-EOP-100-1/2

Analysis: 31EO-EOP-010-1/2, RC/P Leg directs the operator to begin reactor pressure reduction per 34GO-OPS-013-1/2 AND maintain the cooldown rate below 100 °F/hr, defeating isolations and restoring drywell pneumatics if necessary, per 31EO-EOP-100-1/2. Reactor pressure reduction is performed per section 4.5 of 34GO-OPS-013-1/2 which will direct the operator to perform additional procedures to include 34SO-N61-001-1/2, 34GO-OPS-004-1/2, 34SO-E11-010-1/2, 34SO-N62-001-1/2, 34SO-N62-002-1/2, and 34SO-N21-007-1/2, and 34SO-N21-007-1/2. A review of these procedures did not identify actions requiring support from non-OPS resources within the first 90 minutes with the exception of the following:

1. 34SO-E11-010-1/2, Attachment 14 directs flushing RHR for placing in SDC mode. Attachment 14, step 1.5.35 directs Chemistry to sample for conductivity. The note preceding this step states that Chemistry samples are not required as long as the specified 1200 gallons has been flushed. Operations determined that the operator will flush the specified 1200 gallons and continue in the procedure without sampling based on the guidance of the note. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
2. 34SO-N62-001-1, step 7.3.1.5 directs the operator to notify I&C to set the Recombiner Low Temperature alarm for 1N62-R602, per 57CP-CAL-327-0, at 300°F for all points. Per the PBPA team, this action is not required for EOP response and is not associated with event classification or mitigating actions. This action can be performed as additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-N21-007-1/2, Condensate and Feedwater System
34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System
31RS-E41-001-1/2, HPCI Operation from Outside Control Room

Step(s): 31EO-EOP-010-1/2, RC/L Leg

Resource: Chemistry, Engineering, Maintenance

Action: - Restore and maintain RWL between +3 in. and +50 in. using one or more Preferred Injection Systems (Table L-1). RWL control may be augmented by one or more Alternate Injection Subsystems (Table L-2).
- Restore and maintain RWL above -155 in. using Preferred Injection Systems (Table L-1)
- If less than 2 Injection Subsystems of (Table L-6) are operating, then align all available Alternate Injection Subsystems (Table L-2)
- Commence Injection using one or more Preferred Injection Systems (Table L-1) and if necessary, augment with Alternate Injection Subsystems (Table L-2) Ignore NPSH and Vortex limits, if necessary.
- If RWL cannot be restored and maintained Above -180 in. with little or no core spray flow or above -207 in. with core spray flow 4250 gpm or above, then maximize injection into the RPV using available Preferred Injection Systems (Table L-1), Injection Subsystems (Table L-6), and Alternate Injection Subsystems (Table L-2)

Analysis: 31EO-EOP-010-1/2, RC/L Leg directs the operator to operate the systems specified in Tables L-1 and L-2 in accordance with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of the following:

1. 34SO-N21-007-1/2 step 7.1.5.2 (7.1.6.2) directs to "Ensure Feedwater chemistry is within the guidelines and specifications per NMP-CH-005, Chemistry Program." It was determined that Feedwater Chemistry samples are not required for EOP response. This samples can be performed as resources available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator and handwheel indicator in a straight line, push the engaging lever into the operator. If some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. If this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power, the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump, and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed, this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump, and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

3. 34SO-E41-001-2, section 7.4.7 provides guidance for confirming HPCI discharge piping full when aligned for torus suction. Step 7.4.7.3 directs to perform an Ultrasonic (UT) Voids Test to confirm the HPCI discharge pipe is full. This UT is performed by OPS. If the UT identifies voiding, then the piping is vented. Step 7.4.7.3.2 then directs , "If no void is found following the UT, then contact Engineering to determine if system venting is required and system operability." If no voiding is identified in the UT and the actions support EOP implementation, the operator will continue with the procedure and not wait for engineering response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
4. 31RS-E41-001-1/2 steps 4.1.7.2.3, 4.1.11, 4.2.5.2, (4.1.13, 4.1.9.2 , 4.2.4.2, 4.2.4.3, 4.2.5.2) direct the manipulation of various leads/wires to support operation of HPCI from outside the control room. This procedure is a contingency procedure and is one of ten methods listed in in Table L-2, Alternate Injection Subsystems. The operator would use one of the other listed Alternate Injection Subsystems. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

31EO-EOP-011-1/2, RC RPV Level Control (ATWS)

Supporting Procedure(s): 34SO-E11-010-1/2, Residual Heat Removal System
34SO-N62-001-1, Off Gas System

Step(s): 31EO-EOP-010-1/2, RC/P Leg

Resource: Chemistry, I&C

Action: Begin reactor pressure reduction per 34GO-OPS-013-1/2 and maintain the cooldown rate below 100 °F/hr, defeating isolations and restoring drywell pneumatics if necessary, per 31EO-EOP-100-1/2

Analysis: 31EO-EOP-011-1/2, RC/P Leg directs the operator to begin reactor pressure reduction per 34GO-OPS-013-1/2 AND maintain the cooldown rate below 100 °F/hr, defeating isolations and restoring drywell pneumatics if necessary, per 31EO-EOP-100-1/2. Reactor pressure reduction is performed per section 4.5 of 34GO-OPS-013-1/2 which will direct the operator to perform additional procedures to include 34SO-N61-001-1/2, 34GO-OPS-004-1/2, 34SO-E11-010-1/2, 34SO-N62-001-1/2, 34SO-N62-002-1/2, and 34SO-N21-007-1/2, and 34SO-N21-007-1/2. A review of the applicable sections of these procedures did not identify actions requiring support from non-OPS resources within the first 90 minutes with the exception of the following:

1. 34SO-E11-010-1/2, Attachment 14 directs flushing RHR for placing in SDC mode. Attachment 14, step 1.5.35 directs Chemistry to sample for conductivity. The note preceding this step states that Chemistry samples are not required as long as the specified 1200 gallons has been flushed. Operations determined that the operator will flush the specified 1200 gallons and continue in the procedure without sampling based on the guidance of the note. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

2. 34SO-N62-001-1, step 7.3.1.5 directs the operator to notify I&C to set the Recombiner Low Temperature alarm for 1N62-R602, per 57CP-CAL-327-0, at 300°F for all points. This action is not required for EOP response. This action can be performed as additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-012-1/2, PC Primary Containment Control

Supporting Procedure(s): 34SO-E11-010-1/2, Residual Heat Removal System
34GO-OPS-087-1/2, Torus Fill and Drain

Step(s): 31EO-EOP-012-1/2, SP/L Leg

Resource: Maintenance

Action: Maintain torus water level below 215 in. per 34SO-E11-010-1/2 or 34GO-OPS-087-1/2 (EOP Graphs 2, 6 and 7 are limiting at a Torus water level of 193 in.)

Analysis: 31EO-EOP-012-1/2, SP/L Leg, directs the operator to "Maintain torus water level below 215 in. per 34SO-E11-010-1/2 or 34GO-OPS-087-1/2". These procedures provide multiple methods for draining down the torus. None of these methods requires non-OPS resources except drain down using the torus drain and purification system per 34GO-OPS-087-1/2 section 7.4 which directs maintenance to install a spool piece in the suction line for 1G51-C001 (2G51-C001). This method is typically used for outages to drain the Torus below 50". It is not the normal/preferred method for lowering Torus level during emergency response. For EOP response, the operator would typically use the A or B train CS or A or B train RHR systems to control Torus level rather than the Torus Drain and Purification System which do not utilize non-OPS resources. The method described in 34GO-OPS-087-1/2 section 7.4 would only be used if A and B train CS and A and B train RHR systems were unavailable. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-T47-001-1/2, Drywell Cooling System
34SO-P64-001-1/2, Primary Containment Chilled Water System

Step(s): 31EO-EOP-012-1/2, DW/T Leg

Resource: Maintenance

Action: Monitor and control drywell temperature below 150°F using Drywell cooling fans per 34SO-T47-001-1/2 and Drywell Chillers per 34SO-P64-001-1/2.
- Operate ALL available Drywell cooling using Drywell cooling fans per 34SO-T47-001-1/2 Drywell Chillers per 34SO-P64-001-1/2. If necessary, defeat isolations per 31EO-EOP-100-1/2

Analysis: 31EO-EOP-012-1/2, DW/T Leg, directs the operator to operate Drywell cooling fans per 34SO-T47-001-1/2 and Drywell Chillers per 34SO-P64-001-1/2. These procedures do not utilize non-OPS resources with the following exceptions:

1. 34SO-P64-001-1/2 step 4.1.2.9 and 4.1.4.9 notes states "If the Auxiliary Oil Pump red light remains illuminated for an extended period of time, notify Maintenance to investigate." The EOP response was determined to be if the Auxiliary Oil Pump red light remains illuminated, the unit will be left running and maintenance will investigate as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-P64-001-1/2 step 4.1.2.13 and 4.1.4.13 direct the operator to "Notify Maintenance to ensure the Chiller is operating properly." It was determined that Maintenance support is not required for EOP response. It is a confirmatory action and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 31EO-EOP-012-1/2, PC/G Leg
Resource: Chemistry
Action: If hydrogen and oxygen concentrations for drywell and torus monitors are unavailable then Plant Chemistry must supply hydrogen and oxygen concentrations for drywell and torus
Analysis: The hydrogen and oxygen analyzers will not be placed in service until plant conditions warrant entry into 31EO-EOP-012. If at that time it is identified that the analyzers are not working, Chemistry will be notified to sample for hydrogen. If the on-shift chemistry technician is performing dose assessment, they will not be available to perform the hydrogen sampling. The next step in the flowchart directs the operator to wait until "When Drywell OR Torus hydrogen concentration reaches 1.5% OR *cannot be determined*". With no samples available, the operator will meet the "cannot determine" criteria and will continue with the flowchart and "Operate drywell cooling fans per 34SO-T47-001, Vent torus and/or drywell per 31EO-EOP-104 If necessary, defeat isolations except high radiation isolations, and initiate torus and/or drywell nitrogen purge flow per 31EO-EOP-104." These actions will reduce hydrogen concentrations if any hydrogen is present. Hydrogen and oxygen samples will be drawn as additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>31EO-EOP-014-1/2, SC Secondary Containment Control</u>

Supporting Procedure(s): 34SO-T41-006-1/2, Refueling Floor Ventilation System
34SO-T41-005-1/2, Reactor Building Ventilation System
Step(s): 31EO-EOP-014-1/2, SC/T Leg
Resource: I&C

Action: If a secondary containment radiation condition does not exist, then operate Refuel Floor HVAC per 34SO-T41-006-1/2 and Reactor Building HVAC per 34SO-T41-005-1/2.

Analysis: 31EO-EOP-014-1/2, SC/T Leg, directs the operator "If a secondary containment radiation condition does not exist, then operate Refuel Floor HVAC per 34SO-T41-006-1/2 and Reactor Building HVAC per 34SO-T41-005-1/2." The applicable sections of these procedures do not utilize non-OPS resources with the exception of 34SO-T41-005-2 step 2.4 which states "In the event that 2T41-R619, R/F Vent Flow Recorder, is unavailable, the supply and exhaust fan flows may be determined by requesting I&C to obtain the dP across the respective flow transmitter in inches of water and use the applicable equation below to obtain actual flow." It was determined that if Vent Flow Recorder 2T41-R619 is failed, Operators will use alternate indications such as Building dP to establish a negative pressure on the refuel floor and request I&C support as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 34GO-OPS-013-1/2, Normal Plant Shutdown
34GO-OPS-014-1/2, Fast Reactor Shutdown

Step(s): 31EO-EOP-014-1/2, SC/T, SC/L, and SC/R Legs

Resource: I&C, Chemistry

Action: Shut down reactor per 34GO-OPS-013-1/2 or 34GO-OPS-014-1/2.

Analysis: 31EO-EOP-014-1/2, SC/T, SC/L, and SC/R Legs direct the operator "Shut down reactor per 34GO-OPS-013-1/2 or 34GO-OPS-014-1/2." This step for each Leg of the flowchart is preceded by a statement to wait until a specified condition is met associated with maximum safe operating temperature, water level, or radiation level. These levels are associated with potential EAL classifications. Per the PBPA team, with the maximum safe values exceeded, the operators will either perform 34GO-OPS-013-1/2 section 4.4 or more likely perform 34GO-OPS-014-1/2 for a fast reactor shutdown if conditions are rapidly degrading. The applicable sections of these procedures do not require non-OPS resources except for the following:

1. 34GO-OPS-013-2, step 4.2 states "If desired to prevent nuisance alarms, check bypassed or request I&C bypass all SRV Pilot Stage AND Second Stage temperature alarm points on 2B21-R614." This step is discretionary to address nuisance alarms and can be performed as resources are available. The Unit 1 procedure does not include this step. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34GO-OPS-013-1/2 step 4.4.8.c (4.4.11.c) directs the operator to "notify Chemistry Lab to perform sampling requirements of Hatch ODCM Table 3-3, Note C." Similarly, 34GO-OPS-014-1/2 step 7.2 directs the operator "if power is reduced > 15% within 1 hour, notify Chemistry to perform Tech Spec sampling". If the on-shift chemistry technician is performing dose assessment, they will not be available to perform the requested sampling. It

was determined that the associated sampling requirement is to draw the sample within 2 hours of a >15% power reduction and provide the results to control room within 6 hours of the power reduction. Therefore, the sample can be taken once additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-U41-001-1/2, Turbine Building Ventilation System
Step(s): 31EO-EOP-014-1/2, RR Leg
Resource: RP, Security
Action: If Turbine Building HVAC is shutdown, then restart Turbine Building HVAC as required per 34SO-U41-001-1/2
Analysis: 31EO-EOP-014-1/2, RR Leg direct the operator "If Turbine Building HVAC is shutdown then restart Turbine Building HVAC as required per 34SO-U41-001-1/2" Performance of 34SO-U41-001-1/2 does not require non-OPS resources except for the following actions:

1. 34SO-U41-001-1/2 Precautions and Limitations direct that "IF the requirements of Tech Spec 3.7.9, cannot be met, immediately notify RP, so monitoring can be performed for potential release of unmonitored air exiting the T/B RCA." It was determined that this monitoring will be performed by one the on-shift RP technicians based on priorities set by the Shift Manager/Emergency Director Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
2. 34SO-U41-001-1/2 step 7.3.8.1(4.3.10.1) directs the operator to "Check Open / Notify Security to Open the Turbine Building truck bay roll up door, 1L48-T16 (1L48-T16), to at least as high as the security grating." This step is performed by on-shift Security personnel as part of their normal duties for controlling security doors. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

31EO-EOP-015-1/2, CP-1 Alternate Level/Pressure Control

Supporting Procedure(s): 34SO-N21-007-1/2, Condensate and Feedwater System
34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System
31RS-E41-001-1/2, HPCI Operation from Outside Control Room
Step(s): 31EO-EOP-015-1/2, C1/L Leg
Resource: Chemistry, Engineering, Maintenance
Action: Restore and maintain RWL between -35 in. and +100 in. using Preferred Injection Systems (Table L-1) and Alternate Injection Subsystems (Table L-2) defeating isolations and interlocks, if necessary. When reactor pressure is<50 psig above Torus pressure and RWL cannot be restored and maintained above -180 in. then maximize injection into the RPV using available Preferred Injection Systems (Table

L-1), Injection Subsystems (Table L-6), and Alternate Injection Subsystems (Table L-2)

Analysis: 31EO-EOP-015-1/2, C1/L Leg directs the operator to operate the systems specified in Tables L-1, L-2 and L-6 IAW with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of the following:

1. 34SO-N21-007-1/2 step 7.1.5.2 (7.1.6.2) directs to "Ensure Feedwater chemistry is within the guidelines and specifications per NMP-CH-005, Chemistry Program." It was determined that Feedwater Chemistry samples are not required for EOP response. This samples can be performed as resources available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

2. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator AND handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. IF this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

3. 34SO-E41-001-2, section 7.4.7 provides guidance for confirming HPCI discharge piping full when aligned for torus suction. Step 7.4.7.3 directs to perform an Ultrasonic (UT) Voids Test to confirm the HPCI discharge pipe is full. This UT is performed by OPS. If the UT identifies voiding, then the piping is vented. Step 7.4.7.3.2 then directs , "If NO void is found following the UT, then contact Engineering to determine if system venting is required and system operability." It was determined that if no voiding is identified in the UT and the actions support EOP implementation, the operator will continue with the procedure and not wait for engineering response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

4. 31RS-E41-001-1/2 steps 4.1.7.2.3, 4.1.11, 4.2.5.2, (4.1.13, 4.1.9.2 , 4.2.4.2, 4.2.4.3, 4.2.5.2) direct the manipulation of various leads/wires to support

operation of HPCI from outside the control room. Electrical Maintenance (EM) personnel are required to perform these actions. This procedure is a contingency procedure and is one of ten methods listed in in Table L-2, Alternate Injection Subsystems, therefore, if EM personnel were not available to support manipulation of the specified leads/wires, then the operator would use one of the other listed Alternate Injection Subsystems. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-G31-003-1/2, Reactor Water Cleanup System

Step(s): 31EO-EOP-015-1/2, C1/P1, C1/P2, C1/P3 and Emergency Depress Legs

Resource: Maintenance

Action: - Reduce and control reactor pressure into the preferred RPV control band. HPCI RPV injection 150 psig to 300 psig. Use one or more RPV depressurization Systems (Table P-2)

- Control Reactor pressure below 1074 psig using one or more RPB Depressurization Systems (Table P-2)
- Depressurize the RPV. Use one or more RPB Depressurization Systems (Table P-2)
- Maintain reactor pressure below 50 psig above Torus pressure. Use one or more RPB Depressurization Systems (Table P-2).
- Stabilize reactor pressure using one or more RPB Depressurization Systems (Table P-2) per 31EO-EOP-108
- Rapidly depressurize the RPV busing one or more RPV Depressurization Systems using one or more RPV Depressurization Systems, defeating isolations and exceeding offsite radioactive release rate limits if necessary, until reactor pressure is less than 50 psig above Torus pressure. Table-P-2 systems per 31EO-EOP-108
- Continue cooldown to cold shutdown conditions, using one or more RPV Depressurization Systems defeating isolations and interlocks, if necessary. Table-P-2 systems per 31EO-EOP-108.

Analysis: 31EO-EOP-015-1/2, C1/P1, C1/P2, C1/P3 and Emergency Depress Legs direct the operator to operate the systems specified in Table P-2 IAW with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of 34SO-G31-003-1/2 section 7.6.9, RWCU System Blowdown to the CST via FPC Piping. 34SO-G31-003-1/2 step 7.6.9.2.3 directs Maintenance to disconnect and plug the air supply between the solenoid and valve operator on 2G11-F035A. RWCU Blowdown is one of many diverse means provided in Table P-2 for RPV depressurization. Furthermore, section 7.6.9 is one of three different means of performing RWCU blowdown per 34SO-G31-003-1/2. It was determined that the method described in 34SO-G31-003-1/2 section 7.6.9 would not be used for EOP response due to the time and resources needed to implement. Rather, operators would implement one or more of the other RWCU and non-RWCU methods to

reduce RPV pressure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-016-1/2, CP-2 RPV Flooding

Supporting Procedure(s): 34SO-N21-007-1/2, Condensate and Feedwater System
34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System
31RS-E41-001-1/2, HPCI Operation from Outside Control Room

Step(s): 31EO-EOP-016-1/2, Flooding for ATWS and Flooding for Non ATWS Legs

Resource: Chemistry, Engineering, Maintenance

Action: Slowly raise injection using one or more Preferred ATWS Injection Systems (Table L-3) to: Establish and Maintain RPV pressure above the Minimum Steam Cooling Pressure (Table P-3), but as low as practicable

- If required to open one SRV or to increase RPV pressure above Minimum Steam Cooling Pressure (Table P-3) then slowly raise injection, using one or more, Core Spray System (Table L-4); Alternate Injection Subsystems (Table L-2), except Condensate Transfer or ECCS Keep-fill
- Flood the RPV to the main steam lines using one or more: Preferred Injection Systems (Table L-1) and Alternate Injection Subsystems (Table L-2) Defeating high RPV water level isolations and interlocks if necessary

Analysis: 31EO-EOP-016-1/2, Flooding for ATWS and Flooding for Non ATWS Legs direct the operator to operate the systems specified in Tables L-1, L-2, L-3 and L-4 IAW with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of the following:

1. 34SO-N21-007-1/2 step 7.1.5.2 (7.1.6.2) directs to "Ensure Feedwater chemistry is within the guidelines and specifications per NMP-CH-005, Chemistry Program." It was determined that Feedwater Chemistry samples are not required for EOP response. This samples can be performed as resources available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator AND handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. IF this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the

actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

3. 34SO-E41-001-2, section 7.4.7 provides guidance for confirming HPCI discharge piping full when aligned for torus suction. Step 7.4.7.3 directs to perform an Ultrasonic (UT) Voids Test to confirm the HPCI discharge pipe is full. This UT is performed by OPS. If the UT identifies voiding, then the piping is vented. Step 7.4.7.3.2 then directs , "If no void is found following the UT, then contact Engineering to determine if system venting is required and system operability." It was determined that if no voiding is identified in the UT and the actions support EOP implementation, the operator will continue with the procedure and not wait for engineering response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
4. 31RS-E41-001-1/2 steps 4.1.7.2.3, 4.1.11, 4.2.5.2, (4.1.13, 4.1.9.2 , 4.2.4.2, 4.2.4.3, 4.2.5.2) direct the manipulation of various leads/wires to support operation of HPCI from outside the control room. Electrical Maintenance (EM) personnel are required to perform these actions. This procedure is a contingency procedure and is one of ten methods listed in in Table L-2, Alternate Injection Subsystems therefore if EM personnel were not available to support manipulation of the specified leads/wires then the operator would use one of the other listed Alternate Injection Subsystems. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-G31-003-1/2, Reactor Water Cleanup System
Step(s): 31EO-EOP-016-1/2, Flooding for ATWS and Flooding for Non ATWS Legs
Resource: Maintenance
Action: - If while executing the following steps it is anticipated that the RPV depressurization will result in loss of injection required for RPV flooding then terminate RPV depressurizations and control RPV pressure as low as practicable using one or more RPV Depressurization Systems (Table P-2), defeating isolations and interlocks and exceeding offsite radioactivity release rate limits if necessary, while maintaining RPV injection required to prevent core damage.
- Rapidly depressurize the RPV using one or more RPV Depressurization Systems (Table P-2) Irrespective of cooldown rate, defeating isolations and interlocks and exceeding offsite radioactivity release rate limits if necessary
- Control RPV pressure as low as practicable using one or more RPV Depressurization Systems (Table P-2) defeating isolations and interlocks and exceeding offsite radioactivity release rate limits, if necessary
- If less than 2 SRVs can be opened and RPV pressure >50 psid above torus pressure then rapidly depressurize the RPV using one or more RPV Depressurization Systems irrespective of cooldown rate, defeating isolations and interlocks and exceeding offsite radioactivity release rate limits if necessary (Table P-2) until RPV pressure is <50 psid above torus pressure
- Close MSIVs, MSL drains, HPCI, and RCIC isolation valves and control injection into the RPV to maintain the MSLs flooded with injection as low as practicable and

control RPV pressure as low as practicable using one or more RPV Depressurization Systems (Table P-2), defeating isolations and interlocks and exceeding offsite radioactivity release rate limits, if necessary.

Analysis: 31EO-EOP-016-1/2, Flooding for ATWS and Flooding for Non ATWS Legs direct the operator to operate the systems specified in Table P-2 IAW with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of 34SO-G31-003-1/2 section 7.6.9, RWCU System Blowdown to the CST via FPC Piping. 34SO-G31-003-1/2 step 7.6.9.2.3 directs Maintenance to disconnect and plug the air supply between the solenoid and valve operator on 2G11-F035A. (2G11-F035A is a failed closed valve and should remain closed). RWCU Blowdown is one of many diverse means provided in Table P-2 for RPV depressurization. Furthermore, section 7.6.9 is one of three different means of performing RWCU blowdown per 34SO-G31-003-1/2. It was determined that the method described in 34SO-G31-003-1/2 section 7.6.9 would not be used for EOP response due to the time and resources needed to implement. Rather, operators would implement one or more of the other RWCU and non-RWCU methods to reduce RPV pressure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>31EO-EOP-017-1/2, CP-3 ATWS Level Control</u>

Supporting Procedure(s): 34SO-N21-007-1/2, Condensate and Feedwater System
34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System
31RS-E41-001-1/2, HPCI Operation from Outside Control Room

Step(s): 31EO-EOP-016-1/2, RWL Leg

Resource: Chemistry, Engineering, Maintenance

Action:
- With Priority, Lower RPV Water Level to maintain between -60 in and -90 in. with Table L-3 Systems
- If A further reduction in RWL is needed then Maintain RWL between -60 in and -180 in with Table L-3 Systems
- Maintain RWL between +50 in and -180 in. with TABLE L-3 Systems slowly raise injection to restore and maintain RWL between -180 in. and previously established level recorded above. Use Table L-3 Systems
- IF required to restore and maintain RWL above -180 in. then slowly raise injection, using one or more Core Spray System (Table L-4); Alternate Injection Subsystems (Table L-2)
- Maintain RWL between the level recorded above and -180 in. with Table L-3 Systems

Analysis: 31EO-EOP-016-1/2, RWL Leg directs the operator to operate the systems specified in L-2, L-3 and L-4 IAW with their associated procedures. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of the following:

1. 34SO-N21-007-1/2 step 7.1.5.2 (7.1.6.2) directs to "Ensure Feedwater chemistry is within the guidelines and specifications per NMP-CH-005, Chemistry Program." It was determined that Feedwater Chemistry samples are not required for EOP response. This samples can be performed as resources available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator and handwheel indicator in a straight line, push the engaging lever into the operator. If some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. If this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
3. 34SO-E41-001-2, section 7.4.7 provides guidance for confirming HPCI discharge piping full when aligned for torus suction. Step 7.4.7.3 directs to perform an Ultrasonic (UT) Voids Test to confirm the HPCI discharge pipe is full. This UT is performed by OPS. If the UT identifies voiding, then the piping is vented. Step 7.4.7.3.2 then directs , "If no void is found following the UT, then contact Engineering to determine if system venting is required and system operability." If no voiding is identified in the UT and the actions support EOP implementation, the operator will continue with the procedure and not wait for engineering response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
4. 31RS-E41-001-1/2 steps 4.1.7.2.3, 4.1.11, 4.2.5.2, (4.1.13, 4.1.9.2 , 4.2.4.2, 4.2.4.3, 4.2.5.2) direct the manipulation of various leads/wires to support operation of HPCI from outside the control room. Electrical Maintenance (EM) personnel are required to perform these actions. This procedure is a contingency procedure and is one of ten methods listed in in Table L-2, Alternate Injection Subsystems therefore if EM personnel were not available to support manipulation of the specified leads/wires then the operator would use one of the other listed Alternate Injection Subsystems. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

31EO-EOP-100-1/2, Miscellaneous Overrides

Supporting
Procedure(s): 34SO-E41-001-1/2, High Pressure Coolant Injection (HPCI) System
34SO-E51-001-1/2, Reactor Core Isolation Cooling (RCIC) System
31EO-EOP-107-1/2, Alternative RPV Pressure Control
Step(s): 31EO-EOP-100-1/2, steps 4.6.3, 4.7.2, 4.8.2, and 4.9.2
Resource: Engineering
Action: - Open HPCI steam isolation valves if necessary per 34SO-E41-001-1/2
- Align HPCI valves for desired mode of operation per 34SO-E41-001-1/2
- Align HPCI valves for desired mode of operation per 34SO-E41-001-1/2, 34SO-E51-001-1/2, OR 31EO-EOP-107-1/2

Analysis: 31EO-EOP-100-1/2, Sections 4.6, 4.7, 4.8, and 4.9 direct the operator to operate HPCI valves IAW with their associated procedures for the desired mode of operation. Performance of the applicable steps of the specified procedures did not require non-OPS resources with the exception of 34SO-E41-001-2, section 7.4.7 which provides guidance for confirming HPCI discharge piping full when aligned for torus suction. Step 7.4.7.3 directs to perform an Ultrasonic (UT) Voids Test to confirm the HPCI discharge pipe is full. This UT is performed by OPS. If the UT identifies voiding, then the piping is vented. Step 7.4.7.3.2 then directs , "If no void is found following the UT, then contact Engineering to determine if system venting is required and system operability." If no voiding is identified in the UT and the actions support EOP implementation, the operator will continue with the procedure and not wait for engineering response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 34SO-P64-001-1/2, Primary Containment Chilled Water System
Step(s): 31EO-EOP-100-1/2, Steps 4.11.2.c and 4.11.4
Resource: Maintenance
Action: Operate Drywell Chillers per 34SO-P64-001-1/2
Analysis: 31EO-EOP-100-1/2, steps 4.11.2.c and 4.11.4, directs the operator to operate Drywell cooling fans per 34SO-T47-001-1/2 and Drywell Chillers per 34SO-P64-001-1/2. These procedures do not utilize non-OPS resources with the following exceptions:

1. 34SO-P64-001-1/2 step 4.1.2.9 and 4.1.4.9 notes states "If the Auxiliary Oil Pump red light remains illuminated for an extended period of time, notify Maintenance to investigate." The EOP response is that if the Auxiliary Oil Pump red light remains illuminated the unit will be left running and maintenance will investigate as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-P64-001-1/2 step 4.1.2.13 and 4.1.4.13 direct the operator to "Notify Maintenance to ensure the Chiller is operating properly." Maintenance support is not required for EOP response as determined by Operations. The step is a confirmatory action and can be

performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-T41-006-1/2, Refueling Floor Ventilation System
34SO-T41-005-1/2, Reactor Building Ventilation System
Step(s): 31EO-EOP-100-1/2, step 4.12.2
Resource: I&C
Action: Operate Secondary Containment Ventilation per 34SO-T41-005-1/2, AND 34SO-T41-006-1/2
Analysis: 31EO-EOP-014-1/2, SC/T Leg, directs the operator "If a secondary containment radiation condition does not exist, then operate Refuel Floor HVAC per 34SO-T41-006-1/2 and Reactor Building HVAC per 34SO-T41-005-1/2." The applicable sections of these procedures do not utilize non-OPS resources with the exception of 34SO-T41-005-2 step 2.4 which states "In the event that 2T41-R619, R/F Vent Flow Recorder, is unavailable, the supply and exhaust fan flows may be determined by requesting I&C to obtain the dP across the respective flow transmitter in inches of water and use the applicable equation below to obtain actual flow." If Vent Flow Recorder 2T41-R619 is failed Operators will use alternate indications such as Building dP to establish a negative pressure on the refuel floor and request I&C support as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-P70-001-2, Drywell Pneumatic System
Step(s): 31EO-EOP-100-1/2, step 4.15
Resource: I&C
Action: If Drywell Pneumatic supply pressure has been lost, then refer to 34SO-P70-001-2, Drywell Pneumatic System, to supply Drywell Pneumatics from either Instrument Air OR the Emergency Nitrogen Supply.
Analysis: 31EO-EOP-100-1/2, step 4.15, directs the operator "IF Drywell Pneumatic supply pressure has been lost, then refer to 34SO-P70-001-2, Drywell Pneumatic System, to supply Drywell Pneumatics from either Instrument Air OR the Emergency Nitrogen Supply." This step is performed as part of initial system startup and is not required for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-C41-003-1/2
Step(s): 31EO-EOP-100-1/2, step 4.16.3
Resource: I&C
Action: Return to 34SO-C41-003-2 for follow-up actions.

Analysis: 31EO-EOP-100-1/2, section 4.16, provides guidance for SBLC Pump Control Switch Override. Upon completion of these actions the operator is directed in step 4.16.3 to "Return to 34SO-C41-003-2 for follow-up actions." This step is performed as part of initial system startup and is not required for EOP response. This will send the operator to 34SO-C41-003-2 step 7.2.1.5.1 and remaining steps of section 7.2.1, and if needed 7.2.2 for manual actuation of the SBLC which do not require non-OPS personnel to inject. Per the procedure injection of the SBLC tank will take 30 to 70 minutes once initiated. At which time it will be shutdown and refilled as needed per subsequent sections. Per FSAR section 1.2.8.1 "The system is sized to counteract the positive reactivity effect from full power to the cold shutdown condition" therefore the initial injection of the SBLC will achieve hot and cold boron concentrations so subsequent actions are not immediately required and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-102-1/2, RPV Venting During Containment Flooding

Supporting
Procedure(s): 57GM-MIC-005-1/2, Turbine Testing
Step(s): 31EO-EOP-102-1/2, step 3.1.15, and Attachment 1 step 3.0
Resource: I&C
Action:
- Defeat Turbine Bypass Valve low Main Condenser vacuum interlock by having I&C perform 57GM-MIC-005-1/2, Turbine Testing, as necessary.
- Direct I&C restore all points that were forced to their normal configuration, per 57GM-MIC-005-2, Turbine Testing

Analysis: 31EO-EOP-102-1/2, step 3.1.15 and Attachment 1 step 3.0 direct the operator to have I&C perform the specified action per 57GM-MIC-005-1/2. HPCI valves IAW with their associated procedures for the desired mode of operation. 31EO-EOP-102 provides instructions for venting the RPV during Primary Containment flooding when required by the Severe Accident Guidelines, SAG-1. The procedure provides four different methods for venting the RPV such that if I&C were not available to perform step 3.1.15 the operator would use one of the other methods provided in the procedure. Additionally, Attachment 1specified actions are for post event restoration of system alignments when RPV flooding is no longer needed. Therefore, they will be performed when recovery conditions dictate and additional resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 34SO-N71-001-1/2, Circulating Water System
34SO-N21-007-1/2, Condensate and Feedwater System
34SO-N61-001-1/2, Main Condenser Vacuum System and Closeout
Step(s): 31EO-EOP-102-1/2, steps 3.1.11, 3.2.1, 3.3.2, and 3.4.2
Resource: Maintenance, Chemistry, Engineering, QC, I&C

Action: Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible.

Analysis: 31EO-EOP-102-1/2, steps 3.1.11, 3.2.1, 3.3.2, and 3.4.2 direct the operator to Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, If possible. The applicable sections of these procedures contain the following actions for non-OPS personnel:

1. 34SO-N71-001-1/2, steps 7.2.15.3, 7.2.15.6, (7.2.3, 7.2.11.2, 7.2.11.8) direct "If necessary, after pump start, notify cooling tower maintenance team to be prepared to clean screens." For EOP response, the Unit would have been operating, in hot standby, or starting up in which case the Circulating Water System would have previously been in operation. Circulating Water System screen dPs are checked daily and screens are cleaned on a weekly basis. Since the Circulating Water System would have been in operations prior to the initiating event the screen dP should be similar to pre-event conditions. Any changes in screen dP will be minor and will not require cleaning prior to the availability of additional resources within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N71-001-2, NOTE preceding step 7.2.4 directs that "IF Seal Water Flow cannot be checked at Local Seal Water Rotometer, per subsection 7.2.4, then at Management discretion, the Circ Water Pump still may be started If maintenance personnel can visibly check sufficient leakoff past the pump seals." (Note for Unit 2 only). Operations personnel can perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
3. 34SO-N71-001-1/2, section 7.2.8 is performed when no circulating water pump is operating. This section includes step 7.2.8.5 which directs to fully open cooling tower bypass valves for all three cooling towers. Step 7.2.8.5 is preceded by a note which states "The valve pit covers leading to 2N71-F021A-C have an approximate weight of 150lbs. contact maintenance in advance to have these covers removed or replaced." (Note in Unit 2 procedure only). Access to the cooling tower bypass valves via the valve pit covers is not required for EOP response because the Circulating Water System would have been in operation prior to the initiating event. Also, lifting the cover can be performed by OPS personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
4. 34SO-N71-001-1/2, section 7.2.11 (7.2.10) directs to vent Condenser Waterboxes. This section is preceded by a note which states "Contact Radiation Protection and the Radwaste Operator prior to performing venting activities." Venting the condenser water boxes is not required for EOP response since the Circulating Water System would have been in operations prior to the initiating event. If it were needed it can be

performed as resources available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

5. 34SO-N71-001-1/2, step 7.4.7 (7.4.8) directs "IF PSW Chemical Treatment is to be placed in service, Refer To 34SO-P41-001-2." PSW Chemical Treatment is not required for EOP response. It can be performed as resources available if it is desired for long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
6. 34SO-N21-007-1/2, step 5.1.8 directs "Prior to closing 2N21-F384 and 2N21-F385, Passive Zinc Injection Isolation Valves, ensure Chemistry Department has removed the system from service." If the onshift chemist is performing dose assessment they will not be available to remove the zinc addition system from service. Removing the zinc injection system from service is not required to support EOP response but rather an action for long term maintenance of systems and will not be done during a declared emergency until well after 90-minute augmentation. It can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
7. 34SO-N21-007-1/2, section 6.0 Prerequisites states "Condensate Polishing Demineralizer and Conductivity Monitoring Systems are operable as required by Chemistry." Chemistry feedwater samples are not required for EOP response but rather an action for long term maintenance of systems and will not be done during a declared emergency until well after 90-minute augmentation. These samples can be performed as resources are available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
8. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator and handwheel indicator in a straight line, push the engaging lever into the operator. If some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. IF this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

9. 34SO-N21-007-1/2, step 7.1.2.1.3, 7.1.2.2.3, and 7.1.2.3.3 for establishing condensate pump seal water flow are preceded by a note which states "If necessary, to adjust the pressure in the following steps, obtain I&C assistance." The condensate pumps will have been in operation pre-event. Once restarted the seal flow will be at pre-event flows. Any minor adjustments needed can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
10. 34SO-N21-007-1/2, steps 7.1.5.1.3, 7.1.5.2.3, 7.1.5.3.3 , 7.1.5.10.19, and 7.2.2.1.8 for establishing condensate booster pump oil temperature between 50°F AND 115°F, are preceded by a note which states "The initial setup for temperature can be obtained for starting and operating the pumps with the final adjustments (with the System Engineer's assistance) for PSW (a recommended flow of 15 gpm) to be done later." Engineering support for final adjustments to the condensate booster pump temperatures is not needed since the condensate system would have been in operations prior to the initiating event. If final adjustments are needed, they can be performed as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
11. 34SO-N61-001-2, step 4.1.2 states QC personnel will be required to perform the subsections for Expanding 2A and 2B SJAE Intercondenser Condensate Flow with the 2A SJAE in service. Sections 7.4.3 and 7.4.4, Expanding 2A(2B) SJAE Intercondenser Condensate Flow With The 2A(B) SJAE In Service, is preceded by a NOTE which states "A method of measuring Condensate flow out of the 2A SJAE will be needed (Typically QC personnel support this task by installing ultrasonic transducers)." Step 7.4.3.7.1 directs to record the total SJAE condensate flow from installed ultrasonic transducer (These steps apply to Unit 2 only). QC and support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
12. 34SO-N61-001-1/2, step 7.4.3.8 is preceded by a Note which states "A more conservative limit of less the 10 psig (e.g., 5 psig) added in step 7.4.3.8 is permissible. Consult with the SS and Engineering for determining the dP limit." Engineering support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established

when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-U41-001-1/2, Turbine Building Ventilation System
Step(s): 31EO-EOP-102-1/2, steps 3.1.12, 3.2.2, 3.3.3, and 3.4.3
Resource: RP, Security
Action: Start all available Turbine Building HVAC, per 34SO-U41-001-1/2, Turbine Building Ventilation System.
Analysis: 31EO-EOP-014-1/2, RR Leg direct the operator "If Turbine Building HVAC is shutdown then restart Turbine Building HVAC as required per 34SO-U41-001-1/2" Performance of 34SO-U41-001-1/2 does not require non-OPS resources except for the following actions:

1. 34SO-U41-001-1/2 Precautions and Limitations direct that "If the requirements of Tech Spec 3.7.9, cannot be met, immediately notify RP, so monitoring can be performed for potential release of unmonitored air exiting the T/B RCA." This monitoring will be performed by one the on-shift RP technicians as directed by the SM/ED based on station priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
2. 34SO-U41-001-1/2 step 7.3.8.1(4.3.10.1) directs the operator to "Check Open / Notify Security to Open the Turbine Building truck bay roll up door, 1L48-T16 (1L48-T16), to at least as high as the security grating." This step is performed by on-shift Security personnel as part of their normal duties for controlling security doors. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

<u>31EO-EOP-103-1/2, EOP Control Rod Insertions Method</u>

Supporting Procedure(s): NA
Step(s): 31EO-EOP-103-1/2, steps 3.5.10, 3.7.3, 3.9.1
Resource: Rx Engineering
Action: Obtain recommendations from Reactor Engineering as to which rods have the highest worth
Analysis: 31EO-EOP-103-1/2, steps 3.5.10, 3.7.3, 3.9.1 direct the operator to obtain recommendations from Reactor Engineering as to which rods have the highest worth. 31EO-EOP-103 provides nine different means for shutting down the reactor in an ATWS condition. The SM/ED determined the more rapid methods for inserting all rods will be used first then the methods for driving rods individually or in groups. The actions of steps 3.5.10, 3.7.3, and 3.9.1 require driving rods. These steps are preceded by a note which states "Generally, inserting central rods in a black-and-white pattern will add the most negative reactivity." Because this

procedure is performed in response to an ATWS and must be performed promptly, the Operator will perform the steps using the information provided in the note rather than contacting the Rx Engineer. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

31EO-EOP-105-1/2, Primary Containment Water Level Determination

Step(s): 31EO-EOP-105-1/2, section 3.1
Resource: Maintenance
Action: Install temporary gauges
Analysis: 31EO-EOP-105-1/2, section 3.1 directs the installation of temporary gauges to support determining Primary Containment water level when level is above the range of the installed instrumentation. Installation of the temporary gauges for determining Primary Containment water level for Flooding of Primary Containment is currently performed by I&C. If I&C personnel are not available to perform these actions the operator will determine Primary Containment water level using section 3.2 which can be performed without support from non-OPS personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

31EO-EOP-106-1/2, Restoration of RPV Water Level Following RPV Flooding

Supporting Procedure(s): 34GO-OPS-004-1/2, Nuclear Boiler Lineup & Reference Leg Backfill
Step(s): 31EO-EOP-106-1/2, step 4.2
Resource: Maintenance
Action: Notify Maintenance to backfill the reference legs for RPV Water Level Instruments per 34GO-OPS-004-1/2.
Analysis: 31EO-EOP-106-1/2, step 4.2 directs the operator "Notify Maintenance to backfill the reference legs for RPV Water Level Instruments per 34GO-OPS-004-1/2". Once the RPV is flooded to the MSLs it will be indicated by multiple diverse indications provided in 31EO-EOP-16 and the operator will continue with the EOP response. Once flooded to this level backfill of the reference legs can be perform as resources are available to provide additional confirmatory indications. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-107-1/2, Alternative RPV Pressure Control

Supporting Procedure(s): 34SO-N71-001-1/2, Circulating Water System
34SO-N21-007-1/2, Condensate and Feedwater System
34SO-N61-001-1/2, Main Condenser Vacuum System and Closeout
Step(s): 31EO-EOP-107-1/2, steps 3.3.1, 3.5.1, 3.6.11, 3.7.1, and 3.8.12
Resource: Maintenance, Chemistry, Engineering, QC, I&C

Action: Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible.

Analysis: 31EO-EOP-107-1/2, steps 3.3.1, 3.5.1, 3.6.11, 3.7.1, and 3.8.12 direct the operator to "Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible." The applicable sections of these procedures contain the following actions for non-OPS personnel:

1. 34SO-N71-001-1/2, steps 7.2.15.3, 7.2.15.6, (7.2.3, 7.2.11.2, 7.2.11.8) direct "IF necessary, after pump start, notify cooling tower maintenance team to be prepared to clean screens." For EOP response, the Unit would have been operating, in hot standby, or starting up in which case the Circulating Water System would have previously been in operation. Circulating Water System screen dPs are checked daily and screens are cleaned on a weekly basis. Since the Circulating Water System would have been in operations prior to the initiating event the screen dP should be similar to pre-event conditions. Any changes in screen dP will be minor and will not require cleaning prior to the availability of additional resources within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N71-001-2, NOTE preceding step 7.2.4 directs that "If Seal Water Flow cannot be checked at Local Seal Water Rotometer, per subsection 7.2.4, then at Management discretion, the Circ Water Pump still may be started if maintenance personnel can visibly check sufficient leakoff past the pump seals." (Note for Unit 2 only). Operations personnel can perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
3. 34SO-N71-001-1/2, section 7.2.8 is performed when no circulating water pump is operating. This section includes step 7.2.8.5 which directs to fully open cooling tower bypass valves for all three cooling towers. Step 7.2.8.5 is preceded by a note which states "The valve pit covers leading to 2N71-F021A-C have an approximate weight of 150lbs. contact maintenance in advance to have these covers removed or replaced. (reference CR 2009107098)" (Note in Unit 2 procedure only). Access to the cooling tower bypass valves via the valve pit covers is not required for EOP response since the Circulating Water System would have been in operation prior to the initiating event. Also, lifting the cover can be performed by OPS personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
4. 34SO-N71-001-1/2, section 7.2.11 (7.2.10) directs to vent Condenser Waterboxes. This section is preceded by a note which states "Contact Radiation Protection and the Radwaste Operator prior to performing venting activities." Venting the condenser water boxes is not required for EOP response since the Circulating Water System would have been in operations prior to the initiating event. If it were needed it can be performed as resources available. Conclusion - procedure actions can be deferred until after

augmented ERO resources are available with no impact on Emergency Response.

