



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-18-039

March 14, 2018

10 CFR 50.4

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Sequoyah Nuclear Plant, Units 1 and 2
Renewed Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: Tennessee Valley Authority Response to NRC Request for Additional Information related to Sequoyah Nuclear Plant, Units 1 and 2, License Amendment Request to Revise Emergency Plan Staff Augmentation Times (SQN-TS-17-05)

- References:
1. Letter from TVA to NRC, CNL-17-001, "Sequoyah Nuclear Plant, Units 1 and 2, License Amendment Request to Revise Emergency Plan Staff Augmentation Times," dated September 29, 2017 (ML17272A940)
 2. Electronic Mail from NRC to TVA, "Sequoyah Nuclear Station, Unit 1 & 2 – Request For Additional Information Related to LAR for Emergency Response Plan Staff Augmentation Times (EPID: L-2017-LLA-0310)," dated February 9, 2018

By letter dated September 29, 2017 (Reference 1), Tennessee Valley Authority (TVA) submitted changes to the Sequoyah Nuclear Plant (SQN), Units 1 and 2, Emergency Plan for Nuclear Regulatory Commission (NRC) review and prior approval pursuant to Section 50.54(q) of Title 10 of the *Code of Federal Regulations* (10 CFR). The proposed changes revise the SQN Emergency Plan to change the staffing and increase the staff augmentation times for certain emergency response organization (ERO) positions.

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In Reference 2, the NRC transmitted a Request for Additional Information (RAI) related to the TVA LAR. As described in the Reference 2 email, TVA agreed to provide responses to the RAIs by March 12, 2018. The enclosure to this letter contains TVA's response to the RAIs.

Consistent with the standards set forth in 10 CFR 50.92(c), TVA has determined that the additional information, as provided in this letter, does not affect the no significant hazards determination associated with the request provided in Reference 1.

There are no new regulatory commitments contained in this submittal. If you have any questions concerning this submittal, please contact Ed Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14th day of March 2018.

Sincerely,

J. W. Shea

Digitally signed by J. W. Shea
DN: cn=J. W. Shea, o=Tennessee Valley
Authority, ou=Nuclear Licensing,
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Date: 2018.03.14 10:27:31 -04'00'

Joseph W. Shea
Vice President, Nuclear Regulatory Affairs and Support Services

Enclosure:

TVA Response to NRC Request for Additional Information

cc (Enclosures):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Sequoyah Nuclear Plant
NRC Project Manager - Sequoyah Nuclear Plant

ENCLOSURE

TVA Response to NRC Request for Additional Information

By a letter dated September 29, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML17272A940), the Tennessee Valley Authority (TVA) submitted changes to the Sequoyah Nuclear Plant (SQN), Units 1 and 2, Emergency Plan for Commission review and prior approval pursuant to Section 50.54(q) of Title 10 of the Code of Federal Regulations (10 CFR). The proposed changes would revise the SQN Emergency Plan to change the staffing and increase the staff augmentation times for certain emergency response organization (ERO) positions.

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed below. The proposed questions were emailed in draft form and a clarification call was held on February 7, 2018. Your staff confirmed that these draft questions did not include proprietary or security-related information and agreed to provide a response March 12, 2018 to this request for additional information (RAI).

The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. Please note that if you do not respond to this request by the agreed-upon date or provide an acceptable alternate date, we may deny your application for amendment under the provisions of Title 10 of the Code of Federal Regulations, Section 2.108. If circumstances result in the need to revise the agreed upon response date, please contact me at (301) 415-8480 or via e-mail Andrew.Hon@nrc.gov.

Regulatory Basis:

Title 10 of the Code of Federal Regulations Section 50.54(q) Emergency plans

NRC Regulatory Issue Summary 2016-10 License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation

NUREG-0654, Rev.1 Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

Request for Additional Information

RAI-1

TVA stated that the proposed SQN on-shift staffing will be increased from the current 24 personnel to 25 personnel. It appears that SQN is removing four maintenance personnel from shift and adding 5 firefighters to their on-shift staff. Considering that their current on-shift staffing includes "Fire Brigade per Tec Specs [Technical Specifications]," it is not clear to the staff how on shift staffing levels were being increased.