5. 34SO-N71-001-1/2, step 7.4.7 (7.4.8) directs "IF PSW Chemical Treatment is to be placed in service, Refer To 34SO-P41-001-2." PSW Chemical Treatment is not required for EOP response. It can be performed as resources available if it is desired for long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
6. 34SO-N21-007-1/2, step 5.1.8 directs "Prior to closing 2N21-F384 and 2N21-F385, Passive Zinc Injection Isolation Valves, ensure Chemistry Department has removed the system from service." If the onshift chemist is performing dose assessment they will not be available to remove the zinc addition system from service. Removing the zinc injection system from service is not required to support EOP response. It can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
7. 34SO-N21-007-1/2, section 6.0 Prerequisites states "Condensate Polishing Demineralizer and Conductivity Monitoring Systems are operable as required by Chemistry." Chemistry feedwater samples are not required for EOP response. These samples can be performed as resources are available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
8. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator and handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. If this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
9. 34SO-N21-007-1/2, step 7.1.2.1.3, 7.1.2.2.3, and 7.1.2.3.3 for establishing condensate pump seal water flow are preceded by a note which states "If necessary to adjust the pressure in the following steps, obtain I&C assistance." The condensate pumps will have been in operation pre-event. Once restarted the seal flow will be at pre-event flows. Any minor

adjustments needed can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

10. 34SO-N21-007-1/2, steps 7.1.5.1.3, 7.1.5.2.3, 7.1.5.3.3 , 7.1.5.10.19, and 7.2.2.1.8 for establishing condensate booster pump oil temperature between 50°F AND 115°F, are preceded by a note which states "The initial setup for temperature can be obtained for starting and operating the pumps with the final adjustments (with the System Engineer's assistance) for PSW (a recommended flow of 15 gpm) to be done later." Engineering support for final adjustments to the condensate booster pump temperatures is not needed since the condensate system would have been in operations prior to the initiating event. If final adjustments are needed, they can be performed as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
11. 34SO-N61-001-2, step 4.1.2 states QC personnel will be required to perform the subsections for Expanding 2A and 2B SJAE Intercondenser Condensate Flow with the 2A SJAE in service. Sections 7.4.3 and 7.4.4, Expanding 2A(2B) SJAE Intercondenser Condensate Flow With The 2A(B) SJAE In Service, is preceded by a NOTE which states "A method of measuring Condensate flow out of the 2A SJAE will be needed (Typically QC personnel support this task by installing ultrasonic transducers)." Step 7.4.3.7.1 directs to Record the total SJAE condensate flow from installed ultrasonic transducer (These steps apply to Unit 2 only). QC and support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
12. 34SO-N61-001-1/2, step 7.4.3.8 is preceded by a Note which states "A more conservative limit of less the 10 psig (e.g., 5 psig) added in step 7.4.3.8 is permissible. Consult with the SS and Engineering for determining the dP limit." Engineering support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-108-1/2, Alternative RPV Pressure Control

Supporting Procedure(s): 34SO-N71-001-1/2, Circulating Water System
34SO-N21-007-1/2, Condensate and Feedwater System
34SO-N61-001-1/2, Main Condenser Vacuum System and Closeout

Step(s): 31EO-EOP-108-1/2, steps 3.1.15, 3.3.2, 3.5.2, 3.6.14, 3.7.1, and 3.8.14

Resource: Maintenance, Chemistry, Engineering, QC, I&C

Action: Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible.

Analysis: 31EO-EOP-108-1/2, steps 3.1.15, 3.3.2, 3.5.2, 3.6.14, 3.7.1, and 3.8.14 direct the operator to "Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible." The applicable sections of these procedures contain the following actions for non-OPS personnel:

1. 34SO-N71-001-1/2, steps 7.2.15.3, 7.2.15.6, (7.2.3, 7.2.11.2, 7.2.11.8) direct "IF necessary, after pump start, notify cooling tower maintenance team to be prepared to clean screens." For EOP response, the Unit would have been operating, in hot standby, or starting up in which case the Circulating Water System would have previously been in operation. Circulating Water System screen dPs are checked daily and screens are cleaned on a weekly basis. Because the Circulating Water System would have been in operations prior to the initiating event the screen dP should be similar to pre-event conditions. Changes in screen dP will be minor and will not require cleaning prior to the availability of additional resources within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N71-001-2, NOTE preceding step 7.2.4 directs that "If Seal Water Flow cannot be checked at Local Seal Water Rotometer, per subsection 7.2.4, then at Management discretion, the Circ Water Pump still may be started if maintenance personnel can visibly check sufficient leakoff past the pump seals." (Note for Unit 2 only). Operations personnel could perform this task if trained to do so. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
3. 34SO-N71-001-1/2, section 7.2.8 is performed when no circulating water pump is operating. This section includes step 7.2.8.5 which directs to fully open cooling tower bypass valves for all three cooling towers. Step 7.2.8.5 is preceded by a note which states "The valve pit covers leading to 2N71-F021A-C have an approximate weight of 150lbs. contact maintenance in advance to have these covers removed or replaced. (reference CR 2009107098)" (Note in Unit 2 procedure only). Access to the cooling tower bypass valves via the valve pit covers is not required for EOP response since the Circulating Water System would have been in operation prior to the initiating event. Also, lifting the cover can be performed by OPS personnel.

Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

4. 34SO-N71-001-1/2, section 7.2.11 (7.2.10) directs to vent Condenser Waterboxes. This section is preceded by a note which states "Contact Radiation Protection and the Radwaste Operator PRIOR to performing venting activities." Venting the condenser water boxes is not required for EOP response since the Circulating Water System would have been in operations prior to the initiating event. If it were needed, it can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
5. 34SO-N71-001-1/2, step 7.4.7 (7.4.8) directs "IF PSW Chemical Treatment is to be placed in service, Refer To 34SO-P41-001-2." PSW Chemical Treatment is not required for EOP response. It can be performed as resources available if it is desired for long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
6. 34SO-N21-007-1/2, step 5.1.8 directs "Prior to closing 2N21-F384 and 2N21-F385, Passive Zinc Injection Isolation Valves, ensure Chemistry Department has removed the system from service." If the onshift chemist is performing dose assessment they will not be available to remove the zinc addition system from service. Removing the zinc injection system from service is not required to support EOP response as the system is for long term maintenance of reactor internals. It can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
7. 34SO-N21-007-1/2, section 6.0 Prerequisites states "Condensate Polishing Demineralizer and Conductivity Monitoring Systems are operable as required by Chemistry." Chemistry feedwater samples are not required for EOP response. These samples can be performed as resources are available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
8. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator AND handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. If this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this

action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

9. 34SO-N21-007-1/2, step 7.1.2.1.3, 7.1.2.2.3, and 7.1.2.3.3 for establishing condensate pump seal water flow are preceded by a note which states "If necessary to adjust the pressure in the following steps, obtain I&C assistance." The condensate pumps will have been in operation pre-event. Once restarted the seal flow will be at pre-event flows. Any minor adjustments needed can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
10. 34SO-N21-007-1/2, steps 7.1.5.1.3, 7.1.5.2.3, 7.1.5.3.3 , 7.1.5.10.19, and 7.2.2.1.8 for establishing condensate booster pump oil temperature between 50°F AND 115°F, are preceded by a note which states "The initial setup for temperature can be obtained for starting and operating the pumps with the final adjustments (with the System Engineer's assistance) for PSW (a recommended flow of 15 gpm) to be done later." Engineering support for final adjustments to the condensate booster pump temperatures is not needed since the condensate system would have been in operations prior to the initiating event. If final adjustments are needed, they can be performed as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
11. 34SO-N61-001-2, step 4.1.2 states QC personnel will be required to perform the subsections for Expanding 2A and 2B SJAE Intercondenser Condensate Flow with the 2A SJAE in service. Sections 7.4.3 and 7.4.4, Expanding 2A(2B) SJAE Intercondenser Condensate Flow With The 2A(B) SJAE In Service, is preceded by a note which states "A method of measuring Condensate flow out of the 2A SJAE will be needed (Typically QC personnel support this task by installing ultrasonic transducers)." Step 7.4.3.7.1 directs to Record the total SJAE condensate flow from installed ultrasonic transducer (These steps apply to Unit 2 only). QC and support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
12. 34SO-N61-001-1/2, step 7.4.3.8 is preceded by a Note which states "A more conservative limit of less the 10 psig (e.g., 5 psig) added in step 7.4.3.8 is permissible. Consult with the SS and Engineering for determining the dP limit." Engineering support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP

response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-109-1/2, Alternate Boron Injection

Supporting Procedure(s): NA
Step(s): 31EO-EOP-109-1/2, step 3.4.8
Resource: Chemistry
Action: When SBLC Storage Tank Temperature reaches 110°F, as read on 1C41-R002, SBLC Storage Tank Temp. and Heater. Setpoints. Indicating Controller, on 1H21-P011, then commence adding enriched sodium pentaborate to Storage Tank as directed by Chemistry personnel.
Analysis: 31EO-EOP-109-1/2, step 3.4.8 directs the operator "When SBLC Storage Tank Temperature reaches 110°F, ... then commence adding enriched sodium pentaborate to Storage Tank as directed by Chemistry personnel." If a release is in progress, the on-shift chemist will be performing dose assessment and will not be available to support restoration of the SBLC. The design basis for the SBLC is to deliver adequate boron to achieve Hot shutdown boron concentration. Refilling of the SBLC should not be necessary because per FSAR section 1.2.8.1 "The system is sized to counteract the positive reactivity effect from full power to the cold shutdown condition". However, if it is needed, the injection of the SBLC tank will take 30 to 70 minutes once initiated per procedure. Due to the time it takes to perform the valve lineup to perform the initial injection, secure the lineup for initial injection when completed, perform the operator actions of section 4.3, and refill the SBLC with Demin water, the need for augmented support will not be reached prior to the arrival of additional resources within 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-110-1/2, Alternate RPV Water Level Control

Supporting Procedure(s): 34SO-C41-003-2, Standby Liquid Control System
Step(s): 31EO-EOP-110-1/2, Attachment 1 steps 1.4.1.6 and 1.4.2.8
Resource: Maintenance
Action: Direct Maintenance personnel to replace SBLC squib valves and place SBLC System in standby per 34SO-C41-003-2, Standby Liquid Control System
Analysis: 31EO-EOP-110-1/2, Attachment 1 steps 1.4.1.6 and 1.4.2.8 has the operator "Direct Maintenance personnel to replace SBLC squib valves and place SBLC

System in standby per 34SO-C41-003-2, Standby Liquid Control System." Attachment 1 entry conditions state the attachment is performed "When emergency conditions no longer exist OR as directed by Shift Supervisor; then perform applicable following steps to restore the water injection systems." If the emergency conditions no longer exist, then the system restoration actions of Attachment 1 can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s):31RS-E41-001-1/2, HPCI Operation from Outside Control Room
Step(s): 31EO-EOP-110-1/2, step 3.6.1
Resource: Maintenance
Action: To operate the HPCI System locally enter procedure 31RS-E41-001-2, HPCI Local Operation
Analysis: 31EO-EOP-110-1/2, step 3.6.1 informs the operator "To operate the HPCI System locally enter procedure 31RS-E41-001-1/2, HPCI Local Operation." 31RS-E41-001-1/2 steps 4.1.7.2.3, 4.1.11, 4.2.5.2, (4.1.13, 4.1.9.2 , 4.2.4.2, 4.2.4.3, 4.2.5.2) direct the manipulation of various leads/wires to support operation of HPCI from outside the control room. Electrical Maintenance (EM) personnel are required to perform these actions. HPCI operation from outside the control room using 31RS-E41-001-1/2 is one of many redundant and diverse methods available to the operator to provide Alternate RPV Level Control. Therefore, if EM personnel were not available to support manipulation of the specified leads/wires then the operator would use one of the other methods provided for Alternate RPV Level Control. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

31EO-EOP-111-1/2, Emergency Opening of MSIVs

Supporting
Procedure(s):34SO-N71-001-1/2, Circulating Water System
34SO-N21-007-1/2, Condensate and Feedwater System
34SO-N61-001-1/2, Main Condenser Vacuum System and Closeout
Step(s): 31EO-EOP-111-1/2, step 3.1.15
Resource: Maintenance, Chemistry, Engineering, QC, I&C
Action: Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible.
Analysis: 31EO-EOP-111-1/2, step 3.1.15 directs the operator to "Align main condenser for operation per 34SO-N71-001-1/2, 34SO-N21-007-1/2, and 34SO-N61-001-1/2, IF possible." The applicable sections of these procedures contain the following actions for non-OPS personnel:

1. 34SO-N71-001-1/2, steps 7.2.15.3, 7.2.15.6, (7.2.3, 7.2.11.2, 7.2.11.8) direct "IF necessary, after pump start, notify cooling tower maintenance team to be prepared to clean screens." For EOP response, the Unit would have been operating, in hot standby, or starting up in which case the Circulating Water System would have previously been in operation. Circulating Water System screen dPs are checked daily and screens are cleaned on a weekly basis. Since the Circulating Water System would have been in operations prior to the initiating event the screen dP should be similar to pre-event conditions. Changes in screen dP will be minor and will not require cleaning prior to the availability of additional resources within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N71-001-2, NOTE preceding step 7.2.4 directs that "If Seal Water Flow cannot be checked at Local Seal Water Rotometer, per subsection 7.2.4, then at Management discretion, the Circ Water Pump still may be started if maintenance personnel can visibly check sufficient leakoff past the pump seals." (Note for Unit 2 only). Operations personnel can perform this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
3. 34SO-N71-001-1/2, section 7.2.8 is performed when no circulating water pump is operating. This section includes step 7.2.8.5 which directs to fully open cooling tower bypass valves for all three cooling towers. Step 7.2.8.5 is preceded by a note which states "The valve pit covers leading to 2N71-F021A-C have an approximate weight of 150lbs. contact maintenance in advance to have these covers removed or replaced. (reference CR 2009107098)" (Note in Unit 2 procedure only). Access to the cooling tower bypass valves via the valve pit covers is not required for EOP response since the Circulating Water System would have been in operation prior to the initiating event. Also, lifting the cover can be performed by OPS personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
4. 34SO-N71-001-1/2, section 7.2.11 (7.2.10) directs to vent Condenser Waterboxes. This section is preceded by a note which states "Contact Radiation Protection AND the Radwaste Operator PRIOR to performing venting activities." Venting the condenser water boxes is not required for EOP response since the Circulating Water System would have been in operations prior to the initiating event. IF it were needed it can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
5. 34SO-N71-001-1/2, step 7.4.7 (7.4.8) directs "IF PSW Chemical Treatment is to be placed in service, Refer To 34SO-P41-001-2." PSW Chemical Treatment is not required for EOP response. It can be performed as resources available if it is desired for long term recovery. Conclusion -

procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

6. 34SO-N21-007-1/2, step 5.1.8 directs "Prior to closing 2N21-F384 and 2N21-F385, Passive Zinc Injection Isolation Valves, ensure Chemistry Department has removed the system from service." If the onshift chemist is performing dose assessment they will not be available to remove the zinc addition system from service. Removing the zinc injection system from service is not required to support EOP response. It can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
7. 34SO-N21-007-1/2, section 6.0 Prerequisites states "Condensate Polishing Demineralizer and Conductivity Monitoring Systems are operable as required by Chemistry." Chemistry feedwater samples are not required for EOP response. These samples can be performed as resources are available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
8. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator AND handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. IF this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
9. 34SO-N21-007-1/2, step 7.1.2.1.3, 7.1.2.2.3, and 7.1.2.3.3 for establishing condensate pump seal water flow are preceded by a note which states "If necessary to adjust the pressure in the following steps, obtain I&C assistance." The condensate pumps will have been in operation pre-event. Once restarted the seal flow will be at pre-event flows. Any minor adjustments needed can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
10. 34SO-N21-007-1/2, steps 7.1.5.1.3, 7.1.5.2.3, 7.1.5.3.3 , 7.1.5.10.19, and 7.2.2.1.8 for establishing condensate booster pump oil temperature between 50°F AND 115°F, are preceded by a note which states "The initial setup for

temperature can be obtained for starting and operating the pumps with the final adjustments (with the System Engineer's assistance) for PSW (a recommended flow of 15 gpm) to be done later." Engineering support for final adjustments to the condensate booster pump temperatures is not needed since the condensate system would have been in operations prior to the initiating event. If final adjustments are needed, they can be performed as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

11. 34SO-N61-001-2, step 4.1.2 states QC personnel will be required to perform the subsections for Expanding 2A and 2B SJAE Intercondenser Condensate Flow with the 2A SJAE in service. Sections 7.4.3 and 7.4.4, Expanding 2A(2B) SJAE Intercondenser Condensate Flow With The 2A(B) SJAE In Service, is preceded by a NOTE which states "A method of measuring Condensate flow out of the 2A SJAE will be needed (Typically QC personnel support this task by installing ultrasonic transducers)." Step 7.4.3.7.1 directs to Record the total SJAE condensate flow from installed ultrasonic transducer (These steps apply to Unit 2 only). QC and support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
12. 34SO-N61-001-1/2, step 7.4.3.8 is preceded by a Note which states "A more conservative limit of less the 10 psig (e.g., 5 psig) added in step 7.4.3.8 is permissible. Consult with the SS and Engineering for determining the dP limit." Engineering support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 34SO-N61-001-1/2, Main Condenser Vacuum System and Closeout
Step(s): 31EO-EOP-111-1/2, step 3.1.17
Resource: QC, Engineering
Action: If steam flow to the Main Condenser exceeds one Bypass Valve capacity; then start up a SJAE per 34SO-N61-001-1/2.

Analysis: 31EO-EOP-111-1/2, step 3.1.17 directs the operator "If steam flow to the Main Condenser exceeds one Bypass Valve capacity; then start up a SJAE per 34SO-N61-001-1/2." The applicable sections of these procedures contain the following actions for non-OPS personnel:

1. 34SO-N61-001-2, step 4.1.2 states QC personnel will be required to perform the subsections for Expanding 2A and 2B SJAE Intercondenser Condensate Flow with the 2A SJAE in service. Sections 7.4.3 and 7.4.4, Expanding 2A(2B) SJAE Intercondenser Condensate Flow With The 2A(B) SJAE In Service, is preceded by a NOTE which states "A method of measuring Condensate flow out of the 2A SJAE will be needed (Typically QC personnel support this task by installing ultrasonic transducers)." Step 7.4.3.7.1 directs to Record the total SJAE condensate flow from installed ultrasonic transducer (These steps apply to Unit 2 only). QC and support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N61-001-1/2, step 7.4.3.8 is preceded by a Note which states "A more conservative limit of less the 10 psig (e.g., 5 psig) added in step 7.4.3.8 is permissible. Consult with the SS and Engineering for determining the dP limit." Engineering support for Expanding 2A(2B) SJAE Intercondenser Condensate Flow with the 2A(B) SJAE in service is not required for EOP response. The system would have been in operation pre-event with necessary adjustments already established when system is returned to service. If further adjustments are needed, they can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>31EO-EOP-113-1/2, Emergency Opening of MSIVs</u>

Supporting Procedure(s): 34SO-N21-007-1/2, Condensate and Feedwater System
Step(s): 31EO-EOP-113-1/2, step 3.2.3
Resource: Maintenance, Chemistry, Engineering, I&C
Action: If desired, then realign and operate condensate/feedwater, as required to support RPV Water Level Control actions with 34SO-N21-007-1/2.
Analysis: 31EO-EOP-113-1/2, step 3.2.3 directs the operator to "If desired, then realign and operate Condensate/Feedwater, as required to support RPV Water Level Control actions with 34SO-N21-007-1/2." The applicable sections of this procedure contain the following actions for non-OPS personnel:

1. 34SO-N21-007-1/2, step 5.1.8 directs "Prior to closing 2N21-F384 and 2N21-F385, Passive Zinc Injection Isolation Valves, ensure Chemistry Department has removed the system from service." If the onshift chemist is performing dose assessment they will not be available to remove the zinc addition system from service. Removing the zinc injection system from service is not required to support EOP response. It can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 34SO-N21-007-1/2, section 6.0 Prerequisites states "Condensate Polishing Demineralizer and Conductivity Monitoring Systems are operable as required by Chemistry." Chemistry feedwater samples are not required for EOP response. These samples can be performed as resources are available to support long term recovery. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. 34SO-N21-007-1/2, step 7.3.18.4 (7.3.17.4) directs "With the engaging lever indicator AND handwheel indicator in a straight line, push the engaging lever into the operator. IF some resistance is felt, position the handwheel slightly away from the current alignment position in one direction and then the other, while attempting to insert the engaging lever. IF this method is unsuccessful, maintenance assistance may be needed to bump the engaging lever slightly." If the initiating event occurred while the unit was at power the SJAE would already be aligned for normal operation and would not need additional adjustment unless the event resulted in breaking vacuum. If vacuum was broken, then vacuum will initially be restored using the vacuum pump and the SJAE will be placed in service later. If the crew attempts to transition from the vacuum pump to the SJAE and step 7.3.18.4 must be performed this action is not time critical and not needed for emergency response. The on shift crew will continue using the vacuum pump and the actions will address as resources become available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.
4. 34SO-N21-007-1/2, step 7.1.2.1.3, 7.1.2.2.3, and 7.1.2.3.3 for establishing condensate pump seal water flow are preceded by a note which states "IF necessary, to adjust the pressure in the following steps, obtain I&C assistance." The condensate pumps will have been in operation pre-event. Once restarted the seal flow will be at pre-event flows. Any minor adjustments needed can be made as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
5. 34SO-N21-007-1/2, steps 7.1.5.1.3, 7.1.5.2.3, 7.1.5.3.3 , 7.1.5.10.19, and 7.2.2.1.8 for establishing condensate booster pump oil temperature between 50°F AND 115°F, are preceded by a note which states "The initial setup for temperature can be obtained for starting and operating the pumps with the final adjustments (with the System Engineer's assistance) for PSW (a

recommended flow of 15 gpm) to be done later." Engineering support for final adjustments to the condensate booster pump temperatures is not needed because the condensate system would have been in operations prior to the initiating event. If final adjustments are needed, they can be performed as resources become available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

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Edwin I. Hatch Nuclear Plant - Units 1 and 2
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License Amendment Request to Revise Standard Emergency Plan To Change Staffing and Extend Augmentation Times

Enclosure 14

Vogtle 1&2 PBPA Results

This enclosure contains 110 pages

Vogtle 1&2 PBPA Results

Introduction

A performance based procedural analysis (PBPA) was conducted at Vogtle Electric Generating Plant (VEGP) Units 1 & 2 in accordance with the guidance in Regulatory Issue Summary (RIS) 2016-10, "*License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation*" to determine the impacts on event response and verify that event response functions continue to be addressed under the proposed staffing changes.

Executive Summary

The PBPA analysis was completed for 272 site specific procedures (See Table 1). The procedures were assessed to determine whether the proposed changes impact the performance of event mitigation activities associated with event classification. The analysis of VEGP 1&2 event response and supporting procedures determined that on-shift personnel, with appropriate training, were capable of performing required trouble shooting and event mitigation activities and can effectively implement the SNC Emergency Plan.

PBPA Analysis Process

Based on guidance in RIS 2016-10, a justification is required to support any changes in ERO staffing or augmentation times. In accordance with this guidance, the PBPA process is designed to identify event response procedure steps that could potentially require resources exceeding on-shift staffing levels as noted in the site Emergency Plan and determine whether the timing of the procedure activity has an impact on event mitigation. The analysis considers the impact on event mitigation activities resulting from proposed changes in current on-shift staffing levels and identifies actions used to ensure troubleshooting activities are addressed. The analysis consists of four steps:

1. Collection of site event response procedures (EOPs), including:
    - Emergency Procedures
    - Abnormal Procedures
    - Operating Procedures
    - System Procedures
    - Emergency Plan Implementing Procedures (EPIPs)
2. Identification and documentation of steps and referenced sub-procedures citing resources outside on-shift staffing that are related to classifiable events in the Emergency Plan or are needed to ensure safety functions are addressed.
3. Analysis of identified steps with site personnel to determine:
    - the basis for the action
    - the approximate timeframe in which the action is expected to take place
    - whether the timing of the action impacts event response
    - any additional actions that can be initiated to ensure safety functions are addressed

4. Document the results of the analysis associated with each applicable procedure step.

This process is graphically depicted in Figure 1, below.

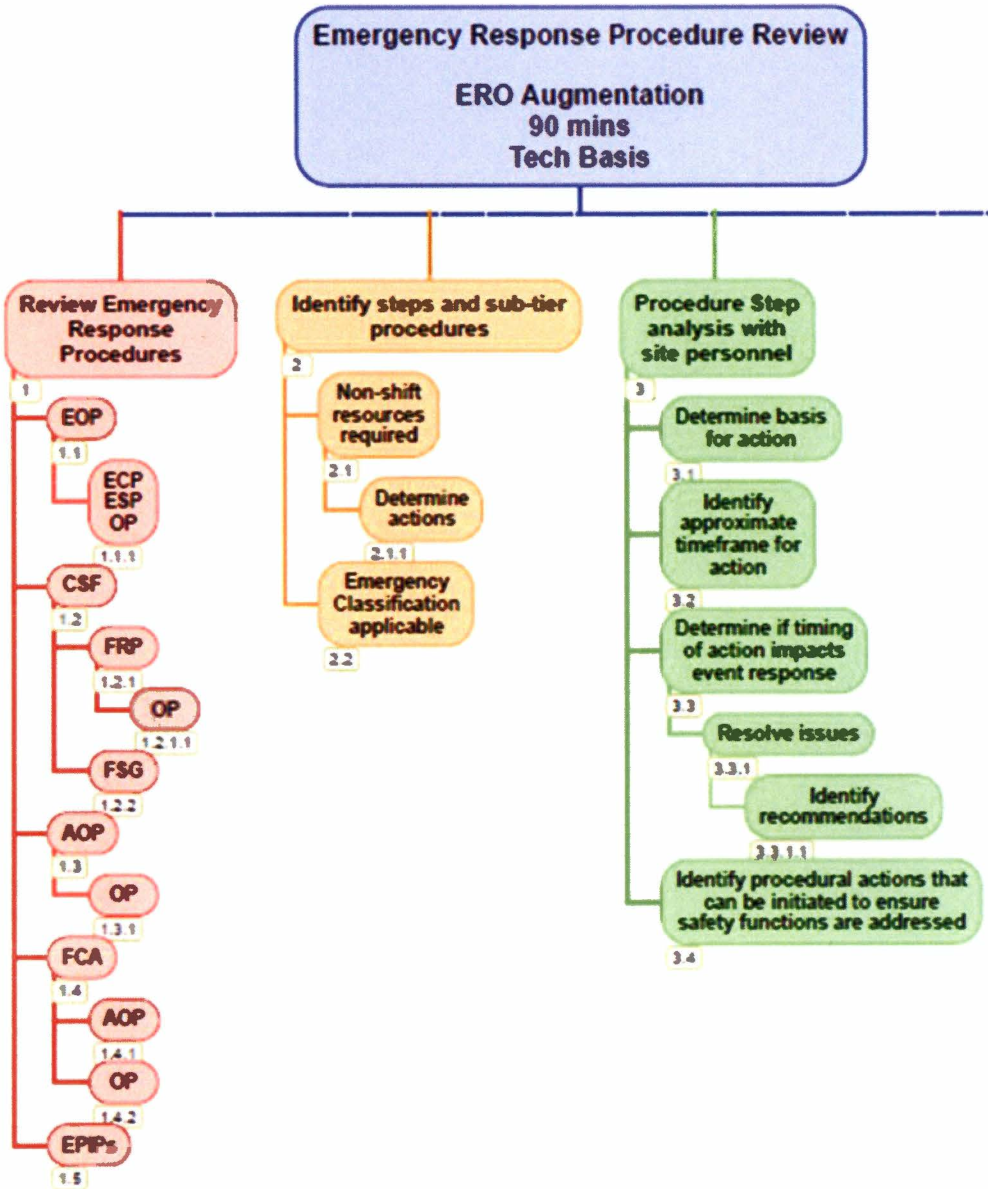

Figure 1
Emergency Response Procedures Review PBPA Process

Vogtle 1&2 Application

1. Review of emergency response and supporting procedures containing requirements for on-shift and augmented resources

VEGP 1&2 emergency response procedures were reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review included identification of sub-tier procedures such as System Operating Procedures (SOPs), Chemistry Procedures, and RP procedures referenced in the controlling emergency event procedure that may direct actions for resources outside Operations. These procedures were then also reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review also included actions identified in the 'response not obtained' (RNO) steps of the procedures to allow the analysis to include multiple failure conditions.

2. Subsequent review of procedures identified in Step 1 for applicability to classified events

Each procedure containing references to resources external to the Operations Department was reviewed in additional detail to identify the specific resources and activity required. This review also included a review of the associated background documents to determine the intent of the affected step/action. Procedures used to respond to a plant condition that could result in declaration of an Alert or higher classification were noted in the analysis.

3. Analysis of applicable procedures

Procedure steps that required actions by resources outside Operations were reviewed with a team of station personnel to include subject matter experts from Operations, Maintenance, RP and Chemistry to determine if the referenced actions were:

- Required to be performed to implement the affected emergency response or supporting procedure
- Required to be performed prior to arrival of augmented resources at 90 minutes
- Performed by the on-shift staff as part of their normal response duties
- Discretionary actions or otherwise performed during the recovery phase

4. VEGP 1&2 Time Critical Operator Actions (TCA) validation documentation was reviewed to determine if any of the TCAs required support from resources outside of Operations or otherwise relied on augmented resources. The review determined that the VEGP 1&2 TCAs were completed by on-shift Operations personnel within the specified time requirements.

Results

SNC conducted a detailed review of EOPs, including other supporting documents (ECPs, ESPs, FRPs, CCPs and SOPs) with VEGP 1&2 personnel. The focus of this review was on determining whether the procedure steps were needed to support emergency response actions

(i.e. classifications or event mitigation, etc.) or whether the procedure steps were directed for a different purpose, such as, for the long-term maintenance needs of the plant.

- The analysis first determined whether the procedure actions could be deferred until after augmented ERO resources are available with no impact on emergency response.
- If the procedure action was required to be performed prior to augmented ERO resources being available (within 90 minutes of event declaration) in order to mitigate the event or to stabilize the plant, then an analysis was performed to ensure that the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

The full list of procedures reviewed is in Table 1 below. A summary of the results of the analysis for each procedure impacted by the proposed changes immediately follows.

Table 1
VEGP 1&2 PBPA Procedure Listing

Proc Number	Procedure Title
11715-1(2)	Component Cooling Water System Alignment
11886-1(2)	Recovery From ESF Actuations
12004-1(2)	Power Operation (Mode 1)
12005-C	Reactor Shutdown to Hot Standby (Mode 2 to Mode 3)
12006-C	Unit Cooldown to Cold Shutdown
13002-1(2)	Reactor Coolant Drain Tank Operation
13003-1(2)	Reactor Coolant Pump Operation
13006-1(2)	Chemical and Volume Control System
13008-1(2)	Chemical and Volume Control System Excess Letdown
13009-1(2)	CVCS Reactor Makeup Control System
13011-1(2)	Residual Heat Removal System
13120-1(2)	Containment Building Cooling System
13125-1(2)	Containment Purge System
13130-1(2)	Post- Accident Hydrogen Control
13145A-1(2)	Diesel Generator Train A
13145B-1(2)	Diesel Generator Train B
13150A-1(2)	Train A Nuclear Service Cooling Water System
13150B-1(2)	Train B Nuclear Service Cooling Water System
13201-1(2)	Gaseous Waste Processing System
13211-1(2)	Turbine Building Drain System
13223-C	Secondary Spent Resin Processing
13301-C	CBCR Normal HVAC and Emergency Filtration System
13303-C	Technical Support Center and Central Alarm Station HVAC Systems
13305-1(2)	Auxiliary Building HVAC System
13310-1(2)	Turbine Building HVAC System
13320-C	Fuel Handling Building HVAC System
13418A-1(2)	Standby Auxiliary Transformer Unit One(Two) Train A Operations
13418B-1(2)	Standby Auxiliary Transformer Unit One(Two) Train B Operations
13420-1(2)	13.8KV AC Electrical Distribution System
13425A-1(2)	4160V AC Non 1E Bus 1NA01 Electrical Distribution System
13425B-1(2)	4160V AC Non 1E Bus 1NA04 Electrical Distribution System
13425C-1(2)	4160V AC Non 1E Bus 1NA05 Electrical Distribution System
13427A-1(2)	4160V AC Bus 1AA02(2AA02) 1E Electrical Distribution System
13427B-1(2)	4160V AC Bus 1BA03(2BA03) 1E Electrical Distribution System
13430-1(2)	480V AC Non 1E Electrical Distribution System
13431-1(2)	120V AC 1E Vital Instrument Distribution System
13432-1(2)	120V AC Non 1E Instrument Distribution System
13433-C	120V AC Common Non 1E Instrument Distribution System
13434-C	Security Electrical Distribution System
13501-1(2)	Nuclear Instrumentation System
13502-1(2)	Control Rod Drive and Position Indication System

Proc Number	Procedure Title
13505-1(2)	Integrated Plant Computer
13506-C	Digital Feedwater Control System
13509-C	Bypass Test Instrumentation (BTI) Panel Operation
13605-1(2)	Steam Generator Blowdown Processing System
13610-1(2)	Auxiliary Feedwater System
13615-1(2)	Condensate and Feedwater Systems
13616-1(2)	Condensate Demineralizer System
13618-C	Condensate Spent Resin Processing System
13620-1(2)	Condenser Air Ejection System
13701-1(2)	Boric Acid System
13710-1(2)	Service Air System
13713-C	Operation of the Spent Fuel Pool Gates
13716-1(2)	Auxiliary Component Cooling Water System
13719-1(2)	Spent Fuel Pool Cooling and Purification System
13720-1(2)	RWST Boric Acid Recovery System
13743-C	Normal Chilled Water System
13744A-1(2)	Train A Essential Chilled Water System
13744B-1(2)	Train B Essential Chilled Water System
13761-1(2)	Auxiliary Steam System
13810-1(2)	Generator Gas System
13825-1(2)	Turbine Steam Seal System
14005-1(2)	Shutdown Margin and Keff Calculations
14030-1(2)	Nuclear Instrument Calorimetric Calibration
14230-1(2)	Offsite AC Circuit Verification and Capacity/Capability Evaluation
14410-1(2)	Control Rod Operability Test
14905-1(2)	RCS Leakage Calculation (Inventory Balance)
14915-1(2)	Special Conditions Surveillance Logs
16900-C	Air Operated Valve Manual Jack Operation
18000-C	PRZR Spray, Safety, or Relief Valve Malfunction
18001-C	Primary Systems Instrumentation Malfunction
18002-C	Nuclear Instrumentation System Malfunction
18003-C	Rod Control System Malfunction
18004-C	Reactor Coolant System Leakage
18005-C	Partial Loss of Flow
18006-C	Fuel Handling Event
18007-C	Chemical and Volume Control System Malfunction
18008-C	Secondary Coolant Leakage
18009-C	Steam Generator Tube Leak
18010-C	Main Generator Malfunction
18011-1(2)	Turbine Trip below P-9
18012-1(2)	Turbine Runback
18013-C	Rapid Power Reduction
18014-C	Primary Plant Chemistry
18015-C	Secondary Plant Chemistry

Proc Number	Procedure Title
18016-1(2)	Condensate and F/W Malfunction
18017-C	Abnormal Grid Disturbances / Loss of Grid
18019-C	Loss of Residual Heat Removal
18020-C	Loss of Component Cooling Water
18021-C	Loss of Nuclear Service Cooling Water System
18022-C	Loss of Auxiliary Component Cooling Water
18023-C	Loss of Turbine Plant Cooling Water System and Loss of Turbine Plant Closed Cooling Water System
18025-C	Loss of Utility Water
18028-C	Loss of Instrument Air
18030-C	Loss of Spent Fuel Pool Level or Cooling
18031-1(2)	Loss of Class 1 E Electrical Systems
18032-1(2)	Loss of 120 Volt AC Instrument Power
18034-1(2)	Loss of Class 1E 125V DC Power
18035-C	Toxic Flammable Gas Release
18036-C	Seismic Event
18037-C	Security Threat
18038-1(2)	Operation from Remote Shut Down Panels
18039-C	Confirmed Loose Part in the RCS or Steam Generator Secondary Side
18040-1(2)	Partial Loss of Condenser Vacuum
19000-1(2)	E-0 Reactor Trip or Safety Injection
19001-1(2)	ES-01 Reactor Trip Response
19002-1(2)	ES-0.2 Natural Circulation Cool Down
19003-1(2)	ES-0.3 Natural Circulation Cool Down With Void in Vessel (With RVLIS)
19004-1(2)	ES-0.4 Natural Circulation Cooldown With Steam Void In Vessel (Without RVLIS)
19005-1(2)	ES - 0.0 Re-diagnosis
19010-1(2)	E-1 Loss of Reactor or Secondary Coolant
19011-1(2)	ES-1.1 SI Termination
19012-1(2)	ES-1.2 Post LOCA Cooldown and Depressurization
19013-1(2)	ES-1.3 Transfer to Cold Leg Recirculation
19013-C	ES-1.3 Transfer to Cold Leg Recirculation
19014-1(2)	ES-1.4 Transfer to Hot leg Recirculation
19020-1(2)	E-2 Faulted Steam generator Isolation
19030-1(2)	E-3 Steam Generator Tube Rupture
19031-1(2)	ES-3.1 Post SGTR Cool Down Using Backfill
19033-1(2)	ES-3.3 Post SGTR Cool Down Using Steam Dump
19100-1(2)	ECA - 0.0 Loss of all AC Power
19100-1(2)	ECA-0.0 Loss of All AC Power
19101-1(2)	ECA 0.1 Loss of All AC Power Recovery Without SI Required
19102-1(2)	ECA 0.2 Loss of All AC Power Recovery With SI Required
19111-1(2)	ECA 1.1 Loss of Emergency Coolant Recirculation
19112-1(2)	ECA 1.2 LOCA Outside Containment
19113-1(2)	ECA 1.3 Recirculation Sump Blockage
19121-1(2)	ECA 2.1, Uncontrolled Depressurization of All Steam Generators

Proc Number	Procedure Title
19131-1(2)	ECA 3.1 SGTR With Loss of Reactor Coolant Subcooled Recovery Desired
19132-1(2)	ECA 3.2 SGTR With Loss of Reactor Coolant Saturated Recovery Desired
19133-1(2)	ECA 3.3 SGTR Without Pressurizer Pressure Control
19211-1(2)	FR-S.1 Response to Nuclear Power Generation / ATWT
19212-1(2)	FR-S.2 Response to Loss of Core Shutdown
19221-1(2)	FR-C.1 Response to Inadequate Core Cooling
19222-1(2)	FR-C.2 Response to Degraded Core Cooling
19223-1(2)	FR-C.3 Response to Saturated Core Cooling
19231-1(2)	FR-H.1 Response to Loss of Secondary Heat Sink
19232-1(2)	FR-H.2 Response to Steam Generator Overpressure
19233-1(2)	FR-H.3 Response to Steam Generator High Level
19234-1(2)	FR-H.4 Response to Loss of Normal Steam Release Capability
19235-1(2)	FR-H.5 Response to Steam Generator Low Level
19241-1(2)	FR-P.1 Response Imminent Pressurized Thermal Shock Condition
19242-1(2)	FR-P.2 Response to Anticipated Pressurized Thermal Shock Condition
19242-1(2)	FR-P.2 Response to Anticipated Pressurized Thermal Shock Condition
19251-1(2)	FR-Z.1 Response to High Containment Pressure
19252-1(2)	FR-Z.2 Response to Containment Flooding
19253-1(2)	FR-Z.3 Response to High Containment Radiation Level
19261-1(2)	FR-I.1 Response to High Pressurizer Level
19262-1(2)	FR-I.2 Response to Low Pressurizer Level
19263-1(2)	FR I 3 Response to Voids in Reactor Vessel
31120-C	Chemistry Steam Generator Tube Leak Actions
35110-C	Chemistry Control of the Reactor Coolant System
43028-C	Health Physics Steam Generator Tube Leak Actions
50022-C	Seismic Event Plan
88015-C	Quadrant Power Tilt Measurement Using Moveable Incore Detector System
93741-C	DFS Equipment Malfunction Guidance
94001-C	Implementation of the Spill Prevention, Control, Countermeasures (SPCC) Plan and Reportability
NMP-EN-703	Pollution Prevention
NMP-EN-703-001	Implementation of SPCC Plan
NMP-OS-014-003	VNP Time Critical Operator Action Program
NMP-OS-019-300	FLEX Portable Equipment Operating Instructions
NMP-OS-019-363	Vogtle Unit 1 SIG-3, Core Cooling
NMP-OS-019-383	Vogtle Unit 2 SIG-3, Core Cooling
SAG1-1(2)	Main Control Room Severe Accident Guideline Initial Response

Event 1 – Toxic/Asphyxiant/Flammable Gas Release

Procedure: 18035-C, Toxic/Asphyxiant/Flammable Gas Release
Step(s): B3
Resource: Chemistry/RP
Action: Sample areas for flammability
Analysis: It was determined that the actions performed by this step would occur prior to emergency classification. In addition, it was noted that since the source of the flammable gas leak was inside the RCA (condition that meets the EAL threshold for classification), Chemistry would notify RP to perform sampling since RP is responsible for actions inside the RCA. If the flammable gas leak was outside the RCA, Chemistry would be responsible for sampling; however, this condition does not result in a classified event and the on-shift Chemistry technician would be available to support AOP actions accordingly. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 2 – Steam Generator Tube Rupture

Analysis: The event analysis demonstrated that sufficient on-shift resources are available to support AOP and EOP actions without conflict.

Procedure: 18009-C, Steam Generator Tube Leak
Step(s): 13
Resource: Health Physics
Action: Initiate 43028-C, Health Physics Steam Generator Tube Leak Actions
Analysis: RP determined that sufficient resources were available on shift to support the actions required in 43028-C. These actions include performing local surveys and postings in the Turbine Building (TB) as needed based on priorities set by the Shift Manager/Emergency Director during a declared event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Event 3 – Station Blackout with Failure of TDAFW Exhaust Pipe

Procedure: 19100-1/2, ECA – 0.0 Loss of all AC Power
Step(s): RNO A4.a.
Resource: Maintenance
Action: Remove TDAFW exhaust pipe if it's damaged and impeding flow using a saw stored in the primary fire brigade locker or in the FLEX dome
Analysis: It was determined that this action was implemented as a result of an NRC observation identified during the inspection of VEGP 1&2's implementation of NEI 12-06 strategies to respond to a beyond design basis external event (BDBEE). The Ops Supervisor determined that in the absence of on-shift Maintenance resources a trained system operator would be able to complete this task. In addition, the Ops Supervisor performed this scenario on the VEGP 1&2 Simulator to determine the response of the plant to a Station Black Out and loss of Turbine Driven Auxiliary Feed Water (TDAFW) flow. The Ops Supervisor performed EOP

and AOP actions as required. This simulator run determined that, even without feedwater flow, the steam generators provided heat sink capabilities for > 2.5 hours. In this situation, if system operators were not able to remove the TDAFW exhaust piping, Operators could maintain the plant in a safe condition, without adversely affecting the core, until augmented resources are available after 90 minutes. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

18000-C, PRZR Spray, Safety, or Relief Valve Malfunction

Step(s): RNO 5.(b.)
Resource: I&C
Action: Initiate repairs
Analysis: Control Room (CR)/Operations personnel confirmed that an emergency classification was not applicable to this event/procedure.CR personnel would continue with subsequent procedure steps and maintain stable plant conditions using pressurizer sprays and heaters as needed. I&C resources would be obtained through call-out as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

18001-C, Primary Systems Instrumentation Malfunction

Step(s): A3, B8, C13, D11, E5, F5, G5, H5
Resource: I&C
Action: Initiate repairs
Analysis: CR/Operations personnel confirmed that an emergency classification was not applicable to this event/procedure. It was determined that if I&C resources were not on-shift, CR personnel would continue with subsequent procedure steps, taking appropriate actions and/or using alternate means to monitor plant parameters as needed to maintain stable plant conditions. I&C resources would be obtained through call-out as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): A4
Supporting Procedure(s): 13509-C, Bypass Test Instrumentation (BTI) Panel Operation
Resource: Operations
Action: Bypass the affected instrument channel

Analysis: CR/Operations personnel confirmed that an emergency classification was not applicable to this event/procedure. In addition, it was determined that 13509-C actions to bypass the affected instrument channel are performed by Operations personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step(s): E2
Supporting Procedure(s): 13506-C, Digital Feedwater Control System
Resource: Operations
Action: Force the quality of affected channel to "BAD"
Analysis: CR/Operations personnel confirmed that an emergency classification was not applicable to this event/procedure. In addition, it was determined that 13509-6 actions to force the affected channel to "BAD" are performed by Operations personnel at the Operator Work Station (OWS). Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

<u>**18002-C, Nuclear Instrumentation System Malfunction**</u>

Step(s): A10
Supporting Procedure(s): 14915-1/2, Special Conditions Surveillance Logs
Resource: Operations/Chemistry (implied)
Action: Verify adequate shutdown margin by initiating 14915-1/2
Analysis: Operations SRO s determined that completion of the 14915-1/2 requirement to verify SDM would be completed by CR personnel using the latest RCS boron sample results. In addition, per 14915-1/2 this surveillance is required to be performed in Mode 6 (refueling) and therefore is outside the scope of the procedure analysis since additional resources are available to support this response action. Finally, Chemistry sampling and analysis is a confirmatory action and if needed, can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response and based upon when the event would occur additional outage staff would be available to perform the task.

Step(s): A19
Resource: I&C
Action: Initiate repairs
Analysis: CR/Operations personnel confirmed that an emergency classification was applicable to this event/procedure if Reactor Power indications are not available for > 15 minutes and a transient is in progress. The Operations SRO determined that CR/Operations personnel would continue with subsequent procedure steps and maintain stable plant conditions until augmented resources are available. If an emergency classification were not warranted and I&C resources were not on-shift,

I&C support would be called-in as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): B4
Supporting Procedure(s): 88015-C, Quadrant Power Tilt Measurement Using Moveable Incore Detector System
Resource: Reactor Engineering
Action: Perform 88015-C
Analysis: CR/Operations personnel confirmed that an emergency classification was applicable to this event/procedure if Reactor Power indications are not available for > 15 minutes and a transient is in progress. The Operations SRO determined that CR personnel would continue with subsequent procedure steps and this step would be deferred until augmented resources are available. In addition, TS SR 3.2.4.2 requires this action be performed once within 12 hours. Therefore, based TS SR 3.2.4.2, this action can be deferred until augmented resources are available. If an emergency classification were not warranted, Reactor Engineering resources would be obtained through call-out as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): B9
Resource: I&C
Action: Initiate repairs
Analysis: CR/Operations personnel confirmed that an emergency classification was applicable to this event/procedure if Reactor Power indications are not available for > 15 minutes and a transient is in progress. The Operations SRO determined that CR/Operations personnel would continue with subsequent procedure steps and maintain stable plant conditions until augmented resources are available. If an emergency classification were not warranted and I&C resources were not on-shift, I&C support would be called-in as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): B15.a.
Supporting Procedure(s): 13501-1/2, Nuclear Instrumentation System
Resource: Operations

Action: Restore the failed channel to normal alignment by performing 13501-1/2, Sections 4.1.4 and 4.1.5

Analysis: CR/Operations personnel confirmed that an emergency classification was applicable to this event/procedure if Reactor Power indications are not available for > 15 minutes and a transient is in progress. The Operations SRO determined that 13501-1/2 actions to restore the failed channel are performed by CR personnel. In addition, completion of this step is contingent upon completion of Step B9. Therefore; it would be completed after augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): B15.b.

Supporting Procedure(s): 14030-1/2, Nuclear Instrument Calorimetric Calibration

Resource: Operations

Action: Perform 14030-1/2

Analysis: CR/Operations personnel confirmed that an emergency classification was applicable to this event/procedure if Reactor Power indications are not available for > 15 minutes and a transient is in progress. The Operations SRO determined that 14030-1/2 actions to restore the failed channel are performed by CR personnel. In addition, completion of this step is contingent upon completion of Step B9. Therefore; it would be completed after augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

<u>18003-C, Rod Control System Malfunction</u>

Overall Analysis: An emergency classification is not applicable to this event/procedure.

<u>18004-C, Reactor Coolant System Leakage</u>

Step(s): A11

Supporting Procedure(s): 14905-1/2, RCS Leakage Calculation

Resource: Operations/Chemistry/HP

Action: **Chemistry** - Step 3.8 (Isolate BTRS sample path); Step 3.12 (Valve alignment to support normal RCS L/R calculation IAW 35515-1/2); Steps 4.1.18, 4.2.17, 4.2.2.6 (notification from CR that sampling and chem additions may resume as required); Step 4.3.4 (Pri-Sec L/R determination IAW 31120-C); Attachment 1, Step 1.a. (Close all sample flow paths IAW 35515-1/2); Attachment 1, Step 1.b. (notification to suspend chem additions); Step 1.h. (PRZ Liquid and Steam Space sampling in service IAW 35515-1/2)

Health Physics - Attachment 1, Step 2.b. (coordination of use of robot inside bioshield to search for unidentified leakage)

Analysis: It was determined that CR personnel would use mass flow balances for initial classification determination. If the leak rate was > 25 gpm, then this procedure would be stopped, and CR personnel would enter the EOP network. Performance of this step is part of the performance of routine RCS leak rate calculation and would be initiated prior to event classification. If an emergency classification was applicable, Chemistry activities would be superseded by the dose assessment emergency plan function and deferred until augmented resources are available based on Shift Manager/Emergency Director prioritization. HP resources are used to support identification of unknown leak rate sources in containment using a robot. This action was determined to be a post-event response action and not required to support immediate event response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step(s): RNO A15
Supporting Procedure(s): 12004-1/2, Power Operation (Mode 1)
Resource: I&C/Chemistry/Reactor Engineering
Action: **I&C** - Step 4.2.1.b. (Procedure 14030-1/2, Data Sheet 3 Step 6 actions to adjust GAIN potentiometer); Step 4.2.13/4.2.20.b./4.2.24 (adjust PR high level trip bistables); 4.2.39.c. (initiate repairs to P10); 4.2.54 (restore alarm and indication parameters that were rescaled for EOL coastdown);
Chemistry - 4.2.3.a. (Sample RCS - 31110-C, Collection of Data for Shutdown Primary Chemistry Calculations); 4.2.3.c. (adjust PRZ steam space sample flow); 4.2.3.g. (provide direction on placing IX is service); 4.2.3.h. (provide guidance on operation of Containment Pre-access Filter Units); 4.2.3.i. (provide direction on degassing the RCS); 4.2.8.a (perform required sampling each time Reactor Power change > 15% in a one hour period - RCS TS SR 3.4.16.2 (DEI I-131)/gaseous release path samples (ODCM Table 3-3); 4.2.20.i (notification of secondary side status if holding Reactor Power between 20 and 15% power); 4.2.21.b. (notification that Heater Drain Pumps have been stopped); 4.2.25 (notification of SGBD status); 4.2.35.h. (align chemical feed to AFW system); 4.2.51. (provide CR guidance on placing Cond and FDW system on long cycle recirc AND restore condensate polishing system);
Reactor Engineering - 4.2.4.b (adjust IPC setpoints to restore the Rod Deviation alarm to operable)

Analysis: Guidance in RNO A15 initiates a unit shutdown IAW 12004-1/2. Per TS 3.4.13, 4 hours is allowed to reduce RCS leakage to within acceptable limits. If this action is not completed with the allowed time frame, then the unit must be in Mode 3 within 6 hours. Various steps in 12004-1/2 require support from I&C, Chemistry, and Reactor Engineering. Operations determined that this step would not be applicable if SU4 conditions existed; i.e., this procedure would have been exited and the EOP network would be the controlling procedure. The SRO also determined that this action would occur after 90 minutes. Based on the site's response to non-declared emergency RCS leakage, additional resources would be called in to support any required actions. Guidance on obtaining additional

resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): B9.b.
Supporting Procedure(s): 19013-C, ES-1.3 Transfer to Cold Leg Recirculation
Resource: RP/TSC Personnel
Action: **RP** – notification of plant conditions, no field actions required
TSC – provide recommendation regarding the need for transfer to hot-leg recirculation
Analysis: Section B of this procedure is applicable if the unit is in Mode 3 and < 1000 PSIG or in Mode 4. These actions are initiated when RWST level is less than 29%. It was determined that this step could be reached prior to 90 minutes (i.e., unit in Mode 3 and < 1000 psig). In this situation, CR personnel would perform applicable steps to align for cold leg recirculation. Because this is a continuous action step, CR personnel would perform the alignment IAW 19013-C and continue with subsequent procedure steps until RWST level is < 29%. Once this level is reached, CR personnel would initiate B.9. actions. If the TSC is not staffed by this time, the Shift Manager and Shift Support Supervisor would determine necessary actions until augmented resources are available based on task prioritization. If it is necessary to transfer to the recirculation mode per 19013-C, it can be assumed that a large-break LOCA has occurred. The potential EAL classifications will likely be a SAE or GE as a result - depending on status of the fuel or containment barriers. Except for notification of RP (with no required field actions) and consultation with TSC personnel, actions in 19013-C to establish cold leg recirculation are performed by Operations personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step(s): B64
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Resource: Reactor Engineering/Chemistry
Action: Determine adequate shutdown margin
Analysis: 14005-1/2 actions are performed by CR personnel except for Step F.6 which requires Reactor Engineering to provide Axial Offset Boron Correction. Section F, including step F.5, is used if in Mode 3 and no credit is taken for Xenon or Samarium and the number of actual untrippable rods is zero. It was determined that CR personnel would perform the actions in 14005-1/2 using information from the Plant Technical Data Book (PTDB) to complete the applicable calculation. Reactor Engineering personnel can provide support if needed once augmented but are not required to implement the actions. It was also determined that if required, Chemistry sampling and analysis to support SDM calculation is confirmatory and can be performed once augmented resources are available. Conclusion - the

proposed on-shift staff, with appropriate training if needed, can take the necessary actions for the Reactor Engineer and procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response for Chemistry.

Step(s): B70.c.
Supporting Procedure(s): 13145A-1, Diesel Generator Train A
13145B-2, Diesel Generator Train B
Resource: Maintenance
Step(s): 4.3.1.11.b.(2); 4.3.1.11.c.(2)(b)
Action: Provide Maintenance support to place DGs in operable status if step identified issues are indicated
Analysis: VEGP's SRO stated that maintenance resources were not immediately needed since this step in the procedure secures the operation DG(s) once offsite power has been restored. This task would be deferred and performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): RNO B71.b.
Supporting Procedure(s): 13716 -1/2, Auxiliary Component Cooling Water System
Resource: I&C
Step(s): 4.1.12.b.
Action: Clear low flow alarm at local flow indicator switch
Analysis: Step 4.1.12 actions are performed if any RCP low ACCW flow alarms fail to clear. It was determined that verification of RCP ACCW flow is a field action performed by a System Operator. If the flow is verified as ≥ 478 gpm then CR personnel will continue with subsequent procedure steps in 18004-C and 13716-1/2 as applicable and defer/perform 13716-1/2 step 4.1.12.b. actions as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 4
Resource: I&C
Action: Investigate affected train SSPS to determine source of SI signal
Analysis: The SRO determined that this action would be deferred and performed by augmented resources as they're available. CR personnel would continue with subsequent procedure steps after resetting the SI signal. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18009-C, Steam Generator Tube Leak

Step(s): 3.a.
Resource: Chemistry
Action: Initiate 31120-C, Chemistry Steam Generator Tube Leak Actions
Analysis: Pre-event classification action - results of sampling and leak rate determination provide input into classification. 31120-C directs Chemistry to perform actions (no time frame is specified) in response to a SGTL that could potentially conflict with the emergency plan function of Dose Assessment. CR personnel have other readily available indications to determine if a SGTL exists and identify the affected SG. Therefore, the Chemistry technician would be available to support dose assessment if an emergency classification is determined. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): RNO 9.a.; RNO 10.a.
Supporting Procedure(s): 12004-1/2, Power Operation (Mode 1)
Resource: I&C/Chemistry/Reactor Engineering
Action: **I&C** - Step 4.2.1.b. (Procedure 14030-1/2, Data Sheet 3 Step 6 actions to adjust GAIN potentiometer); Step 4.2.13/4.2.20.b./4.2.24 (adjust PR high level trip bistables); 4.2.39.c. (initiate repairs to P10); 4.2.54 (restore alarm and indication parameters that were rescaled for EOL coastdown);
Chemistry - 4.2.3.a. (Sample RCS - 31110-C, Collection of Data for Shutdown Primary Chemistry Calculations); 4.2.3.c. (adjust PRZ steam space sample flow); 4.2.3.g. (provide direction on placing IX is service); 4.2.3.h. (provide guidance on operation of Containment Pre-access Filter Units); 4.2.3.i. (provide direction on degassing the RCS); 4.2.8.a (perform required sampling each time Reactor Power change > 15% in a one hour period - RCS TS SR 3.4.16.2 (DEI I-131)/gaseous release path samples (ODCM Table 3-3); 4.2.20.i (notification of secondary side status IF holding Reactor Power between 20 and 15% power); 4.2.21.b. (notification that Heater Drain Pumps have been stopped); 4.2.25 (notification of SGBD status); 4.2.35.h. (align chemical feed to AFW system); 4.2.51. (provide CR guidance on placing Cond and FDW system on long cycle recirc AND restore condensate polishing system);
Reactor Engineering - 4.2.4.b (adjust IPC setpoints to restore the Rod Deviation alarm to operable)
Analysis: Guidance in RNO 9.a. and 10.a. initiates a unit shutdown IAW 12004-1/2. Per TS 3.4.13, four (4) hours is allowed to reduce RCS leakage to within acceptable limits. If this action is not completed with the allowed time frame, then the unit must be in Mode 3 within 6 hours. Various steps in 12004-1/2 require support from I&C, Chemistry, and Reactor Engineering. It was determined that if this step was entered, that the shutdown rate would be 10% per hour. These actions are applicable to steam generator tube leaks that don't exceed the EOP transfer criteria, a controlled shutdown is initiated. At this rate, the unit would be in Mode 3

within 8 hours. Typically, with a planned shutdown, an outage organization is established, and additional resources are available to perform response actions as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): RNO 11.b.(1)
Supporting Procedure(s): 12004-1/2, Power Operation (Mode 1)
Resource: I&C/Chemistry/Reactor Engineering
Action: **I&C** - Step 4.2.1.b. (Procedure 14030-1/2, Data Sheet 3 Step 6 actions to adjust GAIN potentiometer); Step 4.2.13/4.2.20.b./4.2.24 (adjust PR high level trip bistables); 4.2.39.c. (initiate repairs to P10); 4.2.54 (restore alarm and indication parameters that were rescaled for EOL coastdown);
Chemistry - 4.2.3.a. (Sample RCS - 31110-C, Collection of Data for Shutdown Primary Chemistry Calculations); 4.2.3.c. (adjust PRZ steam space sample flow); 4.2.3.g. (provide direction on placing IX is service); 4.2.3.h. (provide guidance on operation of Containment Pre-access Filter Units); 4.2.3.i. (provide direction on degassing the RCS); 4.2.8.a (perform required sampling each time Reactor Power change > 15% in a one hour period - RCS TS SR 3.4.16.2 (DEI I-131)/gaseous release path samples (ODCM Table 3-3); 4.2.20.i (notification of secondary side status IF holding Reactor Power between 20 and 15% power); 4.2.21.b. (notification that Heater Drain Pumps have been stopped); 4.2.25 (notification of SGBD status); 4.2.35.h. (align chemical feed to AFW system); 4.2.51. (provide CR guidance on placing Cond and FDW system on long cycle recirc AND restore condensate polishing system);
Reactor Engineering - 4.2.4.b (adjust IPC setpoints to restore the ROD DEVIATION alarm to operable)
Analysis: Guidance in this procedure is to initiate 12004-C to begin a unit shutdown. Per TS 3.4.13, four (4) hours is allowed to reduce RCS leakage to within limits. If this action is not completed, then the unit must be in Mode 3 within 6 hours. Various steps in 12004-1/2 require support from I&C, Chemistry, & Reactor Engineering. RNO 11.b.(1) of 18009-C is initiated at a leak rate > 5 gpd. This leak rate is below the emergency classification level of 25 gpm. Therefore; Chemistry resources would be available to support procedure actions. In addition, this would be a planned evolution, which would provide for additional resources as needed. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): 13
Resource: Health Physics
Action: Initiate 43208-C, Health Physics Steam Generator Tube Leak Actions
Analysis: RP determined that the actions are good operating practices but not required for emergency response. Sufficient resources were available on shift to support the actions required in 43028-C and would be prioritized by the Shift Manager/Emergency Director. These actions include performing local surveys and postings in the TB as needed. These actions are performed as resources are available since they are applicable to non-declared events. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 16
Supporting Procedure(s): 13009-1/2, CVCS Reactor Makeup Control System
Resource: Chemistry
Action: Sample and report boron concentrations.
Analysis: This procedure is used for SGTL's that may not result in a UE classification (SU4). Step 16 of 18009-C directs CR personnel to initiate emergency boration IAW 13009-1/2. Steps 4.9.1.14 and 4.9.2.14 of 13009-1/2 direct Chemistry to sample and report the boron concentration. VEGP's SRO determined that CR personnel would rely on makeup calculations (C1V1 + C2V2) to determine expected boron concentrations and continue with implementation of subsequent procedure steps until Chemistry resources were available to perform confirmatory RCS sampling and analysis. Therefore, the Chemistry technician is able to continue performance of the dose assessment emergency plan function. If ERO activation is not initiated in response to this event, Chemistry has a process to obtain additional resources as needed. Furthermore, with a small SGTL, management awareness of the condition is increased. If the decision is made to shutdown the unit there is sufficient time to provide an outage organization to support shutdown and outage activities. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): 40.b.
Resource: Chemistry
Action: Sample RCS and steam generators for boron.
Analysis: VEGP's SRO determined that this step would not be reached within 90 minutes. It was also determined that these are confirmatory samples/analyses and not required to continue with subsequent procedure steps. Considering the planning that is involved with continued operation with a small SGTL, an outage organization would be established to support shutdown actions. Therefore, this action can be deferred until resources are available. Guidance on obtaining

additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): 42
Supporting Procedure(s): 13605-1/2, Steam Generator Blowdown Processing System
Resource: Chemistry
Action: Initiate ODCM requirements
Analysis: VEGP's SRO determined that these actions will occur after 90 minutes. Considering the planning that is involved with continued operation with a small SGTL, an outage organization would be established to support shutdown actions. ODCM actions can be performed as resources are available. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): Attachment 2, Note
Resource: Chemistry/HP
Action: HP and Chemistry are notified by CR personnel once the SJAE and SPE exhaust are routed through HEPA filters
Analysis: It was determined that no field actions are required by Chemistry personnel. This information would affect dose assessment calculations. HP would perform surveys and monitor area dose rates based on priorities established by the Shift Manager/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

Step(s): Attachment 2, page 2, Step a.
Resource: Chemistry/HP
Action: Consult with Chemistry and HP to determine and initiate actions required prior to draining potentially contaminated water to the Turbine Building sumps.
Analysis: VEGP's SRO determined that this action is a long-term recovery action and could be deferred until additional resources were available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>18014-C, Primary Plant Chemistry</u>

Overall Analysis: An emergency classification would be applicable if DEI I-131 concentrations did not meet TS requirements. In this situation, SU3(2) would be applicable. Augmented ERO resources are not called to the site for Notice of Unusual Events because by the nature of the event no additional resources are needed. Additionally, sufficient time is available prior to reaching the EAL threshold

to plan an effective response, including staffing, in response to an increase in RCS activity levels. Additional resources would be obtained using the guidance in NMP-GM-020, Event Response.

18017-C, Abnormal Grid Disturbance/Loss of Grid

Step(s): RNO B.12.b.
Supporting Procedure(s): 18022-C, Loss of Auxiliary Component Cooling Water
Resource: Engineering
Step: RNO 7.d.
Action: Evaluate reopening thermal barrier outlet valves IF RCP seal parameters are not normal
Analysis: VEGP's SRO determined that in the absence of immediate Engineering Support CR personnel would continue to maintain stable plant conditions using natural circulation until Engineering support is available. If action is required earlier, then the applicable Engineering duty person would be contacted.
NMP-GM-020, Event Response, provides additional guidance on obtaining resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): RNO B.16
Supporting Procedure(s): 18030-C, Loss of Spent Fuel Pool Level or Cooling
Resource: TSC
Step: 8; 17.b.
Action: Determine temporary repair options or determine if additional cooling should be provided
Analysis: A review of Tab 26.0 (Spent Fuel Pool – Time to 200 °F) of the Plant Technical Data Book identified the earliest time to reach boiling in the Spent Fuel Pool for the worst condition is > 5 hours. Level is dependent on the size of the leak. The Shift Manager/Emergency Director would prioritize actions for on shift resources. It was determined that if TSC personnel are not available, CR personnel would implement actions from 18030-C as needed until additional resources respond to support the event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved in 90 minutes.

Step(s): RNO B.18.c.(2)
Supporting Procedure(s): 18032-1/2, Loss of 120 Volt AC Instrument Power
Resource: Chemistry/Engineering
Action: Restore equipment back to service
Analysis: Immediate response actions are performed by Operations personnel. Response actions after power is restored require support from Chemistry and Engineering

(restoring equipment back to service). These actions can be deferred until augmented resources are available because there is no required time to complete the action. Step I3 of 18032-1/2 also requires Chemistry to initiate any required ODCM actions. Because these actions are recovery actions that occur after power has been restored, if an event classification was in effect, the condition no longer exists once power is restored, freeing up on-shift resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 2, 6.f. and 6.m.; Attachment 6, 6.f. and 6.m.; Attachment 7,6.f. and 6.m.
Resource: Chemistry
Action: Restore equipment back to service
Analysis: Actions in Attachments 2, 6, and 7 are post-event recovery actions performed after power has been restored, are not required for event mitigation and can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 2, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions
Analysis: Operations personnel are directed to Figure 2 from Attachment 8 which is a post-recovery action to start RCPs after power has been restored. VEGP's SRO determined that CR personnel would continue to operate the RCP(s), monitoring Number 1 Seal leakage, ensuring leakage is within the operating limits and continue with subsequent procedure steps until resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18019-C, Loss of Residual Heat Removal

Step(s): Figure 2, Step 6
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions
Analysis: Operations personnel are directed to Figure 6 from Attachment 5 which provides direction on starting an RCP. VEGP's SRO determined that CR personnel would perform Attachment 5 actions to start the RCP(s), monitoring Number 1 Seal leakage, ensuring leakage is within the operating limits and continue with subsequent procedure steps until resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18021-C, Loss of Nuclear Service Cooling Water System

Step(s): RNO 15
Supporting Procedure(s): 18030-C, Loss of Spent Fuel Pool Level or Cooling
Resource: TSC
Step: 8; 17.b.
Action: Determine temporary repair options or determine if additional cooling should be provided
Analysis: RNO 15 of 18021-C is entered if neither Train of SFP Cooling can be placed in service. A review of Tab 26.0 (Spent Fuel Pool – Time to 200 °F) of the Plant Technical Data Book identified the earliest time to reach boiling in the Spent Fuel Pool for the worst condition is > 5 hours. Level is dependent on the size of the leak. The Shift Manager/Emergency Director would prioritize actions for on shift resources. It was determined that if TSC personnel are not available, CR personnel would implement actions from 18030-C and18021-C as needed until additional resources respond to support the event. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved in 90 minutes.

18030-C, Loss of Spent Fuel Level or Cooling

Step(s): 8
Resource: TSC
Action: Determine temporary repair options
Analysis: This step assumes that the TSC is activated and able to support response/repair actions. VEGP's SRO determined that this step would be reached prior to 90 minutes. The step is a trouble shooting action to support recovery from the condition with no time specified for completion. Until the TSC is staffed (at the 90 minute mark) CR personnel would continue performance of subsequent steps and turnover this action as TSC resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved in 90 minutes.

Step(s): 17.b.
Resource: TSC
Action: Determine if additional cooling should be provided
Analysis: This step assumes that the TSC is activated and able to support response/repair actions. VEGP's SRO determined that this step would be reached prior to 90 minutes. The step is a trouble shooting action to support recovery from the condition with no time specified for completion. Until the TSC is staffed (at the 90 minute mark) CR personnel would continue performance of subsequent steps and turnover this action as TSC resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved in 90 minutes.

Step(s): 28.b.
Resource: TSC
Action: Determine if additional cooling should be provided as described in the Mechanical Options Book
Analysis: This step assumes that the TSC is activated and able to support response/repair actions. VEGP's SRO determined that this step would be reached prior to 90 minutes. The step is a trouble shooting action to support recovery from the condition with no time specified for completion. Until the TSC is staffed (at the 90 minute mark) CR personnel would continue performance of subsequent steps and turnover this action as TSC resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved in 90 minutes.

Step(s): RNO 32.b.
Supporting Procedure(s): 13720-1/2, RWST Boric Acid Recovery System (BARS)
Resource: Chemistry
Step(s): 4.7.1, 4.8.2
Action: Sampling and analysis
Analysis: VEGP's SRO determined that Section 4.6 of 13720-1/2 is used to perform an emergency shutdown of the BARS. Implementation of this section does not require implementation of Section 4.7 or 4.8. Therefore; sampling and analysis by the Chemistry technician would not be required. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18035-C, Toxic/Asphyxiant/Flammable Gas Release

Step(s): A6
Resource: Chemistry
Action: Sample control room, control building roof, and remote shutdown panels for toxic/asphyxiant gas
Analysis: This sampling is performed in areas where CR personnel perform functions to safely shutdown and maintain the units in a safe shutdown condition if needed. The areas identified/specified in the procedure are not listed in HA5 so this EAL threshold is not met. At this point in the procedure, an emergency classification is not warranted. Therefore, the Chemistry technician is able to support these actions without conflict with emergency plan functions. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): A9
Supporting Procedure(s): 94001-C, Implementation of the Spill Prevention, Control, Countermeasures (SPCC) Plan and Reportability
NMP-EN-703, Pollution Prevention
NMP-EN-703-001, Implementation of SPCC Plan
Action: Implement 94001-C (superseded by NMP-EN-703 and NMP-EN-703-001)
Analysis: VEGP's SRO determined that the Shift Manager is responsible for determining which on-site organization has the lead for implementation of the SPCC plan after normal working hours. Chemical spills inside the plant are limited to select rooms per HA5. The Shift Manager/Emergency Director can meet the emergency plan and defer 94001-C actions. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): B3
Resource: Chemistry/RP
Action: Sample areas for flammability
Analysis: It was determined that the actions performed by this step would occur prior to emergency classification. In addition, it was noted that since the source of the flammable gas leak was inside the RCA (condition that meets the EAL threshold for classification and RP is responsible for actions inside the RCA). Chemistry would inform the Shift Manager/Emergency Director who would direct RP to perform sampling based on site priorities. If the flammable gas leak was outside the RCA, Chemistry would be responsible for sampling; however, this condition does not result in a classified event and the on-shift Chemistry technician would be available to support AOP actions accordingly. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): RNO B4(2)
Supporting Procedure(s): 13810-1/2, Generator Gas System
Resource: I&C
Step(s): 4.1.1 NOTE
Action: Temporarily install a digital gauge
Analysis: RNO B4(2) of 18035-C directs initiation of 13810-1/2 and purge the generator with CO_2 following shutdown. This action occurs after the unit is shutdown. In addition, actions can be performed by operations personnel. 13810-1/2 Step 4.1.1 NOTE provides an option to have I&C temporarily install a digital gauge - not a required action (note states the I&C may install). VEGP's SRO determined that in the absence of I&C resources on-shift sufficient guidance is available to monitor CO_2 injection/H_2 purge without using the digital gauge. The SRO confirmed that use of

the M&TE Digital Gauge is not required to purge H_2 from the generator. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

18036-C, Seismic Event

Step(s): 4
Resource: Plant Engineering
Supporting Procedure(s): 50022-C, Seismic Event Plan
Action: Initiate 50022-C to evaluate seismic event impact
Analysis: VEFP's SRO identified this task as a post-event/ recovery action that is not required to perform subsequent procedure steps. Therefore, this task can be deferred to 90 minutes and performed by augmented resources. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 5
Resource: Plant Engineering
Action: Perform an analysis of Containment Tendon Gallery triaxial force balance accelerometer
Analysis: VEGP's SRO identified this task as a post-event/ recovery action that is not required to perform the subsequent procedure steps. Therefore, this task can be deferred to 90 minutes and performed by augmented resources. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

Step(s): 8
Resource: Engineering
Action: Determine availability of safe shutdown systems
Analysis: Engineering support is requested to assist in this evaluation. In the absence of Engineering resources operations personnel would perform this evaluation and continue with procedure actions. This action is a post-event/recovery action. Operations personnel would address damage to safety related components/systems using applicable AOPs/EOPs. VEGP's SRO identified this task as a post-event/ recovery action that is not required to perform subsequent procedure steps. Therefore, this task can be deferred to 90 minutes and performed by augmented resources. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

Step(s): Attachment 1, Step 3
Resource: Engineering
Action: Perform DMIMS Surveillance
Analysis: DMIMS is used to monitor for loose parts. During the procedure analysis determined that this task could be deferred until resources are available. Based on the DMIMS readout/condition CR personnel would enter 18039-C, Confirmed Loose Part in the RCS or Steam Generator Secondary Side. In addition, VEGP's SRO determined that actions identified in Attachment 1 are post-event response actions and not required to be completed within 90 minutes of event actuation. If additional support is required, guidance on obtaining additional resources is provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): Attachment 1, Step 3
Resource: Chemistry
Action: Initiate Primary and Secondary coolant sampling for increased activity
Analysis: Significant increases in activity would be identified by increases in rad monitors. These readings would be used to evaluate classification escalation criteria for the event. It was determined that actions identified in Attachment 1, requiring support from non-operations personnel, are post-event response actions and not required to be completed within 90 minutes of event actuation. These actions can be deferred and performed as augmented resources are available. In lieu of Chemistry sampling, CR personnel would use other indications readily available in the CR. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 1, Step 3
Supporting Procedure(s): 93741-C, DFS Equipment Malfunction Guidance
Resource: Maintenance
Action: Inspect ISFSI for damage per 93741-C
Analysis: It was determined that actions identified in Attachment 1, requiring support from non-operations personnel, are post-event response actions and not required to be completed within 90 minutes of event actuation. These actions can be deferred and performed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18037-C, Security Threat

Analysis: This procedure implements actions in response to a Security threat. Specific sections are used based on the identified threat. The following supporting procedures are also used based on the procedure section entered for the threat:

- 12006-C, Unit Cooldown to Cold Shutdown
- 13009-1/2, CVCS Reactor Makeup Control System
- 13011-1/2, Residual Heat Removal System
- 13301-C, CBCR Normal HVAC and Emergency Filtration System

CR personnel will initiate these procedures and perform those actions that can be implemented from the CR. Except for 12006-C, the response actions taken are performed by CR/operations personnel. Site specific response actions to the Security threat (personnel in 'Duck and Cover' or relocated) inhibits the performance of field actions by non-operations personnel as directed by 12006-C. In addition, the unit(s) reach Mode 3 (557 °F/2235 psig) whenever the plant is stabilized after tripping the reactor IAW 18013-C guidance. Maintaining a maximum cooldown rate of 100 °F/Hr, Mode 4 is reached within an additional 2+ hours. Therefore, these actions would be performed by augmented resources as needed once the Security threat is no longer exists. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

18038-1/2, Operation from Remote Shutdown Panels

Step(s): RNO 23
Resource: TSC
Action: Consultation related to feasibility of energizing bus from opposite train RAT
Analysis: VEGP's SRO determined that if TSC personnel were not available whenever this step was reached (there is no specified time), the SM and Unit Supervisor will make this decision and CR personnel would continue with subsequent procedure steps as directed by SM/US. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 46.a.
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Resource: Reactor Engineering
Action: Consultation related to feasibility of energizing bus from opposite train RAT
Analysis: VEGP's SRO determined that actions to determine boron concentrations IAW 14005-1/2 would be completed using information from the Plant Technical Data Book (PTDB). Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 49
Resource: TSC
Action: Consultation for further actions beyond this point (maintain plant in hot shutdown or go to cold shutdown)

Analysis: This step is a hold point until TSC guidance is available. At this step the plant is stable at hot shutdown. Maintaining hot shutdown conditions until the TSC is staffed does not affect the safety of the plant or public health and safety. CR personnel would continue to monitor and maintain stable plant conditions until augmented resources are available to provide additional guidance. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 7, Step 1
Resource: I&C Technician
Action: Report to Shutdown Panel B and operate the two DC current sources
Analysis: RNO steps 33.c. and 55 direct operation of the SG ARVs using guidance in Attachment 5 or Attachment 7. Implementation of Attachment 7 guidance requires I&C support. However, with the alternate guidance available in Attachment 5, operation of the SG ARVs can be performed locally until augmented resources are available. VEGP's SRO confirmed that Attachment 5 actions to manually control the SG ARVs would be used until I&C resources are available to support Attachment 7 actions. Manual control of the SG ARVs is an acceptable method for cooling down the plant from the RSDPs and does not require non-operations personnel to perform the required actions. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>18039-C, Confirmed Loose Part in the RCS or Steam Generator Secondary Side</u>

Step(s): 7; 16
Supporting Procedure(s): 12004-C, Power Operation (Mode 3)
18013-C, Rapid Power Reduction
Resource: I&C/Chemistry/Reactor Engineering
Action: **I&C** - Step 4.2.1.b. (Procedure 14030-1/2, Data Sheet 3 Step 6 actions to adjust GAIN potentiometer); Step 4.2.13/4.2.20.b./4.2.24 (adjust PR high level trip bistables); 4.2.39.c. (initiate repairs to P10); 4.2.54 (restore alarm and indication parameters that were rescaled for EOL coastdown);
Chemistry - 4.2.3.a. (Sample RCS - 31110-C, Collection of Data for Shutdown Primary Chemistry Calculations); 4.2.3.c. (adjust PRZ steam space sample flow); 4.2.3.g. (provide direction on placing IX is service); 4.2.3.h. (provide guidance on operation of Containment Pre-access Filter Units); 4.2.3.i. (provide direction on degassing the RCS); 4.2.8.a (perform required sampling each time Reactor Power change > 15% in a one hour period - RCS TS SR 3.4.16.2 (DEI I-131)/gaseous release path samples (ODCM Table 3-3); 4.2.20.i (notification of secondary side status IF holding Reactor Power between 20 and 15% power); 4.2.21.b. (notification that Heater Drain Pumps have been stopped); 4.2.25 (notification of SGBD status); 4.2.35.h. (align chemical feed to AFW system); 4.2.51. (provide CR

guidance on placing Cond and FDW system on long cycle recirc AND restore condensate polishing system);
Reactor Engineering - 4.2.4.b (adjust IPC setpoints to restore the ROD DEVIATION alarm to operable)

Analysis: It was determined that if this step was entered, that depending upon the severity of the loose part the shutdown rate would be 10% per hour if 12004-C is used or faster using 18013-C guidance. The unit reaches Mode 3 (557 °F/ 2235 psig) whenever the plant is stabilized after tripping the reactor IAW 18013-C guidance. Maintaining a maximum cooldown rate of 100 °F/Hr, Mode 4 is reached within an additional 2+ hours. The procedure analysis determined that non-Operations actions required by 12004-C could be performed after 90 minutes without adversely affecting plant safety. CR personnel would continue to perform subsequent procedure steps with non-operations actions completed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 9.a.; 12.a.
Resource: Engineering
Action: Provide assistance to CR personnel as needed
Analysis: VEGP's SRO determined that CR personnel would perform this action and continue with procedure. If Engineering assistance is needed prior to an event classification, then the duty Engineer would be notified. Guidance on obtaining additional resources is also provided in NMP-GM-020, Event Response. This action is not required to support plant equipment operation but is used for evaluation of the event. Performance by augmented resources does not affect procedure implementation or public health and safety. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): 13
Resource: Plant Management/Engineering
Action: Consultation to consider starting one RCP or using Aux Spray for subsequent plant cooldown/depressurization
Analysis: This action is a post-event response action that can be performed by augmented resources after 90 minutes. CR personnel would maintain stable/safe plant conditions until augmented resources are available. If the ERO has not been activated, then the duty Plant Management and Engineer would be notified. Guidance on obtaining additional resources is provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step(s): 15
Resource: Plant Management
Action: Determine if plant shutdown is desired
Analysis: This action is a post-event response action that can be performed by augmented resources after 90 minutes. CR personnel would maintain stable/safe plant conditions until augmented resources are available. If the ERO has not been activated, then the duty Plant Management and Engineer would be notified. Guidance on obtaining additional resources is provided in NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

19000-1/2, E-0 Reactor Trip or Safety Injection

Step(s): 11.a
Supporting Procedure(s): Chemistry Department Procedures
Resource: Chemistry
Action: Direct Chemistry to take periodic activity samples of all SGs, one at time
Analysis: 19000-1/2, step 11 has the operator "Direct Chemistry to take periodic activity samples of all SGs, one at time." Step 11.a directs chemistry to sample SGs periodically for activity. Step 11.b will direct the operator to assess if secondary radiation is normal using installed radiation monitors (RMs) to include MSLRMs, SJAE RMs, SGBD RMs, or sample results. Step 11.c will assess SG tube status based on any SG level rising in an uncontrolled manner. If secondary radiation is not NORMAL or any SG is rising in an uncontrolled manner the operator will transition to 19030-1/2, E-3 Steam Generator Tube Rupture. If an emergency declaration has already been made the on-shift chemist will be performing dose assessment and unavailable to sample the SGs. If they are available, it will take time to collect and analyze the sample or plant conditions may be such that they do not support sample collection such that sample results will not be immediately available. The procedure provides the operator with numerous and diverse indications for identifying a ruptured SG such that collection and analysis of SG activity samples is not required to determine if a SGTR is in progress. If RMs and SG level do not indicate a SGTR and samples are not available, the operator will continue on in the procedure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 6, step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19000-1/2, Attachment 6, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." All actions to

reset SI directed per Attachment 6 are performed by the operator. I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): OATC Initial Actions Step 15 and Step 15 RNO

Supporting Procedure(s): 13719-1/2, Spent Fuel Pool Cooling and Purification System
18030-C, Loss of Spent Fuel Pool Level or Cooling

Resource: I&C

Action: Step 15 - Dispatch Operator to ensure one train of spent fuel pool cooling in service per 13719-1/2, Spent Fuel Pool Cooling and Purification System.
Step 15 RNO – If one train of SFP cooling cannot be restored to service, then initiate 18030-C, Loss of Spent Fuel Pool Level or Cooling.

Analysis: SFP cooling is placed in service per sections 4.1 of 13719-1/2 and does not require non OPS resources. 18030-C is only entered if neither train of SFP cooling can be placed in service. 18030-C addresses loss of SFP cooling and loss of SFP level. The performance of 18030-C does not require support from non-OPS resources with the exception of the following:

1. 18030-C step 38 directs Chemistry to sample the SFP for born concentration (TS 3.7.17). This is the last step of the procedure so these samples will not be directed until after water addition and/or feed and bleed is established, or one train of SFP cooling is in service. If an emergency has been declared with an actual or potential release in progress the on-shift chemist will be performing dose assessment and not be available to perform the sampling activity. The surveillance frequency (SR 3.7.17.1) for this sample is 31 days however in abnormal conditions this sample would be obtained once as resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 18030-C step 7 directs the operator to check conditions requiring emergency makeup, such as, an imminent security threat or any other extreme conditions warranting emergency makeup. This is followed by step 8 which directs the operator to "Contact the TSC for temporary repair options." The requested temporary repair actions are to address physical damage to the SFP liner resulting in a loss of SFP level. Such events are beyond the design basis of the plant and are associated with extreme natural events or security events that likely preclude immediate access to the site. As such, these contingency actions will be implemented as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. 18030-C Attachment 3, step 5.c has the operator "Request Engineering, with the support of Chemistry, to analyze the long-term effects of NSCW additives to the spent fuel stored in the SFPs." This action will only be required if SFP makeup using NSCW is utilized. The requested analysis from Engineering

and Chemistry is for long term impacts of impurities when using NSCW for SFP makeup. As such this can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19010-1/2, E-1 Loss of reactor or Secondary Coolant

Step(s): 5.a
Supporting Procedure(s): Chemistry Department Procedures
Resource: Chemistry
Action: Direct Chemistry to take periodic activity samples of all SGs, one at time
Analysis: 19010-1/2, step 5 will determine if SGs tubes are intact. Step 5.a directs chemistry to take periodic activity samples of all SGs one at a time. Step 5.b will "check secondary radiation normal using installed RMs and step 5.c will Check SG levels – any rising in an uncontrolled manner." If one or more SGs are determined to be ruptured, the operator will transition to 19030-1/2, E-3 Steam Generator Tube Rupture. If an emergency declaration has already been made the on-shift chemist will be performing dose assessment and unavailable to sample the SGs. If they are available, it will take time to collect and analyze the sample or plant conditions may be such that they do not support sample collection such that sample results will not be immediately available. Per the background document, it may be difficult to sample a depressurized steam generator for activity, the operator should suspect a rupture if the steam generator does not dry out following isolation of feed to it. A faulted, ruptured steam generator will stay at some low pressure and continue to cool that loop and the RCS. In addition, the operator should suspect a rupture if following SG dry-out, RCS inventory or pressure cannot be maintained and there is no indication of an RCS leak to containment. If the operator suspects that a faulted steam generator is not drying out and cannot confirm that it is ruptured by sampling because a sample cannot be drawn, he may either request a check for radiation in the area of the break (if it is outside the containment) to confirm that a rupture exists or he may conclude that the faulted generator is ruptured if it is not practical to check for radiation based on response of the faulted steam generator or the response of the RCS. Based on the wide range of indications provided in the procedure and background document the operator is provided sufficient guidance to determine if a SGTR has occurred such that performance of the periodic chemistry samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 2, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.

Analysis: 19010-1/2, steps 9.b RNO, 12.b RNO, and 19.c RNO direct the operator to reset SI per Attachment 2. All actions to reset SI directed per Attachment 2 are performed by the operator. Attachment 2, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 15
Supporting Procedure(s): Chemistry Department Procedures
Resource: Chemistry
Action: Direct Chemistry to obtain samples for boron, pH, and radioactivity in RCS and both Containment Emergency Sumps and for radioactivity, hydrogen and oxygen concentrations in Containment atmosphere
Analysis: 19010-1/2, step 15 has the operator "Direct Chemistry to obtain samples for boron, pH, and radioactivity in RCS and both Containment Emergency Sumps and for radioactivity, hydrogen and oxygen concentrations in Containment atmosphere." Once the samples are called for the operator will continue with the procedure. The on-shift chemistry technician will be performing dose assessment and will be unavailable to perform the requested sampling. Per the background document these samples support decision making for long-term plant recovery. Therefore, the sampling can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 16.d
Resource: TSC staff
Action: Consult TSC for additional equipment to be started or actions to be taken to assist in recovery including: H2 Monitors, CRDM Fans, and Within 5 days, initiate Containment inspection/cleanup if Containment Spray actuated and was terminated prior to recirculation.
Analysis: 19010-1/2, step 16.b directs the operator to consult TSC for additional equipment to be started or actions to be taken to assist in recovery actions including H2 Monitors, the use of CRDM Fans, and containment inspection and cleanup. If the TSC has not been activated and the staff is unavailable when this step is reached the crew will continue with the procedure. Per the background document the requested TSC actions support decision making for long-term plant recovery and therefore they can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 19.d RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19010-1/2, step 19.d directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 19.d RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 19.d directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration.

Step(s): 20.b.; 20.c.
Supporting Procedure(s): Chemistry Department Procedures
Resource: TSC Staff, Chemistry
Action: - Request Chemistry to sample SGs for radioactivity levels
- Consult TSC for recommendation on dumping steam based on dose projection
Analysis: 19010-1/2, step 20 will "Check if intact SG(s) should be depressurized to RCS pressure". Step 20.c will have the operator check "RCS pressure – less than intact SG pressures." If it is not, the remainder of the step 20 sub steps will be skipped and the RNO will direct the operator to step 21. If RCS pressure is less than intact SG(s), step 20.b is performed which directs the operator to "Request Chemistry to sample SGs for radioactivity levels." Step 20.c directs the operator to "Consult TSC for recommendation on dumping steam based on dose projection." This indicates that the TSC needs to have been activated and the event is at the Alert stage. If sample results are available prior to the arrival of the TSC staff, the SM/ED will make the determination for dumping steam from intact SG(s). If the on-shift chemistry technician is performing dose assessment and they will not be available to perform the requested samples of the SG(s). If sample results are not available or the TSC staff necessary to make the recommendation are not available at the time this step is reached, then the operator will not dump steam from intact SGs and instead will follow the guidance of step 20.c RNO and continue to step 21. When this step is reached the plant is stabilized such that if SG activity is unknown, the SM/ED can hold at this point and not dump steam from the SGs. There is no adverse effect on event response due to delaying further cooldown via the SGs while awaiting the arrival of additional resources after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 21.
Resource: TSC Staff
Action: Consult TSC to determine if the Reactor Vessel Head should be vented
Analysis: 19010-1/2, step 21 directs the operator to "Consult TSC to determine if the Reactor Vessel Head should be vented." Per the background document the purpose of this step is to administratively determine if the reactor vessel head should be vented. If the TSC staff is not available at the time this step is reached the operator will continue in the procedure and refer this request to the TSC upon arrival. Performing the TSC consultation for venting the Rx head as resources are available after 90 minutes of an Alert or higher declaration does not preclude continuing in the procedure or otherwise adversely impact event response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22.a RNO; 22.b.
Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures
Resource: TSC Staff, Chemistry, Maintenance
Action: Step 22.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 22.b - Consult TSC on methods to reduce hydrogen concentration inside containment
Analysis: 19010-1/2, step 22 has the operator check containment hydrogen concentration. Step 22.a will have the operator check "Current hydrogen concentration measurement - available." If it is not step 22.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Renewed License No. NPF-68 Tech Specs, 2.C(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen

Analyzer) state that if A post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED sets event priorities and in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly. If it is can obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 22.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 22.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 25
Resource: TSC Staff
Action: Consult TSC to evaluate long term plant status
Analysis: 19010-1/2, step 22 directs the operator to "Consult TSC to evaluate long term plant status." Per the background document this step addresses long-term recovery actions and as such can be performed after the TSC is staffed within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19020-1/2, E-2 Faulted Steam generator Isolation
Step(s): 12.a
Supporting Procedure(s): Chemistry Department Procedures
Resource: Chemistry

Action: Direct Chemistry to take periodic activity samples of all SGs, one at time

Analysis: 19020-1/2, step 12 directs the operator to "Initiate checking if SG Tubes intact." Step 12.a will "Direct Chemistry to take periodic activity samples of all SGs, one at time." determine if SGs tubes are intact. Step 12.b will check secondary radiation Normal using installed RMs and step 5.c will "Check SG levels – any rising in an uncontrolled manner." If one or more SGs are determined to be ruptured the operator will transition to 19030-1/2, E-3 Steam Generator Tube Rupture. If the on-shift chemistry technician is performing does assessment they will not be available to perform the SG sampling. Per the background document, if time is required to obtain samples or analyze them, the operator should continue with the procedure and transfer to 19010, E-1, Loss of Reactor or Secondary Coolant. When results are available, a transition from 19010 or 19012, ES 1.2 Post LOCA Cooldown and Depressurization, (foldout page) to 19030, E-3 Steam Generator Tube Rupture, can be accomplished. Since it may be difficult to sample a depressurized steam generator for activity, the operator should suspect a rupture if the steam generator does not dry out following isolation of feed to it. A faulted, ruptured steam generator will stay at some low pressure and continue to cool that loop and the RCS. In addition, the operator should suspect a rupture if following SG dry-out, RCS inventory or pressure cannot be maintained and there is no indication of an RCS leak to containment. If the operator suspects that a faulted steam generator is not drying out and cannot confirm that it is ruptured by sampling because a sample cannot be drawn, he may either request a check for radiation in the area of the break (if it is outside the containment) to confirm that a rupture exists or he may conclude that the faulted generator is ruptured if it is not practical to check for radiation based on response of the faulted steam generator or the response of the RCS. Based on the wide range of indications provided in the procedure and background document the operator is provided sufficient guidance to determine if a SGTR has occurred such that performance of the periodic chemistry samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19030-1/2, E-3 Steam Generator Tube Rupture</u>

Step(s): 4

Supporting Procedure(s): Chemistry Department Procedures

Resource: Chemistry/RP

Action: Identify ruptured SG(s) by any of the following conditions: Unexpected rise in any SG NR level, High radiation from any SG sample, High radiation from any SG steam-line, High radiation from any SG blowdown line.

Analysis: 19030-1/2, step 4 directs the operator to identify the ruptured SG(s) by assessing SG level rise, SG sample activity, MSL radiation, or SGBD line radiation. If the on-shift chemist is performing dose assessment they will not be available to perform the SG sampling the procedure also provides for determining SGTR status based on SG level or radiation monitor readings. If the ruptured SG cannot be

immediately identified step 4 RNO directs the operator to perform steps 13-19 while awaiting identification of the ruptured SG(s). Per the background document the radiation readings may be from installed RMs or local surveys. If needed the local surveys will be performed by on-shift RP personnel based on priorities set by the Shift Manager/Emergency Director if there is a declared event. 19010 provides the operator with numerous and diverse indications for identifying a ruptured SG such that collection and analysis of SG activity samples is not required to determine the affected SG. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 5, Step 6

Resource: I&C

Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.

Analysis: 19030-1/2, steps 15 RNO, 40.d RNO, and 45.b RNO direct the operator to reset SI per Attachment 2. All actions to reset SI directed per Attachment 2 are performed by the operator. Attachment 2, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 40.e RNO

Resource: TSC staff

Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.

Analysis: 19030-1/2, step 40.e directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 40.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 40.e directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." This step assumes that the TSC is activated and the site is in an Alert or higher classification. Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 44.a RNO

Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System

Resource: Chemistry/I&C

Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System -OR- Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.

Analysis: 19030-1/2, step 44 has the operator check AC busses. Step 44.a has the operator check emergency busses are energized from offsite power. If they are not energized from offsite power the operator will perform step 44.a RNO and ensure applicable diesel generator(s) are powering train related loads to include 2 NSCW pumps, 2 CCW pumps, 1 CCP, 1 ACCW pump, 1 MDAFW pump, Containment Coolers, and 480V AC switchgears 1AB04, 1AB05, 1AB15, 1NB01, 1BB06, 1BB07, 1BB16, and 1NB10. The operator will then try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 OR Normal Chillers by initiating 13743-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non-OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the exception of steps 4.1.2.22 “Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."” and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 IF previously disabled." Both of these actions can be performed as resources are available after the Chillers are placed in service. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 51

Resource: TSC staff

Action: Coordinate with the TSC to determine which equipment is not required at this time and Request TSC to coordinate CNMT inspection / cleanup within 5 days.