Please clarify, in order to meeting the guidance, whether the five fire brigade members on the proposed SQN on shift staffing are in addition to the current fire brigade staffing of "Fire Brigade per Tec[h] Specs."

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TVA Response to NRC Request for Additional Information

TVA Response:

The five Fire Brigade members are not included in the current SQN Radiological Emergency Plan (the "SQN Plan," which is Appendix B of the Generic Radiological Emergency Plan (REP)) on-shift staff total of 24. The five Fire Brigade members are the same individuals that are currently on-shift as noted in the SQN Fire Protection Report. The proposed change removes four maintenance personnel from the on-shift staff and adds the five existing Fire Brigade Members, which changes the total on-shift staff to 25 as indicated in Figure B-2 of the proposed SQN Plan. The table in Attachment 3, "NUREG-0654 Table B-1 Comparative Chart," of the September 29, 2017 license amendment request (LAR) was intended to reflect the NUREG-0654 statement that the Fire Brigade was staffed per the Technical Specifications (TS).

The proposed on-shift staffing identifies the five designated fire brigade members as operations personnel not assigned additional duties related to the SQN Plan.

RAI-2

The NRC staff could not determine how the Site Emergency Director (SED) duties were transferred from the Shift Manager (SM) during radiological events. The SQN Site 60 Minute Comparison table, provided in Attachment 3 to Enclosure 1 of TVA's September 29, 2017 letter, shows four senior managers for the current emergency plan, while the SQN Site 30 Minute Comparison table, also provided in Attachment 3 to Enclosure 1 of TVA's September 29, 2017 letter, shows three senior managers responding within 60 minutes for the proposed plan. The Site Emergency Organization table provided in Section B.5 of Appendix B of the TVA Radiological Emergency Plan provides that the SM will transfer protective action recommendation (PAR) responsibility to the Central Emergency Control Center (CECC) Director and the remainder of the command and control responsibilities to the Site Emergency Director (SED) at the Technical Support Center (TSC). The SED will retain classification and notification (Federal) responsibilities, and transfer emergency exposure controls and notification (State/local) responsibilities to the CECC Director.

- a) *Please explain how SED responsibilities are actually transferred from the SM to the augmenting ERO in a timely and accurate manner.*

TVA Response:

The proposed SQN Plan commits to 60-minute activation times for the TSC and CECC. Once the Minimum Activation Staff Positions (MASP) have been filled for the TSC or CECC, the lead position declares that facility 'activated.' After activation of the TSC or CECC, the facility leader obtains a turnover briefing. The briefing concludes with the transfer of Command and Control functions from the SM to the appropriate facility leader as described below.

The transfer of Command and Control functions as outlined in Section B.5 of the proposed SQN Plan states:

- The following functions will normally transfer to the TSC SED:
 - Classification
 - Federal Notification
 - Emergency Exposure Control for on-site personnel

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TVA Response to NRC Request for Additional Information

- The following functions will normally transfer to the CECC:
 - State and Local Notifications
 - Protective Action Recommendations
 - Emergency Exposure Control for environmental sampling teams

Note: The TSC retains the capability to perform all Command and Control functions should the CECC be unavailable for any reason. The Transfer of Command and Control diagram in Section B.5 has been revised to better reflect facility capabilities.

This process, as well as the 60-minute activation criteria for the TSC and CECC, ensures that the SM is relieved in a timely manner. As a result, the proposed SQN Plan does not extend the timeframe during which the SM maintains responsibility for command and control functions.

A revision to the affected pages of the proposed SQN Plan are included in Attachments 1 (highlighted markup) and 2 (clean) of this response.

RAI-2 (cont.)