Analysis: 19030-1/2, step 51 directs the operator to secure unnecessary plant equipment to include consulting with the TSC to determine which equipment is not required at

the time the step is reached. The step is a supplemental action and assumes the TSC has been activated. If the TSC is not available when this step is reached the SM/ED has the knowledge and authority to make this determination based on priorities. This step also directs to request TSC to coordinate containment inspection/cleanup within 5 days. This action is not required within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 52
Resource: TSC staff
Action: With TSC concurrence, go to 19033-1, ES 3.3 post SGTR Cool Down Using Steam Dump.
Analysis: 19030-1/2, step 52 directs the operator that "With TSC concurrence, go to 19033-1, ES 3.3 Post SGTR Cool Down Using Steam Dump. Per the background document the purpose of this step is to select the optimum post-SGTR recovery guideline. Previous recovery actions were designed to terminate release from the ruptured steam generator, stop primary-to-secondary leakage, and restore RCS pressure, temperature, and inventory control. Consequently, all safety concerns should have been resolved. This step is a supplemental step to cool and depressurized the plant to cold shutdown conditions without jeopardizing safety in order to effect repairs. Entry into this action is well after the event has been addressed and the augmented staff are available. Step 52 provides two options for performing this post-SGTR cooldown by performing 19031-1/2, ES-3.1, Post-SGTR Cooldown Using Backfill; or 19033-1/2ES-3.3, Post-SGTR Cooldown Using Steam Dump. 19033-1/2 is provided as an option with TSC concurrence as this method has the potential for higher offsite dose consequences. If this step is reached prior to the arrival of the TSC the operator will proceed with backfill method in 19031-1/2 which is designated as the preferred method. The TSC will be consulted with regards to the use of 19033-1/2 upon arrival after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 4, Step 2
Supporting Procedure(s):43028-C, Health Physics Steam Generator Tube Leak Actions
Resource: RP
Action: RP should be notified to initiate 43028-C, Health Physics Steam Generator Tube Leak Actions, prior to draining potentially contaminated water to the Turbine Building sumps
Analysis: 19030-1/2, step 46 of the main body of the procedure directs implementation of Attachment - 4. Attachment 4 step 3 Note states "RP should be notified to initiate 43028-C, Health Physics Steam Generator Tube Leak Actions, prior to draining potentially contaminated water to the Turbine Building sumps." Upon notification of

the SGTR RP will perform SGTR surveys per 43028-C and support job coverage using on-shift RPTs based on the priorities set by the SM/ED. Per the background document the purpose of Attachment 4 is to minimize the spread of contamination throughout the secondary system since prior to isolation of the ruptured steam generator, steam flow from that steam generator may have contaminated secondary system. posting newly contaminated areas/systems, packaging and processing of contaminated waste, etc. These actions are long term recovery actions and can be initiated as additional resources are available and event priorities permit. Contamination control actions are not required to support immediate event response and can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 4, Step 5
Supporting Procedure(s): 13211-1/2, Turbine Building Drain System
Resource: Chemistry
Action: Notify Radwaste to prepare to transfer AND Process Turbine Building Drain Tank contents per 13211-1/2, Turbine Building Drain System, as required.
Analysis: 19030-1/2, step 46 of the main body of the procedure directs implementation of Attachment - 4. Attachment 4, step 5 direct the operator to "Notify Radwaste to prepare to transfer AND Process Turbine Building Drain Tank contents per 13211-1/2." Processing of the TB sumps is performed per section 4.1, 4.2, and 4.4 of 13211-1/2 by OPS personnel. The TB Drain Tank are 18,000 gallon tanks and would not be expected to fill within the first 90 minutes of a SGTR event. Once filled a TB Drain Tank will be placed on recirc for a minimum of 30 minutes to allow chemistry to collect a representative sample to determine if the sump can be released or should be processed. Since a SGTR will result in an emergency declaration the on-shift chemistry technician will be performing dose assessment and will not be available to perform this sample. With a SGTL or SGTR in progress it is expected the TB Drain Tank will need to be processed through the demin system therefore the SM/ED could elect to process the tank without first obtaining a sample. This action is not needed to combat the declared event and is a supplemental action. Processing a full TB Drain Tank will take ~6 hours at which time the tank will be placed on recirc for a minimum of 30 minutes. At this time if in a declared event of Alert or higher additional resources will be available to support sampling. The SM/ED may also elect to transfer the water to the RPF for processing which will be performed by OPS personnel with final sampling performed prior to release at which time additional resources will be available to support sampling. The need for sampling this tank will not be required prior to the arrival of additional resources after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 4, Steps 6 and 7
Supporting Procedure(s): 31120-C, Chemistry Steam Generator Tube Leak Actions
Resource: Chemistry
Action: Step 6- Direct Chemistry to reduce sampling to a minimum and reduce or isolate any effluent to the Turbine Building Sumps not necessary.
Step 7- Ensure the condensate polishing demineralizers are operated as recommended by Chemistry Duty Foreman. Reference 31120-C, Chemistry Steam Generator Tube Leak Actions.
Analysis: 19030-1/2, step 46 of the main body of the procedure directs implementation of Attachment 4. Attachment 4, step 6 has the operator "Direct Chemistry to reduce sampling to a minimum and reduce or isolate any effluent to the Turbine Building Sumps not necessary." And step 7 will direct the operator to "Ensure the condensate polishing demineralizers are operated as recommended by Chemistry Duty Foreman. Reference 31120-C". Since an SGTR will result in an emergency declaration the on-shift chemist will be performing dose assessment and will not be available to perform these actions. Per the background document the purpose of Attachment 4 is to minimize the spread of contamination throughout the secondary system since prior to isolation of the ruptured steam generator, steam flow from that steam generator may have contaminated secondary system. Per the background document, at this point in the procedure leakage into the ruptured steam generator has been terminated and time is available for plant specific steps to minimize the spread of this contamination. The requested actions support long term recovery and are not required to support immediate event response therefore they can be initiated as additional resources are available and event priorities permit. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19030-1/2, Attachment 1, step 1.d. directs monitoring RCP seal leakoff flow using Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19100-1/2, ECA-0.0 Loss of All AC Power

Step(s): A4.b RNO
Resource: Maintenance
Action: If a TDAFW exhaust pipe is damaged and impeding exhaust flow, then notify Maintenance to remove the exhaust pipe using a saw stored in the primary fire brigade locker or in the FLEX dome.
Analysis: 19100-1/2, step A4.a directs the operator to "Check AFW flow greater than 535 GPM." Step A4.b directs the operator to "Check NR level in at least one SG greater than 9%." If it is not the operator will perform the associated RNO and will take actions to achieve greater than 535 gpm to include determining if the TDAFWP exhaust pipe is damaged. If the TDAFWP exhaust piping is damaged the RNO will direct Maintenance to remove the exhaust pipe using a saw stored in the primary fire brigade locker or in the FLEX dome. This action was analyzed as part of the on-site detailed PBPA analysis for Event 3. The removal of the TDAFWP exhaust pipe can be performed by OPS personnel if personnel are trained on the performance of this task. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): A24
Supporting Procedure(s): Chemistry Department procedures
Resource: Chemistry
Action: Direct Chemistry to take periodic activity samples of all SGs one at a time.
Analysis: 19100-1/2, step 24 directs the operator to identify the ruptured SG(s) by assessing SG level rise, SG sample activity, MSL radiation, or SGBD line radiation. If the loss of all AC power event results in a loss of installed radiation monitors, then on-shift RP technicians will provide this information as needed based on priorities determined by the Shift Manager/Emergency Director. If the on-shift chemist is performing dose assessment they will not be available to perform the SG sampling. Furthermore, in a loss of all AC event some sampling and counting equipment may not be available to support performing the requested sampling. Since the procedure provides for determining SGTR status based on SG level or radiation monitor readings, to include local surveys, the operator can determine SG status in the absence of SG activity samples. If RMs and/or SG level indicate a SGTR is in progress the operator will perform step A25 and continue with the procedure. If RMs and/or SG level do not indicate a SGTR and samples are not available, the operator is directed to perform to step A26 and continue with the procedure. Confirmatory SG activity samples can be obtained as resources and plant support conditions are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): A28.b
Supporting Procedure(s): 18032-1/2, Loss of 120 Volt AC Instrument Power

	18034-1/2, Loss of Class 1E 125V DC Power
Resource:	Chemistry
Action:	As time permits, perform the following: Initiate 18032-1/2, Loss of 120 Volt AC Instrument Power and 18034-1/2, Loss of Class 1E 125V DC Power if the following criteria is met: Any Inverter must be shut down. -OR- Any battery breaker must be opened due to battery overload or low DC Bus voltage.
Analysis:	19100-1/2, step A28.b directs the operator to initiate 18032-1/2 and 18034-1/2 if any inverter must be shut down, or any battery breaker must be opened due to battery overload or low DC Bus voltage.

1. 18032-1/2 steps B1, D5, H10, J9, K4, L7, M7, N7, and P6, directs the operator to notify chemistry of out of service radiation monitoring equipment. Step I3 notifies Chemistry to initiate ODCM actions as a result of loss of Communications Console and both units control room radiation alarms. Step N4 directs Chemistry to "Determine RCS boron concentration by chemistry sample until BORON METER is restored." Since an emergency has been declared the on-shift chemist will be performing dose assessment and unavailable to address other specified actions. In a loss of all AC event, most if not all, of the radiation monitors, sampling and counting equipment, and supporting computer systems on the affected Unit(s) will not be operable until power is restored. Therefore, the directed actions of 18032-1/2 will be performed as power is restored and as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. 18032-1/2 Step JLL directs the operator to "Notify Engineering Support to reset AMSAC" and step O6 directs to "Notify Engineering Support to check seismic instrumentation." Resetting AMSAC and checking seismic instruments are recovery actions performed after the restoration of power following the loss of all AC and can be addressed as priorities dictate and resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Actions specified in 18034-1/2 do not require non OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s):	A29
Resource:	TSC staff
Action:	Consult with Plant Staff to determine when cooldown should be initiated.
Analysis:	19100-1/2, step A29 directs the operator to monitor RCS inventory based on "RCS subcooling based on CETCs – less than 22°F [22°F ADVERSE], PRZR level – less than 5% [34% Adverse]." If these parameters are not met, the RNO directs the operator to consult with the TSC staff to determine the long-term recovery goals for the plant and whether additional cooldown is desired. If the TSC is unavailable at the time this step is reached the SM/ED will determine whether to initiate cooldown based on indications available to the crew in the MCR. If cooldown is desired the

operator will go to step 30. If not, they will go to step A32. Therefore, the procedure provides adequate guidance for the operator to continue in the procedure if this step is reached prior to arrival of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 9, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19100-1/2, steps A14.a RNO, A14.b RNO, A32.a RNO and A32.b RNO direct the operator to reset SI per Attachment 9. All actions to reset SI directed per Attachment 2 are performed by the operator. Attachment 9, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): A36, A37 RNO, A44.a RNO, and A44.b RNO
Supporting Procedure(s): 18030-C, Loss of Spent Fuel Pool Level or Cooling
Resource: TSC staff, Engineering, Chemistry
Action:
- Step A36 - Initiate 18030-C, Loss of Spent Fuel Pool Level or Cooling, and commence Spent Fuel Pool Monitoring of Level and Temperature every 2 hours.
- Step A37 RNO - IF Core Exit TCs greater than 1200°F and rising, then go to SAG1-1, MCR Severe Accident Guideline initial response and continue 18030-C actions to address Spent Fuel Pool issues.
- Steps A44.a RNO and A44.b RNO - Initiate18030-C, Loss of Spent Fuel Pool Level or Cooling.

Analysis: 19100-1/2, step A36, A37 RNO, A44.a RNO and A44.b RNO direct the operator to initiate 18030-C. The performance of 18030-C does not require support from non OPS resources with the exception of the following:

1. 18030-C step 38 directs Chemistry to sample the SFP for born concentration (TS 3.7.17). This is the last step of the procedure so these samples will not be directed until after water addition and/or feed and bleed is established, or one train of SFP cooling is in service. If an emergency has been declared with an actual or potential release in progress the on-shift chemist will be performing does assessment and not be available to perform the sampling activity. The surveillance frequency (SR 3.7.17.1) for this sample is 31 days however in abnormal conditions this sample would be obtained once as resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

2. 18030-C step 7 directs the operator to "Check conditions requiring emergency makeup. This is followed by step 8 which directs the operator to "Contact the TSC for temporary repair options." The requested temporary repair actions are to address physical damage to the SFP liner resulting in a loss of SFP level. Such events are beyond the design basis of the plant and are associated with extreme natural events or security events that likely preclude immediate access to the site. As such, these contingency actions will be implemented as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. 18030-C Attachment 3, step 5.c has the operator "Request Engineering, with the support of Chemistry, to analyze the long-term effects of NSCW additives to the spent fuel stored in the SFPs." This action will only be required if SFP makeup using NSCW is utilized. The requested analysis from Engineering and Chemistry is for long term impacts of impurities when using NSCW for SFP makeup. As such this can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): A40.a RNO
Supporting Procedure(s): 13701-1/2, Boric Acid System
Resource: Chemistry
Action: When power is restored then place BAST on recirc per 13701-1/2, Boric Acid System.
Analysis: 19100-1/2, step A40.a RNO directs the operator to place BAST on recirc per 13701-1/2 once power is restored. Placing the BAST on recirc per 13701-1/2 does not require non- OPS resources. Once the tank has been on recirculation for the appropriate time chemistry will be contacted to sample. Based on the recirculation time required to obtain a representative sample, the sample will not be collected prior to additional resources being available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19101-1/2, ECA 0.1 Loss of All AC Power Recovery Without SI Required

Step(s): Attachment 1, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19101-1/2, steps 2.a RNO and 2.b RNO direct the operator to reset SI per Attachment 1. All actions to reset SI directed per Attachment 1 are performed by the operator. Attachment 1, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative

actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 7.a RNO
Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System
Resource: I&C
Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System
Analysis: 19101-1/2, step 7.a RNO directs the operator to align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non OPS actions except for step 4.1.12 which directs that "IF any RCP 1, 2, 3, 4 CLR LO FLOW alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch LO (FISL); b. If flow is 478 gpm or greater, request I&C personnel attempt to clear the alarm at the local FISL." Per the VEGP PBPA team clearing the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 9
Supporting Procedure(s): 13744A-1/2, Train A Essential Chilled Water System.
13744B-1/2, Train B Essential Chilled Water System
Resource: Chemistry
Action: Start Essential Chilled Water Pumps by initiating: 13744A-1/2, Train A Essential Chilled Water System and/or 13744B-1/2, Train B Essential Chilled Water System.
Analysis: 19101-1/2, step 9 direct restarting ESF Chillers. This is performed per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities which would not be applicable for starting/restarting a previously running chiller for EOP response. If these samples are desired, they can be collected as additional resources as they would not be necessary to support EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 25.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Direct Chemistry to sample RCS for boron concentration.

Analysis: 19101-1/2, step 25.b has the operator "Direct Chemistry to sample RCS for boron concentration." 14005-1/2, Shutdown Margin and K Calculations, provides the guidance for determining shutdown margin (SDM). It is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19102-1/2, ECA 0.2, Loss of All AC Power Recovery with SI Required

Step(s): Attachment 3, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19102-1/2, step 2 RNO directs the operator to reset SI per Attachment 3. All actions to reset SI directed per Attachment 3 are performed by the operator. Attachment 3, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 8.e
Supporting Procedure(s): 13744A-1/2, Train A Essential Chilled Water System.
13744B-1/2, Train B Essential Chilled Water System
Resource: Chemistry
Action: Load following ESF equipment on energized AC Emergency Bus: Essential Chilled Water by initiating one of the following: 13744A-1/2, Train A Essential Chilled Water System 13744B-1/2, Train B Essential Chilled Water System
Analysis: 19102-1/2, step 8.e direct restarting ESF Chillers. This is performed per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities which would not be applicable for starting/restarting a previously running chiller for EOP response. If these samples are desired, they can be collected as additional resources as they would not be necessary to support EOP response. Conclusion - procedure actions

can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19111-1/2, ECA 1.1, Loss of Emergency Coolant Recirculation</u>

Step(s): 2
Resource: TSC staff
Action: If CNMT Sump blockage is suspected and at least one ECCS train appears to be unaffected then request guidance from the TSC.
Analysis: 19111-1/2, step 2 is a continuous action (CA) step that directs operators to monitor RHR pump suction conditions. If conditions indicate sump blockage the RNO is entered. Step 2 RNO directs that if at least one ECCS train appears to be unaffected, then request guidance from the TSC and establish more frequent monitoring of RHR Pump suction conditions for blockage. Per the background document, it is the intent of this step to only go to 19113-1/2, ECA-1.3 Recirculation Sump Blockage, when both trains of ECCS are so degraded that recirculation flow cannot be established or maintained. If the TSC is unavailable when this step is reached the SM/ED will make the determination whether to transition to 19113-1/2 based on the RHR pump suction parameters. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 6, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19111-1/2, step 4 RNO directs the operator to reset SI per Attachment 6. All actions to reset SI directed per Attachment 6 are performed by the operator. Attachment 6, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 10
Supporting Procedure(s): 13701-1/2, Boric Acid System
Resource: Chemistry
Action: Makeup to RWST as necessary: Initiate 13701-1/2, Boric Acid System or Initiate Attachment 1 or 2, "RWST Makeup from the Spent Fuel Pool".
Analysis: 19111-1/2, step 10 directs the operator to initiate makeup to the RWST from the Boric Acid System per 13701, or from the SFP per Attachment 1 or Attachment 2. RWST makeup from the BASTs is performed per section 4.4.2 of 13701-1/2 and does not require non-OPS resources until makeup is completed. Once the tank has been on recirculation for the appropriate time, Chemistry will be contacted to

sample. Based on the recirculation time required to obtain a representative sample, the sample will not be collected prior to additional resources being available after 90 minutes of an Alert or higher declaration. Attachment 1 and 2 do not require non-OPS resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 10.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19111-1/2, step 10.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 25.c and 39.c
Supporting Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service by initiating 13011-1/2, RHR System
Analysis: 19111-1/2, step 25.c and 39.c directs the operator to "Consult TSC to determine if RHR system should be placed in service by initiating 13011-1/2, RHR System." Per the background document the intent of this consultation with the TSC is to determine RHR System availability which includes confirmation of equipment needed for RHR System operation (RHR suction valves, RHR pumps, etc.) and confirmation of adequate liquid inventory in the RCS to preclude steam from entering the RHR pump suction. Indications needed to determine RHR availability are available in the MCR such that in the absence of the TSC the operators, with SM/ED concurrence, can make this decision and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 and do not require non-OPS resources. Conclusion - procedure

actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 26.d RNO and 36.d RNO
Resource: TSC staff
Action: If an accumulator cannot be isolated or vented then consult the TSC to determine contingency actions.
Analysis: 19111-1/2, step 26.d and 36.d directs the operator to close the accumulator isolation valves. If one or more cannot be closed, then step 26.d RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, the operator is directed to consult the TSC to determine contingency actions. Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. The TSC consultation will be performed once the TSC is staffed after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 41.a RNO and 41.b.
Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures
Resource: TSC Staff, Chemistry, Maintenance
Action: Step 41.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control.
Step 41.b - Consult TSC on methods to reduce hydrogen concentration inside containment.
Analysis: 19111-1/2, step 41 has the operator check containment hydrogen concentration. Step 41.a will have the operator check "Current hydrogen concentration measurement - Available." If it is not, step 41.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Tech Specs, 2.C(3), VEGP shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4, the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment

hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that if a post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that "if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel." If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly. If so, hydrogen concentration measurements can be obtained at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 41.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 41.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

19112-1/2, ECA 1.2, LOCA Outside Containment

Step(s): Attachment 1, Step 6

Resource: I&C

Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.

Analysis: 19112-1/2, step 1 RNO directs the operator to reset SI per Attachment 1. All actions to reset SI directed per Attachment 1 are performed by the operator. Attachment 1, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19113-1/2, ECA 1.3, Recirculation Sump Blockage

Step(s): 10
Resource: TSC staff
Action: Consult TSC to determine optimum ECCS and CNMT Spray alignment.
Analysis: 19113-1/2, step 10 directs the operator to "Consult TSC to determine optimum ECCS and CNMT Spray alignment. Per the background document TSC staff evaluations to determine optimum SI and spray alignment may require significant time. Operators should not suspend performance of other steps in this guideline while this evaluation is being performed. Previous continuous action steps (Step 1, Monitor Low-Head SI Pump Suction Conditions – no indication of cavitation, and Step 4, monitor RWST Level – greater than 8%) continue to apply. These actions are supplemental in nature. Performance of subsequent steps should continue while the TSC staff is activated, responds to the facility and performs the evaluation within 90 minutes of an Alert or higher classification. When the TSC staff has determined the optimum SI and spray alignment, operators should establish the specified alignment and then continue with actions of this guideline that do not conflict with the SI and spray alignment determined by the TSC staff. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 12
Supporting Procedure(s): 13701-1/2, Boric Acid System
Resource: Chemistry
Action: Makeup to RWST as necessary: Initiate 13701-1/2, Boric Acid System -OR- Initiate ATTACHMENT 1
Analysis: 19113-1/2, step 12 directs the operator to initiate makeup to the RWST from the Boric Acid System per 13701, or from the SFP per Attachment 1. RWST makeup from the BASTs is performed per section 4.4.2 of 13701-1/2 and does not require non-OPS resources until makeup is completed. Once the tank has been on recirculation for the appropriate time chemistry will be contacted to sample. Based on the recirculation time required to obtain a representative sample, the sample will not be collected prior to additional resources being available after 90 minutes of an Alert or higher declaration. Attachment 1 does not require non-OPS resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 19.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry

Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations

Analysis: 19113-1/2, step 19.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22.c RNO

Resource: TSC staff

Action: Consult TSC to determine desired ECCS termination sequence.

Analysis: 19113-1/2, step 22 is a CA step to Check if ECCS can be terminated. Step 22.c directs to check at least one CCP running. If not step 22.c.1 RNO directs the operator to Consult TSC to determine desired ECCS termination sequence. Once the consultation is requested the operator will proceed step 22.c.2 which directs to go to step 29 and continue with the procedure until input is received. If the TSC is not available at the time this step is reached the operator will continue with the procedure and request the TSC consultation when the TSC staff is available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22.d RNO

Resource: TSC staff

Action: Consult with the TSC to determine desired ECCS and CVCS alignment following ECCS termination.

Analysis: 19113-1/2, step 22 is a CA step to Check if ECCS can be terminated. Step 22.d directs the operator to Consult with TSC to determine desired ECCS and CVCS alignment following ECCS termination. If the TSC is not available at the time this step is reached, the operator will continue with ECCS operation and request the TSC consultation when the TSC staff is available within 90 minutes of an Alert or higher declaration. Likewise, if the TSC is available, the operator will continue with ECCS operation until input is received from the TSC. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 27.c
Resource: TSC staff
Action: Consult TSC to determine if CCP suction should be realigned to RWST.
Analysis: 19113-1/2, step 27 directs the operator to Check if CCP(s) should be realigned to RWST. Step 27.a will have the operator check the RWST level greater than 8% followed by 27.b which will check the RWST fill rate greater than charging flow rate. If either of these conditions are not met, the operator will perform the associated RNO and go to step 29 and continue with the procedure. If the conditions are satisfied the operator will perform step 27.c and consult the TSC to determine if CCP suction should be realigned to RWST. The SM/ED has the knowledge and authority to make this determination in the absence of the TS if desired however they may also elect to wait until the TSC address this step. While awaiting response from the TSC the operator will continue to step 28 which has the operator check no running CCP(s) suction aligned to RHR pumps. Because the running CCP(s) suction are a still aligned to the RHR discharge the associated RNO is performed and the operator will go to step 29 and continue with the procedure until input is received from the TSC or the SM/ED to realign the CCP(s) to the RWST . Therefore, adequate procedure guidance is provided for the operator if this step is reached prior to arrival of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 31.c
Supporting Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service by initiating 13011-1/2, Residual Heat Removal System
Analysis: 19113-1/2, step 31.c and 43.c direct the operator to "Consult TSC to determine if RHR system should be placed in service by initiating 13011-1/2, RHR System." Per the background document the intent of this consultation with the TSC is to determine RHR System availability which includes confirmation of equipment needed for RHR System operation (RHR suction valves, RHR pumps, etc.) and confirmation of adequate liquid inventory in the RCS to preclude steam from entering the RHR pump suction. Indications needed to determine RHR availability are available in the MCR such that in the absence of the TSC the operators, with SM/ED concurrence, can make this decision and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 and do not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19113-1/2, step 32.c RNO directs the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 32.d RNO and 36.d RNO
Resource: TSC staff
Action: If an accumulator cannot be isolated or vented then consult the TSC to determine contingency actions.
Analysis: 19113-1/2, step 32.d direct the operator to close the accumulator isolation valves. If one or more cannot be closed, then step 32.d RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, the operator is directed to consult the TSC to determine contingency actions. Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. The TSC consultation will be performed once the TSC is staffed within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 45.a RNO and 45.b.
Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Resource: TSC Staff, Chemistry, Maintenance
Action: Step 45.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control.
Step 45.b - Consult TSC on methods to reduce hydrogen concentration inside containment.
Analysis: 19113-1/2, step 45 has the operator check containment hydrogen concentration. Step 41.a will have the operator check "Current hydrogen concentration measurement - available." If it is not, step 45.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Tech Specs, 2.C(3), VEGP shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation

within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that if a post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, if one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 45.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 45.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 46
Resource: TSC staff
Action: Consult TSC.
Analysis: 19113-1/2, step 46 is the last step in the procedure and directs the operator to consult the TSC. Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long term plant operation and any repairs necessary for plant restart. Therefore, this consultation is not

required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 2
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19113-1/2, step 20.c directs the operator to perform Attachment 4. Attachment 4, step 1.d directs to monitor RCP seal leakoff per Figure 2. Figure 2 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 2 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19121-1/2, ECA 2.1, Uncontrolled Depressurization of All Steam Generators

Step(s): 4.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19121-1/2, step 4.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 7
Supporting Procedure(s): Chemistry Department procedures
Resource: Chemistry
Action: Direct Chemistry to take periodic activity samples of all SGs one at a time

Analysis: 19121-1/2, step 7 will determine if SGs tubes are intact. If one or more SGs are determined to be ruptured the operator will transition to 19030-1/2, E-3 Steam Generator Tube Rupture. If an emergency declaration has already been made the on-shift chemist will be performing dose assessment and unavailable to sample the SGs. If they are available, it will take time to collect and analyze the sample or plant conditions may be such that they do not support sample collection such that sample results will not be immediately available. Per the background document, it may be difficult to sample a depressurized steam generator for activity, the operator should suspect a rupture if the steam generator does not dry out following isolation of feed to it. A faulted, ruptured steam generator will stay at some low pressure and continue to cool that loop and the RCS. In addition, the operator should suspect a rupture if following SG dryout, RCS inventory or pressure cannot be maintained and there is no indication of an RCS leak to containment. If the operator suspects that a faulted steam generator is not drying out and cannot confirm that it is ruptured by sampling because a sample cannot be drawn, he may either request a check for radiation in the area of the break (if it is outside the containment) to confirm that a rupture exists or he may conclude that the faulted generator is ruptured if it is not practical to check for radiation based on response of the faulted steam generator or the response of the RCS. Based on the wide range of indications provided in the procedure and background document the operator is provided sufficient guidance to determine if a SGTR has occurred such that performance of the periodic chemistry samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 4, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19121-1/2, steps 8.c RNO, 10 RNO, and 33.d RNO directs the operator to reset SI per Attachment 4. All actions to reset SI directed per Attachment 4 are performed by the operator. Attachment 4, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 13.d.3 RNO and 37.e RNO
Resource: TSC staff
Action: If an accumulator cannot be isolated or vented then consult the TSC to determine contingency actions.
Analysis: 19121-1/2, step 13.d and 37.d direct the operator to close the accumulator isolation valves. If one or more cannot be closed, then steps 13.d.3 RNO and 37.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an

accumulator cannot be isolated or vented, the operator is directed to consult the TSC to determine contingency actions. Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. The TSC consultation will be performed once the TSC is staffed after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 28.b RNO
Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System
Resource: I&C
Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System
Analysis: 19121-1/2, step 28.b RNO directs the operator to align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non-OPS actions except for step 4.1.12 which directs that "If any RCP 1, 2, 3, 4 CLR LO FLOW alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch LO (FISL); b. If flow is 478 gpm or greater, request I&C personnel attempt to clear the alarm at the local FISL." Clearing the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 30.a RNO
Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System
Resource: Chemistry, I&C
Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System or Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.
Analysis: 19121-1/2, step 30 has the operator check AC busses. Step 30.a has the operator check emergency busses are energized from offsite power. If they are not energized from offsite power, the operator will perform step 30.a RNO and ensure applicable diesel generator(s) are powering train related loads to include 2 NSCW pumps, 2 CCW pumps, 1 CCP, 1 ACCW pump, 1 MDAFW pump, Containment Coolers, and 480V AC switchgears 1AB04, 1AB05, 1AB15, 1NB01, 1BB06,

1BB07, 1BB16, and 1NB10. The operator will then try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 or Normal Chillers by initiating 13743-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non-OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the exception of steps 4.1.2.22 “Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."” and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 if previously disabled." Both actions can be performed as resources are available after the Chillers are placed in service as they are not time dependent. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 2, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19121-1/2, step 31.c RNO directs the operator to perform Attachment 4. Attachment 4, step 1.d directs to monitor RCP seal leakoff per Figure 2. Figure 2 step 1 directs to “Closely monitor pump and seal parameters and contact Engineering for further instructions.” The Figure 2 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 38.a, and 38.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures

Resource: Chemistry

Action: Step 38.a - Contact Chemistry to obtain RCS boron sample
Step 38.b - Shutdown margin adequate for cold shutdown by initiating 14005-1, Shutdown Margin and K Calculations

Analysis: 19121-1/2, step 38 has the operator to "Verify adequate shutdown margin". Step 38.a will direct chemistry to obtain RCS boron samples. Step 38.b have the operator verify Shutdown margin adequate for cold shutdown by performing 14005-1/2. 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Because an emergency will have been declared, the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 45.

Resource: TSC Staff

Action: Consult TSC for long term recovery actions

Analysis: 19121-1/2, step 45 directs the operator to "Consult TSC for long term recovery actions." Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19131-1/2, ECA 3.1, SGTR With Loss of Reactor Coolant; Subcooled Recovery Desired

Step(s): Attachment 5, Step 6

Resource: I&C

Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.

Analysis: 19131-1/2, steps 2 RNO, 33.d RNO, and 34.b RNO direct the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 5.b RNO

Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System

Resource: Chemistry, I&C

Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System or Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.

Analysis: 19131-1/2, step 5 has the operator check AC busses. Step 5.b has the operator check "Check Stub Busses – Energized." If they are not energized, the operator will perform step 5.b RNO and try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 or Normal Chillers by initiating 13743-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non-OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the exception of steps 4.1.2.22 "Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."" and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 if previously disabled." Both actions can be performed as resources are available after the Chillers are placed in service as they are not time dependent. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 6
Resource: TSC staff
Action: Consult TSC for minimum indicated pressurizer (PRZR) water level before re-energizing PRZR Heaters
Analysis: 19131-1/2, step 6 will de-energize the PRZR heaters to ensure they are not energized or subsequently reenergized by an automatic control signal while uncovered. Once they are de-energized, the TSC will be consulted for a minimum indicated PRZR water level before re-energizing PRZR Heaters. Once this request is made, the operator will continue in the procedure while the TSC makes this determination. Subsequent steps that may utilize the PRZR heaters are 29.b RNO and 30.b. Both of these steps direct use of PRZR heaters when the TSC specified level is reached as necessary. If the TSC is unavailable when this step is reached, the SM/ED has the available indications, knowledge, and authority to make this decision. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 15.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19131-1/2, step 15.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Because an emergency will have been declared, the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 16 RNO
Resource: TSC staff
Action: Consult TSC to determine if recovery should be completed using 19132-1/2
Analysis: 19131-1/2, step 16 RNO has the operator "Consult TSC to determine if recovery should be completed using 19132-1/2." Per the background document the purpose of this step is to direct the operator to ECA-3.2, SGTR With Loss of Reactor Coolant - Saturated Recovery Desired, if additional actions are necessary to limit leakage from the RCS. This is a CA step and in 16.a the operator will check

"RWST level – greater than 66%." If is not, they will enter the RNO which will have them refer to Figure 1 to determine expected Containment Sump level. If Containment Sump level is less than expected, the operator will be directed to transition to 19132-1/2 (ECA-3.2). If it is within expected parameters, the operator will exit the RNO and go to 16.b and check "Ruptured SG(s) NR level – less than 93% [82% adverse]." If it is not, 16.b RNO will be entered and the operator will consult with the TSC to determine if recovery should be completed using 19132-1/2 (ECA-3.2). Per site-specific background document guidance, this step is a continuous action step and the operator can transition to 19132-1/2 when the criteria in Step 16 are satisfied any time during the cooldown to cold shutdown. Therefore, the operator can continue in the current procedure until the determination is made to transition to 19132-1/2. If the TSC is unavailable when this step is reached, the SM/ED will make the determination on transition to 19132-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Figure 2
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19131-1/2, step 23.d and 29.c direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 2. Figure 2 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 2 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 31.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19131-1/2, step 31 directs the operator to "Verify adequate shutdown margin." Step 31.b directs chemistry to sample RCS and SG(s) for boron. Step 31.c will then direct the operator "Borate RCS to maximum boron concentration for cooldown range 557°F to 68°F using PTDB." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples

are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 33.e RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19131-1/2, step 33.e directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 33.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 33.e directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 35
Supporting Procedure(s): 43028-C, Health Physics Steam Generator Tube Leak Actions
13310-1/2, Turbine Building HVAC System
13761-1/2, Auxiliary Steam System
Resource: RP
Action: Minimize secondary system and environmental contamination by performing the following as conditions require:
- Notify HP that SJAE and SPE Filters will be placed in service.
- Dispatch an operator to verify SJAE and SPE Filters are in service by initiating 13310-1/2, Turbine Building HVAC System.
- Dispatch an operator to implement condensate water management using Attachment 4.
- Switch loads to Aux Steam when available by initiating 13761-1/2, Auxiliary Steam System

Analysis: 19131-1/2, step 35 directs actions that are intended to minimize secondary system and environmental contamination. Verifying SJAE and SPE Filters are in service per 13310-1/2 and switching loads to Aux Steam per 13761-1/2 are performed by OPS and do not require non-OPS resources unless RP determines the workers will need RP coverage in which case this will be provided by an on-shift RP technician. Step 35 also directs the operator to dispatch an operator to implement condensate water management per Attachment 4. Attachment 4 step 3 Note states "RP should

be notified to initiate 43028-C, Health Physics Steam Generator Tube Leak Actions, prior to draining potentially contaminated water to the Turbine Building sumps." Upon notification of the SGTR, RP will perform SGTR surveys per 43028-C and support job coverage using on-shift RPTs based on the priorities set by the SM/ED. Per the background document, the purpose of Attachment 4 is to minimize the spread of contamination throughout the secondary system because prior to isolation of the ruptured steam generator, steam flow from that steam generator may have contaminated the secondary system. Actions include posting newly contaminated areas/systems, packaging and processing of contaminated waste, etc. These actions are long term recovery actions and can be initiated as additional resources are available and event priorities permit. Contamination control actions are not required to support immediate event response and can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 36.b RNO
Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System
Resource: I&C
Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System
Analysis: 19131-1/2, step 36.b RNO directs the operator to Align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non OPS actions except for step 4.1.12 which directs that "IF any RCP 1, 2, 3, 4 CLR LO FLOW alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch LO (FISL); b. IF flow is 478 gpm OR greater, request I&C personnel attempt to clear the alarm at the local FISL." learning the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 39
Resource: TSC staff
Action: Coordinate with the TSC to determine which equipment is not required at this time and Request TSC to coordinate CNMT inspection / cleanup within 5 days.
Analysis: 19131-1/2, step 39 directs the operator to secure unnecessary plant equipment to include consulting with the TSC to determine which equipment is not required at the time the step is reached. If the TSC is not available when this step is reached the SM/ED has the knowledge and authority to make this determination. This step also directs to request TSC to coordinate containment inspection/cleanup within 5 days. This action is not required within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 43.e
Supporting
Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System
Analysis: 19131-1/2, step 43 directs the operator to "Check if RHR system can be placed in service." Subsequent steps 43.a, 43.b, and 43.c will have the operator check RCS hot leg and cold leg temperatures and RCS pressure to determine if RHR operating conditions ae met. If the conditions are met for operating RHR step 43.e directs the operator to "Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System." If the TSC is unavailable at the time this step is reached, the SM/ED will make the decision whether to place RHR in service and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 which do not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved

Step(s): 44.a RNO and 44.b.
Supporting
Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures
Resource: TSC Staff, Chemistry, Maintenance
Action: Step 44.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 44.b - Consult TSC on methods to reduce hydrogen concentration inside containment
Analysis: 19131-1/2, step 44 has the operator check containment hydrogen concentration. Step 44.a will have the operator check "Current hydrogen concentration measurement - Available." If it is not step 44.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Tech Specs 2.C(3), VEGP be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are

powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that if a post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost, the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 44.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 44.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 46
Resource: TSC Staff
Action: Consult TSC for long term recovery actions
Analysis: 19131-1/2, step 46 directs the operator to "Consult TSC for long term recovery actions." Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long-term recovery actions once the plant is in cold shutdown. Therefore; this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19132-1/2, ECA 3.2, SGTR With Loss of Reactor Coolant Saturated Recovery Desired

Step(s): 10.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19132-1/2, step 10.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19132-1/2, step 17.d and 23.c direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 25.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations

Analysis: 19132-1/2, step 25 directs the operator to "Verify adequate shutdown margin." Step 25.b directs chemistry to sample RCS and SG(s) for boron. Step 25.c will then direct the operator "Borate RCS to maximum boron concentration for cooldown range 557°F to 68°F using PTDB." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19132-1/2, steps 27.d RNO and 28.b RNO direct the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 27.e RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19132-1/2, step 27.e directs the operator to close the accumulator isolation valves. If one or more cannot be closed, step 27.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 27.e directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 29

Supporting Procedure(s): 43028-C, Health Physics Steam Generator Tube Leak Actions
13310-1/2, Turbine Building HVAC System
13761-1/2, Auxiliary Steam System

Resource: RP

Action: Minimize secondary system and environmental contamination by performing the following as conditions require:
- Notify HP that SJAE and SPE Filters will be placed in service.
- Dispatch an operator to verify SJAE and SPE Filters are in service by initiating 13310-1/2, Turbine Building HVAC System.
- Dispatch an operator to implement condensate water management using Attachment 4.
- Switch loads to Aux Steam when available by initiating 13761-1/2, Auxiliary Steam System

Analysis: 19132-1/2, step 29 directs actions that are intended to minimize secondary system and environmental contamination. Verifying SJAE and SPE Filters are in service per 13310-1/2 and switching loads to Aux Steam per 13761-1/2 are performed by OPS and do not require non OPS resources unless RP determines the workers will need RP coverage in which case this will be provided by an on-shift RP technician. Step 29 also directs the operator to dispatch an operator to implement condensate water management per Attachment 4. Attachment 4 step 3 Note states "RP should be notified to initiate 43028-C, Health Physics Steam Generator Tube Leak Actions, prior to draining potentially contaminated water to the Turbine Building sumps." Upon notification of the SGTR RP will perform SGTR surveys per 43028-C and support job coverage using on-shift RPTs based on the priorities set by the SM/ED. Per the background document the purpose of Attachment 4 is to minimize the spread of contamination throughout the secondary system since prior to isolation of the ruptured steam generator, steam flow from that steam generator may have contaminated secondary system. posting newly contaminated areas/systems, packaging and processing of contaminated waste, etc. These actions are long term recovery actions and can be initiated as additional resources are available and event priorities permit. Contamination control actions are not required to support immediate event response and can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 30.b RNO

Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System

Resource: I&C

Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System

Analysis: 19132-1/2, step 30.b RNO directs the operator to align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non OPS actions except for step 4.1.12 which directs that "If any RCP 1, 2, 3, 4 CLR LO FLOW alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch LO (FISL); b. If flow is 478 gpm or greater, request I&C personnel attempt to clear the alarm at the local FISL." Clearing the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 33
Resource: TSC staff
Action: Coordinate with the TSC to determine which equipment is not required at this time and Request TSC to coordinate CNMT inspection / cleanup within 5 days.
Analysis: 19132-1/2, step 33 directs the operator to secure unnecessary plant equipment to include consulting with the TSC to determine which equipment is not required at the time the step is reached. If the TSC is not available when this step is reached the SM/ED has the knowledge and authority to make this determination. This step also directs to request TSC to coordinate containment inspection/cleanup within 5 days. This action is not required within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 37.e
Supporting Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System
Analysis: 19132-1/2, step 37 directs the operator to "Check if RHR system can be placed in service." Subsequent steps 37.a, 37.b, and 37.c will have the operator check RCS hot leg and cold leg temperatures and RCS pressure to determine if RHR operating conditions ae met. If the conditions are met for operating RHR step 37.e directs the operator to "Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System." If the TSC is unavailable at the time this step is reached the SM/ED will make the decision whether to place RHR in service and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 which do not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 38.a RNO and 38.b.

Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures

Resource: TSC Staff, Chemistry, Maintenance

Action: Step 38.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 38.b - Consult TSC on methods to reduce hydrogen concentration inside containment

Analysis: 19132-1/2, step 38 has the operator check containment hydrogen concentration. Step 44.a will have the operator check "Current hydrogen concentration measurement - Available." If it is not step 38.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Renewed License No. NPF-68 Tech Specs, 2.C(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that IF A post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also,

the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 38.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 38.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 40
Resource: TSC Staff
Action: Consult TSC for long term recovery actions
Analysis: 19132-1/2, step 40 directs the operator to "Consult TSC for long term recovery actions." Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19133-1/2, ECA 3.3, SGTR Without Pressurizer pressure Control</u>

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19133-1/2, step 3.a RNO directs the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 3, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19133-1/2, steps 16.b RNO and 23.d RNO direct the operator to reset SI per Attachment 3. All actions to reset SI directed per Attachment 3 are performed by the operator. Attachment 3, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 17
Supporting Procedure(s): 43028-C, Health Physics Steam Generator Tube Leak Actions
13310-1/2, Turbine Building HVAC System
13761-1/2, Auxiliary Steam System
Resource: RP
Action: Minimize secondary system and environmental contamination by performing the following as conditions require:
- Notify HP that SJAE and SPE Filters will be placed in service.
- Dispatch an operator to verify SJAE and SPE Filters are in service by initiating 13310-1/2, Turbine Building HVAC System.
- Dispatch an operator to implement condensate water management using Attachment 4.
- Switch loads to Aux Steam when available by initiating 13761-1/2, Auxiliary Steam System

Analysis: 19133-1/2, step 17 directs actions that are intended to minimize secondary system and environmental contamination. Verifying SJAE and SPE Filters are in service per 13310-1/2 and switching loads to Aux Steam per 13761-1/2 are performed by OPS and do not require non OPS resources unless RP determines the workers will need RP coverage in which case this will be provided by an on-shift RP technician. Step 29 also directs the operator to dispatch an operator to implement condensate water management per Attachment 4. Attachment 4 step 3 Note states "RP should be notified to initiate 43028-C, Health Physics Steam Generator Tube Leak Actions, prior to draining potentially contaminated water to the Turbine Building sumps." Upon notification of the SGTR RP will perform SGTR surveys per 43028-C and support job coverage using on-shift RPTs based on the priorities set by the SM/ED. Per the background document, the purpose of Attachment 4 is to minimize the spread of contamination throughout the secondary system since prior to isolation of the ruptured steam generator, steam flow from that steam generator may have contaminated the secondary system. Actions include posting newly contaminated areas/systems, packaging and processing of contaminated waste, etc. These actions are long term recovery actions and can be initiated as additional resources are available and event priorities permit. Contamination

control actions are not required to support immediate event response and can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 21
Resource: TSC staff
Action: Coordinate with the TSC to determine which equipment is not required at this time and Request TSC to coordinate CNMT inspection / cleanup within 5 days.
Analysis: 19133-1/2, step 21 directs the operator to secure unnecessary plant equipment to include consulting with the TSC to determine which equipment is not required at the time the step is reached. If the TSC is not available when this step is reached the SM/ED has the knowledge and authority to make this determination. This step also directs to request TSC to coordinate containment inspection/cleanup within 5 days. This action is not required within 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22
Resource: TSC staff
Action: With TSC support, determine if feasible to make repairs necessary to re-establish PRZR pressure control.
Analysis: 19133-1/2, step 22 directs the operator "With TSC support, determine if feasible to make repairs necessary to re-establish PRZR pressure control." If the TSC is not available when this step is reached or the operators otherwise determine that PRZR pressure control will not be re-established, the operator will perform step 22 RNO and proceed to step 23 and continue in the procedure which is designed to address a SGTR without pressurizer pressure control. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 23.e RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19133-1/2, step 23.e directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 23.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. IF an accumulator cannot be isolated or vented, step 23.e directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore; the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 24.b and 33.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19133-1/2, step 24 directs the operator to "Verify adequate shutdown margin." Step 24.b and 33.b direct chemistry to sample RCS and SG(s) for boron. Step 24.c and 34.c will then direct the operator to "Borate RCS to maximum boron concentration for cooldown range 557°F to 68°F using PTDB." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, because the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 26.a and 34.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19133-1/2, step 26.a and 34.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Because an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 32.c
Supporting Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System
Analysis: 19133-1/2, step 32 directs the operator to "Check if RHR system can be placed in service." Subsequent steps 32.a, 32.b, and 32.c will have the operator check RCS hot leg and cold leg temperatures and RCS pressure to determine if RHR operating conditions ae met. If the conditions are met for operating RHR step 32.c directs the operator to "Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System." If the TSC is unavailable at the time this step is reached the SM/ED will make the decision whether to place RHR in service and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 which do not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 38
Resource: TSC Staff
Action: Consult TSC for long term recovery actions
Analysis: 19133-1/2, step 38 directs the operator to "Consult TSC for long term recovery actions." Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19001-1/2, ES-0.1 Reactor trip Response

Step(s): 10.a RNO
Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System
13719-1/2, Spent Fuel Pool Cooling and Purification System
18030-C, Spent Fuel Pool Level or Cooling
Resource: Chemistry, I&C
Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System,

To restore ESF Room Cooling, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System or Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.

Start SFP COOLING PER 13719-1, Spent Fuel Pool Cooling and Purification System, if SFP cooling cannot be restored, then initiate 18030-C, Loss of Spent Fuel Pool Level or Cooling

Analysis: 19001-1/2, step 10.a RNO has the operator check AC busses. Step 44.a has the operator check emergency busses are energized from offsite power. If they are not energized from offsite power the operator will perform step 44.a RNO and ensure applicable diesel generator(s) are powering train related loads to include 2 NSCW pumps, 2 CCW pumps, 1 CCP, 1 ACCW pump, 1 MDAFW pump, Containment Coolers, and 480V AC switchgears 1AB04, 1AB05, 1AB15, 1NB01, 1BB06, 1BB07, 1BB16, and 1NB10. The operator will then try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 OR Normal Chillers by initiating 13743-C. The operator will also take actions to ensure SFP cooling is restored by initiating 13719-1/2 or 18030-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non-OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the exception of steps 4.1.2.22 "Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."" and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 IF previously disabled." Both of these actions are not time critical can be performed as resources are available after the Chillers are placed in service. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
4. SFP cooling is placed in service per sections 4.1 of 13719-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

5. 18030-C is only entered if neither train of SFPC can be placed in service. The performance of 18030-C does not require support from non-OPS resources with the exception of chemistry boron samples (TS 3.7.17), Engineering and Chemistry analysis for long term impacts of impurities when using NSCW for SFP makeup, and TSC consultation for repairs and input regarding additional SFP cooling options if needed. Due to the heatup rate of the SFP, these actions are not immediately required and can be performed once additional resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19001-1/2, step 12.b and 13.a RNO direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19002-1/2, ES-0.2 Natural Circulation Cool Down</u>

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19002-1/2, step 3.a directs the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 5
Supporting
Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Determine the required boron concentration for xenon free cold shutdown conditions by initiating 14005-1/2, Shutdown Margin and K Calculations.
Analysis: 191002-1/2, step 5.a has the operator "Determine the required boron concentration for xenon free cold shutdown conditions by initiating 14005-1/2, Shutdown Margin and K Calculations." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. If the on-shift chemist is performing dose assessment they will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 6
Supporting
Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Check RCS boron concentration greater than required boron concentration for xenon free cold shutdown by directing Chemistry to sample RCS Loos 1 & 3 hot legs, Letdown and PRZR.
Analysis: 191002-1/2, step 6 directs the operator to check RCS boron concentration greater than required boron concentration for xenon free cold shutdown by directing Chemistry to sample the following: RCS loops 1 and 3 Hot Legs, Letdown, PRZR liquid (info only). If sampling capability is not available then the operator will verify boron determination from 14005-1/2, estimate boron concentration from last known concentration and any known dilutions and then go to step 7 which will set makeup to highest boron concentration determined per 14005-1/2 and continue with the procedure. Samples will be obtained to verify SDM once sampling capability is available. Per the background document the ultimate shutdown condition of the reactor must be judged from the response of the excore nuclear instrumentation. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 23.e RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19002-1/2, step 20.c directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 20.c RNO will direct the operator to vent the accumulator(s) that cannot be isolated. IF an accumulator cannot be isolated or vented, step 20.c directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore; the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19003-1/2, ES-0.3 Natural Circulation Cool Down with Void in Vessel (With RVLIS)</u>

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19003-1/2, step 5.b and 5.d directs the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 10.c RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19003-1/2, step 10.c directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 10.c RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 10.c directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19004-1/2, ES-0.4 Natural Circulation Cooldown with Steam Void in Vessel (Without RVLIS)

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19004-1/2, step 4.b and 4.f directs the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 13.b RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19004-1/2, step 13.b directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 10.c RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 10.c directs the operator "If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore; the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19011-1/2, ES-1.1 SI Termination

Step(s): Attachment 4, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19011-1/2, steps 2 RNO and 26.b RNO direct the operator to reset SI per Attachment 4. All actions to reset SI directed per Attachment 4 are performed by the operator. Attachment 4, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available based on priorities set by the Shift Manager/Emergency Director.

Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 20.b RNO

Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System

Resource: I&C

Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System

Analysis: 19011-1/2, step 20.b RNO directs the operator to Align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non OPS actions except for step 4.1.12 which directs that "If any RCP 1, 2, 3, 4 CLR Lo Flow alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch Lo (FISL); b. If flow is 478 gpm or greater, request I&C personnel attempt to clear the alarm at the local FISL." Clearing the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22.a RNO

Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System

Resource: Chemistry, I&C

Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System -OR- Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.

Analysis: 19011-1/2, step 22 has the operator check AC busses. Step 22.a has the operator check emergency busses are energized from offsite power. If they are not energized from offsite power the operator will perform step 42.a RNO and ensure applicable diesel generator(s) are powering train related loads to include 2 NSCW pumps, 2 CCW pumps, 1 CCP, 1 ACCW pump, 1 MDAFW pump, Containment Coolers, and 480V AC switchgears 1AB04, 1AB05, 1AB15, 1NB01, 1BB06, 1BB07, 1BB16, and 1NB10. The operator will then try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 OR Normal Chillers by initiating 13743-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the exception of steps 4.1.2.22 "Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."" and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 IF previously disabled." Both of these actions are not time critical and can be performed as resources are available after the chillers are placed in service. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19011-1/2, steps 23.c and 24.a RNO direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19012-1/2, ES-1.2 Post LOCA Cooldown and Depressurization</u>

Supporting Procedure(s): NA
Step(s): 19012-1/2, Attachment 4, step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.

Analysis: 19012-1/2, steps 2 RNO and 32.b RNO direct the operator to reset SI per Attachment 4. All actions to reset SI directed per Attachment 4 are performed by the operator. Attachment 4, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 22.a RNO
Supporting Procedure(s): 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System
13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System
13744A-1/2, Train A Essential Chilled Water System
13744B-1/2, Train B Essential Chilled Water System
13743-C, Normal Chilled Water System
Resource: Chemistry, I&C
Action: Try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, 4160V AC Bus 1AA02 1E Electrical Distribution System, 13427B-1/2, 4160V AC Bus 1BA03 1E Electrical Distribution System, Restart ESF Chillers by initiating 13744A-1/2, Train A Essential Chilled Water System, 13744B-1/2, Train B Essential Chilled Water System or Normal Chillers by initiating 13743-C, Normal Chilled Water System, to restore ESF Room Cooling.
Analysis: 19012-1/2, step 5 has the operator check AC busses. Step 5.a has the operator check emergency busses are energized from offsite power. If they are not energized from offsite power the operator will perform step 5.a RNO and ensure applicable diesel generator(s) are powering train related loads to include 2 NSCW pumps, 2 CCW pumps, 1 CCP, 1 ACCW pump, 1 MDAFW pump, Containment Coolers, and 480V AC switchgears 1AB04, 1AB05, 1AB15, 1NB01, 1BB06, 1BB07, 1BB16, and 1NB10. The operator will then try to restore offsite power to AC Emergency Busses by initiating 13427A-1/2, and/or 13427B-1/2, restart ESF Chillers by initiating 13744A-1/2, and/or 13744B-1/2 or Normal Chillers by initiating 13743-C.

1. Restoration of offsite power to emergency buses is performed per sections 4.1, 4.2 or 4.4 of 13427A-1/2 and 13427B-1/2 and does not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.
2. Restarting ESF Chillers is per section 4.1.3 of 13744A-1/2 and 13744B-1/2 and does not require non-OPS resources with the exception of a direction to consult Chemistry on requirements for chemical addition and/or feed and bleed and associated sample activities. This would not be applicable for starting/restarting a previously running chiller for EOP response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. Restarting Normal Chillers to restore ESF Room Cooling is per sections 4.2 and 4.3 of 13743-C and does not require non OPS resources with the

exception of steps 4.1.2.22 "Pull and store the annunciator cards referenced in Prerequisite 3.3 for the Normal Chiller that is not in service per 10018-C, "Annunciator Control."" and 4.1.2.23 "Notify Clearance and Tagging Supervisor to place the Fire Protection Halon systems in service per Attachment 1 IF previously disabled." Both of these actions are not time critical and can be performed as resources are available after the Chillers are placed in service. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 6.c
Resource: TSC staff
Action: Consult TSC for minimum indicated pressurizer (PRZR) water level before re-energizing PRZR Heaters
Analysis: 19012-1/2, step 6 will de-energize the PRZR heaters to ensure they are not energized or subsequently reenergized by an automatic control signal while uncovered. Once they are de-energized step 6.c directs that the TSC be consulted for a minimum indicated PRZR water level before re-energizing PRZR Heaters. Once this request is made the operator will continue in the procedure while the TSC makes this determination. Subsequent step that may utilize the PRZR heaters is 27.b RNO. Step 27 directs use of PRZR heaters when the TSC specified level is reached as necessary. If the TSC is unavailable when this step is reached, the SM/ED has the available indications, knowledge, and authority to make this decision. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 12.a
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Monitor shutdown margin by initiating 14005-1/2, Shutdown Margin and K Calculations
Analysis: 19012-1/2, step 12.a has the operator "Monitor shutdown margin by initiating 14005-1/2." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However; since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred

until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19012-1/2, steps 21.d and 27.c direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1 step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

Step(s): 5
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Verify adequate shutdown margin for xenon free cold shutdown by initiating 14005-2, Shutdown Margin and Keff Calculations.
Analysis: 191012-1/2, step 5.a has the operator "Determine the required boron concentration for xenon free cold shutdown conditions by initiating 14005-1/2, Shutdown Margin and K Calculations." 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. If the on-shift chemist is performing dose assessment they will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 31.e RNO
Resource: TSC staff
Action: If accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19012-1/2, step 31.e directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 31.e RNO will direct the operator to vent the accumulator(s) that cannot be isolated. IF an accumulator cannot be isolated or

vented, step 31.e directs the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 33.b RNO
Supporting Procedure(s): 13716-1/2, Auxiliary Component Cooling Water System
Resource: I&C
Action: Align ACCW system for normal operation by initiating 13716-1/2, Auxiliary Component Cooling Water System
Analysis: 19012-1/2, step 33.b RNO directs the operator to Align ACCW system for normal operation per 13716-1/2. Performance of 13716 does not require non OPS actions except for step 4.1.12 which directs that "IF any RCP 1, 2, 3, 4 CLR LO FLOW alarms ALB-04-A03, B03, C03, D03 fails to clear: a. Verify at least 478 gpm ACCW flow to the affected RCP at the local Flow Indicator Switch LO (FISL); b. IF flow is 478 gpm or greater, request I&C personnel attempt to clear the alarm at the local FISL." Clearing the alarm is not immediately required to support EOP response and can be performed as resources available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 38.c
Supporting Procedure(s): 13011-1/2, Residual Heat Removal System
Resource: TSC staff
Action: Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System
Analysis: 19012-1/2, step 38 directs the operator to "Check if RHR system can be placed in service." Subsequent steps 38.a, 38.b, and 38.c will have the operator check RCS hot leg and cold leg temperatures and RCS pressure to determine if RHR operating conditions are met. If the conditions are met for operating RHR step 38.c directs the operator to "Consult TSC to determine if RHR system should be placed in service. If approved to place RHR in service, initiate 13011-1, Residual Heat Removal System." If the TSC is unavailable at the time this step is reached the SM/ED will make the decision whether to place RHR in service and continue with the procedure. RHR is placed in service and operated using sections 4.3 and/or 4.4, 4.5, and 4.6 of 13011-1/2 which do not require non-OPS resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 39.a RNO and 39.b.

Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures

Resource: TSC Staff, Chemistry, Maintenance

Action: Step 38.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 38.b - Consult TSC on methods to reduce hydrogen concentration inside containment

Analysis: 19012-1/2, step 39 has the operator check containment hydrogen concentration. Step 39.a will have the operator check "Current hydrogen concentration measurement - AVAILABLE." If it is not step 39.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Renewed License No. NPF-68 Tech Specs, 2.C(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that If a post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can

dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 39.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 39.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 41
Resource: TSC Staff
Action: Consult TSC for long term recovery actions
Analysis: 19012-1/2, step 41 directs the operator to "Consult TSC for long term recovery actions." Per the background document the intent of this consultation with the TSC is to determine subsequent actions to address long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19013-1/2, ES-1.3 Transfer to Cold Leg Recirculation</u>

Step(s): Attachment 2, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19013-1/2, step 1 RNO directs the operator to reset SI per Attachment 2. All actions to reset SI directed per Attachment 2 are performed by the operator. Attachment 2, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 4
Resource: RP
Action: Notify RP that radiation levels in the Auxiliary Building will change when Cold leg Recirculation is established.
Analysis: 19013-1/2, steps 4 directs the operator to notify RP that Cold leg Recirculation is established to alert them to changing radiation levels in the plant. Once notified, RP will perform radiation surveys as needed. Determination on what areas may need to be surveyed will be based on a review of installed area radiation monitors (ARMs) and the need for personnel to access specific areas. Initially surveys will be performed by the on-shift RP personnel as directed by the SM/ED based on priorities and later by augmented resources as needed. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 16 RNO
Resource: TSC staff
Action: If CNMT Sump blockage is suspected and at least one ECCS train appears to be unaffected, then request guidance from the TSC
Analysis: 19013-1/2, step 16 is a CA step that directs operators to monitor RHR pump suction conditions. If conditions indicate sump blockage the RNO is entered. Step 2 RNO directs that if at least one ECCS train appears to be unaffected, then request guidance from the TSC and establish more frequent monitoring of RHR Pump suction conditions for blockage. Per the background document it is the intent of this step to only go to 19113-1/2, ECA-1.3 Recirculation Sump Blockage, when both trains of ECCS are so degraded that recirculation flow cannot be established or maintained. If the TSC is unavailable when this step is reached the, SM/ED has the knowledge and authority to make the determination whether to transition to 19113-1/2 based on the RHR pump suction parameters. Therefore, arrival of the TSC after 90 minutes of an Alert or higher declaration does not adversely impact the implementation of 19013-1/2 or overall event response. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 19
Supporting Procedure(s): 13701-1/2, Boric Acid System
Resource: Chemistry
Action: Initiate RWST makeup using 13701-1/2, Boric Acid System.
Analysis: 19013-1/2, step 19 directs the operator to initiate makeup to the RWST from the Boric Acid System per 13701. RWST makeup from the BASTs is performed per section 4.4.2 of 13701-1/2 and does not require non-OPS resources until makeup is completed. Once the tank has been on recirculation for the appropriate time chemistry will be contacted to sample. Based on the recirculation time required to obtain a representative sample, the sample will not be collected prior to additional resources being available after 90 minutes of an Alert or higher declaration.

Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 20 RNO
Resource: TSC staff
Action: Consult TSC.
Analysis: 19013-1/2, step 20 has the operator determine if transfer to Hot Leg Recirculation will be required based on whether the entry into 19013-1/2 was from 19010-1/2, E-1 Loss of Reactor Or Secondary Coolant. If 19013-1/2 was entered from another procedure, then step 20 RNO directs the operator to consult the TSC to determine if the operator should transition to Hot Leg Recirculation. Per the background document the purpose of this step is "To determine whether the plant engineering staff should be consulted for a recommendation regarding the need for transfer to hot-leg recirculation, or whether the operators will, instead, receive procedural guidance when they return to E-1, Loss of Reactor or Secondary Coolant." Per FSAR section 6.3.3.3 transfer to Hot Leg Recirculation will occur approximately 7.5 hours after the initiation of the LOCA therefore the TSC, which will be staffed after 90 minutes of an Alert or higher declaration, will be available to support this decision making. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

<u>19014-1/2, ES-1.4 Transfer to Hot leg Recirculation</u>

Step(s): 4.a RNO
Resource: TSC staff
Action: Consult TSC for actins to realign second SI train to hot leg recirculation.
Analysis: 19014-1/2, step 4 has the operator check that the SI alignment has been completed with both trains of SI systems aligned for Hot Leg Recirculation. If only one train is aligned, step 4.a RNO will direct the operator to "Consult TSC for actins to realign second SI train to hot leg recirculation." Per FSAR section 6.3.3.3 transfer to Hot Leg Recirculation will occur approximately 7.5 hours after the initiation of the LOCA therefore the TSC, which will be staffed within 90 minutes of an Alert or higher declaration, will be available to support this decision making. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

<u>19031-1/2, ES-3.1 Post SGTR Cool Down Using Backfill</u>

Step(s): Figure 1, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19031-1/2, step 2.c RNO directs the operator to perform Attachment 2. Attachment 2, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1, step 1 directs to "Closely monitor pump and seal parameters and contact

Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Attachment 4, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19031-1/2, step 4.c RNO directs the operator to reset SI per Attachment 4. All actions to reset SI directed per Attachment 4 are performed by the operator. Attachment 4, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 4.d RNO
Resource: TSC staff
Action: If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19031-1/2, step 4.d directs the operator to close the accumulator isolation valves. If one or more cannot be closed step 4.d RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 4.d directs the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 5.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Direct Chemistry to sample the following: RCS boron concentration and Ruptured SG(s) boron concentration.
Analysis: 19031-1/2, step 5 directs the operator to "Verify adequate shutdown margin." Step 5.b directs chemistry to sample RCS and SG(s) for boron. Step 5.c will then direct the operator "Borate RCS to maximum boron concentration for cooldown range 557°F to 68°F using PTDB." 14005-1/2 is performed by a licensed operator or

reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Since an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 14.d
Supporting Procedure(s): 13616-1/2, Condensate Demineralizer System
13618-C, Condensate Spent Resin Processing System.
13223-C, Secondary Spent Resin Processing
Chemistry Department procedures
Resource: TSC staff, Chemistry, RP
Action: Step 14.b - Consult TSC for long term recovery actions
Step 14.d - Per Chemistry direction, place the condensate demineralizers in service per 13616-1/2, Condensate Demineralizer System to aid in secondary plant cleanup.
Step 14.e - Contaminated resin should be processed in accordance with 13618-C, Condensate Spent Resin Processing System.
Step 14.f - Contaminated resin should be transferred in accordance with 13223-C, Secondary Spent Resin Processing.
Analysis: 19031-1/2, step 14 directs the plant operator to "Evaluate long term plant status." Step 14.b directs the operator to consult the TSC for long term recovery actions; step 14.d will place condensate demineralizers in service; step 14.e directs processing of contaminated resin; and step 14.f directs transferring of contaminated resin. Per the background document the of these steps are to evaluate plant conditions and initiate long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19033-1/2, ES-3.3 Post SGTR Cool Down Using Steam Dump

Step(s): 1
Resource: Chemistry
Action: Request an Offsite Release permit from Chemistry, Request TSC to perform offsite Dose Evaluation before dumping steam from ruptured SG.

Analysis: 19033-1/2, step 1 requests that Chemistry provide an offsite release permit to support dumping steam from a ruptured SG and requests the TSC perform an offsite dose evaluation prior to dumping steam from a ruptured SG. The on-shift chemist will be performing dose assessment and will not be available to collect the SG sample(s) to support this activity. This procedure is entered from 19030-1/2 step 52 which directs the operator to the appropriate cooldown procedure. Per 19030-1/2, step 52 the preferred method of post-SGTR cooldown is backfill. The transition will be made to 19033-1/2 only if the TSC is available for consultation to support the decision or if resources are available to collect the SG sample(s) and prepare the offsite release permit for the SM/ED to evaluate offsite consequences based on priorities. If resources are not available to support developing the dose projections to support offsite dose evaluations by either the SM/ED or the TSC or the offsite dose evaluation does not support the use of this procedure, then the operator will perform post-SGTR cooldown per 19031-1/2 and the performance of 19033-1/2 will be evaluated as additional resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Figure 1, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19033-1/2, step 2.c RNO directs the operator to perform Attachment 3. Attachment 3, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1, step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19033-1/2, step 4.c RNO directs the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 4.d RNO
Resource: TSC staff
Action: If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19033-1/2, step 4.d directs the operator to close the accumulator isolation valves. If one or more cannot be closed, step 4.d RNO will direct the operator to vent the accumulator(s) that cannot be isolated. IF an accumulator cannot be isolated or vented, step 4.d directs the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 5.b
Supporting Procedure(s): 14005-1/2, Shutdown Margin and K Calculations
Chemistry Department procedures
Resource: Chemistry
Action: Direct Chemistry to sample the following: RCS boron concentration and Ruptured SG(s) boron concentration.
Analysis: 19033-1/2, step 5 directs the operator to "Verify adequate shutdown margin." Step 5.b directs chemistry to sample RCS and SG(s) for boron. Step 5.c will then direct the operator "Borate RCS to maximum boron concentration for cooldown range 557°F to 68°F using PTDB." Per the PBPA team 14005-1/2 is performed by a licensed operator or reactor engineer using the Plant Technical Data Book (PTDB) available in the control room in conjunction with plant indications available in the MCR. The operator will request chemistry sample for boron but will continue with plant operations based on the SDM determined IAW 14005-1/2. The chemistry samples are confirmatory samples. Because an emergency will have been declared the on-shift chemist will be performing dose assessment and will not be available to perform the requested sampling. However, since the SDM is calculated IAW 14005-1/2, the requested samples can be performed as additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 11 RNO
Resource: TSC staff
Action: Consult TSC concerning steamline draining and perform steps of Attachment 2.
Analysis: 19033-1/2, step 11 directs the operator to "Check ruptured SG(s) level has remained LESS THAN 100% NR" and if it has not step 11 RNO will have the operator to consult with the TSC as to whether to drain the steamlines. Per the background document the purpose of this step is to alert the operator that this

guideline should not be used if water may exist in the ruptured SG steamlines as subsequent steps require steam release from the ruptured steam generators which could result in piping and equipment damage due to water hammer. If this step is reached prior to the TSC arriving the SM/ED has the knowledge to evaluate plant conditions to determine if the steamlines should be drained and the authority to dispatch OPS personnel to perform Attachment 2 as needed based on priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 14.d
Supporting Procedure(s): 13616-1/2, Condensate Demineralizer System
13618-C, Condensate Spent Resin Processing System.
13223-C, Secondary Spent Resin Processing
Chemistry Department procedures
Resource: TSC staff, Chemistry, RP
Action: Step 19.b - Consult TSC for long term recovery actions
Step 19.d - Per Chemistry direction, place the condensate demineralizers in service per 13616-1/2, Condensate Demineralizer System to aid in secondary plant cleanup.
Step 19.e - Contaminated resin should be processed in accordance with 13618-C, Condensate Spent Resin Processing System.
Step 19.f - Contaminated resin should be transferred in accordance with 13223-C, Secondary Spent Resin Processing.
Analysis: 19033-1/2, step 19 directs the plant operator to "Evaluate long term plant status." Step 19.b directs the operator to consult the TSC for long term recovery actions; step 19.d will place condensate demineralizers in service; step 19.e directs processing of contaminated resin; and step 19.f directs transferring of contaminated resin. Per the background document the of these steps are to evaluate plant conditions and initiate long-term recovery actions once the plant is in cold shutdown. Therefore, this consultation is not required prior to augmentation of the TSC staff after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19221-1/2, FR-C.1, Response to Inadequate Core Cooling

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19221-1/2, steps 4.a.1 RNO, 14.b RNO, 17.a RNO, 22.b, 25.b, and 27.a RNO direct the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the

source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Figure 1, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19221-1/2, step 5 RNO directs the operator to perform Attachment 4. Attachment 4, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1, step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 10.a RNO and 10.b.
Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures
Resource: TSC Staff, Chemistry, Maintenance
Action: Step 10.a RNO - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 10.b - Consult TSC on methods to reduce hydrogen concentration inside containment
Analysis: 19221-1/2, step 10 has the operator check containment hydrogen concentration. Step 10.a will have the operator check "Current hydrogen concentration measurement - Available." If it is not step 10.a RNO will direct the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Renewed License No. NPF-68 Tech Specs, 2.C(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA.

Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non-OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that if A post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available snf Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or higher declaration. If the hydrogen concentration is not known when step 10.b is reached, the operator will direct the above stated actions and continue with the procedure. If the hydrogen concentration is available and the TSC is available, the operator will request the TSC consultation per step 10.b and continue with the procedure while awaiting their response. In the absence of the TSC the SM/ED has the knowledge and authority to take the appropriate hydrogen control actions provided in 13130-1/2. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 14.c RNO and 25.c RNO

Resource: TSC staff

Action: If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.

Analysis: 19221-1/2, step 14.c and 25.c direct the operator to close the accumulator isolation valves. If one or more cannot be closed step 14.c RNO and 25.c RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 14.c and 25.c direct the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency

actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19222-1/2, FR-C.2, response to Degraded Core Cooling

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19222-1/2, steps 4.a.1 RNO, 14.b RNO, and 17.a RNO direct the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Figure 1, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19222-1/2, step 6.b RNO directs the operator to perform Attachment 4. Attachment 4, step 1.d directs to monitor RCP seal leakoff per Figure 1. Figure 1, step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 1 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 14.c RNO
Resource: TSC staff
Action: If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19222-1/2, step 14.c direct the operator to close the accumulator isolation valves. If one or more cannot be closed step 14.c RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 14.c directs the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the

operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19223-1/2, FR-C.3, Response to Saturated Core Cooling

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19223-1/2, step 3.a.1 RNO directs the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

19231-1/2, FR-H.1, Response to Loss of Secondary Heat Sink

Step(s): Attachment 5, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19231-1/2, steps 6.h.1 RNO, 8.d.1 RNO, 14 RNO direct the operator to reset SI per Attachment 5. All actions to reset SI directed per Attachment 5 are performed by the operator. Attachment 5, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Attachment 3, Note preceding step 1
Resource: TSC staff
Action: The TSC should be consulted about use of low pressure water sources for SG makeup.
Analysis: 19231-1/2, step 10.a RNO directs the operator "Align an available low pressure water source to at least one intact SG by initiating ATTACHMENT -3." Attachment 3 has a Note preceding step 1 which directs the operator to consult with the TSC about the use of low pressure water sources for SG makeup. If the TSC is unavailable at the time this step is reached the SM/ED has the knowledge to assess the use of low pressure water sources and the authority to direct performance of Attachment 3. Attachment 3 is performed by OPS personnel.

Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

19233-1/2, FR-H.3, Response to Steam Generator High Level

Step(s): 4 RNO
Resource: TSC staff
Action: Direct TSC to evaluate for SG overfill conditions.
Analysis: 19233-1/2, step 4.a directs the operator to check the affected SG(s) narrow range level is less than 93%[82% Adverse]. If the SG level criteria is not met then 4.a.1 RNO directs to not release steam from any SG with a level greater than that prescribed in step 4.a.Step 4.a.2 RNO will have the operator "Direct TSC to evaluate for SG overfill conditions" and step 4.a.3 RNO will have the operator continue with the procedure which will perform steps 5 through 8 where the affected SG(s) is isolated and evaluated for a possible tube failure. If the TSC is unavailable at the time step 4.a.2 RNO is reached the SM/ED has the knowledge and authority to evaluate for SG overfill conditions using the indications available in the MCR and take the appropriate actions while the operators continue to step 5. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 9
Supporting Procedure(s): 13605-1/2, Steam Generator Blowdown Processing System
Resource: Chemistry
Action: Establish blowdown from affected SG(s) by initiating 13605-1/2, Steam Generator Blowdown Processing System.
Analysis: 19233-1/2, step 9 directs the operator place SGBD in service for the affected SG(s) per 13605-1/2. Placing SGBD in service is performed per sections 4.1 and 4.2 of 13605-1/2 which do not require non OPS resources with the exception of informing Chemistry Supervision 15 minutes prior to initiating blowdown flow informing Chemistry that flow through 1-RE-0021 and 1-RE-0019 will be altered so as to initiate any necessary ODCM requirements. If the on-shift chemist is performing dose assessment they will not be available to perform ODCM actions. The previous step assesses SG(s) radiation levels and if they are not normal the FRP is exited and the controlling SGTR EOP is entered prior to reaching 19233-1/2, step 9. If SG(s) radiation was determined to be normal in step 9 an ODCM release permit will already be in place for SGBD so in the absence of chemistry support the SGBD flow can be established per the existing release permit and updated as conditions warrant when additional resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

19235-1/2, FR-H.5, Response to Steam Generator Low Level

Step(s): 4 RNO
Resource: TSC staff
Action: Consult TSC to evaluate refilling the affected SG(s) as part of long-term plant recovery.
Analysis: 19235-1/2, step 4 has the operator check AFW flow to the affected SG(s) is greater than 80 gpm. If is not step 4 RNO will check if SG(s) wide range level is greater than 12% [36% Adverse]. If it meets this criteria, then the operator will establish flow to the affected SG but if it does not then step 4.a will direct the operator to not establish flow. Step 4.b RNO will then direct the operator to "Consult TSC to evaluate refilling the affected SG(s) as part of long-term plant recovery." While waiting the TSC response the operator will perform step 4.c RNO which directs then to go to step 6 which will return the operator to the procedure and step in effect. The purpose of this step is to determine if AFW flow exists to the affected SG. If feed flow to a SG is isolated and the SG is allowed to dry out, subsequent re-initiation of feed flow to the SG could create significant thermal stress conditions on SG components. If SG wide range level is less than 12% [36% Adverse], then the SG may have dried out. For this condition, AFW feed flow should not be established until the plant engineering staff performs an evaluation as part of the long-term recovery operations. Because this consultation addresses long term recovery actions, it can be performed once the TSC is staffed after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19241-1/2, FR-P.1, Response Imminent Pressurized Thermal Shock Condition

Step(s): Figure 4, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19241-1/2, steps 8 RNO and 15 RNO direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 4. Figure 4, step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 4 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): Attachment 3, Step 6
Resource: I&C
Action: Notify I&C to investigate the affected train SSPS to determine the source of the SI signal.
Analysis: 19241-1/2, steps 9 RNO and 17.e RNO direct the operator to reset SI per Attachment 3. All actions to reset SI directed per Attachment 3 are performed by the operator. Attachment 3, step 6 directs the operator to "Notify I&C to investigate the affected train SSPS to determine the source of the SI signal." I&C investigative actions are not required to reset SI and can be performed as resources are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 17.f RNO
Resource: TSC staff
Action: If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions.
Analysis: 19241-1/2, step 17.f direct the operator to close the accumulator isolation valves. If one or more cannot be closed step 17.f RNO will direct the operator to vent the accumulator(s) that cannot be isolated. If an accumulator cannot be isolated or vented, step 17.f directs the operator "If Accumulator cannot be isolated or vented, then consult the TSC to determine contingency actions." Once this request is made of the TSC or if the TSC is unavailable at the time this step is reached, the operator will continue with the procedure. Therefore, the stated TSC consultation can be performed once TSC resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

19252-1/2, FR-Z.2, Response to Containment Flooding

Step(s): 2 and 3
Supporting Procedure(s): Chemistry Department procedures
Resource: TSC staff, Chemistry
Action: Step 2 - With TSC concurrence, check Containment Sump activity level by performing the following as necessary: reset CIA, Establish instrument air to containment, Open 1 HV-0780 and 1 HV-0781, Verify appropriate Containment Sump Pump running, Direct Chemistry to sample at 1-1214-U4-103 (RA-09), and Check trends of area radiation monitors.
Step 3 - Notify TSC of Containment Sump and activity levels to obtain recommended action.
Analysis: 19252-1/2, step 2 directs actions to check containment activity levels with TSC concurrence. If the TSC is not available, the SM/ED will make this determination. However, if an emergency has been declared for this event the on-shift chemist will be performing dose assessment and will not be available to perform sample activities. If an emergency has not been declared the on-shift chemist will be able

to support the sample activities. Otherwise, sampling will be performed once additional resources are available after 90 minutes of an Alert or higher declaration. Per the basis the purpose of this step is to support decision making for transfer of water from the containment sump to tanks outside of containment to address containment flooding issues. Water transfer will not be required within the first 90 minutes following the emergency declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step(s): 3
Resource: TSC staff
Action: Notify TSC of containment radiation level to obtain recommended action.
Analysis: 19252-1/2, step 3 instructs the operator to notify the TSC of the radiation level inside containment. The plant engineering staff would then be responsible for providing any further actions to address the radiation level, if appropriate. If the TSC is unavailable at the time this step is reached the operator will return to the procedure and step in effect. This condition is a yellow path for the containment CSF therefore it is of low priority and can be referred to the TSC once they arrive after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

<u>19263-1/2, FR-Z.2, Response to Containment Flooding</u>

Step(s): Figure 2, Step 1
Resource: Engineering
Action: Closely monitor pump and seal parameters and contact Engineering for further instructions.
Analysis: 19263-1/2, steps 11.b and 11.e direct the operator to perform Attachment 1. Attachment 1, step 1.d directs to monitor RCP seal leakoff per Figure 2. Figure 2, step 1 directs to "Closely monitor pump and seal parameters and contact Engineering for further instructions." The Figure 2 seal operating parameters provide the operator with sufficient guidance for operating or securing the RCPs. The Engineering support is only advisory in nature and is not necessary to perform the EOP actions. This information will be forwarded to the Engineering staff once they are available. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step(s): 14
Supporting Procedure(s): 13130-1/2, Post - Accident Hydrogen Control
28834-1/2, Containment Hydrogen Monitoring System Isolation Valve Jumper Installation
Chemistry Department Procedures
Resource: TSC, Chemistry, Maintenance

Action: Step 14 - Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control
Step 19.a RNO - Lower hydrogen concentration by initiating 13130-1, Post - Accident Hydrogen Control

Analysis: 19263-1/2, step 14 has the operator "Obtain a hydrogen concentration measurement by initiating 13130-1/2, Post - Accident Hydrogen Control." This step will place the hydrogen analyzers in service. Per Tech Specs, 2.C(3), VEGP shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident. VEGP meets this license requirement per VEGP FSAR section 6.2.5.3.3 which states that the containment hydrogen monitors are aligned for operation within 60 minutes after initiating safety injection following a LOCA. Accurate indication of hydrogen concentration is available within 30 min of initiating flow through the monitors. This is accomplished by operating the monitors in standby during normal plant operation. Therefore, indication of containment hydrogen concentration is available to the operators within 90 minutes of initiating safety injection following a LOCA. Per VEGP FSAR section 6.2.5.1.4 the two hydrogen monitoring system trains are completely independent of each other and are powered from independent Class 1E power sources and meet single active failure general design criteria for ESF systems. Normal monitoring of containment hydrogen is per section 4.2 and containment hydrogen control is performed per section 4.4 of 13130-1/2 does not require non OPS resources if the system functions as designed. However, 13130-1/2 steps 4.2.1.1 (A Train Hydrogen Analyzer) and 4.2.2.1 (B Train Hydrogen Analyzer) state that if a post-accident condition (LOCA) exist, and the associated 125 VDC Bus is not available and Containment Hydrogen Concentration is required then, notify maintenance to implement 28834-1/2 to provide power to the affected trains Containment Isolation Valves. Based on the robust design of the hydrogen monitoring system, if one train of hydrogen monitoring is lost the redundant train will be available therefore implementation of 28834-1/2 can be performed as resources are available. Similarly, 13130-1/2 steps 4.2.1.8 and 4.2.2.8 direct that if the Common Failure light on the hydrogen monitoring system in the MCR is lit, and does not reset, then place the hydrogen monitor in Standby and notify TSC of status indication and that the monitor is returned to standby until a team can be dispatched to local panel. If one hydrogen monitor system indicates Common Failure, then the redundant train will provide hydrogen monitoring. Also, the SM/ED, in the absence of the TSC, can dispatch OPS shift personnel to the local panel if desired and coordinate with the MCR to determine if the local panel is functioning properly and if so, obtain hydrogen concentration measurements at the local panel. In the highly unlikely event that both trains of hydrogen analyzers are out of service, the containment hydrogen concentration can be obtained via sampling by a chemistry technician. If the hydrogen concentration is not known when step 19 is reached and it is greater than 3% then step 19.a RNO initiate hydrogen control measure per 13130-1/2. If the on-shift chemist is performing dose assessment they will not be available to perform this sample and it will be performed as additional resources are available after 90 minutes of an Alert or

higher declaration and containment hydrogen control actions initiated at that time as appropriate. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

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 15

Vogtle 3&4 PBPA Results

This enclosure contains 94 pages

Vogtle 3&4 PBPA Results

Introduction

A performance based procedural analysis (PBPA) was conducted at Vogtle Electric Generating Plant (VEGP) Units 3 & 4 in accordance with the guidance in Regulatory Issue Summary (RIS) 2016-10, "*License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation*" to determine the impacts on event response and verify that event response functions continue to be addressed under the proposed staffing changes.

Executive Summary

The PBPA analysis was completed for 135 site specific procedures (See Table 1). The procedures were assessed to determine whether the proposed changes impact the performance of event mitigation activities associated with event classification. The analysis of VEGP 1&2 event response and supporting procedures determined that on-shift personnel, with appropriate training, were capable of performing required trouble shooting and event mitigation activities and can effectively implement the SNC Emergency Plan.

PBPA Analysis Process

Based on guidance in RIS 2016-10, a justification is required to support any changes in ERO staffing or augmentation times. In accordance with this guidance, the PBPA process is designed to identify event response procedure steps that could potentially require resources exceeding on-shift staffing levels as noted in the site Emergency Plan and determine whether the timing of the procedure activity has an impact on event mitigation. The analysis considers the impact on event mitigation activities resulting from proposed changes in current on-shift staffing levels and identifies actions used to ensure troubleshooting activities are addressed. The analysis consists of four steps:

1. Collection of site event response procedures (EOPs), including:
    - Abnormal Operations Procedures (AOP)
    - Emergency Operations Procedures (EOP)
    - Emergency Contingency Actions (ECA)
    - Event Specific Procedures (ES)
    - Function Restoration Procedures (FRP)
    - System Operations Procedures (SOP)
    - Chemistry Control Procedures (CCP)
    - Emergency Plan Implementing Procedures (EPIP)

2. Identification and documentation of steps and referenced sub-procedures citing resources outside on-shift staffing that are related to classifiable events in the Emergency Plan or are needed to ensure safety functions are addressed.

3. Analysis of identified steps with site personnel to determine:
    - the basis for the action
    - the approximate timeframe in which the action is expected to take place

- whether the timing of the action impacts event response
- any additional actions that can be initiated to ensure safety functions are addressed

4. Document the results of the analysis associated with each applicable procedure step.
   This process is graphically depicted in Figure 1, below.

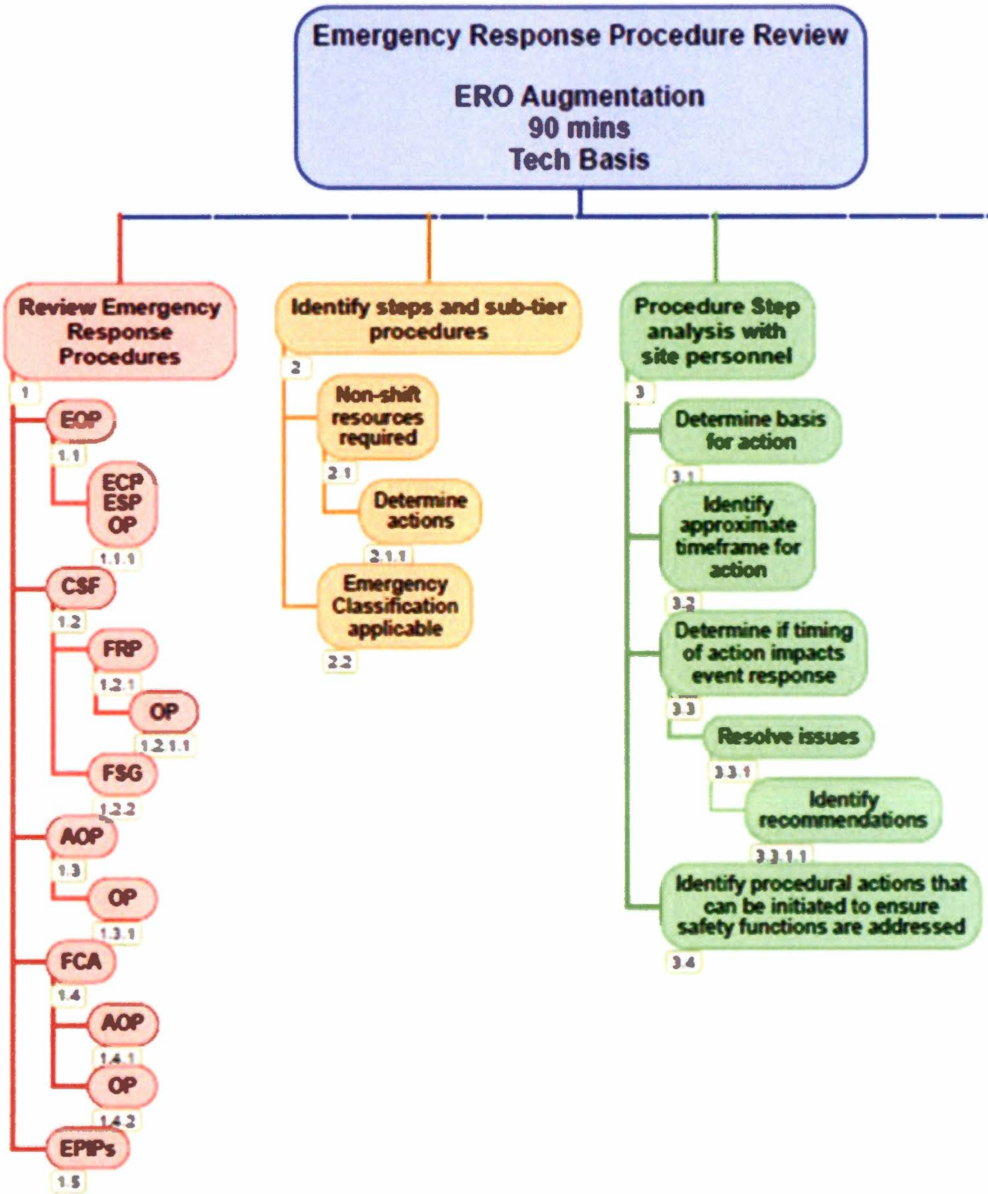

Figure 1
Emergency Response Procedures Review PBPA Process

Vogtle 3&4 Application

1. Review of emergency response and supporting procedures containing requirements for on-shift and augmented resources

VEGP 3&4 emergency response procedures were reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review included identification of sub-tier procedures such as System Operating Procedures (SOPs), Chemistry Procedures, and RP procedures referenced in the controlling emergency event procedure that may direct actions for resources outside Operations. These procedures were then also reviewed to identify steps requiring action by maintenance, RP, Chemistry or engineering resources. This review also included actions identified in the 'response not obtained' (RNO) steps of the procedures to allow the analysis to include multiple failure conditions.

2. Subsequent review of procedures identified in Step 1 for applicability to classified events

Each procedure containing references to resources external to the Operations Department was reviewed in additional detail to identify the specific resources and activity required. This review also included a review of the associated background documents to determine the intent of the affected step/action. Procedures used to respond to a plant condition that could result in declaration of an Alert or higher classification were noted in the analysis.

3. Analysis of applicable procedures

Procedure steps that required actions by resources outside Operations were reviewed with a team of station personnel to include subject matter experts from Operations, Maintenance, RP and Chemistry to determine if the referenced actions were:

- Required to be performed to implement the affected emergency response or supporting procedure
- Required to be performed prior to arrival of augmented resources at 90 minutes
- Performed by the on-shift staff as part of their normal response duties
- Discretionary actions or otherwise performed during the recovery phase

4. The Vogtle 3-4 AP1000 design uses passive safety systems, and therefore requires no time critical operator actions to mitigate design-basis accidents. No support from resources outside of Operations or augmented resources are required. The review determined that all emergency operating procedures can be completed by on-shift personnel.

Results

SNC conducted a detailed review of EOPs, including other supporting documents (ECPs, ESPs, FRPs, CCPs and SOPs) with VEGP 3&4 personnel. The focus of this review was on determining whether the procedure steps were needed to support emergency response actions (i.e. classifications or event mitigation, etc.) or whether the procedure steps were directed for a different purpose, such as, for the long-term maintenance needs of the plant.

- The analysis first determined whether the procedure actions could be deferred until after augmented ERO resources are available with no impact on emergency response.
- If the procedure action was required to be performed prior to augmented ERO resources being available (within 90 minutes of event declaration) in order to mitigate the event or to stabilize the plant, then an analysis was performed to ensure that the proposed on-shift staff, with appropriate training if needed, can take the necessary actions.

The full list of procedures reviewed is in Table 1 below. A summary of the results of the analysis for each procedure impacted by the proposed changes immediately follows.