The proposed Figure B-2, "Minimum Onshift Response Personnel, provided in Attachments 1 and 2 of Enclosure 1 to TVA's September 29, 2017 letter, includes the Plant Assessment Manager (PAM) under the Emergency Operations Facility Director major tasks. It appears the PAM provides the CECC Director with information required to perform the protective action and other ERO command and control functions. As such, all senior management positions on Figure B-2 are required to relieve to Shift Manager of ERO responsibilities. Section B.5.1.1 (page B-164) provides the SED will consult with the CECC Director on significant events and their related impacts. It was not apparent what tasks were performed by the fourth senior management position that was included in the current TVA emergency plan. Additionally, it appears the TSC and OSC are activated and the CECC is staffed at an Alert or greater emergency classification.

- b) Please explain who has overall responsibility for command and control of the ERO once activated/staffed.*

TVA Response:

Overall Command and Control of the TVA emergency response is the responsibility of the CECC Director, after he/she has assumed Command and Control, as stated in Section 3.3.1 of the current and proposed SQN Plan.

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TVA Response to NRC Request for Additional Information

The SED directs the onsite emergency accident mitigation activities.

- c) *Please provide a justification that supports the removal of one senior manager from the current ERO. The justification should explain what function(s) this individual performed and who will perform those functions in the proposed emergency plan.*

TVA Response:

TVA is not removing a senior management position from the current ERO. The four positions included in the "SQN Site 60-minute Augmented ERO Table Comparison" of the LAR as providing support for the Emergency Response & Recovery Director (ER&RD) Major Task are the Plant Assessment Manager (PAM), the Emergency Duty Officer (EDO), the TSC SED, and the CECC Director.

All four positions will remain in the proposed ERO. The currently assigned duties for the EDO were found to be more appropriately aligned to the Notification/Communication Major Task area in the proposed Generic REP; the proposed revision reflects this re-alignment. The EDO, as outlined in Section 3.3.6 of the SQN Plan, has responsibility for the verification of initial notifications of TVA and offsite emergency response organizations and is more appropriately assigned to the Notification/Communication Major Task. The EDO is credited as one of the four individuals in the Notification/Communication Major Tasks identified in the "SQN Site 30 Minute Augmented ERO Table Comparison" in the Proposed 60-Minute column, rather than the ER&RD Major Task of that table.

There are no changes in the assigned tasks associated with the relocation of the EDO position in the functional descriptions. Figure B-2 of the SQN Plan is revised to better reflect the role of the EDO.

A revision to the affected pages of the proposed SQN Plan are included in Attachments 1 (highlighted markup) and 2 (clean) of this response.

- d) *Please explain if there is any difference in how the licensee defines activation and/or staffing in the proposed plan. For example, the licensee states the TSC and OSC are activated while the CECC is staffed at an Alert or greater emergency classification. If the terms activated and staffed mean the same thing, please provide clarification in the Emergency Plan or consider using one term to prevent potential confusion.*

TVA Response:

In the Generic REP, activated is defined as "Minimum Activation Staff Positions (MASP) are present onsite or in the facility within ~ 60 (90 for WBN) minutes following declaration, and ready to assume assigned functions. Turnovers should be done as soon as practical, with consideration to performing them after the facility is activated." The word "staffed" is not defined in the Generic REP. For the purposes of the TSC, OSC, and CECC, there is no difference in how TVA defines activation or staffing. The proposed Generic REP is revised to clarify the language by replacing instances of "staffed" with "activated."

A revision to the affected pages of the proposed Generic REP are included in Attachments 1 (highlighted markup) and 2 (clean) of this response.

TVA Response to NRC Request for Additional Information

RAI-3

The TVA LAR proposes to extend the current 30-minute Radiation Protection (RP) ERO response times to 60 minutes and would extend the 60-minute RP response times to 90 minutes. Additionally, TVA proposes to remove two RP responders from the proposed 60-minute SQN ERO RP staffing and an additional two RP responders from the 90-minute SQN ERO RP staffing for in plant protective actions and in plant surveys. While TVA does provide that RP procedures, equipment and processes have improved, which could justify the extension of the 30-minute RP ERO response times, the licensee does not provide justification to support the reduction in the number of RP ERO responders.