Table 1
VEGP 3&4 PBPA Procedure Listing

Proc Number	Procedure Title
3-AOP-101	Rapid Power Reduction
3-AOP-102	Emergency Boration
3-AOP-103	Steam Generator Tube Leak
3-AOP-104	Rod Control System Malfunction
3-AOP-105	RCS Hot Leg Flow Streaming
3-AOP-112	Reactor Coolant Leak
3-AOP-113	Reactor Coolant System High Activity
3-AOP-114	Reactor Coolant Pump Malfunctions
3-AOP-115	Loss of Normal Residual Heat Removal
3-AOP-116	Loss of Spent Fuel Cooling
3-AOP-201	Uncontrolled Cooldown
3-AOP-202	Condensate System Malfunctions
3-AOP-203	Loss of Circulating Water
3-AOP-204	Startup Feedwater System Malfunctions
3-AOP-205	Feedwater System Malfunctions
3-AOP-206	Malfunction of Feedwater Heaters and Extraction Steam
3-AOP-207	Loss of Turbine Load
3-AOP-208	Main Turbine Malfunction
3-AOP-209	Loss of Turbine Building Closed Cooling Water System
3-AOP-301	Main Generator Malfunction
3-AOP-302	Loss of AC Power
3-AOP-303	Loss of DC Power or AC Instrument Power
3-AOP-304	Degraded Grid
3-AOP-401	Malfunction of DDS
3-AOP-402	Malfunction of PMS
3-AOP-403	Instrument Failure PMS Division A
3-AOP-404	Instrument Failure PMS Division B
3-AOP-405	Instrument Failure PMS Division C
3-AOP-406	Instrument Failure PMS Division D
3-AOP-407	Instrument Failure Miscellaneous Instruments
3-AOP-501	Loss of Main Control Room Air Conditioning
3-AOP-601	Evacuation of Control Room
3-AOP-602	DAS Operations at Local Cabinets
3-AOP-701	Fuel Handling Incident
3-AOP-702	Loss of Component Cooling Water
3-AOP-703	Loss of Instrument Air
3-AOP-704	Loss of Service Water
3-AOP-901	Acts of Nature
3-AOP-902	Fire Response Emergency
3-AOP-903	Toxic Gas

Proc Number	Procedure Title
3-AOP-904	Security Events
3-AOP-906	Chemistry Action Levels
3-AOP-908	Internal Flooding Response
3-ASS-SOP-001	Auxiliary Steam Supply System
3-BDS-SOP-001	Steam Generator Blowdown System
3-CAS-SOP-001	Compressed and Instrument Air System
3-CCS-SOP-001	Component Cooling Water System
3-CDS-SOP-001	Condensate System
3-CMS-SOP-001	Condenser Air Removal System
3-CVS-SOP-001	Chemical And Volume Control System
3-CWS-SOP-001	Circulating Water System
3-DAS-SOP-001	Diverse Actuation System
3-DWS-SOP-001	Demineralized Water Transfer and Storage System
3-ECS-P72-001	Post 72-Hour Operations of Ancillary Diesels
3-ECS-SOP-001	Medium Voltage AC Power System
3-ECS-SOP-002	Low Voltage AC Load Centers
3-EDS1-SOP-001	EDS1 Non Class 1E DC System
3-EDS2-SOP-001	EDS2 Non Class 1E DC System
3-EDS3-SOP-001	EDS3 Non Class 1E DC System
3-EDS4-SOP-001	EDS4 Non Class 1E DC System
3-EDS5-SOP-001	EDS5 Non Class 1E DC System
3-EDS-SOP-002	Non-Class 1E UPS AC System
3-EOP-E-0	Reactor Trip or Safeguards Actuation
3-EOP-E-1	Loss of Reactor or Secondary Coolant
3-EOP-E-2	Faulted Steam Generator Isolation
3-EOP-E-3	Steam Generator Tube Rupture
3-EOP-ECA-1.1	LOCA Outside Containment
3-EOP-ES-0.1	Reactor Trip Response
3-EOP-ES-0.2	Natural Circulation Cooldown
3-EOP-ES-0.3	Steam Dump to Condenser
3-EOP-ES-0.4	Steam Dump to Atmosphere
3-EOP-ES-0.5	RCS Pressure Control
3-EOP-ES-1.1	Safeguards Termination
3-EOP-ES-1.2	Post LOCA Cooldown and Depressurization
3-EOP-ES-1.3	ADS Stage 1-3 Actuation Response
3-EOP-ES-1.4	ADS Stage 4 Actuation Response
3-EOP-FR-C.1	Response to Inadequate Core Cooling
3-EOP-FR-C.2	Response to Degraded Core Cooling
3-EOP-FR-C.3	Response to Saturated Core Cooling
3-EOP-FR-H.1	Response to Loss of Heat Sink
3-EOP-FR-H.2	Response to Steam Generator Overpressure
3-EOP-FR-H.3	Response to Steam Generator High Level
3-EOP-FR-H.4	Response to Loss of Normal Steam Release Capabilities

Proc Number	Procedure Title
3-EOP-FR-H.5	Response to Steam Generator Low Level
3-EOP-FR-I.1	Response to High Pressurizer Level
3-EOP-FR-I.2	Response to Low Pressurizer Level
3-EOP-FR-P.1	Response to Imminent Pressurized Thermal Shock Conditions
3-EOP-FR-P.2	Response to Anticipated Pressurized Thermal Shock Conditions
3-EOP-FR-S.1	Response to Nuclear Power Generation - ATWS
3-EOP-FR-S.2	Response to Loss of Core Shutdown
3-EOP-FR-Z.1	Response to High Containment Pressure
3-EOP-FR-Z.2	Response to Containment Flooding
3-EOP-FR-Z.3	Response to High Containment Radiation Level
3-EOP-FR-Z.4	Response to Low Containment Pressure
3-FPS-SOP-001	Fire Protection System
3-FWS-SOP-001	Main Feedwater System
3-FWS-SOP-002	Startup Feedwater System
3-GOP-101	Power Operations above 25% Power
3-GOP-202	Plant Shutdown 25% Power to Mode 3
3-GOP-205	Plant Cooldown Mode 3 to Mode 5
3-GOP-306	Plant Startup Mode 2 to 25% Power
3-HCS-SOP-001	Generator Hydrogen and CO2 Systems
3-IDSA-SOP-001	Class 1E DC System - Division A
3-IDSB-SOP-001	Class 1E DC System - Division B
3-IDSC-SOP-001	Class 1E DC System - Division C
3-IDSD-SOP-001	Class 1E DC System - Division D
3-IDS-SOP-001	Class 1E DC System
3-IDS-SOP-002	Class 1E AC System
3-MSS-SOP-001	Main Steam System
3-PCS-P72-001	Post 72-Hour Operations of Passive Containment Cooling
3-PCS-SOP-001	Passive Containment Cooling System
3-PMS-SOP-001	Protection and Safety Monitoring System
3-PSS-SOP-001	Primary Sampling System
3-PXS-SOP-001	Passive Core Cooling System
3-RCS-SOP-001	Reactor Coolant System
3-RNS-P72-001	Post 72-Hour Operations of Containment Makeup
3-RNS-SOP-001	Normal Residual Heat Removal System
3-SFS-P72-001	Post 72-Hour Operations of Spent Fuel Pool Cooling
3-SFS-SOP-001	Spent Fuel Pool Cooling System
3-SGS-SOP-001	Steam Generator System
3-SWS-SOP-001	Service Water System
3-VAS-SOP-001	Radiologically Controlled Area Ventilation System
3-VBS-P72-001	Post 72-Hour Operations of Main Control Room Ventilation
3-VBS-SOP-001	Nuclear Island Nonradioactive Ventilation System
3-VCS-SOP-001	Containment Recirculation Cooling System
3-VES-SOP-001	Main Control Room Emergency Habitability System

Proc Number	Procedure Title
3-VHS-SOP-001	Health Physics and Hot Machine Shop HVAC System
3-VTS-SOP-001	Turbine Building Ventilation System
3-VWS-SOP-001	Central Chilled Water System
3-VXS-SOP-001	Annex/ Aux Building Nonradioactive Ventilation System
3-WRS-SOP-001	Radioactive Waste Drain System
3-WWS-SOP-001	Waste Water System
3-ZOS-SOP-001	Onsite Standby Power System
SSP-CHM-002	Obtaining Chemistry Samples
SSP-CHM-003	Chemical Analysis

Event 1 – Rapid Power Reduction

Supporting Procedure(s): 3-AOP-101, Rapid Power Reduction
3-CVS-SOP-001, Chemical and Volume Control System
3-GOP-202, Plant Shutdown 25% Power to Mode 3

Step(s): 3-AOP-101 - Step 8.b, RNO 9, Step 11, Attachment 1 step 7, RNO 29.c
3-CVS-SOP-001 Attachment 3 - Step 3 4.6.21
3-GOP-202 - Step 4.12.c

Resource: Chemistry

Action: Notify Chemistry to obtain required samples for RCS boron concentration (3-AOP-101 Step 8.b, 3-AOP-101 Step 11, 3-AOP-101 Attachment 1 Step 7, 3-CVS-SOP-001 Attachment 3 Step 3 4.6.21, 3-GOP-202 Step 4.12.c), Pressurizer boron concentration (3-GOP-202 Step 4.12.c), RCS activity samples (3-AOP-101 Step 11)

Analysis: Entry criteria for 3-AOP-101 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry such as small RCS leaks, hostile action, natural destructive phenomenon, etc. For such events there is likely no associated radiological release. Therefore, based on VEGP 3&4 EPIPs, the on-shift chemist would not be required to perform dose assessment and would be available to perform the requested samples. If the event did require dose assessment to be performed, the on-shift chemist would not be available to perform the requested samples for RCS boron and RCS activity. Relative to RCS boron, On-Line Power Distribution Monitoring System (OPDMS) and Reactor Makeup Control System (RMCS) provide a continuous calculation of the shutdown margin boron based on makeup from CVS; and therefore, immediate sampling and analysis for RCS boron is not necessary. Boron samples provide confirmatory results and can be obtained as resources are available. Chemistry sampling for RCS activity is performed in accordance with SR 3.4.10.2 which is performed in Mode 1 to ensure iodine remains within limit during normal operation and following fast power changes when increased releases of iodine from the fuel (iodine spiking) may occur. The sampling frequency is adequate to trend changes in the iodine activity level. The SR 3.4.10.2 requirement is to sample between 2 and 6 hours after a power change of greater than or equal to 15% RTP within a 1 hour period. Per the SR 3.4.10.2 basis, this frequency is established because samples at other times would provide inaccurate results. Therefore, the RCS activity samples can be obtained as resources are available after 90 minutes of an Alert or higher classification. In addition, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment. Sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 3-ASS-SOP-001, Auxiliary Steam System
3-MSS-SOP-001, Main Steam System
Step(s): 3-ASS-SOP-001 Attachment 1 Steps 3.12, 3.13, 3.16, 4.14, and 4.52
3-MSS-SOP-001, Attachment 6 Step 4.3.1
Resource: Chemistry
Action: If required to be placed in service IAW 3-ASS-SOP-001 Attachment 1, Chemistry support will be needed to fill the Chemical Injection Tank, and sample the Auxiliary Boiler to ensure within spec prior to startup per steps 3.12, 3.13, 3.16, 4.14, 4.52
Analysis: 3-AOP-101 step 27 directs the operator to transfer auxiliary steam loads to Auxiliary Boiler Per 3-MSS-SOP-001 Main Steam System, Attachment 6. 3-MSS-SOP-001 Attachment 6 step 4.3.1 directs the operator to ensure Auxiliary Boiler in service per 3-ASS-SOP-001 Auxiliary Steam Supply System, Attachment 1. The Auxiliary Boiler is not maintained in a standby state. Therefore, chemistry sampling and analysis would be required prior to startup of the Aux Boiler. Startup and operation of the Aux Boiler is not a time critical action but rather part of normal operations that can be deferred until after 90 minutes of an Alert or higher classification. Entry criteria for 3-AOP-101 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry such as small RCS leaks, hostile action, natural destructive phenomenon, etc. For such events, there is likely no associated radiological release so based on VEGP 3&4 EPIPs the on-shift chemist would not be required to perform dose assessment and would be available to perform the requested actions. If the event did require dose assessment to be performed the on-shift chemist would not be available to perform the requested actions to support startup of the Auxiliary Boiler. In this case, the operator will continue to supply the auxiliary steam loads from mains steam until additional resources are available to support placing the auxiliary boiler in service. In addition, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment. Sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 3-CDS-SOP-001, Condensate System
3-CWS-SOP-001, Circulating Water System
Step(s): 3-CDS-SOP-001 Attachment 3 steps 4.2.9, 4.3.9, and 4.4.9
3-CWS-SOP-001, Attachment 3 steps 4.2.6, 4.3.6, 4.4.6 and 4.5.6
Resource: Chemistry
Action: Notify chemistry
Analysis: 3-AOP-101 Step 36 directs the operator to stop all but one Condensate Pump per

3-CDS-SOP-001 Condensate System, Attachment 3 and stop unnecessary Circulating Water Pump per 3-CWS-SOP-001 Circulating Water System, Attachment 3. Both procedures direct the operator to notify Chemistry when equipment is secured but no specific action for chemistry personnel is directed by these steps. These notifications are for informational purposes to ensure Chemistry is aware of the status of the affected systems and no immediate action by Chemistry is required. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 2 – Emergency Boration

Supporting Procedure(s): 3-AOP-102, Emergency Boration
Step: 6.b
Resource: Chemistry
Action: Notify Chemistry to commence periodic sampling of RCS and PZR for boron
Analysis: Entry criteria for 3-AOP-102 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry such as an ATWS, etc. For such events there is likely no associated radiological release. Therefore, based on VEGP 3&4 EPIPs, the on-shift chemist would not be required to perform dose assessment and would be available to perform the requested samples. During a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment. Sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. If the event did require dose assessment to be performed the on-shift chemist would not be available to perform the requested samples for RCS and PZR boron. RMCS/OPDMS provides a continuous calculation of the shutdown margin boron based on makeup from CVS; and therefore, immediate sampling and analysis for RCS boron is not necessary. PZR backup heaters are energized in a subsequent step in the procedure to initiate spray flow which will help to borate the PZR through the action of PZR spray. In order to turn off backup heaters, the Operator will need to know if PZR and RCS boron concentrations are equalized. Per the AOP background document, PZR sampling can be delayed until after boration of the RCS has stopped to allow for PZR boron concentration to equalize with the RCS. Step 16 directs the operator to check if PZR heaters can be placed in Automatic. This step includes direction to check RCS and PZR boron concentration is within 50 ppm. This is a continuous action (CA) step therefore the operator will not place the PZR heaters in automatic until the sample results meet the specified criteria. The time it will take to perform the boration, to establish the necessary conditions to provide boron mixing for the PZR and allow adequate time for mixing is not defined. The PZR boron samples will not be required immediately, hence the wording in 3-AOP-102 step 6.b to commence "periodic sampling". If the on-shift chemist is performing dose

assessment and is unavailable to support the PZR sampling once the boration and subsequent mixing has been completed, the operator will continue to monitor the CA step until additional resources are available to support the sampling activities. Once sampling data is provided that indicate the desired RCS and PZR concentrations are met, the operator will place the PZR heaters in automatic. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 3 – Steam Generator Tube Leak

Supporting Procedure(s): 3-AOP-103, Steam Generator Tube Leak
3-BDS-SOP-001, Steam Generator Blowdown System

Step: 3-AOP-103, Steps 1, 4.b(3), and RNO 5
3-BDS-SOP-001 Attachment 12

Resource: Chemistry

Action: Chemistry sampling and analysis to support identification of leaking SG(s) and leak rate determination.

Analysis: Per 3-AOP-103 Step 5, SG leakage is identified by unexpected rise in SG NR level, steam flow/feed flow mismatch, abnormal radiation in any steam line using installed monitors (also local RP surveys per background document), or abnormal activity from SG samples. The magnitude of larger leaks will be detectable by observation of PZR level and makeup pump operating frequency. Smaller leak rates can be determined by performance of an RCS leak rate calculation. Both of these methods will determine total RCS leakage, but will not discriminate as to how much RCS leakage is occurring in the Steam Generator tubes. Separate monitors (SGS-RE026B and SGS-RE027B) are used to detect primary-to-secondary leakage with a range between 30 gpd to 200 gpd per Steam Generator as referenced to room temperature. The primary to secondary leakage per TS. 3.7.4 is limited to 150 gpd per Steam Generator. Per the background document for 3-AOP-103, to avoid unnecessary shutdown SG leakage should be qualitatively confirmed. Leakage is qualitatively confirmed when two independent radiation monitors (typical monitor pairs like TDS/BDS monitors, TDS/N-16 monitors, or N-16/BDS monitors) trend in the same direction with the same order of magnitude. Confirmation time should be kept to a minimum. If the operator is unable to determine leakage from an individual Steam Generator, the total leakage is assumed to be coming from one Steam Generator. Entry criteria for 3-AOP-103 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry. SG tube leakage will likely result in an upscale on effluent monitors but should remain below the ODCM release criteria and less than the 2 times ODCM values for the radiological effluents EALs therefore dose assessment via the emergency release dose assessment methodology would not be warranted or appropriate. Based on VEGP 3&4 EPIPs, the dose assessment would not be required, and the

on-shift chemist would be available to perform the requested samples. If the event did require dose assessment to be performed, the on-shift chemist would not be available to perform the requested samples for SG activity; however, sufficient indications to support identification of a leaking SG is provided in the procedure to ensure the actions of the AOP are implemented. In addition, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-103, Steam Generator Tube Leak
3-BDS-SOP-001, Steam Generator Blowdown System

Step: 3-AOP-103, Steps 1, 4.b(3), and RNO 5
3-BDS-SOP-001, Attachment 12

Resource: Radiation Protection

Action: Radiation Protection support for identification of leaking SG(s), support for chemistry samples if installed BDS monitors are out of service, and implementation of departmental procedures for SG tube leakage.

Analysis: If installed radiation monitors on the MSLs or the BDS are unavailable, one of the on-shift RP technicians will perform local surveys to support SG leak identification and/or sampling activities. Based on the priorities established by the SRO/ED the on-shift RP technicians will also implement B-GEN-PLMC-008, Primary to Secondary Leak Program. Entry criteria for 3-AOP-103 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry. SG tube leakage will likely result in an upscale on effluent monitors but should remain below the ODCM release criteria and less than the 2 times ODCM values for the radiological effluents EALs therefore dose assessment via the emergency release dose assessment methodology would not be warranted or appropriate. Based on VEGP 3&4 EPIPs, the dose assessment would not be required. If the event did require dose assessment to be performed and/or installed effluent monitors were not available, one of the on-shift RP technicians would support dose assessment activities by obtaining onsite out of plant surveys as needed. A full PBPA was performed for SGTR per 3-EOP-3.0 which bounds the RP activities performed to support the SG tube leak actions of 3-AOP-103. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-103, Steam Generator Tube Leak
3-RNS-SOP-001, Normal Residual Heat Removal System

Step: 3-AOP-103, Step 33.a
3-RNS-SOP-001, Attachment 4, Step 2.1
Resource: Chemistry
Action: RCS and RNS boron samples
Analysis: 3-AOP-103 Step 33.a directs the operator to check RCS boron concentration is greater than SDM Mode 5 no xenon (ppm). 3-AOP-103 step 65 directs the operator to place RNS in service per 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4. Attachment 4 step 2.1 states that prior to aligning RNS to RCS, RNS boron concentration must be greater than or equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event. Entry criteria for 3-AOP-103 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry. SG tube leakage will likely result in an upscale on effluent monitors but should remain below the ODCM release criteria and less than the 2 times ODCM values for the radiological effluents EALs therefore dose assessment via the emergency release dose assessment methodology would not be warranted or appropriate. Based on VEGP 3-4 EPIPs the dose assessment would not be required, and the on-shift chemist would be available to perform the RCS or RNS boron sampling if requested. VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. If the event did require dose assessment to be performed, the on-shift chemist would not be available to perform RCS or RNS boron samples if requested. Relative to RCS boron, RMCS/OPDMS provides a continuous calculation of the shutdown margin boron based on makeup from CVS therefore immediate sampling and analysis for RCS boron is not necessary. As for RNS boron samples, RNS cannot be placed in service until RCS T^{Hot} temperature is less than or equal to 350°F. With a max cool down rate of 100°F/hr, the operating conditions for RNS for shutdown cooling will not be reached within the first two hours of the event at which time additional resources will be available to support RNS sampling. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-103, Steam Generator Tube Leak
3-BDS-SOP-001, Steam Generator Blowdown System
Step: 3-AOP-103 Step 63.c
3-BDS-SOP-001, Attachment 12
Resource: Plant Engineering Staff
Action: Evaluate depressurizing leaking SG to less than 417 PSIG by dumping steam or using blowdown
Analysis: 3-AOP-103 Step 63.c directs the operator to Consult Plant Engineering Staff to evaluate depressurizing leaking SG to Less Than 417 psig by dumping steam

through SG PORV or Condenser Steam Dump or initiating blowdown per 3-BDS-SOP-001, Attachment 12. Entry criteria for 3-AOP-103 do not directly result in a classifiable emergency condition. However, entry into this procedure may be the result of another event not associated with an EOP entry. SG tube leakage will likely result in an upscale on effluent monitors but should remain below the ODCM release criteria and less than the 2 times ODCM values for the radiological effluents EALs therefore dose assessment via the emergency release dose assessment methodology would not be warranted or appropriate. Based on VEGP 3&4 EPIPs, the dose assessment would not be required, and the on-shift chemist would be available to perform SG sampling and determine the potential release magnitude in accordance with ODCM guidance prior to the release of steam. Based on the results of this analysis, the SRO/ED has the knowledge and the authority to determine the desired method for depressurizing the leaking SG(s). If the event did require dose assessment to be performed the on-shift chemist would not be available to perform the pre-release determination. In this case the operator will perform 63.c RNO, which directs to continue to reduce leaking SG pressure using ambient losses and backfill and continue in the procedure until additional resources are available to perform the pre-release determination. During the PBPA, it was determined that this action would occur 4-6 hours from the initiating event. If the ERO has not been activated, the appropriate Duty Engineer would be consulted or additional resources would be notified to report to the site as determined by the Shift Manager/ED IAW NMP-GM-020, Event Response. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO resources would be used due to the non-emergency nature of the action.

Event 4 – Reactor Coolant System High Activity

Supporting Procedure(s): 3-AOP-113, Reactor Coolant System High Activity
Step: 3
Resource: Radiation Protection
Action: Perform radiation surveys, airborne monitoring, establish temporary barriers, assist Chemistry during sampling analysis.
Analysis: RP determined that sufficient resources are available to respond to this event and actions requested by the AOP until augmented resources are available based on priorities set by the Shift Manager/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 4
Resource: Chemistry
Action: Determine and report RCS Dose Equivalent I-131 and Dose Equivalent Xe-133.

Analysis: It was determined that this action is used to support classification of the event if the Primary Sampling Liquid Radiation Monitor (PSS-RY050) high alarm is not indicated. If a high alarm is received, then the Chemistry technician would perform Dose Assessment and sampling would be deferred. VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 7
Resource: Chemistry
Action: Consult with Chemistry on the source of RCS activity and recommended actions related to letdown/CVS Demin/Cation bed demin/plant operations.
Analysis: The Chemistry representative and Operations SRO determined that this action would not be performed by the on-shift Chemistry technician. If the ERO is not activated in response to this event, the duty Chemist/Chemistry Manager would be notified to provide guidance to Operations as needed. The Shift Manager/ED would implement NMP-GM-020, Event Response, as needed to augment on-shift resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO resources would be used due to the non-emergency nature of the action.

Step: 8
Resource: Plant Manager
Action: Consult Plant Manager to determine long term action.
Analysis: It was determined that the intent of this action is to establish long term action to manage the high RCS activity. These actions would occur post-event and would not utilize on-shift resources. In addition, the Shift Manager/ED would implement NMP-GM-020, Event Response, as needed to augment on-shift resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response; or non-ERO resources would be used due to the non-emergency nature of the action.

Event 5 – Loss of Spent Fuel Pool Cooling

Supporting Procedure(s): 3-AOP-116, Loss of Spent Fuel Pool Cooling
3-SWS-SOP-001, Service Water System
Step: 3-AOP-116, RNO 8.c
Resource: Radiation Protection
Action: Perform dose rate surveys, airborne sampling, and establish necessary boundaries.

Analysis: RP determined that sufficient resources are available to respond to this event and actions requested by the AOP until augmented resources are available based on priorities set by the Shift Manager/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-116, RNO 10.a
Resource: Radiation Protection
Action: Provide job coverage for Operations.
Analysis: An Operator and RP are dispatched to determine if the Fuel Handling Area Relief Panel has opened in response to Fuel Handling Area temperatures exceeding 165 °F. It was determined that RP would perform job coverage. However, if an emergency was declared, then the Operator can rely on electronic dosimetry instead of an RP technician. RP personnel determined that sufficient resources are available to respond to this event until augmented resources are available based on priorities set by the Shift Manager/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-116, RNO 10.c
Resource: Radiation Protection
Action: Survey the roof and yard areas around the SFP area for dose rates and airborne release indications, obtain airborne samples, and establish necessary boundaries.
Analysis: RP personnel determined that sufficient resources are available to respond to this event until augmented resources are available given the actions are good RP practices and not required for emergency response. Also, priorities are set by the Shift Manager/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-116, RNO 17.b
3-SWS-SOP-001, Attachment 6, Section 4.2, Step 15 and Section 4.3, Step 15
Resource: Chemistry
Action: Direct operations personnel to adjust SWS flow rates as needed.
Analysis: 3-SWS-SOP-001, Attachment 6 actions are performed by Operations personnel except for Section 4.2/4.3 Step 15 which requires notification of Chemistry which SWS train is in service. Based on this notification, Chemistry will direct Operations personnel to adjust SWS flow as needed. Procedure analysis determined that the Chemistry notification is an administrative notification. No field actions are performed by Chemistry personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-116, Attachment 1, Step 4.21
Resource: Chemistry
Action: Sample Spent Fuel Pool for Boron Concentration
Analysis: The procedure analysis determined that per TS SR 3.7.11.1 SFP boron is required to be verified within limit every 7 days. Therefore, this action can be deferred until augmented resources are available. In addition, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-116, Attachment 4, Step 4.4
Resource: Emergency Director
Action: Provide guidance on securing SFP Spray.
Analysis: If an emergency has been declared an SRO/SM assumes the role of the Emergency Director until relieved by the TSC. This action would be performed by Operations personnel until the TSC is activated and the Emergency Director responsibilities are assumed by the TSC. It should be noted, that SFP spray is an action that implements beyond design basis response actions. Securing SFP spray would occur after 90 minutes. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-116, Attachment 5, Step 4.3
Resource: Station Management
Action: Provide guidance on securing SFP Spray.
Analysis: If an emergency has been declared an SRO/SM assumes the role of the Emergency Director until relieved by the TSC. This action would be performed by Operations personnel until the TSC is activated and the Emergency Director responsibilities are assumed by the TSC. It should be noted, that SFP spray is an action that implements beyond design basis response actions. Securing SFP spray would occur after 90 minutes. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 6 – Uncontrolled Cooldown

Supporting Procedure(s): 3-AOP-201, Uncontrolled Cooldown
3-AOP-102, Emergency Boration
Step: 3-AOP-201, RNO 2.b; RNO 11.a.
Resource: Chemistry Technician

Action: Sample and analyze RCS for boron

Analysis: RNO 2.b. directs control room personnel to borate the RCS as necessary per 3-AOP-102, Emergency Boration. See the analysis for 3-AOP-102. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-201, 12.

Resource: Chemistry

Action: Sample and analyze RCS and CVS purification demineralizer effluent for boron

Analysis: An emergency classification is not directly applicable to this event. However, this AOP may be entered if a MSLB damages safe cooldown/shutdown systems or components (SA8). It was determined that OPDMS provides a continuous calculation of SDM boron based on makeup from CVS. Therefore; immediate sampling and analysis for RCS boron is not needed and can be deferred until augmented resources are available. Operations will continue performing subsequent procedure steps. Furthermore, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-201, RNO 16.d.

Resource: Engineering Staff

Action: Determine if PRHR Hx Outlet FCVs are leaking.

Analysis: During the procedure analysis it was determined that sufficient indication is available in the control room to enable the SROs to determine if FCVs are leaking by. Operations personnel would continue with subsequent procedure steps. If needed, further evaluation would be performed by augmented resources. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-201, RNO 20.a.

Resource: Engineering Staff

Action: Determine if SG Safety CIV leakage is acceptable.

Analysis: This RNO step is initiated if SG Safety CIVs are Closed and Steam is leaking from them. During the procedure analysis it was determined that the status of the SG Safety CIVs could be determined with local observation by an operator. Operators would continue with subsequent procedure steps as appropriate. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-201, RNO 20.b.
Resource: Maintenance
Action: Gag the leaking SG Safety CIV.
Analysis: RNO 20.b. is initiated based on the evaluation conducted in RNO 20.a. Per procedure guidance, Operators could continue with the procedure and initiate actions identified in RNO 20.d. if Maintenance resources were not available. RNO 20.d initiates shutdown of the unit. During the procedure analysis it was determined that this action would occur after 90 minutes. Therefore, this action would be completed as augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 7 – Loss of AC Power

Supporting Procedure(s): 3-AOP-302, Loss of AC Power
3-ECS-SOP-001, Medium Voltage AC Power System
3-ECS-SOP-002, Low Voltage AC Load Centers
3-HCS-SOP-001, Generator Hydrogen and CO2 System
3-ZOS-SOP-001, Onsite Standby Power System
Step: 3-AOP-302, RNO 2.b; Attachment 1, RNO 3.b; Attachment 3, Step 2.b
3-HCS-SOP-001, Attachment 3, Section 3, Step 4; Attachment 12
Resource: Chemistry
Action: Contact Chemistry to verify CO_2 purity
Analysis: The purging of hydrogen from the Generator must be completed within 5 hours of the loss of AC power. The actions in Attachment 6 of 3-HCS-SOP-001 are performed by Operations personnel except for Initial Conditions Section 3, Step 4. This step verifies purity of CO_2 using two options - Attachment 12 guidance (performed by Ops) or Chemistry analysis. With the timing of this action, augmented resources could perform this action if the second option is selected. During the procedure analysis, the SRO/SM determined that purging hydrogen from the generator could occur after augmented resources are available. It was also determined that verifying the purity of CO_2 using Attachment 12 was the preferred option. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, RNO 5.a
3-ECS-SOP-002, Attachments 1-4, Section 3, Step 7
Resource: Maintenance
Action: 3-ECS-SOP-002, Attachments 1-4, Section 3, Step 7 directs control room personnel to contact Maintenance and determine that Maintenance has calibrated all metering and relays.
Analysis: During the analysis it was identified that this Initial Condition step assures that metering and relays have been calibrated prior to placing identified

components/equipment in service per procedure guidance. Instrumentation will be maintained IAW PM program which includes calibration of all equipment pre-startup. Information will be then included in the PM database. Therefore; this action and information will be readily available to the operator without requiring notification of maintenance personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-302, RNO 6.a
3-ECS-SOP-002, Attachments 5-8, Section 3, Step 7
Resource: Maintenance
Action: 3-ECS-SOP-002, Attachments 5-8, Section 3, Step 7 directs control room personnel to contact Maintenance and determine that Maintenance has calibrated all metering and relays.
Analysis: During the analysis it was identified that this Initial Condition step assures that metering and relays have been calibrated prior to placing identified components/equipment in service per procedure guidance. The PBPA determined that instrumentation will be maintained IAW PM program which includes calibration of all equipment pre-startup. Information will be then included in the PM database. Therefore; this action and information will be readily available to the operator without requiring notification of maintenance personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-302, RNO 7.c
Resource: Work Control
Action: Restore electrical switchgear
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. During the procedure analysis it was determined that this action could be deferred until augmented resources are available. Operations would restore equipment that can be restored until augmented resources are available and continue with subsequent procedure steps. No impact to public health and safety. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, RNO 8
3-ZOS-SOP-001, Attachments 1-14
Resource: Maintenance
Action: Perform actions as identified in attachments to support DG
Analysis: Actions in Attachments 1-14 of 3-ZOS-SOP-001 performed by Maintenance are performed prior to placing the DG in service/stand-by or as post-maintenance activities and are not required to provide power during emergencies as required by

3-AOP-302, RNO 8. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, RNO 8
3-ECS-SOP-001, Attachments 1-7, Section 3, Step 12
Resource: Maintenance
Action: 3-ECS-SOP-001, Attachments 1-7, Section 3, Step 12 directs control room personnel to contact Maintenance and determine that Maintenance has calibrated all metering and relays.
Analysis: During the analysis it was identified that this Initial Condition step assures that metering and relays have been calibrated prior to placing identified components/equipment in service per procedure guidance. Instrumentation will be maintained IAW PM program which includes calibration of all equipment pre-startup. Information will be then included in the PM database. Therefore; this action and information will be readily available to the operator without requiring notification of maintenance personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-302, RNO 6.a
3-ECS-SOP-002, Attachments 9-10, Section 3, Step 7
3-ECS-SOP-002, Attachment 11, Section 3, Step 5
Resource: Maintenance
Action: 3-ECS-SOP-002, Attachments 9-10, Section 3, Step 7 and 3-ECS-SOP-002, Attachment 11, Section 3, Step 5, directs control room personnel to contact Maintenance and determine that Maintenance has calibrated all metering and relays.
Analysis: During the analysis it was identified that this Initial Condition step assures that metering and relays have been calibrated prior to placing identified components/equipment in service per procedure guidance. Instrumentation will be maintained IAW PM program which includes calibration of all equipment pre-startup. Information will be then included in the PM database. Therefore; this action and information will be readily available to the operator without requiring notification of maintenance personnel. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-302, Attachment 1, RNO 2)c)
Resource: Work Control
Action: Investigate any Load Step failures
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. During the procedure analysis it was determined that this action could be deferred until augmented resources are available. Operations would continue with

subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, Attachment 1, RNO 16.b.
Resource: Work Control
Action: Install temporary ventilation and restore DG A support equipment
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. During the procedure analysis it was determined that this action could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, Attachment 1, RNO 17.b.
Resource: Work Control
Action: Restore ventilation equipment
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. It was determined that this action could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, Attachment 1, RNO 19.b; RNO 27.b.
Resource: Work Control
Action: Restore failed battery charger(s)
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. It was determined that this action could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-302, Attachment 1, RNO 25.b.
Resource: Work Control
Action: Install temporary ventilation and restore DG B support equipment
Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. It was determined that this action could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 8 – Loss of DC Power or AC Instrument Power

Supporting Procedure(s): 3-AOP-303, Loss of DC Power or AC Instrument Power
3-AOP-402, Malfunction of PMS
3-EDS-SOP-002, Non-Class 1E UPS AC System
3-EDS1-SOP-001, EDS1 Non Class 1E DC System
3-EDS2-SOP-001, EDS2 Non Class 1E DC System
3-EDS3-SOP-001, EDS3 Non Class 1E DC System
3-EDS4-SOP-001, EDS4 Non Class 1E DC System
3-IDSA-SOP-001, Class 1E DC System – Division A
3-IDSB-SOP-001, Class 1E DC System – Division B
3-IDSC-SOP-001, Class 1E DC System – Division C
3-IDSD-SOP-001, Class 1E DC System – Division D
3-IDS-SOP-002, Class 1E AC System

Step: 3-AOP-303, RNO 1.a.
3-IDSA-SOP-001, Attachment 1, Section 3.0, Step 4
3-IDSB-SOP-001, Attachment 1, Section 3.0, Step 4
3-IDSB-SOP-001, Attachment 7, Section 3.0, Step 4
3-IDSC-SOP-001, Attachment 1, Section 3.0, Step 4
3-IDSC-SOP-001, Attachment 7, Section 3.0, Step 4
3-IDSD-SOP-001, Attachment 1, Section 3.0, Step 4

Resource: I&C

Action: Contact I&C to verify that the applicable H_2 analyzer is in service.

Analysis: 3-IDSA(B)(C)(D)-SOP-001 actions in Attachment 1 and Attachment 7 are performed by Operations personnel. However, Section 3.0, Step 4 directs the Operator to verify with I&C that the applicable H_2 analyzer is in service. It was determined that a PM program will be established. Instrumentation will be calibrated and placed in service before startup IAW with I&C procedures. Once placed in service, they will be maintained IAW with applicable PM procedures. Therefore, performance of this step can be performed by reviewing PM program. In addition, there is a visual indication available that can be observed by an operator to confirm that the analyzer is in service. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-303, RNO 2.a.

Resource: Work Control

Action: Repair and restore power

Analysis: The passive design of the plant allows for mitigative actions to be initiated after 90 minutes. The design maintains the plant in a safe condition for at least 72 hours. It was determined that this action could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps.

Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 3.a.
3-IDS-SOP-002, Attachment 1, Sections 4.2-4.5, Step 16.g.(3); Sections 4.3-4.4, Step 32.g.(3)
3-IDS-SOP-002, Attachment 2, Sections 4.2-4.7, Step 15.g.(3)
Resource: I&C
Action: Investigate/repair failed alarms
Analysis: 3-IDS-SOP-002 Attachment 1 and 2 actions are performed by Operations personnel. However, the following steps require action by non-Ops personnel: Attachment 1 Sections 4.2-4.5 Step 16.g.(3): Attachment 1 Section 4.3 and 4.4 Step 32.g.(3) direct the Operator to contact I&C if alarms fail to reset. Attachment 2 Sections 4.2-4.7 Step 15.g.(3) direct the Operator to contact I&C if alarms fail to reset. TS 3.8.1 requires restoration of batteries to an operable status within 2 hours. The SRO/SM determined that this task could be deferred until augmented resources are available. Operations would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 3.b.
3-AOP-402, Step 1 and RNO 5.b.
Resource: I&C
Action: Step 1 - Identify and repair failed portions of PMS;
RNO 5.b. – Use portable test equipment to read Division A or D sensor values
Analysis: See Event 10 analysis related to 3-AOP-402.

Step: 3-AOP-303, RNO 4.a.; RNO 7.a.
3-EDS1-SOP-001, Attachment 2, Section 4.3, Step 12; Attachment 2, Section 4.4, Step 13
Resource: I&C
Action: Substitute battery charger input to diesel sequencer logic in PLS.
Analysis: Actions in 3-EDS1-SOP-001, Attachment 2 are performed by Operations except for the following Section 4.3 Step 12 and Section 4.4 Step 13 which state the following: Request I&C substitute 3-EDSS-DC-2 (Spare Battery Charger 2) for 3-EDS1-DC-1 (Battery Charger) input to Diesel sequencer logic in PLS. The SRO/SM determined that this action could be deferred until augmented resources are available. If the D/G is required, the operator has procedure guidance to manually load the battery charger. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 4.a.; RNO 7.a.
3-EDS2-SOP-001, Attachment 2, Section 4.3, Step 12; Attachment 2, Section 4.4, Step 13
Resource: I&C
Action: Substitute battery charger input to diesel sequencer logic in PLS.
Analysis: Actions in 3-EDS2-SOP-001, Attachment 2 are performed by Operations except for the following Section 4.3 Step 12 and Section 4.4 Step 13 which state the following: Request I&C substitute 3-EDSS-DC-1 (Spare Battery Charger 2) for 3-EDS2-DC-1 (Battery Charger) input to Diesel sequencer logic in PLS. The SRO/SM determined that this action could be deferred until augmented resources are available. If the D/G is required, the operator has procedure guidance to manually load the battery charger. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 4.a.; RNO 7.a
3-EDS3-SOP-001, Attachment 2, Section 4.3, Step 12; Attachment 2, Section 4.4, Step 13
Resource: I&C
Action: Substitute battery charger input to diesel sequencer logic in PLS.
Analysis: Actions in 3-EDS3-SOP-001, Attachment 2 are performed by Operations except for the following Section 4.3 Step 12 and Section 4.4 Step 13 which state the following: Request I&C substitute 3-EDSS-DC-2 (Spare Battery Charger 2) for 3-EDS3-DC-1 (Battery Charger) input to Diesel sequencer logic in PLS. The SRO/SM determined that this action could be deferred until augmented resources are available. If the D/G is required, the operator has procedure guidance to manually load the battery charger. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 4.a.; RNO 7.a.
3-EDS4-SOP-001, Attachment 2, Section 4.3, Step 12; Attachment 2, Section 4.4, Step 13
Resource: I&C
Action: Substitute battery charger input to diesel sequencer logic in PLS.
Analysis: Actions in 3-EDS4-SOP-001, Attachment 2 are performed by Operations except for the following Section 4.3 Step 12 and Section 4.4 Step 13 which state the following:
Request I&C substitute 3-EDSS-DC-1 (Spare Battery Charger 2) for 3-EDS4-DC-1 (Battery Charger) input to Diesel sequencer logic in PLS. The SRO/SM determined that this action could be deferred until augmented resources are available. If the D/G is required, the operator has procedure guidance to manually load the battery charger. Conclusion - procedure actions can be deferred until

after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-303, RNO 5.a.
3-EDS-SOP-002, Attachment 1, Sections 4.2-4.5, Steps 13.g.(3) and 18.c; Attachment 2, Section 4.2, Step 11.g.(c) and Sections 4.3-4.5 Step 11.g.(3)

Resource: I&C

Action: Investigate/repair failed alarm condition

Analysis: Except for the following sections and corresponding steps all actions identified in Attachments 1 and 2 of 3-EDS-SOP-002 are performed by Operations personnel.
Attachment 1 - Sections 4.2-4.5, Steps 13.g.(3) and 18.c. which read as follows: IF any alarm(s) fail to reset as indicated by an alarm LED(s) on steady after the C button is pressed two times, then contact I&C.
Attachment 2 - Section 4.2, Step 11.g.(c); Sections 4-3-4.5, Step 11.g.(3) which read as follows: If any alarm(s) fail to reset as indicated by an alarm LED(s) on steady after the C button is pressed two times, then contact I&C.
TS 3.8.1 requires restoration of batteries to an operable status within 2 hours. The SRO/SM determined that this task could be deferred until augmented resources are available. Operators would continue with subsequent procedure steps. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 9 – Malfunction of DDS

Supporting Procedure(s): 3-AOP-401, Malfunction of DDS
3-AOP-402, Malfunction of PMS

Step: RNO 6.c.

Resource: I&C

Action: Contact I&C to identify and repair failed portion of APS

Analysis: The SRO/SM determined that guidance is provided in the procedure to monitor plant conditions using alternate indications:

PDSP displays
DAS panel indications
Base Alarm System

The procedure analysis determined that use of these alternate systems is adequate to monitor and safely maintain stable plant conditions until additional resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: RNO 8.a.(2)
Resource: I&C
Action: Contact I&C to identify and repair failed portions of Computerized Procedure System (CPS).
Analysis: During the procedure analysis, it was noted that RNO 8.a.(1) directs operators to use paper procedures. Based on this guidance, the SRO/SM determined that actions by I&C to repair CPS can be deferred until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: 9
Resource: I&C
Action: Contact I&C to identify and repair failed portions of DDS.
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate/redundant indications as appropriate to monitor, control, and maintain stable plant conditions until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: 3-AOP-401, RNO 11
3-AOP-402, Step 1
Resource: I&C
Action: Perform 3-AOP-402 while continuing in 3-AOP-401 if ALL PMS Primary Dedicated Safety Panel Displays are not available. 3-AOP-402 directs operators to contact I&C.
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate/redundant indications as appropriate to monitor, control, and maintain stable plant conditions until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: RNO 13.d.
Resource: I&C
Action: Contact I&C to repair failed operator workstation component(s).
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate/redundant indications as appropriate to monitor, control, and maintain stable plant conditions until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: RNO 14.e.
Resource: I&C
Action: Contact I&C to repair failed Wall Panel Information System panels
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate/redundant indications as appropriate to monitor, control, and maintain stable plant conditions until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support if the ERO is not activated in response to this event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

<u>Event 10 – Malfunction of PMS</u>

Supporting Procedure(s): 3-AOP-402, Malfunction of PMS
3-PMS-SOP-001, Protection and Safety Monitoring System
Step: 3-AOP-402, Step 1
Resource: I&C
Action: Contact I&C to identify and repair failed portions of PMS
Analysis: The SRO determined that due to the plant design and separation of computer systems a total loss of all computer displays/workstations is not feasible. Therefore; an Alert emergency classification is not applicable; however, an Unusual Event would be applicable IAW SU2. The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate indications as appropriate. The design of the plant computer systems is diverse and redundant allowing for alternate means of monitoring and controlling plant systems. Therefore, this action can be deferred until resources are available. Operators would use alternate/redundant indications as appropriate to monitor, control, and maintain stable plant conditions until after on-call or augmented resources are available. The SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support. Conclusion - procedure actions

can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Step: 3-AOP-402, RNO 5.a.(2)
3-PMS-SOP-001, Attachment 1
Resource: I&C
Action: RNO 5.a.(2) provides guidance on momentarily re-energizing Division A or D PMS IAW guidance in 3-PMS-SOP-001, Attachment 1. Performance of 3-PMS-SOP-001, Attachment 1 requires support from I&C.
Analysis: The SRO/SM determined that properly trained Operators could be used to perform these actions if I&C personnel were unavailable. In addition, the SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-402, RNO 5.b.
Resource: I&C
Action: Direct I&C to use portable test equipment to read Division A or D sensor values.
Analysis: I&C personnel are directed to manually obtain readings using portable test equipment. The SRO/SM determined that properly trained Operators could be used to perform these actions if I&C personnel were unavailable. In addition, the SRO/ED would implement NMP-GM-020, Event Response, as needed to obtain additional support. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 11 – Instrument Failure PMS Division A

Supporting Procedure(s): 3-AOP-403, Instrument Failure PMS Division A
Step: RNO 1.b.; 4; Attachment 23, Steps 1.(2) and 2.(2); Attachment 25, Steps 1.(2) and 2.(2); Attachment 27, Steps 1.(2) and 2.(2); Attachment 28, Steps 1.(2) and 2.(2); Attachment 29, Steps 1.(2) and 2.(2); Attachment 36, Step 6
Resource: I&C
Action: Direct to I&C to change computer readouts as appropriate
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate indications as appropriate. The design of the plant computer systems is diverse and redundant allowing for alternate means of monitoring and controlling plant systems. Therefore, this action can be deferred until resources are available. If additional resources are needed, the SRO/SM determined that duty personnel would be notified and NMP-GM-020, Event Response, would be used to obtain additional support as needed. Conclusion - procedure actions can be deferred until after augmented ERO resources are

available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Event 12 – Instrument Failure PMS Division B

Supporting Procedure(s): 3-AOP-404, Instrument Failure PMS Division B

Step: RNO 1.b.; 4; Attachment 7, Step 2; Attachment 27, Note (4); Attachment 33, Steps 1.(2) and 2.(2); Attachment 34, Steps 1.(2) and 2.(2); Attachment 36, Steps 1.(2) and 2.(2); Attachment 37, Steps 1.(2) and 2.(2); Attachment 38, Steps 1.(2) and 2.(2); Attachment 46, Step 6

Resource: I&C

Action: Direct I&C to change computer readouts as appropriate

Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate indications as appropriate. The design of the plant computer systems is diverse and redundant allowing for alternate means of monitoring and controlling plant systems. Therefore, this action can be deferred until resources are available. If additional resources are needed, the SRO/SM determined that duty personnel would be notified and NMP-GM-020, Event Response, would be used to obtain additional support as needed. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Event 13 – Instrument Failure PMS Division C

Supporting Procedure(s): 3-AOP-405, Instrument Failure PMS Division C

Step: RNO 1.b.; 4; Attachment 7, Step 2; Attachment 27, Note (4); Attachment 32, Steps 1.(2) and 2.(2); Attachment 34, Steps 1.(2) and 2.(2); Attachment 36, Steps 1.(2) and 2.(2); Attachment 37, Steps 1.(2) and 2.(2); Attachment 38, Steps 1.(2) and 2.(2); Attachment 47, Step 6

Resource: I&C

Action: Direct to I&C to change computer readouts as appropriate

Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate indications as appropriate. The design of the plant computer systems is diverse and redundant allowing for alternate means of monitoring and controlling plant systems. Therefore, this action can be deferred until resources are available. If additional resources are needed, the SRO/SM determined that duty personnel would be notified and NMP-GM-020, Event Response, would be used to obtain additional support as needed. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Event 14 – Instrument Failure PMS Division D

Supporting
Procedure(s): 3-AOP-406, Instrument Failure PMS Division D
Step: RNO 1.b.; 4; Attachment 23, Steps 1.(2) and 2.(2); Attachment 24, Steps 1.(2) and 2.(2); Attachment 26, Steps 1.(2) and 2.(2); Attachment 27, Steps 1.(2) and 2.(2); Attachment 28, Steps 1.(2) and 2.(2); Attachment 35, Step 6
Resource: I&C
Action: Direct to I&C to change computer readouts as appropriate
Analysis: The SRO/SM determined that Operators would perform subsequent procedure steps and use alternate indications as appropriate. The design of the plant computer systems is diverse and redundant allowing for alternate means of monitoring and controlling plant systems. Therefore, this action can be deferred until resources are available. If additional resources are needed, the SRO/SM determined that duty personnel would be notified and NMP-GM-020, Event Response, would be used to obtain additional support as needed. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response or non-ERO resources would be used due to the non-emergency nature of the action.

Event 15 – Loss of Main Control Room Air Conditioning

Supporting
Procedure(s): 3-AOP-501, Loss of Main Control Room Air Conditioning
3-VBS-P72-001, Post 72-Hour Operations of Main Control Room Ventilation
3-VBS-SOP-001, Nuclear Island Nonradioactive Ventilation System
3-VES-SOP-001, Main Control Room Emergency Habitability System
Step: 3-AOP-501, Attachment 1, RNO 14.b.
3-VBS-P72-001, Attachment 1, Section 3.0, Step 3; Attachment 1, Section 4.2, Step 1
Resource: Operations Manager, Maintenance, ERO personnel

Action: 3-AOP-501: Consult with Operations Manager
3-VBS-P72-001: Transport/Connect MCR Ancillary Fan
Analysis: The procedure analysis determined that an emergency classification is not directly related to this event. The analysis also determined this action would occur after 90 minutes. VES supports 11 personnel in the MCR. IF VES fails Operators would take appropriate manual actions to return VES to service. If these actions fail, then operators would evacuate the MCR if necessary. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-501, Attachment 1, Step 18.b.
3-VBS-P72-001, Attachment 1, Section 3.0, Step 3; Attachment 1, Section 4.2, Step 1
Resource: Maintenance, ERO personnel
Action: Transport/Connect MCR Ancillary Fan
Analysis: The procedure analysis determined that an emergency classification is not directly related to this event. The analysis also determined this action would occur after 90 minutes. VES supports 11 personnel in the MCR. If VES fails Operators would take appropriate manual actions to return VES to service. If these actions fail, then operators would evacuate the MCR if necessary. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-AOP-501, Attachment 1, Step 19.a.
Resource: Maintenance, Engineering, Management
Action: VBS restoration support
Analysis: The SM/SRO determined that Operators would continue performance of subsequent procedure steps. It was also determined that this action is a post-event/recovery action and not required to mitigate the event. Therefore, restoration actions would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-501, Attachment 1, Step 19.d.
3-VBS-SOP-001, Attachment 1, Section 3.0, Step 12
Resource: I&C
Action: Verify/Document VES instrumentation is within calibration and in service
Analysis: 3-VBS-SOP-001 Attachment 1 actions are performed by Operations personnel except for Section 3.0, Step 12 which directs the operator to document that the VES instrumentation is within calibration and in service. The procedure is vague on who to contact however, it is assumed that I&C is contacted. This step is used to place MCR ventilation system back in service after loss. Sections 4.3 and 4.5 of 3-VBS-SOP-001, Attachment 1, to return HVAC back in service are performed by operations personnel.
It was determined that a PM program will be established. Instrumentation will be calibrated and placed in service before startup IAW with I&C procedures. Once placed in service, they will be maintained IAW with applicable PM procedures. Therefore, performance of this step can be performed by reviewing the PM database. In addition, it was determined that this action is a post-event/recovery action and would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

Step: 3-AOP-501, Attachment 1, RNO 21.c.(2)
Resource: Maintenance
Action: VES Air Supply repairs
Analysis: The SM/SRO determined that Operators would continue performance of subsequent procedure steps. It was also determined that this action is a post-event/recovery action and not required to mitigate the event. Therefore, repair actions would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

Step: 3-AOP-501, Attachment 1, Step 21.e.
3-VES-SOP-001, Attachment 1, Section 3.0, Step 12
Resource: I&C
Action: Verify/Document VES instrumentation is within calibration and in service
Analysis: 3-VES-SOP-001 Attachment 1 actions are performed by Operations personnel except for Section 3.0, Step 12 which directs the operator to document that the VES instrumentation is within calibration and in service. The procedure is vague on who to contact however, it is assumed that I&C is contacted. It was determined that a PM program will be established. Instrumentation will be calibrated and placed in service before startup IAW with I&C procedures. Once placed in service, they will be maintained IAW with applicable PM procedures. Therefore, performance of this step can be performed by reviewing the PM database. In addition, it was determined that this action is a post-event/recovery action and would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-501, Attachment 1, Step 22.c.
3-VBS-P72-001, Attachment 2, Section 4.2, Step 3; Attachment 2, Section 4.2, Step 5
Resource: Maintenance, ERO personnel
Action: Disconnect MCR Ancillary Fan and return to storage location
Analysis: It was determined that this action is a post-event/recovery action and will not occur within 90 minutes of the event initiation. Therefore, this action would be performed by augmented resources. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 16 – Loss of Component Cooling Water

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water
Step: 7
Resource: Chemistry

Action: CCS sampling for activity to determine if RCS is leaking into the CCS

Analysis: Step 7 of 3-AOP-702 provides three options for determining RCS leakage into the CCS system, with Chemistry sampling and analysis being the last option. The SRO/SM determined that the first two indications are readily available in the MCR and would be used to determine if RCS is leaking into CCS. Operators would proceed with subsequent procedure steps without Chemistry results. VEGP 3&4 personnel have determined that the primary function for Chemistry during a declared emergency is dose assessment. This function would be performed by Chemistry until augmented resources are available to assume this function at which time the Chemistry technician is available to support sampling and analysis activities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 9

Resource: Chemistry

Action: Sample and analysis of RNS HxA Outlet for activity

Analysis: Although not specified in the procedure, it is assumed that Chemistry would perform the sampling and analysis. Use of the chemistry samples is the last choice of three available options/indicators for the operators to determine if RNS Hx is leaking into the CCS. The SRO/SM determined that the first two indications are readily available in the MCR and would be used to determine if an RNS Hx is leaking into the CCS. Operators would proceed with subsequent procedure steps without Chemistry results. In addition, VEGP 3&4 personnel have determined that the primary function for Chemistry during a declared emergency is dose assessment. This function would be performed by Chemistry until augmented resources are available to assume this function at which time the Chemistry technician is available to support sampling and analysis activities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 10

Resource: Chemistry

Action: Sample and analysis of RNS HxB Outlet for activity

Analysis: Although not specified in the procedure, it is assumed that Chemistry performs the sampling and analysis. Use of the chemistry samples is the last choice of three available options/indicators for the operators to determine if RNS Hx is leaking into the CCS. The SRO/ED determined that the first two indications are readily available in the MCR and would be used to determine if an RNS Hx is leaking into the CCS. Operators would proceed with subsequent procedure steps without Chemistry results. In addition, VEGP 3&4 personnel have determined that the primary function for Chemistry during a declared emergency is dose assessment. This function would be performed by Chemistry until augmented resources are available to assume this function at which time the Chemistry technician is available to support sampling and analysis activities. Conclusion - the proposed

on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: RNO 11(2)
Resource: Chemistry
Action: Notify Chemistry that RCS Purification has been isolated
Analysis: RNO 11(2) of 3-AOP-702 provides guidance to operators to notify Chemistry that the purification system has been isolated. No specific actions are identified for Chemistry personnel. Chemistry determined that there are no field actions for the Chemistry technician. Chemistry would monitor RCS parameters as needed to ensure action levels are not exceeded. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 12
Resource: Chemistry
Action: Sample and analysis of CCS for activity
Analysis: Step 12 of 3-AOP-702 provides three options for determining if RCS leakage into the CCS system has been isolated, with Chemistry sampling and analysis being the last option. The SRO/ED determined that the first two indications are readily available in the MCR and would be used to determine if RCS leakage into the CCS has been isolated. Operators would proceed with subsequent procedure steps without Chemistry results. VEGP 3&4 personnel have also determined that the primary function for Chemistry during a declared emergency is dose assessment. This function would be performed by Chemistry until augmented resources are available to assume this function at which time the Chemistry technician is available to support sampling and analysis activities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: RNO 14.d.
Resource: Radiation Protection
Action: Notify Radiation Protection of possible rise in CCS radiation levels if an increase in CCS surge tank level is observed.
Analysis: It was determined that this step notifies RP of the potential change in plant radiological conditions. RP determined that specific field actions for RP are not required after notification by operations. However, sufficient RP resources are on-shift to perform any actions as determined by the SRO/ED based on station priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: RNO 14.e.
Resource: Chemistry
Action: Sample and analysis of CCS to determine source of leakage into the CCS if an increase in CCS surge tank level is observed
Analysis: The SRO/ED determined that this step was a hold point; however, the action is not immediately required and would be performed by augmented resources without impacting event response actions. In addition, VEGP 3&4 personnel have also determined that the primary function for Chemistry during a declared emergency is dose assessment. This function would be performed by Chemistry until augmented resources are available to assume this function at which time the Chemistry technician is available to support sampling and analysis activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: RNO 14.f.
Resource: Maintenance
Action: Inspect for leakage into CCS if an increase in CCS surge tank level is observed
Analysis: The SRO/ED determined that this step was a hold point; however, this action is not immediately required and would be performed by augmented resources without impacting event response actions. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 30
Resource: Engineering Staff
Action: Consult with Engineering Staff to determine RCP restoration limitations
Analysis: The SRO/ED determined that this is a post-event/recovery action that can be performed as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response

<u>Event 17 – Loss of Service Water</u>

Supporting
Procedure(s): 3-AOP-704, Loss of Service Water
Step: 23
Resource: Work Control
Action: Request Work Control support to restore SWS
Analysis: The SRO/ED determined that this is a post-event/recovery action that can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 18 – Acts of Nature

Supporting Procedure(s): 3-AOP-901, Acts of Nature
3-GOP-101, Power Operations above 25% Power
3-GOP-202

Step: 3-AOP-901, Attachment 1, RNO 5.b.(2); Attachment 1, Step 7.c.
3-GOP-101, Section 4.3, Steps 1 and 6; Section 4.3, Step 13.j.

Resource: Chemistry personnel

Action: Notify Chemistry if RTP changes ≥ 15% in an hour

Analysis: 3-AOP-901, Attachment 1, RNO 5.b.(2) and Step 7.c. direct initiation of plant shutdown IAW three procedures including 3-GOP-101. The identified sections/steps in 3-GOP-101 direct notification of Chemistry if RTP changes ≥ 15% in an hour. The purpose for this notification is to ensure RCS activity is within TS limits. Chemistry sampling for RCS activity is performed in accordance with SR 3.4.10.2 which is performed in Mode 1 to ensure iodine remains within limit during normal operation and following fast power changes when increased releases of iodine from the fuel (iodine spiking) may occur. The sampling frequency is adequate to trend changes in the iodine activity level. The SR 3.4.10.2 requirement is to sample between 2 and 6 hours after a power change of greater than or equal to 15% RTP within a 1-hour period. Per the SR 3.4.10.2 basis, this frequency is established because samples at other times would provide inaccurate results. Therefore, the RCS activity samples can be obtained as resources are available after 90 minutes of an Alert or higher classification. In addition, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-901, Attachment 1, RNO 5.b.(2); Attachment 1, Step 7.c.
3-GOP-202, Section 3.0, Step 3; Section 4.0, Step 12.c.

Resource: Chemistry

Action: 3-GOP-202, Section 3.0, Step 3: Notify Chemistry to obtain RCS samples during shutdown
3-GOP-202, Section 4.0, Step 12.c.: Notify Chemistry to obtain current RCS and PZR boron concentrations

Analysis: 3-AOP-901, Attachment 1, RNO 5.b.(2) and Step 7.c. direct initiation of plant shutdown IAW three procedures including 3-GOP-202. The identified sections/steps in 3-GOP-202 direct notification of Chemistry to obtain RCS samples during shutdown and to obtain current RCS and PZR boron concentrations prior to reaching Mode 3. It was determined that it would take 1.5-2.0 hours to approach Mode 3. RMCS is used to borate using CVS. OPDMS

monitors SDM and accounts for the current RCS boron concentration based on RCS makeup. The intent of this step is to ensure RCS and PZR boron concentrations are within allowable limits. The background document allows for PZR samples to be taken at a later time. OPDMS provides a continuous calculation of SDM boron based on makeup from CVS; therefore, immediate sampling and analysis for RCS and PZR boron is not needed and can be deferred until augmented resources are available. Operations will continue performing subsequent procedure steps. Furthermore, VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 19 – Steam Generator Tube Rupture

Supporting Procedure(s): 3-AOP-103, Steam Generator Tube Leak
3-AOP-302, Loss of AC Power
3-AOP-702, Loss of Component Cooling Water
3-AOP-704, Loss of Service Water
3-ASS-SOP-001, Auxiliary Steam System
3-EOP-E0, Reactor Trip or Safeguards Actuation
3-EOP-E3, Steam Generator Tube Rupture
3-MSS-SOP-001, Main Steam System

Step: 3-AOP-103, Step 1

Resource: Chemistry and Radiation Protection

Action: Notify Chemistry and Radiation Protection

Analysis: The analysis for this event determined that actions would be initiated prior to emergency classification. Chemistry sampling and analysis of the steam generators would not be performed, and control room personnel would rely on readily available MCR indications to identify the affected steam generator(s). VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; sampling and analysis tasks will be deferred until after augmented resources are available to perform dose assessment. Radiation Protection implements In-Plant Surveys IAW B-GEN-PLMC-008, Primary to Secondary Leak Program, after notification by control room personnel. Sufficient RP resources are available to support AOP/EOP actions in response to the SGTR based on priorities determined by the SRO/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-EOP-E0, Step 24
Resource: Radiation Protection
Action: Survey Auxiliary Building, Turbine Building, and Main Steam Lines
Analysis: RP subsumed these surveys while performing actions identified in B-GEN-PLMC-008. It was determined that sufficient RP resources are available to support EOP/AOP actions in response to the SGTR. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-EOP-E3, Step 7.b.
Resource: Radiation Protection
Action: Provide job coverage to support isolation and venting of air to the Hot-well Overflow Control Valves
Analysis: RP will support this task in parallel with the in-plant surveys that were implemented in response to the SGTR. The location of this task is in the same area where in plant surveys are being conducted, so this task would be supported by the RP technician performing B-GEN-PLMC-008 actions. It was determined that sufficient RP resources are available to support EOP/AOP actions in response to the SGTR based upon the priorities set by the SRO/Emergency Director. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Step: 3-EOP-E3, Step 7.c.
Resource: Chemistry
Action: Sample Aux Boiler feedwater IAW 3-ASS-SOP-001; add chemicals as needed
Analysis: Step 7.c directs transfer of steam loads to the auxiliary boiler IAW 3-MSS-SOP-001 and 3-ASS-SOP-001 by reference. he SRO/Emergency Director determined that this step would not be performed since power is not available to the Auxiliary Boiler. However, if power was available then actions would be taken to start-up the Auxiliary Boiler. VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; therefore, Auxiliary Boiler sampling and analysis tasks would be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-EOP-E3, RNO 18
3-AOP-704, Step 23
Resource: Work Control
Action: Request Work Control support to restore SWS
Analysis: Per the analysis for 3-AOP-704, the procedure analysis determined that this is a post-event/recovery action that can be deferred until augmented resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step: 3-AOP-704, Step 23
Resource: ERO personnel
Action: Connect Temporary Air Compressor
Analysis: It was determined that this action would be performed by augmented resources. The location of the temporary air compressor has not been determined, but regardless of where the equipment is staged, augmented resources after 90 minutes will be used. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 20 – Main Control Room Fire with Evacuation and Remote Shutdown

Supporting Procedure(s): 3-AOP-601, Main Control Room Evacuation
3-ASS-SOP-001, Auxiliary Steam System
3-MSS-SOP-001, Main Steam System
3-EOP-ES-0.1, Reactor Trip Response
Step: 3-EOP-ES-0.1, Step 17.b.
Resource: Chemistry
Action: Sample Aux Boiler feedwater IAW 3-ASS-SOP-001; add chemicals as needed
Analysis: Step 17.b. of directs transfer of steam loads to the auxiliary boiler IAW 3-MSS-SOP-001 and 3-ASS-SOP-001 by reference. The SRO/Emergency Director determined that a System Operator would perform actions to prepare for startup of the Auxiliary Boiler until Chemistry was available to support sampling activities. Control Room personnel would continue with subsequent procedure steps while waiting on the auxiliary boiler. It was also determined that waiting for augmented resources to complete actions needed to start-up the auxiliary boiler did not adversely impact unit cooldown to a safe condition. VEGP 3&4 personnel have determined that during a declared emergency, the on-shift Chemistry Technician's primary role is to perform dose assessment; therefore, Auxiliary Boiler sampling and analysis tasks would be deferred until after augmented resources are available to perform dose assessment. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 21, Reactor Trip or Safeguards Actuation

Supporting Procedure(s): 3-EOP-E-0, Reactor Trip or Safeguards Actuation
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling
Step(s): 3-EOP-3-EOP-E-0, step 21.b RNO
Resource: Emergency Organization
Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive

Containment Cooling, Attachment 1, Refill of PCCWST, SFP, And Supply of The Distribution Bucket from PCCAWST

Analysis: 3-EOP-E-0 step 21 directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request Emergency Response Organization to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4 sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that if a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA

Step(s): 3-EOP-E-0 step 24 and 26.c

Resource: RP

Action: Step 24 - Request Rad Protection begin surveys of: Steam-lines; Auxiliary Building; Turbine Building, step 26.c - Check results of local steam-line radiation surveys – Normal

Analysis: The purpose of this step is to implement personnel protective actions and aid in event diagnostic efforts. Plant radiation levels may change substantially during post-accident conditions. Surveys based on the event(s) that have occurred should be performed in accordance with Radiation Protection department procedures. These surveys will be performed by the on-shift RP technicians based on priorities assigned by the SRO/Emergency Director. Relative to step 26.c, operators will assess the steam lines using installed radiation monitors and continue in the procedure. The steam-line local surveys are used as a confirmatory indication once available. RP actions performed by on-shift RP are bounded by existing NEI 10-05 analysis. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-302, Loss of AC Power
Step(s): 3-EOP-E-0, step 30 RNO, step 42 RNO
Resource: Maintenance and Engineering
Action: Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure
Analysis: 3-EOP-E-0 step 30 RNO and step 42 RNO direct Operators to implement 3-AOP-302. The crew will perform 3-AOP-302 in parallel with the controlling EOP. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2 the onsite standby power system supplies ac power to the selected permanent non-safety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent non-safety loads are not required for the plant safe shutdown. Therefore, implementation of 3-AOP-302 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-E-0, Attachment 1 Step 21 RNO
Resource: Maintenance
Action: Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.
Analysis: 3-EOP-E-0 step 23 directs the operator to Implement Attachment 1, RNS Alignment for IRWST Cooling. Per Attachment 1 step 21 If at least one Service Water Pump is not running then the RNO is entered which directs restoration of the SWS per 3-AOP-704. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator to Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion -

procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water
Step(s): 3-EOP-E-0 Attachment 1 Step 24.1 RNO
Resource: Chemistry, Maintenance, Engineering and Plant Staff
Action: Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in this procedure
Analysis: 3-EOP-E-0 step 23 directs the operator to Implement Attachment 1, RNS Alignment for IRWST Cooling. Per Attachment 1 step 24 If at least one at least one CCS pump is not running then the RNO is entered and the operator is directed to Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in 3-EOP-E-0 procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). Per the PBPA team 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 22, Loss of Reactor or Secondary Coolant

Supporting Procedure(s): 3-EOP-E-1, Loss of Reactor or Secondary Coolant
Step(s): 3-EOP-E-1 step 2.c
Resource: RP
Action: Step 2.c - Check results of local steam-line radiation surveys – NORMAL
Analysis: The purpose of this step is to identify any ruptured (failure in primary to secondary pressure boundary) SGs. Abnormal radiation in an SG indicates primary to secondary leakage. Operators will assess the steam lines using installed radiation monitors and continue in the procedure. The steam-line local surveys are used as a confirmatory indication once available. RP actions performed by on-shift RP are bounded by existing NEI 10-05 analysis. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting
Procedure(s): 3-AOP-302, Loss of AC Power
Step(s): 3-EOP-E-1, Step 3
Resource: Maintenance and Engineering
Action: Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure
Analysis: Step 3 is a continuous action (CA) step directing the operator to Check All Switchgear Busses – Energized by Offsite Power. If all switchgear busses are not energized from offsite power, the RNO is entered which directs the to implement 3-AOP-302 while continuing on with the procedure. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent non-safety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent non-safety loads are not required for the plant safe shutdown. Therefore, implementation of 3-AOP-302 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 3-AOP-703 Loss of Instrument Air
Step(s): 3-EOP-E-1, step 5.a
Resource: Maintenance
Action: Restore instrument air per 3-AOP-703 Loss of Instrument Air while continuing in this procedure
Analysis: 3-EOP-E-1, step 5.a directs the operator to check instrument air supply header pressure – Greater Than 104.5 PSIG. If pressure is less than this value the RNO is entered and the operator is directed to restore instrument air per 3-AOP-703 Loss of Instrument Air while continuing in 3-EOP-E-1. 3-AOP-703 step 20 directs the operator to request Work Control initiate repair activities for failed compressors, failed dryers, air system leakage, identified Instrument air issues. The crew will perform 3-AOP-703 in parallel with the controlling EOP. The crew will perform 3-AOP-703 in parallel with the controlling EOP as resources are available. Per FSAR section 9.3.1.1.1 The compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. Therefore, implementation of 3-AOP-703 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-E-1 step 7 RNO
Resource: Maintenance
Action: Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure
Analysis: 3-EOP-E-1 step 7 directs the operator to ensure at least one Service Water Pump is running. If at least one Service Water Pump is not running, then the RNO is entered which directs restoration of the SWS per 3-AOP-704 while continuing in 3-EOP-E-1. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1 the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): 3-AOP-702, Loss of Component Cooling Water
Step(s): 3-EOP-E-1 Attachment 1 Step 24.1 RNO
Resource: Chemistry, Maintenance, Engineering and Plant Staff
Action: Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in this procedure
Analysis: 3-EOP-E-1 step 23 directs the operator to Implement Attachment 1, RNS Alignment for IRWST Cooling. Per Attachment 1 step 24 If at least one at least one CCS pump is not running then the RNO is entered and the operator is directed to Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in 3-EOP-E-0 procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1 The component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not

affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-BDS-SOP-001, Attachment 12 and Chemistry departmental procedures

Step(s): 3-EOP-E-1 steps 23.c and 23.d

Resource: Chemistry

Action: Step 23.c - Place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12

Step 23.d - Direct chemistry to perform sampling; RCS - boron; RCS activity; SG(s) activity

Analysis: 3-EOP-E-1 step 23.c directs to place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for Attachment 12 require either BDS-RE010 and BDS-RE010 be in service OR RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required on-shift RP technicians will perform these activities. Step 23.d calls for Chemistry to perform various sampling activities. These will be performed IAW Chemistry Department procedures and associated TS requirements. Depending on plant conditions sampling may not be immediately possible (e.g. SG is depressurized, BDS isolated, et.). The requested samples are:

1. RCS Boron – During power operation, SDM is calculated and monitored by the Online Power Distribution Monitoring System (OPDMS) and controlled by operating with RCCAs sufficiently withdrawn to meet the SDM requirement. Although OPDMS tracks boron injected via the normal makeup path it cannot determine the extent of CMT injection contribution to RCS boration. This injection path provides sufficient boron to address safe shutdown of the plant with subsequent sampling of RCS boron to determine final SDM as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

2. RCS Activity- SR 3.4.10.1 requires verify reactor coolant Dose Equivalent I-131 specific activity ≤ 1.0 μCi/gm. between 2 to 6 hours after a Thermal Power change of ≥ 15% of RTP within a 1 hour period. Therefore, these samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

3. SG Activity- SG activity levels may be needed to determine offsite release projections. For accident dose assessment and determination of PARS sample

results will not be needed as the dose model for developing PARs uses inputs from effluent radiation monitors and/or field surveys. However, SG activity samples may be used to determine whether steam can be dumped from a SG. For those conditions which require such projections prior to dumping steam and the SG sample results are not available the operator will not dump steam and continue on in the controlling EOP. Therefore, the samples can be performed once augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-MSS-SOP-001, Main Steam System, Attachment 6 ASS/GSS Steam Supply Alignment,

Step(s): 3-EOP-E-1 Step 29.a

Resource: Chemistry

Action: Dispatch an operator to locally transfer auxiliary steam loads to Auxiliary Boiler per 3-MSS-SOP-001 Main Steam System, Attachment 6 ASS/GSS Steam Supply Alignment

Analysis: The performance of 3-MSS-SOP-001, Attachment 6 does not require non-OPS resources except for chemistry samples to support placing the aux boiler in service per 3-ASS-SOP-001 Auxiliary Steam Supply System, Attachment 1 Placing Auxiliary Boiler in Service. The on-shift chemist will be performing dose assessment and will not be able to perform sampling activities. The aux boiler will be placed in service as needed to support event response and the samples can be obtained as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): Chemistry department procedures

Step(s): 3-EOP-E-1 Step 34.c

Resource: Chemistry

Action: Request Chemistry to sample intact SG(s) and RCS for activity

Analysis: 3-EOP-E-1 Step 34.c directs Chemistry to perform sampling for RCS activity, and SG activity. These sample results form the basis of the ED decision in subsequent steps 34.d and 34.d RNO. Sampling will be performed IAW Chemistry Department procedures and associated TS requirements. Depending on plant conditions sampling may not be immediately possible (e.g. SG is depressurized, BDS isolated, etc.). If the SG sample results are not available, the operator will not dump steam and continue on in the controlling EOP. At this point the plant is in a stable condition and further cooldown is not immediately required. Therefore, the samples can be performed by augmented resources once available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be

deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 3-EOP-E-1 step 34.d and 34.d.1 RNO
Resource: Emergency Director
Action: 34.d Obtain permission from ED to depressurize intact SGs
34.d.1 RNO When Emergency Director determines steaming intact SG(s) is acceptable, then perform Step 34.e.
Analysis: 3-EOP-E-1 step 34.d directs the operator to obtain permission from ED to depressurize intact SGs. RNO Step 34.d.1 is a CA step directing that "When Emergency Director determines steaming intact SG(s) is acceptable, then perform Step 34.e". Per the basis, at this point the RCS pressure is low (below the normal residual heat removal pump shutoff head pressure) and the plant is on recirculation. However, the secondary side may still be relatively hot and at a pressure significantly higher than the RCS. If this is the case, the Operator should cool down and depressurize the secondary side by dumping steam from any intact SGs to aid in further cooldown and depressurization of the RCS and to remove heat from containment. The continued cool down and depressurization of the secondary side is not immediately required to support implementation of the remainder of the procedure. Therefore, if the ED does not direct to depressurize intact SGs, RNO step 34.d.2 will direct the operator to continue with the procedure by going to step 35. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 3-EOP-E-1 step 44.b
Resource: Emergency Director
Action: Obtain permission from Emergency Director to vent the reactor vessel head.
Analysis: 3-EOP-E-1 step 44 directs to Determine If Reactor Vessel Head Should Be Vented. To support his decision step 44.a directs to determine if containment hydrogen – less than 9.4%. If it is not, the RNO is entered and the operator is directed continue with the procedure by going to step 45. If it is less than 9.4%, the operator is directed to obtain permission from Emergency Director to vent the reactor vessel head. If the ED does not give permission to open the RHVs the RNO is entered which directs the operator to continue with the procedure by going to step 45. This decision is made by the SRO/ED unless already relieved by the augmented ED. If the ED does not direct to vent the reactor head the operators will continue on with the procedure until such time as the ED desires to vent the reactor head based on plant conditions, event progression, etc. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): NA
Step(s): 3-EOP-E-1 step 45
Resource: Emergency Director, Augmented ERO
Action: Consult Emergency Director to Evaluate Long Term Plant Status.
Analysis: Per the basis document, the purpose of step 4 is to determine long term plant status and future recovery actions. The equipment needed following a LOCA has been designed to function in the long term so that plant recovery is possible. This allows the Emergency Director time to evaluate the event and develop recovery procedures so that the plant can be repaired and brought back to service. Since step 4 addresses long term plant status and recovery actions, immediate actions will be addressed via the procedures continuous action steps, foldout page and procedure transitions as needed while long term recovery actions are addressed by the augmented ERO after arriving after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): NA
Step(s): 3-EOP-E-1, Attachment 1 Step 1.a RNO
Resource: Emergency Director
Action: IF Emergency Director determines RNS should be placed in service, then go to Step 2.
Analysis: Attachment 1, step 1 directs the operator to Check Ctmt High Range Rad – Less Than 100 RAD/hr. If it is not the RNO is entered and RNO 1.a states if Emergency Director determines RNS should be placed in service, then go to step 2 otherwise RNO step 1.b directs the operator to return to procedure step in effect. The SRO/ED will make the decision whether to place RNS in service with Ctmt Rad >100 R/hr using on shift resources based on priorities. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 23, Faulted Steam Generator Isolation

Supporting
Procedure(s): 3-EOP-E-2, Faulted Steam Generator Isolation
Step(s): 3-EOP-E-2 step 8.c
Resource: RP
Action: Step 2.c - Check results of local steam-line radiation surveys – Normal
Analysis: Step 8 directs the operator to Check SG Tubes Intact by a. checking secondary radiation Normal via installed radiation monitors, b. checking conditions prior to Reactor trip (e.g. pre-event SG activity Normal, installed radiation monitor readings Normal, tube leakage <150 gpd in each SG) or c. local radiation surveys of the main steam-lines Normal. If the operator cannot determine SG status via methods

in Step 8.a or 8.b then one of the on-shift RP technicians will be available to perform the local radiation surveys of the main steam-lines based on priorities set by the SRO/ED. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 24, Steam Generator Tube Rupture

Supporting Procedure(s): 3-EOP-E-3, Steam Generator Tube Rupture
Step(s): 3-EOP-E-3 step 7.c
Resource: Chemistry
Action: Dispatch an operator to locally transfer auxiliary steam loads to Auxiliary Boiler per 3-MSS-SOP-001, Main Steam System, Attachment 6, ASS/GSS Steam Supply Alignment
Analysis: The performance of 3-MSS-SOP-001, Attachment 6 does not require non-OPS resources except for chemistry samples to support placing the aux boiler in service per 3-ASS-SOP-001 Auxiliary Steam Supply System, Attachment 1 Placing Auxiliary Boiler in Service. The on-shift chemist will be performing dose assessment and will not be able to perform sampling activities. The aux boiler will be placed in service as needed to support event response and the samples can be obtained as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-302, Loss of AC Power
Step(s): 3-EOP-E-3, Step 10 and step 47.b RNO
Resource: Maintenance and Engineering
Action: 3-EOP-E-3 step 10 - Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure
3-EOP-E-3 step 47.b RNO - Refer to 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators
Analysis: 3-EOP-E-3 step 10 is a CA directing the operator to Check All Switchgear Busses – Energized by Offsite Power. If all switchgear busses are not energized from offsite power the RNO is entered which directs the to implement 3-AOP-302 while continuing with the procedure. Step 47 directs the operator to Maintain Saturated Conditions In PZR. In support of this step 47.b directs the operator to Check nuclear island Switchgear Busses – Energized by Offsite Power. If not, the RNO is entered which directs the operator to Refer to 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per

FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent non-safety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent non-safety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-703 Loss of Instrument Air
Step(s): 3-EOP-E-3, step 16. a.1RNO
Resource: Maintenance
Action: Restore instrument air per 3-AOP-703 Loss of Instrument Air while continuing in this procedure
Analysis: 3-EOP-E-1, step 16.a. directs the operator to check instrument air supply header pressure – greater than 104.5 PSIG. If pressure is less than this value the RNO is entered and the operator is directed to restore instrument air per 3-AOP-703 while continuing in 3-EOP-E-1. 3-AOP-703 step 20 directs the operator to request Work Control initiate repair activities for failed compressors, failed dryers, air system leakage, identified Instrument air issues. The crew will perform 3-AOP-703 in parallel with the controlling EOP as resources are available. Per FSAR section 9.3.1.1.1, the compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. Therefore, implementation of 3-AOP-703 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-E-3 step 18 RNO
Resource: Maintenance
Action: Restore SWS cooling to CCS heat exchangers per 3-AOP-704, Loss of Service Water while continuing in this procedure

Analysis: 3-EOP-E-1 step 18 directs the operator to ensure at least one Service Water Pump is running. If at least one Service Water Pump is not running, then the RNO is entered which directs restoration of the SWS per 3-AOP-704 while continuing in 3-EOP-E-3. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water
Step(s): 3-EOP-E-3 Step 19 RNO
Resource: Chemistry, Maintenance, Engineering and Plant Staff
Action: Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in this procedure
Analysis: 3-EOP-E-3 Step 19 directs the operator to Check CCS Operation by ensuring at least one CCS Pump - Running and checking CCS Discharge Header Temp – less than 110°F. If these conditions are not met the RNO is entered and the operator is directed to Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in this procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12 Aligning Blowdown for SG Sampling with SG Tube Leakage

Step(s): 3-EOP-E-3 Step 40.c and 40.d

Resource: Chemistry

Action: 40.c Place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12 Aligning Blowdown for SG Sampling with SG Tube Leakage

40.d Direct chemistry to perform sampling; RCS - boron; RCS activity; SG(s) activity

Analysis: Step 40.c directs to place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for Attachment 12 require either BDS-RE010 and BDS-RE010 be in service OR RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required, on-shift RP technicians will perform these activities as directed by the SRO/Emergency Director based on plant priorities. Step 40.d calls for Chemistry to perform various sampling activities. These will be performed IAW Chemistry Department procedures and associated TS requirements. Depending on plant conditions sampling may not be immediately possible (e.g. SG is depressurized, BDS isolated, et.). The requested samples are:

1. RCS Boron – During power operation, SDM is calculated and monitored by the Online Power Distribution Monitoring System (OPDMS) and controlled by operating with RCCAs sufficiently withdrawn to meet the SDM requirement. Although OPDMS tracks boron injected via the normal makeup path it cannot determine the extent of CMT injection contribution to RCS boration. This injection path provides sufficient boron to address safe shutdown of the plant with subsequent sampling of RCS boron to determine final SDM as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. RCS Activity- SR 3.4.10.1 requires verify reactor coolant dose equivalent I-131 specific activity ≤ 1.0 μCi/gm. between 2 to 6 hours after a thermal power change of ≥ 15% of RTP within a 1 hour period. Therefore, these samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. SG Activity- SG activity levels may be needed to determine offsite release projections. For accident dose assessment and determination of PARS sample results will not be needed as the dose model for developing PARs uses inputs from effluent radiation monitors and/or field surveys. However, SG activity samples may be used to determine whether steam can be dumped from a SG. For those conditions which require such projections prior to dumping steam and the SG sample results are not available the operator will not dump steam and continue on in the controlling EOP. Therefore, the samples can be performed once augmented

resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 3-EOP-E-3 Step 49.a
Resource: Engineering
Action: Consult Engineering Staff to determine if RCPs should be started.
Analysis: Step 49 directs the operator to Check Reactor Coolant Pumps - Running and if a reactor coolant pump is not running, the RNO is entered and RNO step 49.a directs the operator to consult Engineering Staff to determine if RCPs should be started. Step 49.b states that if determined that RCPs should be started, then start RCPs per 3-RCS-SOP- 001, Reactor Coolant System Attachment 3, Start Reactor Coolant Pumps. If the engineering staff does not recommend an RCP be started or is not available at the time this step is reached then RNO step 49.c directs if no RCPs are running and PRHR is in standby alignment, then 1) Check natural circulation flow or 2) IF natural circulation is not indicated, then dump more steam from intact SGs per 3-EOP-ES-0.3, or 3-EOP-ES-0.4. Therefore, if the Engineering Staff is not available at the time this step is reached, the crew has adequate guidance to continue emergency response actions IAW 3-EOP-E-3. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): NA
Step(s): 3-EOP-E-3 Step 52.c
Resource: Emergency Director, Engineering
Action: Consult Emergency Director to evaluate depressurizing ruptured SG to less than 417 PSIG [108 PSIG] by either dumping steam from ruptured SG(s) using SG PORV, MSIV bypass valve, or Condenser steam dump or Initiating blowdown from ruptured SG(s) per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 2, Normal Operation Of The BDS
Analysis: Step 52 directs the operator to Check If Ruptured SG(s) Pressure Should Be Reduced. When at least one RCS T-hot is less than 400°F (step 52.b) and ruptured SG(s) pressure is greater than 417 PSIG [108 PSIG] (step 52.c) the operator is directed to consult Emergency Director to evaluate depressurizing ruptured SG to less than 417 PSIG [108 PSIG] by either dumping steam from ruptured SG(s) using SG PORV, MSIV bypass valve, or condenser steam dump or initiating blowdown from ruptured SG(s) per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 2, Normal Operation of the BDS. Per the basis, an evaluation by Engineering should be made based on the benefits and limitations of each method if the backfill method is too slow. If the SRO/ED does not direct that the actions specified in step 52.c be performed, the operator will perform step 52.c

RNO and continue to reduce ruptured SG pressure using ambient losses and backfill. As such, the operator has adequate guidance to continue on with the emergency response actions specified in 3-EOP-E-3 in the absence of support from the augmented ERO. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): NA
Step(s): 3-EOP-E-3 Step 64
Resource: Emergency Director, Engineering
Action: Consult Emergency Director to evaluate long term plant status
Analysis: Step 64 addresses long term plant status and recovery actions. Immediate actions will be addressed via the procedures CA steps, foldout page and procedure transitions as needed while long term recovery actions are addressed by the augmented ERO after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 25, LOCA Outside Containment

Supporting Procedure(s): 3-EOP-ECA-1.1, LOCA Outside Containment
RP department procedures
Step(s): 3-EOP-ECA-1.1 step 8
Resource: RP
Action: Implement radiation protection measures
Analysis: The purpose of this step is to initiate radiation and contamination surveys, and to direct personnel protective actions. A LOCA outside of containment may cause the release of radioactive contamination to plant areas not normally controlled as potentially highly contaminated areas. Additionally, airborne activity levels may require additional personnel protective measures. Step 8 will implement radiological protective measures to include area surveys, contamination control measures, etc. On-shift RP personnel will perform these surveys and implement radiological protective actions based on the priorities established by the SRO/ED until additional RP resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 26, Reactor Trip Response

Supporting Procedure(s): 3-EOP-ES-0.1, Reactor Trip Response
3-AOP-302, Loss of AC Power

Step(s): 3-EOP-ES-0.1 steps 8.c RNO, and 16.b RNO
Resource: Maintenance, Engineering,
Action: Step 8.c RNO - Refer To 3-AOP-302 Loss of AC Power to determine available PZR Heaters.
Step 16.b RNO – Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure
Analysis: 3-EOP-ES-0.1 is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. 3-EOP-ES-0.1 step 8.c RNO directs the operator to refer to 3-AOP-302 Loss of AC Power to determine available PZR Heaters and step 16.b RNO directs the operator to restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-ES-0.1 step 18 RNO
Resource: Maintenance
Action: Step 18 RNO – Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.
Analysis: 3-EOP-ES-0.1 is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry

into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. 3-EOP-ES-0.1 step 18 RNO directs the operator to restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1 the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water;

Step(s): 3-EOP-ES-0.1 step 19 RNO

Resource: Chemistry, Maintenance, Engineering and Plant Staff

Action: Step 19 RNO – Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure

Analysis: 3-EOP-ES-0.1 is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. EOP-ES-0.1 step 19 RNO directs the operator to restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). Per the PBPA team, 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90

minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-102, Emergency Boration
3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3
3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4
3-ASS-SOP-001 Auxiliary Steam Supply System, Attachment 1
3-FWS-SOP-002, Attachment 4
3-CFS-SOP-001, Turbine Island Chemical Feed System, Attachment 5
Chemistry department procedures

Step(s): 3-EOP-ES-0.1 steps 9.a.2 RNO, 20.d RNO, and 31.b

Resource: Chemistry

Action: Step 9.a.1 RNO – If two or more control rods are not fully inserted, then immediately borate 3380 Gallons for each control rod not fully inserted per 3-AOP-102 Emergency Boration.
Step 17.b - Dispatch an operator to locally transfer auxiliary steam loads to Auxiliary Boiler per 3-MSS-SOP-001, Main Steam System, Attachment 6, ASS/GSS Steam Supply Alignment
Step 20.d RNO - Request Chemistry sample CCS for activity
Step 28.a.1 and step 35.a RNO - Lower IRWST temperature to less than 120°F per either of the following: 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST
Step 31.b - Direct Chemistry to perform sampling: RCS Boron Concentration, RCS Activity, and SG Activity

Analysis: 3-EOP-ES-0.1 is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. 3-EOP-ES-0.1 step 9.a.1 RNO directs that IF two or more control rods are not fully inserted, then immediately borate 3380 Gallons for each control rod not fully inserted per 3-AOP-102 Emergency Boration. 3-AOP-102 step will then direct the operator to notify Chemistry to commence periodic sampling of RCS boron and pressurizer boron. Per the 3-AOP-102 background document PZR sampling can be delayed until after boration of the RCS has stopped to allow for PZR boron concentration to equalize with the RCS. It will take ~60 minutes if only two rods are affected and longer if additional rods are affected. Following boration time will need to be allowed for mixing to ensure samples are representative of actual conditions. Therefore, RCS and PZR boron samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact

on Emergency Response. 3-EOP-ES-0.1 step 17.b directs the performance of 3-MSS-SOP-001, Attachment 6. This procedure will then direct performing 3-ASS-SOP-001 Auxiliary Steam Supply System, Attachment 1, Placing Auxiliary Boiler in Service. 3-ASS-SOP-001 directs chemistry to perform samples to support placing the aux boiler in service. If the on-shift chemist is performing dose assessment they will not be able to perform sampling activities. The aux boiler will be placed in service as needed to support event response and the samples can be obtained as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response. 3-EOP-ES-0.1step 20.d RNO directs to request Chemistry sample CCS for activity. Per FSAR section 9.2.2.4.5.2 small leakage of reactor coolant into the component cooling water system is detected by a radiation monitor on the common pump suction header, by routine sampling, or by high level in the surge tank. The installed radiation monitor and surge tank level provide the operator with readily available indication of RCS leakage into the CCS to support their decision making so the operator will contact Chemistry for the sample and continue on with the procedure. Therefore, the CCS activity sample is confirmatory in nature and if the on-shift chemist is performing dose assessment and is unavailable, the sample can be obtained as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response. Step 28.a.1and step 35.a RNO direct the operator to lower IRWST temperature to less than 120°F per either of the following: 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST. 3-RNS-SOP-001, Attachment 4, Section 2.0 Precautions and Limitations, step 2.1 states "Prior to aligning RNS to RCS, RNS boron concentration must be greater than or equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event." As such chemistry samples for boron will be required prior to placing RNS in service. 3-SFS-SOP-001, Attachment 4 does not require Chemistry sampling to implement. Therefore, the operator will perform 3-SFS-SOP-001, Attachment 4 and continue with the procedure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Step 31.b directs Chemistry to perform the following sampling activities:
1. RCS Boron – During power operation, SDM is calculated and monitored by the Online Power Distribution Monitoring System (OPDMS) and controlled by operating with RCCAs sufficiently withdrawn to meet the SDM requirement. Although OPDMS tracks boron injected via the normal makeup path it cannot determine the extent of CMT injection contribution to RCS boration. This injection path provides sufficient boron to address safe shutdown of the plant with subsequent sampling of RCS boron to determine final SDM as resources are available. Conclusion -

procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

2. RCS Activity- SR 3.4.10.1 requires verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm. between 2 to 6 hours after a THERMAL POWER change of ≥ 15% of RTP within a 1 hour period. Therefore, these samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

3. SG Activity- SG activity levels may be needed to determine offsite release projections. For accident dose assessment and determination of PARS sample results will not be needed as the dose model for developing PARs uses inputs from effluent radiation monitors and/or field surveys. However, SG activity samples may be used to determine whether steam can be dumped from a SG. For those conditions which require such projections prior to dumping steam and the SG sample results are not available the operator will not dump steam and continue on in the controlling EOP. Therefore, the samples can be performed once augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

3-EOP-ES-0.1 step 33 directs performance of 3-CDS-SOP-001, Attachment 3, 3-CWS-SOP-001, Attachment 3, 3-FWS-SOP-001, and 3-FWS-SOP-002, Attachment 4. 3-FWS-SOP-002, Attachment 4 Initial Conditions step 3.4 requires CST water chemistry be acceptable for use in SFS or that the feed water system chemical injection system (CFS) be available per 3-CFS-SOP-001, Turbine Island Chemical Feed System, Attachment 5, Feed Water System Chemical Injection. Subsequently, steps 4.2.13 and 4.3.13 direct to Place CFS in service per 3-CFS-SOP-001, Attachment 5. P&L step 2.4 states "Chemistry will determine the appropriate amount and concentration of chemicals to be added." These steps support initial startup of the plant. Since the entry into this procedure requires a reactor trip, these systems would already be in service and meet the prescribed initial conditions so the operator would proceed with operating these systems to support EOP response. If confirmatory samples are desired, they can be obtained as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-PXS-SOP-001, Passive Core Cooling System, Attachment 2
Step(s): 3-EOP-ES-0.1 step 35.b RNO
Resource: Chemistry, Engineering, I&C
Action: Lower CMT temperature to less than 120°F per 3-PXS-SOP-001 Passive Core Cooling System, Attachment 2 Core Makeup Tank Operations.