- a) *Please provide further justification for the reduction in RP Technicians for the major tasks of Onsite, In-Plant Surveys, and Protective Actions from 8 RP Technicians to 4 RP Technicians. This explanation should include capabilities that are beyond the improvements in RP procedures, equipment, and processes that are consistent with industry-wide improvements.*

TVA Response:

TVA has re-evaluated the proposed SQN Plan with respect to augmenting RP response numbers and times. The proposed SQN Plan is revised to account for three RP technicians responding to the OSC for in-plant functions at 60 minutes and three RP technicians responding to the OSC for in-plant functions at 90 minutes. The staffing of environmental teams (one at 60 minutes and one at 90 minutes) does not include the six RP technicians described above. This approach aligns the proposed SQN Plan with the staff guidance.

A revision to the affected pages of the proposed SQN Plan are included in Attachments 1 (highlighted markup) and 2 (clean) of this response. A revised version of "NUREG-0654 Table B-1 Comparative Chart" is provided in Attachment 3.

RAI-3 (cont.)

- b) *Please explain what validation, such as an exercise or drill, was performed that demonstrates that the proposed RP Technician staffing will not have an adverse effect to the SQN response to a radiological emergency or revise the proposed RP Technician staffing to align with the guidance provided by U.S. NRC Regulatory Issue Summary 2016-10, "License Amendment Requests to Emergency Organization Staffing and Augmentation."*

TVA Response:

As described in the response to RAI-3a, the proposed SQN Plan has been revised to align with the staff guidance. Therefore, the additional validation requested in this RAI is not required.

TVA Response to NRC Request for Additional Information

RAI-4

The TVA LAR proposes to add the Technical Assessment Manager (TAM) and the Technical Assessment Team Leader (TATL) as 60-minute response positions. TVA provides that both the TAM and the TATL would be qualified to perform the Core/Thermal Hydraulics functions. Please explain how the TAM and TATL can perform their respective functions of the TAM and TATL positions, while performing the Core/Thermal Hydraulics function.

TVA Response:

Based on further review, the TAM and TATL will not be used to perform the core thermal hydraulics function. Based on discussion with NRC Staff, TVA is revising the response strategy in the proposed SQN Plan for augmented engineering positions. The core thermal hydraulics function will be transferred from the Main Control Room to the CECC. Existing engineers assigned to the Plant Assessment Team in the CECC are qualified to perform the core thermal hydraulics function for all TVA sites. They are currently designated as 60-minute responders. Figure 3-1 of the Generic REP is revised to specifically identify a Core Damage Assessor (CDA) as part of the CECC Plant Assessment Team. The revised Generic REP designates the CDA as a 60-minute responder and a MASP response position. Figure B-2 of the SQN Plan is also revised to reflect the role of this position in support of the core thermal hydraulics function. This change aligns timely augmentation of the core thermal hydraulics function with staff guidance.

A revision to the affected pages of the proposed Generic REP and the proposed SQN Plan are included in Attachments 1 (highlighted markup) and 2 (clean) of this response. A revised version of "NUREG-0654 Table B-1 Comparative Chart" is provided in Attachment 3.

RAI-5

TVA proposes to extend the response times for the Reactor Engineer, Electrical Engineer and Mechanical Engineer positions from 60 minutes to 90 minutes. TVA provides that the TAM and TATL positions will maintain the capability to transfer the Core/Thermal Hydraulics function from the Control Room to the TSC at 60 minutes. However, the NRC staff could not determine how transferring the Core/Thermal Hydraulics function at 60 minutes supported extending the augmentation time of the Reactor Engineer, Electrical Engineer, and the Mechanical Engineer to 90 minutes.