Analysis: 3-EOP-ES-0.1 is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard.
Step 35.b RNO directs the operator to perform 3-PXS-SOP-001, Attachment 2 if CMT temperatures are not less than 120°F. Per the 3-EOP-ES-0.1 background document the CMTs are not expected to have been in operation, and their status is checked as a precaution. If the CMT(s) are not less than 120°F they should be restored to compliance with the temperature requirements of TS 3.5.2. 3-PXS-SOP-001, ATTACHMENT 2 will be performed with the following non-OPS resource needs:
1. Initial Conditions step 3.8 - Contact I&C to ensure PXS CMT instrumentation either within calibration and in service or I&C personnel are standing by to fill and vent PXS CMT instrumentation and place in service.
2. Steps 4.16.1 and 4.16.2 - Contact Engineering to develop a Reactivity Plan.
3. Steps 4.16.18 and 4.17.18 - Chemistry sample CMT and RCS boron on every 30-minute interval. TS 3.5.2 requires restoring CMT temperatures to less than 120°F within 72 hours if one CMT temperature is out of spec and within 8 hours if both CMTs have temperature out of spec. The operator will maintain the plant in a stable condition and continue in 3-EOP-ES-0.1. Additional resources will be available after 90 minutes of an Alert or higher classification to perform 3-PXS-SOP-001, Attachment 2 to support meeting the time requirement of TS 3.5.2.
Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 27, Natural Circulation Cooldown

Supporting Procedure(s): 3-EOP-ES-0.2, Natural Circulation Cooldown
3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3
3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4

Step(s): 3-EOP-ES-0.2 step 8 RNO

Resource: Chemistry, Engineering, I&C

Action: Lower IRWST temperature to less than 120°F per either of the following: 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST

Analysis: 3-EOP-ES-0.2 is only entered from 3-EOP-3-EOP-E-0.1 which is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. 3-EOP-ES-0.2 step 8 RNO directs the operator to lower

IRWST temperature to less than 120°F per either 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; or 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST. Attachment 4, Section 2.0 Precautions and Limitations, step 2.1 states "Prior to aligning RNS to RCS, RNS boron concentration must be greater than or equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event." As such, chemistry samples for boron will be required prior to placing RNS in service. 3-SFS-SOP-001, Attachment 4 does not require Chemistry sampling to implement. Therefore, the operator will perform 3-SFS-SOP-001, Attachment 4 and continue with the procedure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4

Step(s): 3-EOP-ES-0.2 step 39

Resource: Chemistry, Engineering, I&C

Action: Place RNS In Service Per 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling

Analysis: 3-EOP-ES-0.2 is only entered from 3-EOP-3-EOP-E-0.1 which is only entered from 3-EOP-E-0 when there has been a reactor trip with no safeguards actuation. Entry conditions for this procedure do not result in an Alert or higher classification unless the cause of the reactor trip and initial entry into 3-EOP-E-0 is an event that does not result in a safeguards actuation such as a security event or natural destructive phenomenon/hazard. 3-EOP-ES-0.2 step 39 directs the operator to lower place RNS In Service Per 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling. 3-RNS-SOP-001, Attachment 4, Section 2.0 Precautions and Limitations, step 2.1 states "Prior to aligning RNS to RCS, RNS boron concentration must be greater than or equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event." If the on-shift chemist is performing dose assessment they will not be available to perform this sampling. RNS for shutdown cooling is placed in service at 350°F therefore at a maximum cooldown rate of 100°F/hr it is not expected that the operating conditions for RNS will be met prior to augmentation of additional resources after 90 minutes of an Alert or higher classification. However, if the prescribed RCS temperature of 350°F is met and personnel are not available to perform the RNS sample, the operator will continue RCS cooldown and depressurization using steam dumps and/or PRHR. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 28, RCS Pressure Control

Supporting Procedure(s): 3-EOP-ES-0.5, RCS Pressure Control
Step(s): Step 6 Caution
Resource: Emergency Director
Action: Use hydrogen igniters only at the direction of EOPs or the Emergency Director
Analysis: The caution preceding step 6 includes information that the hydrogen igniters should only be used as directed by EOPs or the Emergency Director. The SRO/ED will make the decision regarding the use of hydrogen igniters IAW with the applicable EOPs and basis information until relieved by the augmented ED. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 29, Safeguards Termination

Supporting Procedure(s): 3-EOP-ES-1.1, Safeguards Termination
3-AOP-302, Loss of AC Power, Attachment 1
Step(s): 3-EOP-ES.1.1 step 1.b RNO and 3-EOP-ES.1.1 Attachment 1 Step 3.d
Resource: Emergency Director
Action: 3-EOP-ES.1.1 step 1.b RNO - Refer to 3-AOP-302 Loss of AC Power, Attachment 1, Diesel Generator Load Management for operating PZR Heaters on the Diesel Generators.
3-EOP-ES.1.1 Attachment 1 Step 3.d - Refer to 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators
Analysis: 3-EOP-ES.1.1 step 1 directs the operator to Maintain Saturated Conditions In PZR. In support of this step 1.b directs the operator to Check nuclear island Switchgear Busses – Energized by Offsite Power. If not, the RNO is entered which directs the operator to Refer to 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators. 3-ES-1.1 Foldout page step 2 for Response to Head Void directs that if indications of a Reactor vessel head void exist, then perform Attachment 1 (Response to Voids in Reactor Vessel). Attachment 1 step 3 directs the operator to Maintain Saturated Conditions In PZR. In support of this step 3.b directs the operator to Check nuclear island Switchgear Busses - Energized by Offsite Power. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe

shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-102, Emergency Boration
Step(s): 3-EOP-ES.1.1 step 11.a.1 RNO
Resource: Chemistry
Action: IF two or more control rods are not fully inserted, then immediately commence boration of 3380 gallons for each control rod NOT fully inserted per 3-AOP-102, Emergency Boration
Analysis: 3-EOP-ES.1.1 step 11.a.1 RNO directs that If two or more control rods are not fully inserted, then immediately borate 3380 Gallons for each control rod not fully inserted per 3-AOP-102 Emergency Boration. 3-AOP-102 step will then direct the operator to notify Chemistry to commence periodic sampling of RCS boron and pressurizer boron. Per the 3-AOP-102 background document PZR sampling can be delayed until after boration of the RCS has stopped to allow for PZR boron concentration to equalize with the RCS. It will take ~60 minutes if only two rods are affected and longer if additional rods are affected. Following boration time will need to be allowed for mixing to ensure samples are representative of actual conditions. Therefore, RCS and PZR boron samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12 Aligning Blowdown for SG Sampling with SG Tube Leakage, Attachment 12 and Chemistry departmental procedures
Step(s): 3-EOP-ES.1.1 step 21.c and 21.d
Resource: Chemistry
Action: 21.c - Place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12 Aligning Blowdown for SG Sampling with SG Tube Leakage
21.d Direct chemistry to perform sampling; RCS - boron; RCS activity; SG(s) activity

Analysis: 3-EOP-ES.1.1 step 21.c directs to Place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for Attachment 12 require either BDS-RE010 and BDS-RE010 be in service OR RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required on-shift RP technicians will perform these activities. Step 21.d directs Chemistry to perform the following sampling activities:
1. RCS Boron – During power operation, SDM is calculated and monitored by the Online Power Distribution Monitoring System (OPDMS) and controlled by operating with RCCAs sufficiently withdrawn to meet the SDM requirement. Although OPDMS tracks boron injected via the normal makeup path it cannot determine the extent of CMT injection contribution to RCS boration. This injection path provides sufficient boron to address safe shutdown of the plant with subsequent sampling of RCS boron to determine final SDM as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. RCS Activity- SR 3.4.10.1 requires verify reactor coolant dose equivalent I-131 specific activity ≤ 1.0 μCi/gm. between 2 to 6 hours after a thermal power change of ≥ 15% of RTP within a 1 hour period. Therefore, these samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. SG Activity- SG activity levels may be needed to determine offsite release projections. For accident dose assessment and determination of PARS sample results will not be needed as the dose model for developing PARs uses inputs from effluent radiation monitors and/or field surveys. However, SG activity samples may be used to determine whether steam can be dumped from a SG. For those conditions which require such projections prior to dumping steam and the SG sample results are not available the operator will not dump steam and continue on in the controlling EOP. Therefore, the samples can be performed once augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-501, Loss of Main Control Room Air-conditioning
Step(s): 3-EOP-ES.1.1 step 25 RNO
Resource: Maintenance, Engineering, Plant Management
Action: Restore VBS to normal operation per 3-AOP-501, Loss of Main Control Room Air Conditioning while continuing in this procedure
Analysis: 3-EOP-ES.1.1 step 21.c directs the operator to Check MCR Ventilation in Normal Alignment. If it is not RNO step 25 directs the operator to restore VBS to normal operation per 3-AOP-501. 3-AOP-501 RNO steps 6, 7, 8, 9 and 12 directs the operator to perform Attachment 1, Alternate MCR Cooling. Attachment 1 step 19

directs the operator to request support from Maintenance, Engineering, and Management to restore normal MCR ventilation. When a source of ac power is available, the nuclear island nonradioactive ventilation system (VBS) provides normal and abnormal HVAC service to the MCR, control support area (CSA), instrumentation and control rooms, dc equipment rooms, battery rooms, and the nuclear island nonradioactive ventilation system equipment room. If ac power is unavailable for more than 10 minutes or if "high-high" particulate or iodine radioactivity is detected in the MCR supply air duct, which would lead to exceeding General Design Criteria 19 operator dose limits, the protection and safety monitoring system automatically isolates the MCR and operator habitability requirements are then met by the MCR emergency habitability system (VES). The MCR emergency habitability system is capable of providing emergency ventilation and pressurization for the main control room. The MCR emergency habitability system also provides emergency passive heat sinks for the MCR, instrumentation and control rooms, and dc equipment rooms. The MCR emergency habitability system air storage tanks are sized to deliver the required air flow to the MCR and induce sufficient air flow through the passive filtration line to meet the ventilation and pressurization requirements for 72 hours therefore performance of 3-AOP-501Attachment 1 will not be required within the first 72 hours of the event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
Attachment 1 step 21 directs the operator to remove VES From Service once forced ventilation is restored for the MCR. RNO step 21.c.2 directs the operator to request maintenance support for VES air supply repairs. This maintenance support is on and as needed basis to return VES to a standby condition post event and is not required during the first 72 hours of the event. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3
3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4

Step(s): 3-EOP-ES.1.1 step 30.a RNO

Resource: Chemistry

Action: Lower IRWST temperature to less than 120°F per either of the following: 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST

Analysis: 3-EOP-ES.1.1 step 30.a RNO directs the operator to lower IRWST temperature to less than 120°F per either of the following: 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 3, Cool IRWST Using RNS; 3-SFS-SOP-001, Spent Fuel Pool Cooling System, Attachment 4, Recirculation of the IRWST. 3-RNS-SOP-001, Attachment 4, Section 2.0 Precautions and Limitations, step 2.1 states "Prior to aligning RNS to RCS, RNS boron concentration must be greater than or

equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event." As such, chemistry samples for boron will be required prior to placing RNS in service. 3-SFS-SOP-001, Attachment 4 does not require Chemistry sampling to implement. Therefore, the operator will perform 3-SFS-SOP-001, Attachment 4 and continue with the procedure. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-PXS-SOP-001, Passive Core Cooling System, Attachment 2
Step(s): 3-EOP-ES-1.1 step 30.b.1 RNO
Resource: Chemistry, Engineering, I&C
Action: If CMTs are not in operation, then perform the following: Lower CMT temperature to less than 120°F per 3-PXS-SOP-001 Passive Core Cooling System, Attachment 2 Core Makeup Tank Operations.
Analysis: Step 30.b.1 RNO directs the operator to perform 3-PXS-SOP-001, Attachment 2 if CMT temperatures are not less than 120°F if the CMTs are not in operation. If the CMT(s) are not less than 120°F they should be restored to compliance with the temperature requirements of TS 3.5.2. 3-PXS-SOP-001, Attachment 2 will be performed with the following non-OPS resource needs:

1. Initial Conditions step 3.8 - Contact I&C to ensure PXS CMT instrumentation either within calibration and in service or I&C personnel are standing by to fill and vent PXS CMT instrumentation and place in service.
2. Steps 4.16.1 and 4.16.2 - Contact Engineering to develop a Reactivity Plan.
3. Steps 4.16.18 and 4.17.18 - Chemistry sample CMT and RCS boron on every 30 minute interval.

Per the 3-EOP-ES-1.1 background document, after stabilizing the plant following Safeguards termination, the Passive Safety Systems temperature should be returned to normal to ensure the systems are in their normal standby configuration. With the temperatures above the Tech Spec limit, the full core cooling capability assumed in the safety analysis may not be available. TS 3.5.2 requires restoring CMT temperatures to less than 120°F within 72 hours if one CMT temperature is out of spec and within 8 hours if both CMTs have temperature out of spec. The operator will maintain the plant in a stable condition and continue in 3-EOP-ES-1.1. Additional resources will be available after 90 minutes of an Alert or higher classification to perform 3-PXS-SOP-001, Attachment 2 to support meeting the time requirement of TS 3.5.2. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 30, Post LOCA Cooldown and Depressurization

Supporting Procedure(s): 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization
3-AOP-302 Loss of AC Power

Step(s): 3-EOP-ES.1.2 step 1 RNO and 22.b RNO

Resource: Maintenance and Engineering

Action: Step 1 RNO - Restore offsite power to switchgear busses per 3-AOP-302 Loss of AC Power while continuing in this procedure
Step 22.b RNO - Refer to 3-AOP-302, Loss of AC Power, for operating PZR heaters on the diesel generators.

Analysis: 3-EOP-ES.1.2 step 1 RNO directs the operator to restore offsite power to switchgear busses per 3-AOP-302. Step 22.b RNO directs the operator to refer to 3-AOP-302 for operating PZR heaters on the diesel generators. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification.
Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA

Step(s): 3-EOP-ES.1.2 step 34

Resource: Emergency Director

Action: Consult Emergency Director to evaluate long term status.

Analysis: 3-EOP-ES.1.2 step 34 addresses long term plant status and recovery actions. Immediate actions will be addressed via the procedures CA steps, foldout pages and procedure transitions as needed while long term recovery actions are addressed by the augmented ERO after 90 minutes of an Alert or higher

declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 31, ADS Stage 1-3 Actuation Response

Supporting Procedure(s): 3-EOP-ES-1.3, ADS Stage 1-3 Actuation Response
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling
Step(s): 3-EOP-ES-1.3, step 14.b RNO
Resource: Emergency Organization
Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling, Attachment 1, Refill of PCCWST, SFP, And Supply of The Distribution Bucket from PCCAWST
Analysis: 3-EOP-ES-1.3 step 14.b RNO directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request Emergency Response Organization to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4 sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that If a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): Step 15.a RNO
Resource: Emergency Organization

Action: If Emergency Director determines RNS should be place in service, then perform the following: 1) Block RNS Safeguards Actuation 2) Go to Step 16.

Analysis: 3-EOP-ES-1.3 step 15 directs the operator to Check Ctmt High Range Rad – Less Than 100 RAD/hr. If it is not then the RNO is entered which directs that if Emergency Director determines RNS should be place in service, then block RNS Safeguards Actuation and go to step 16. The SRO/ED will make the determination as to whether RNS should be placed in service if not already relieved by the augmented ED. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): Maintenance procedures

Step(s): Step 38.c RNO

Resource: Emergency Organization

Action: If Cask Loading Pit (CLP) is not required as an SFS makeup water source per TS 3.7.9 (Fuel Storage Pool Makeup Water Sources), then direct Maintenance to close and seal CLP gate.

Analysis: Step 31 directs the operator to Check CLP Injection – not required. If CLP injection is required, the RNO directs the operator to go to step 36 which will ensure RNS Pumps are stopped and step 37 will close RNS FCVs. Step 38 then directs the operator to heck CLP is available or injection as follows:

a. Checking CLP water level is greater than 43.83 ft. If water level is not met, RNO 38.a directs to go to step 54, thereby transitioning the operator around all further steps to inject using RNS.

b. Locally check irradiated fuel assemblies in CLP – none. If there is irradiated fuel in the CLP, RNO 38.b directs to go to step 54, thereby transitioning the operator around all further steps to inject using RNS.

c. Locally check Spent Fuel Cask Loading Pit Gate is closed with seals inflated. If the Spent Fuel CLP gate is not closed with seals inflated RNO step 38.c.1 directs that if CLP is not required as an SFS makeup water source per TS 3.7.9 (Fuel Storage Pool Makeup Water Sources), then direct Maintenance to close and seal CLP gate. RNO 38.c.2 is a CA step directing that when CLP gate is closed and sealed, then perform Step 39 through Step 48. While waiting until the CLP gate is closed and sealed, RNO step 38.c.3 directs the operator to continue to step 49 and the remainder of the procedure. The gate between the spent fuel pool and the CLP is normally closed and opened only for cask loading operations in which case additional maintenance resources would be onsite to support cask loading. However, if it is necessary to install the gate and maintenance personnel are not onsite, the operator will continue on to step 49 and perform the remainder of the procedure until the gate is installed and the CA of RNO 38.c.2 is met. Therefore, adequate guidance is provided to effectively implement ES-1.3 until maintenance resources are available after 90 minutes of an Alert or higher declaration. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting
Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-ES-1.3 step 49.a.1 RNO
Resource: Maintenance
Action: Step 49.a.1 RNO – Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.
Analysis: 3-EOP-ES-1.3 step 49.a.1 RNO directs the operator to restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting
Procedure(s): 3-AOP-702, Loss of Component Cooling Water;
Step(s): 3-EOP-ES-1.3 step 52.a.1 RNO
Resource: Chemistry, Maintenance, Engineering and Plant Staff
Action: Step 52.a.1 RNO – Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure
Analysis: 3-EOP-ES-1.3 step 52.a.1 RNO directs the operator to restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be

deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 32, ADS Stage 4 Actuation Response

Supporting
Procedure(s): 3-EOP-ES-1.4, ADS Stage 4 Actuation Response
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling
Step(s): 3-EOP-ES-1.4, step 11.b RNO
Resource: Emergency Organization
Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling, Attachment 1, Refill of PCCWST, SFP, and Supply of The Distribution Bucket from PCCAWST
Analysis: 3-EOP-ES-1.4 step 11.b RNO directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached, the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request Emergency Response Organization to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4, sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that If a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting
Procedure(s): NA
Step(s): Step 12.a RNO
Resource: Emergency Organization

Action: If Emergency Director determines RNS should be place in service, then perform the following: 1) Block RNS Safeguards Actuation 2) Go to Step 16.

Analysis: 3-EOP-ES-1.4 step 12 directs the operator to Check Containment High Range Rad – Less Than 100 RAD/hr. If it is not, then the RNO is entered which directs that if Emergency Director determines RNS should be place in service, then block RNS Safeguards Actuation and go to step 13. The SRO/ED will make the determination as to whether RNS should be placed in service if not already relieved by the augmented ED. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): Maintenance procedures

Step(s): Step 38.c RNO

Resource: Emergency Organization

Action: If CLP is not required as an SFS makeup water source per TS 3.7.9 (Fuel Storage Pool Makeup Water Sources), then direct Maintenance to close and seal CLP gate.

Analysis: Step 26.a directs the operator to Check that CLP Injection – not required. If CLP injection is required, the RNO directs the operator to go to step 31 which directs the operator to check CLP available for injection as follows:

a. Checking CLP water level – greater than 43.83 ft. If water level is not met, RNO 38.a directs to go to step 47, thereby transitioning the operator around all further steps to inject using RNS.

b. Locally check irradiated fuel assemblies in CLP – none. If there is irradiated fuel in the CLP, RNO 38.b directs to go to step 47, thereby transitioning the operator around all further steps to inject using RNS.

c. Locally check Spent Fuel CLP gate – closed with seals inflated. If the CLP gate is not closed with seals inflated, RNO step 31.c.1 directs that if CLP is not required as an SFS makeup water source per TS 3.7.9 (Fuel Storage Pool Makeup Water Sources), then direct Maintenance to close and seal CLP gate. RNO 31.c.2 is a CA step directing that when CLP gate is closed and sealed, then perform Step 39 through Step 48. While waiting for the CLP gate is closed and sealed, RNO step 31.c.3 directs the operator to continue to step 49 and the remainder of the procedure. The gate between the spent fuel pool and the CLP is normally closed and opened only for cask loading operations in which case additional maintenance resources would be onsite to support cask loading. However, if it is necessary to install the gate and maintenance personnel are not onsite, the operator will continue on to step 42 and perform the remainder of the procedure until the gate is installed and the CA of RNO 31.c.2 is met. Therefore, adequate guidance is provided to effectively implement ES-1.4 until maintenance resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water
Step(s): 3-EOP-ES-1.4 step 42.a.1 RNO
Resource: Maintenance
Action: Step 42.a.1 RNO – Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.
Analysis: 3-EOP-ES-1.4 step 42.a.1 RNO directs the operator to restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water;
Step(s): 3-EOP-ES-1.4 step 45.a.1 RNO
Resource: Chemistry, Maintenance, Engineering and Plant Staff
Action: Step 45.a.1 RNO – Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure
Analysis: 3-EOP-ES-1.4 step 45.a.1 RNO directs the operator to restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be

deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 33, Response to Inadequate Core Cooling

Supporting Procedure(s): 3-EOP-FR-C.1, Response to Inadequate Core Cooling
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling

Step(s): 3-EOP-FR-C.1, step 12.b RNO

Resource: Emergency Organization

Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling, Attachment 1, Refill of PCCWST, SFP, And Supply of The Distribution Bucket from PCCAWST

Analysis: 33-EOP-FR-C.1, step 12.b RNO directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request the ERO to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4 sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that if a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 34, Response to Degraded Core Cooling

Supporting Procedure(s): 3-EOP-FR-C.2, Response to Degraded Core Cooling
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling

Step(s): 3-EOP-FR-C.2, step 17.b RNO

Resource: Emergency Organization (Unspecified)

Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling, Attachment 1, Refill of PCCWST, SFP, And Supply of The Distribution Bucket from PCCAWST

Analysis: 33-EOP-FR-C.2, step 17.b RNO directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request Emergency Response Organization to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4, sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that if a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 35, Response to Loss of Heat Sink

Supporting Procedure(s): 3-EOP-FR-H.1, Response to Loss of Heat Sink
3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling

Step(s): 3-EOP-FR-H.1, step 2.a RNO

Resource: Emergency Organization

Action: If RCS pressure is less than 417 PSIG [94 PSIG], then place RNS in service to cool RCS per 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling, while continuing in this procedure.

Analysis: 3-HR-H.1 step 2 directs the operator to Check at least one RCS T-hot – greater than 400°F. If it is less than 400°F, the RNO is performed which will direct that if RCS pressure is less than 417 PSIG [94 PSIG], then place RNS in service to cool RCS per 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling, while continuing in this procedure. 3-RNS-SOP-001, Attachment 4, Section 2.0 Precautions and Limitations, step 2.1 states "Prior to aligning RNS to RCS, RNS boron concentration must be greater than or equal to Mode 5 Xenon Free SDM RCS boron concentration to prevent a potential positive reactivity addition event." As such chemistry samples for boron will be required prior to placing RNS in service. If the on-shift chemist is performing dose assessment they will not be available to perform this sampling activity. However, RNO step 2.a also directs the operator to perform the stated actions while continuing on with FR-H.1. The background document states that "An attempt is made to place the RNS in service in parallel with the attempts to reestablish feedwater flow." Therefore, implementation of FR-H.1 will continue while awaiting RNS boron sample results to include restoration of SFW, MFW and PRHR. RNS operating conditions will not normally be met within 90 minutes of an event occurring with the unit in Modes 1 or 2 at the time of the event based on a 100° F/hr cooldown rate. If the unit was in Mode 3 or 4 at the time of the event, then typically this would indicate the unit was either starting up or shutting down at the time of the event. In this case, there will be additional resources onsite to support startup/shutdown operations to include support for RNS sampling. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-RNS-SOP-001, Normal Residual Heat Removal System, Attachment 4, Place One Train of RNS in Service for Shutdown Cooling

Step(s): 3-EOP-FR-H.1, step 7

Resource: RP

Action: Check at least one SG intact

Analysis: 3-HR-H.1 step 7 directs the operator check at least one SG intact by checking the SG is pressurized, pressure is stable or rising, and radiation is normal. The operator will determine the SG radiation normal using installed radiation monitors as well as using local survey data if needed. These surveys will be performed by on-shift RP personnel as demonstrated by existing NEI 10-05 analysis. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-302, Loss of AC Power

Step(s): 3-EOP-FR-H.1 steps 12.b RNO

Resource: Maintenance, Engineering,

Action: Step 12.b RNO – Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure

Analysis: 3-EOP-FR-H.1 steps 12.b RNO directs the operator to restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Therefore, implementation of 3-AOP-302 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water

Step(s): 3-EOP-FR-H.1 Attachment 1 Step 22.a.1 RNO

Resource: Maintenance

Action: Attachment 1 Step 22.a.1 RNO – Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.

Analysis: FR-H.1 step 27 directs the operator to check if Bleed and Feed is required. If not the RNO is entered which directs the Operator if RNS is not aligned for IRWST cooling, then implement Attachment 1, RNS Alignment for IRWST Cooling while continuing with this procedure. Step 22.a of Attachment 1 directs the operator to ensure at least one Service Water Pump is running. If at least one Service Water Pump is not running, then the RNO is entered which directs restoration of the SWS per 3-AOP-704 while continuing in FR-H.1. IF both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator Request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are

available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water

Step(s): 3-EOP-FR-H.1 Attachment 1 Step 25.a.1 RNO

Resource: Chemistry, Maintenance, Engineering and Plant Staff

Action: Attachment 1 Step 25.a.1 RNO – Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure

Analysis: FR-H.1 step 27 directs the operator to check if Bleed and Feed is required. If not, the RNO is entered which directs the Operator if RNS is not aligned for IRWST cooling, then implement Attachment 1, RNS Alignment for IRWST Cooling while continuing with this procedure. Step 25.a of Attachment 1 directs the operator ensure at least one Component Cooling Water Pump running. If at least one pump is not running then the RNO is entered and the operator is directed to Restore CCS cooling per 3-AOP-702, Loss of Component Cooling Water while continuing in FR-H.1 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). Per the PBPA team, 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

<u>Event 36, Response to Steam Generator High Level</u>

Supporting Procedure(s): 3-EOP-FR-H.3, Response to Steam Generator High Level

Step(s): 3-EOP-FR-H.3, step 4.b RNO

Resource: Plant Engineering Staff

Action: Request Plant Engineering Staff to perform an evaluation for SG overfill.

Analysis: 3-EOP-FR-H.3, step 4.b RNO directs the operator to request the Plant Engineering Staff to perform an evaluation for SG overfill. While awaiting response from the Plant Engineering Staff, the crew will continue on in the procedure. Step 5 will direct to check affected SG(s) PORV is closed. If not, RNO step 5.a will be

entered which directs dumping steam from at least one intact SG, but if the Engineering evaluation for SG overfill has not been completed, the crew will not be able to dump steam per the previous guidance of 4.c RNO. The crew will then go to RNO step 5.b which directs the crew to ensure PRHR Actuation is reset and then throttle PRHR HX Outlet FCVs to control RCS temperature and continue on with the procedure until directed to initiate SG overfill. Therefore, there is adequate procedure guidance for the crew to effectively implement 3-EOP-FR-H.3 until augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): RP and Chemistry procedures
Step(s): 3-EOP-FR-H.3, step 6
Resource: RP and Chemistry
Action: Check Secondary Radiation Normal
Analysis: 3-EOP-FR-H.3, step 6 directs the operator to check secondary radiation is normal per installed radiation monitors or chemistry samples. If radiation monitors do not indicate abnormal radiation and samples are not available, the crew will continue in the procedure and dump steam from the affected SG(s). If radiation monitors or samples indicate abnormal radiation, then RNO 6.a direct to align BDS for sampling. RNO 6.b is a CA that directs the crew to go to step 7 as directed by the ED when it is determined that affected SG(s) is within acceptable limits to dump steam. While awaiting this determination, the crew is directed by RNO 6.c to continue to step 8. Therefore, there is adequate procedure guidance for the crew to effectively implement 3-EOP-FR-H.3 until sampling can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): 3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage
Step(s): 3-EOP-FR-H.3, step 6.a RNO, and step 7
Resource: RP and Chemistry
Action: Establish blowdown from affected SG(s) per 3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage.
Analysis: 3-EOP-FR-H.3, step 6.a RNO and step 7 direct the operator to establish blowdown from affected SG(s) per 3-BDS-SOP-001. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for 3-BDS-SOP-001, Attachment 12 require either BDS-RE010 and BDS-RE010 be in service OR RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required, on-shift RP technicians will perform these

activities. If the on-shift chemist is performing dose assessment, they will not be available to perform sampling activities. These samples can be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 3-EOP-FR-H.3, step 6.b RNO
Resource: Emergency Director
Action: When Emergency Director determines that radiation release from affected SG(s) is within acceptable limits to dump steam, then perform Step 7.
Analysis: 3-EOP-FR-H.3, step 6.b RNO directs that when Emergency Director determines that radiation release from affected SG(s) is within acceptable limits to dump steam, then perform Step 7. The decision to dump steam is a CA step and will be made by the SRO/ED based on available information until relieved by the augmented ED after 90 minutes of an Alert or higher declaration. While awaiting this decision, the operator will continue in the procedure to RNO step 6.c which directs to continue with step 8. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 37, Response to Loss of Normal Steam Release Capabilities

Supporting Procedure(s): 3-EOP-FR-H.4, Response to Loss of Normal Steam Release Capabilities
3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage.
Step(s): 3-EOP-FR-H.4, step 1.a RNO and step 1.b RNO
Resource: RP, Chemistry, and Plant Engineering Staff
Action: 3-EOP-FR-H.4, step 1.a RNO - Initiate blowdown from affected SG(s) per 3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage.
3-EOP-FR-H.4, step 1.a RNO - Request Plant Engineering Staff to perform an evaluation for SG overfill.
Analysis: 3-EOP-FR-H.4, step 1 directs the operator to check affected SG(s) NR Level – has remained less than 96%. If it has not, RNO 1.a directs to Initiate blowdown from affected SG(s) per 3-BDS-SOP-001. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for 3-BDS-SOP-001, Attachment 12 require either BDS-RE010 and BDS-RE010 be in service or RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required on-shift RP technicians will perform these activities. No samples are called for in the procedure however, if the on-shift chemist is performing dose assessment, they will not be available to perform sampling

activities. If samples are requested, they will be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

3-EOP-FR-H.4, step RNO 1.b directs the operator to request Plant Engineering Staff to perform an evaluation for SG overfill. While awaiting this evaluation, the crew will go to RNO 1.c which is a CA that directs the crew to not release steam from affected SG(s) until overfill evaluation is complete. RNO 6.d directs the crew to not continue in this procedure until overfill evaluation is complete. Therefore, if affected SG(s) NR level is greater than 96%, the operator will hold at step 1.d RNO until the overfill evaluation is performed by the Engineering once they arrive after 90 minutes of an Alert or higher classification. This event alone does not result in a classification of an Alert or higher emergency and as such the ERO would not be activated, and this evaluation would be performed once the necessary resources were available using the normal duty team call in process. Conclusion - non-ERO resources would be used due to the non-emergency nature of the action.

Event 38, Response to Steam Generator Low Level

Supporting Procedure(s): 3-EOP-FR-H.5, Response to Steam Generator Low Level
3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage.

Step(s): 3-EOP-FR-H.5, step 15

Resource: RP and Chemistry

Action: 3-EOP-FR-H.5, step 15 – Restore SG Blowdown per 3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage.

Analysis: 3-EOP-FR-H.5, step 15 directs the operator to Restore SG Blowdown per 3-BDS-SOP-001 Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for 3-BDS-SOP-001, Attachment 12 require either BDS-RE010 and BDS-RE010 be in service or RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required on-shift RP technicians will perform these activities based on priorities set by the SRO/ED. No samples are called for in the procedure however, if the on-shift chemist is performing dose assessment they will not be available to perform sampling activities. If samples are requested, they will be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 39, Response to Low Pressurizer Level

Supporting Procedure(s): 3-EOP-FR-I.2, Response to Low Pressurizer Level
3-AOP-302, Loss of AC Power

Step(s): 3-EOP-FR-I.2, Step 6.b.

Resource: Maintenance and Engineering

Action: Refer To 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators

Analysis: 3-EOP-FR-I.2, step 6.b directs to Check nuclear island Switchgear Busses - energized by offsite power. This will support operation of the PZR heaters in subsequent steps. If they are not the operator will perform the RNO and refer to 3-AOP-302 for operating PZR heaters on the diesel generators. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 40, Response to Imminent Pressurized Thermal Shock Conditions

Supporting Procedure(s): 3-EOP-FR-P.1, Response to Imminent Pressurized Thermal Shock Conditions
3-AOP-703, Loss of Instrument Air

Step(s): 3-EOP-FR-P.1, step 25.a.1 RNO

Resource: Maintenance

Action: Restore instrument air per 3-AOP- 703, Loss of Instrument Air, while continuing in this procedure

Analysis: 3-EOP-FR-P.I, step 25 directs the operator to check instrument air supply header pressure – greater than 104.5 PSIG. If pressure is less than this value, the

25.a.1RNO is performed and the operator is directed to restore instrument air per 3-AOP-703 while continuing in 3-EOP-FR-P.1. 3-AOP-703 step 20 directs the operator to request Work Control initiate repair activities for failed compressors, failed dryers, air system leakage, identified instrument air issues. The crew will perform 3-AOP-703 in parallel with the controlling EOP as resources are available. Per FSAR section 9.3.1.1.1, the compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. Therefore, implementation of 3-AOP-703 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-302, Loss of AC Power

Step(s): 3-EOP-FR-P.1, step 37.b RNO

Resource: Maintenance and Engineering

Action: Refer To 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators.

Analysis: 3-EOP-FR-P.1, step 37.b RNO directs the operator check nuclear island Switchgear Busses are energized by offsite power. This will support operation of the PZR heaters in subsequent steps. If they are not, the operator will perform step 37.b RNO and refer to 3-AOP-302, Loss of AC Power for operating PZR heaters on the diesel generators. 3-AOP-302 provides directions for responding to a loss of normal power source to 6.9 kV or 480 V Buses, including a prolonged loss of all AC power to include various actions for non-OPS personnel in the event of additional equipment failures such failure of the DGs to start and /or load, failure of individual load centers, etc. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after

90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 41, Response to Nuclear Power Generation - ATWS

Supporting Procedure(s): 3-EOP-FR-S.1, Response to Nuclear Power Generation - ATWS
3-AOP-302, Loss of AC Power

Step(s): 3-EOP-FR-S.1, step 9.a RNO

Resource: Maintenance

Action: Restore power to deenergized nuclear island switchgear bus(es) per 3-AOP-302 Loss of AC Power while continuing in this procedure.

Analysis: 3-EOP-FR-S.1, step 9 directs the operator to check that both Nuclear Island Switchgear Busses are energized. If they are not, then RNO 9.a directs to restore power to deenergized nuclear island switchgear bus(es) per 3-AOP-302 Loss of AC Power while continuing in this procedure. Step 9.b. then directs if no bus is energized, then go to step 16. 3-AOP-302 provides directions for responding to a loss of normal power source to 6.9 kV or 480 V Buses, including a prolonged loss of all AC power to include various actions for non-OPS personnel in the event of additional equipment failures such failure of the DGs to start and /or load, failure of individual load centers, etc. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Per FSAR section 5.4.5.3.1, should the onsite diesel generators not be available during loss of offsite power events, core decay heat is removed from the reactor coolant system using the passive residual heat removal heat exchanger. The decay heat is transferred to the in-containment refueling water storage tank (IRWST) water. The passive core cooling system does not require the use of pressurizer heaters to maintain pressure control. The passive containment cooling system functions to maintain the plant in a safe condition. Therefore, actions identified in 3-AOP-302 may be performed as resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 42, Response to Loss of Core Shutdown

Supporting Procedure(s): 3-EOP-FR-S.2, Response to Loss of Core Shutdown
3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage

Step(s): 3-EOP-FR-S.2, step 7.c and step 7.d

Resource: RP and Chemistry

Action: 3-EOP-FR-S.2, step 7.c - Place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12, Aligning Blowdown for SG Sampling with SG Tube Leakage
3-EOP-FR-S.2, step 7.d - Direct Chemistry to perform sampling; RCS Boron; RCS Activity; SG Activity

Analysis: 3-EOP-FR-S.2, step 7.c directs to place SG blowdown in service per 3-BDS-SOP-001, Steam Generator Blowdown System, Attachment 12. The valve alignments to place BDS in service will be performed by on-shift OPS personnel. The initial conditions for Attachment 12 require either BDS-RE010 and BDS-RE010 be in service or RP available to locally monitor radiation levels during the SG sampling activities. If local surveys are required on-shift RP technicians will perform these activities. Step 7.d directs Chemistry to perform the following sampling activities:

1. RCS Boron – During power operation, SDM is calculated and monitored by the Online Power Distribution Monitoring System (OPDMS) and controlled by operating with RCCAs sufficiently withdrawn to meet the SDM requirement. Although OPDMS tracks boron injected via the normal makeup path it cannot determine the extent of CMT injection contribution to RCS boration. This injection path provides sufficient boron to address safe shutdown of the plant with subsequent sampling of RCS boron to determine final SDM as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. RCS Activity- SR 3.4.10.1 requires verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm. between 2 to 6 hours after a THERMAL POWER change of ≥ 15% of RTP within a 1 hour period. Therefore, these samples can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
3. SG Activity- SG activity levels may be needed to determine offsite release projections. For accident dose assessment and determination of PARS sample results will not be needed as the dose model for developing PARs uses inputs from effluent radiation monitors and/or field surveys. However, SG activity samples may be used to determine whether steam can be dumped from a SG. For those conditions which require such projections prior to dumping steam and the SG sample results are not available the operator will not dump steam and continue on in the controlling EOP. Therefore, the samples can be performed once augmented

resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 43, Response to High Containment Pressure

Supporting Procedure(s): 3-EOP-FR-Z.1, Response to High Containment Pressure
3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling

Step(s): 3-EOP-FR-Z.1, step 2.b RNO

Resource: Emergency Organization

Action: If the sum of available PCS flow instruments is less than 105 GPM, then consult with Emergency Director to determine if flow to PCS water distribution bucket should be established per 3-PCS-P72-001, Post 72-Hour Operations of Passive Containment Cooling, Attachment 1, Refill of PCCWST, SFP, and Supply of The Distribution Bucket from PCCAWST

Analysis: 3-EOP-FR-Z.1, step 2.b RNO directs If PCS Total Flow is not > 105 GPM the RNO directs the operator to consult the Emergency Director on whether to implement PCS-P72-001 to provide the required PCS flow. If the augmented ERO has not arrived when this step is reached, the SRO/ED will make this determination. No tasks requiring non-OPS personnel are specified in 3-PCS-P72-001, Attachment 1 except for:

1. Prerequisites or Initial Conditions for Attachment 1 step 3.2 which directs to request Emergency Response Organization to provide a temporary level indication for PCCAWST. This action is only required if the station is in an extended loss of AC power, i.e. >72 hours. Therefore, additional resources will be available to perform this action. Also, per FSAR section 6.2.2.2.4 sufficient inventory is available within the PCCAWST to maintain the minimum flow rate for 4 days as such immediately establishing the temporary level monitoring is not necessary, and the operator will continue on with the procedure and establish the level indication as resources are available. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.
2. Section 3 Prerequisites or Initial Conditions for Attachment 1, step 3.5 states that if a prolonged loss of AC power is in progress, then ancillary power is provided per one of the options provided in 3-ECS-P72-001, Post 72-Hour Operations of Ancillary Diesels. 3-ECS-P72-001 is only performed for and extended loss of AC power and additional resources will be available to support these activities. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-PCS-SOP-001, Passive Containment Cooling System, Attachment 5, Filling PCCWST from PCCAWST
3-PCS-SOP-001, Passive Containment Cooling System, Attachment 6, Filling PCCWST from DWS
3-PCS-SOP-001, Passive Containment Cooling System, Attachment 7, Filling PCCWST from FPS
3-PCS-SOP-001, Passive Containment Cooling System, Attachment 8, Filling PCCWST From Alternate Water Supply

Step(s): 3-EOP-FR-Z.1, step 6

Resource: Chemistry

Action: Locally fill PCCWST per any of the following: 3-PCS-SOP-001, Passive Containment Cooling System, Attachment 5, Filling PCCWST From PCCAWST; 3-PCS-SOP-001, Passive Containment Cooling System, Attachment 6, Filling PCCWST From DWS; 3-PCS-SOP-001, Passive Containment Cooling System, Attachment 7, Filling PCCWST From FPS; 3-PCS-SOP-001, Passive Containment Cooling System, Attachment 8, Filling PCCWST From Alternate Water Supply

Analysis: 3-EOP-FR-Z.1 Step 6 is a CA step to check PCCWST Level – greater than 8.64%. If level is less than 8.64%, the operator will perform the actions of RNO 6.a and locally fill the PCCWST per 3-PCS-SOP-001, Attachments 5, 6, 7, or 8. Per the note preceding step 6, Operator actions are required to align a makeup supply to the PCCWST prior to 72 Hours after the initiation of the event to ensure a water source to PCS is maintained. Once makeup is complete, chemistry samples will be required. Because the PCCWST has sufficient capacity to provide cooling water to the outside shell of Containment for 72 hours, the conditions requiring the CA step 6 RNO actions will not occur until after the arrival of additional resources after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-302, Loss of AC Power

Step(s): 3-EOP-FR-Z.1 steps 7.a RNO

Resource: Maintenance, Engineering,

Action: Step 7.a RNO – Restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure

Analysis: 3-EOP-FR-Z1 steps 7.a RNO directs the operator to restore offsite power to switchgear busses per 3-AOP-302, Loss of AC Power while continuing in this procedure. 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-302 RNO steps contain various actions for Work Controls (restore failed equipment, install temporary ventilation, etc.) and Engineering (evaluate alternate means of Containment cooling when SFP heat load > 7.0 MWt). 3-AOP-

302 also provides guidance for Standby Diesel Generator load management during a loss of offsite power. Per FSAR section 8.1.4.2.2, the onsite standby power system supplies ac power to the selected permanent nonsafety loads in the event of a main generator trip concurrent with the loss of preferred power source and maintenance power source when under fast bus transfer conditions. The permanent nonsafety loads are not required for the plant safe shutdown. Therefore, implementation of 3-AOP-302 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-704, Loss of Service Water

Step(s): 3-EOP-FR-Z.1 Attachment 1 Step 9 RNO

Resource: Maintenance

Action: Attachment 1 Step 9 RNO – Restore SWS cooling to CCS heat exchangers per 3-AOP-704 Loss of Service Water while continuing in this procedure.

Analysis: 3-EOP-FR-Z.1 step 9 directs the operator to check if Bleed and Feed is required. If not, the RNO is entered which directs the Operator if RNS is not aligned for IRWST cooling, then implement Attachment 1, RNS Alignment for IRWST Cooling, while continuing with this procedure. Step 22.a of Attachment 1 directs the operator to ensure at least one Service Water Pump is running. If at least one Service Water Pump is not running, then the RNO is entered which directs restoration of the SWS per 3-AOP-704 while continuing in 3-EOP-FR-Z.1. If both SWS Pumps are stopped due to SWS leakage or if no SWS Pump can be started, 3-AOP-704 step 23 directs the operator to request Work Controls support to restore SWS to include leak isolation, restoration of SWS flow, and installation of temporary instrument air compressor at 3-CAS-V321. 3-AOP-704 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-704 provides instructions for responding to a loss of SWS cooling to one or more CCS HXs. Per FSAR section 9.2.1.1.1, the service water system serves no safety-related function and therefore has no nuclear safety design basis. Failure of the service water system or its components will not affect the ability of safety-related systems to perform their intended function. Therefore, implementation of 3-AOP-704 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-702, Loss of Component Cooling Water

Step(s): 3-EOP-FR-Z.1 step 10 RNO

Resource: Chemistry, Maintenance, Engineering and Plant Staff

Action: 3-EOP-FR-Z.1 step 10 RNO – Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure

Analysis: 33-EOP-FR-Z.1 step 10 RNO directs the operator to Restore CCS cooling per 3-AOP-702 Loss of Component Cooling Water while continuing in this procedure. 3-AOP-702 includes actions for Chemistry (CCS sampling to identify CCS in leakage and source of in-leakage), Maintenance (inspect for leakage into CCS, e.g. heat exchanger leaks), Engineering (determine RCP Restoration limitations) and general staff support (develop plans for flushing of CCS and restoration of CCS water chemistry). 3-AOP-702 will be performed in parallel with the controlling EOP as resources are available. 3-AOP-702 Loss of Component Cooling Water provides guidance for responding to a loss of Component Cooling Water. Per FSAR section 9.2.2.1.1, the component cooling water system serves no safety-related function except for containment isolation. Delayed restoration of component cooling water system or its components will not affect the ability of safety-related systems to perform their intended safety functions. Therefore, implementation of 3-AOP-702 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): 3-AOP-703, Loss of Instrument Air
Step(s): 3-EOP-FR-Z.1, step 12.a.1 RNO
Resource: Maintenance
Action: Restore instrument air per 3-AOP- 703, Loss of Instrument Air, while continuing in this procedure
Analysis: 3-EOP-FR-Z.1, step 12 directs the operator to check instrument air supply header pressure – greater than 104.5 PSIG. If pressure is less than this value, the 12.a.1 RNO is performed and the operator is directed to restore instrument air per 3-AOP-703 while continuing in 3-EOP-FR-Z.1. 3-AOP-703 step 20 directs the operator to request Work Control initiate repair activities for failed compressors, failed dryers, air system leakage, identified Instrument air issues. The crew will perform 3-AOP-703 in parallel with the controlling EOP as resources are available. Per FSAR section 9.3.1.1.1, the compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. Therefore, implementation of 3-AOP-703 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Supporting Procedure(s): NA
Step(s): 3-EOP-FR-Z.1, step 15.b RNO
Resource: Emergency Director

Action: 3-EOP-FR-Z.1 step 15.b RNO - Obtain Permission from Emergency Director to Turn on Hydrogen Igniters

Analysis: 3-EOP-FR-Z.1 directs the operator to obtain permission from the Emergency Director to turn on hydrogen igniters. Large concentrations of hydrogen are primarily the result of a loss of core cooling condition which would not normally be expected to occur within the first 90 minutes of the event. However, if this step is reached prior to augmentation, the on-shift ED will make the determination of whether or not to turn on hydrogen igniters. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 44, Response to Containment Flooding

Supporting Procedure(s): 3-EOP-FR-Z.2, Response to Containment Flooding
Chemistry procedures

Step(s): 3-EOP-FR-Z.2, step 1 and step 9.c

Resource: Chemistry

Action: Step 1 - Notify Chemistry to Sample Containment Water: Activity; Boron; pH; and Contaminants
Step 9.c - Determine if Additional Actions are Necessary - Request Plant Engineering to evaluate need for additional Actions

Analysis: 3-EOP-FR-Z.2, step 1 directs the operator to notify Chemistry to sample containment water for activity, boron, pH; and contaminants. Once chemistry is notified to obtain the requested samples, the operator will continue with the procedure. Step 9.c directs the operator to request Plant Engineering to evaluate need for additional actions. Per the basis document, to get to the entry criteria for 3-EOP-FR-Z.1, the containment must be flooded beyond the volume that would be present following complete injection of the IRWST, CMTs, Accumulators, and BAST coincident with additional water ingress from an unexpected source of water. Therefore, entry assumes a LOCA in addition to in leakage from other systems. The LOCA will result in a minimum of an Alert classification. The injection of all of the designed water sources occurs over an extended period of time following the LOCA such that the entry conditions for 3-EOP-FR-Z.2 will not be met until additional resources are available after 90 minutes of an Alert or higher declaration. Conclusion - procedure actions can be deferred until after augmented ERO resources are available with no impact on Emergency Response.

Event 45, Response to High Containment Radiation Level

Supporting Procedure(s): 3-EOP-FR-Z.3, Response to High Containment Radiation Level
RP procedures

Step(s): 3-EOP-FR-Z.3, step 22

Resource: RP
Action: Notify Radiation Protection to Initiate Radiation Surveys
Analysis: 3-EOP-FR-Z.2, step 22 directs the operator to notify Radiation Protection to initiate radiation surveys. The requested radiation surveys will be performed by the on-shift RP technicians in accordance with priorities established by the SRO/ED. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Supporting Procedure(s): NA
Step(s): 3-EOP-FR-Z.3, step 23
Resource: Emergency Director
Action: Consult Emergency Director to Determine Additional Actions
Analysis: 3-EOP-FR-Z.2, step 23 directs the operator to consult the Emergency Director to determine additional actions. If this step is reached prior to augmentation of additional resources at 90 minutes, the on-shift ED will make this determination based on available plant indications and RP surveys using the guidance provided in the background document for this step. Conclusion - the proposed on-shift staff, with appropriate training if needed, can take the necessary actions until augmentation is achieved.

Event 46, Response to Low Containment Pressure

Supporting Procedure(s): 3-EOP-FR-Z.4, Response to Low Containment Pressure
3-AOP-703, Loss of Instrument Air
Step(s): 3-EOP-FR-Z.4, step 4.a.1 RNO
Resource: Maintenance
Action: Restore instrument air per 3-AOP- 703, Loss of Instrument Air, while continuing in this procedure
Analysis: 3-EOP-FR-Z.4, step 4 directs the operator to check instrument air supply header pressure – greater than 104.5 psig. If pressure is less than this value, step 4.a.1 RNO is performed and the operator is directed to restore instrument air per 3-AOP-703 while continuing in 3-EOP-FR-Z.1. 3-AOP-703 step 20 directs the operator to request Work Control initiate repair activities for failed compressors, failed dryers, air system leakage, identified Instrument air issues. The crew will perform 3-AOP-703 in parallel with the controlling EOP as resources are available. Per FSAR section 9.3.1.1.1, the compressed and instrument air system serves no safety-related function other than containment isolation and therefore has no nuclear safety design basis except for containment isolation. The entry conditions for 3-EOP-FR-Z.4 do not result in an emergency classification. However, if this event occurs concurrent with another classifiable event, implementation of 3-AOP-703 can be performed as augmented resources are available after 90 minutes of an Alert or higher classification. Conclusion - procedure actions can be deferred until

after augmented ERO resources are available with no impact on Emergency Response.