- a) Provide justification for extending the response time of the Electrical Engineer, who provides coverage related to electrical or I&C equipment, for an additional 30 minutes. This justification should provide either the unique characteristics of SQN that allow the 30 minute extension, or explain how this function will be performed at 60 minutes*
- b) Provide justification for extending the response time of the Mechanical Engineer, who provides coverage related to mechanical equipment, for an additional 30 minutes. This justification should provide either the unique characteristics of SQN that allow the 30 minute extension, or explain how this function will be performed at 60 minutes.*

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TVA Response to NRC Request for Additional Information

TVA Response:

The proposed SQN Plan has been revised to provide for specific augmentation of the mechanical and electrical engineering functions at 60 minutes. As a result of the change in response strategy for electrical and mechanical engineering functions, as well as the core thermal hydraulics function described in the RAI-4 response, the TAM/TATL augmentation times are being revised to 90 minutes supporting the full engineering function augmentation times. This change aligns augmentation of the electrical engineer and mechanical engineer with staff guidance. The TAM/TATL positions are no longer required at 60 minutes to fulfill the electrical and mechanical engineering functions.

Figures B-1 and B-2 of the proposed SQN Plan are revised to reflect the changes described.

A revision to the affected pages of the proposed SQN Plan are included in Attachments 1 (highlighted markup) and 2 (clean) of this response. A revised version of "NUREG-0654 Table B-1 Comparative Chart" is provided in Attachment 3.

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Attachment 1

Proposed mark-ups of the Radiological Emergency Plan



**Radiological
Emergency
Procedure**

**RADIOLOGICAL EMERGENCY PLAN
(GENERIC PART)**

REP-Generic
Rev. XXX
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Quality Related ☒ Yes ☐ No

Effective Date _____

Level of Use: Information Use

Prepared by: Josh Perrel

Reviewed by: _____
Program Manager, EP Special Projects Date

Concurred by: _____
EP Manager (BFN) Date

Concurred by: _____
BFN PORC Chairman Date

Concurred by: _____
EP Manager (SQN) Date

Concurred by: _____
SQN PORC Chairman Date

Concurred by: _____
EP Manager (WBN) Date

Concurred by: _____
WBN PORC Chairman Date

Concurred by: _____
Director, Emergency Preparedness Date

Approved by: _____
GM, Support Services Date

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3.2 Onsite Organization (continued)

3. This time could vary slightly, depending upon the time of day, weather conditions, immediate availability of personnel, and radiological conditions.
- E. The site emergency organization augments the shift operations crew.
 1. If members of the site emergency organization are not present when an emergency occurs, the Shift Manager on duty, or a designated Unit Supervisor when acting as the Shift Manager, is designated the Site Emergency Director and acts for him until relieved by the Plant Manager or his alternate.
- F. Upon detection of a known or suspected emergency, the Shift Manager on duty refers to the site-EPIP-1 to determine the classification of the emergency.
 1. After determining the classification of the incident, the Shift Manager assumes the responsibilities of Site Emergency Director and initiates the appropriate procedure referenced by site-EPIP-1.
 2. Staffing instructions for the site emergency support centers are specified in the site-EIPs.
- G. Site procedures shall designate site personnel who shall staff the ENS and HPN (NRC FTS 2000 System) Communication Systems.
 1. Site procedures shall designate the interface during TSC operation.
- H. Each site will at a minimum establish the following positions within its emergency response organization with corresponding responsibilities as outlined below. The site-specific appendix gives detailed staffing and organizational data, including additional positions deemed necessary by the site.

3.2.2 Site Vice President (Watts Bar and Browns Ferry Only)

- A. The Site Vice President serves as a corporate interface for the SED, relieving him from duties which could distract from the SED's primary purpose of plant operations and accident mitigation activities. The Site Vice President provides assistance to the SED by providing TVA policy direction; directing site resources to support the SED in accident mitigation activities; and providing a direct interface on overall site response activities with NRC, DHS, or other Federal organizations responding to the site, CECC Director, or onsite media.
- B. At his discretion, he may provide an interface at the appropriate offsite location on the overall site response activities with State and local agencies, NRC region/corporate, or Joint Information Center. He also provides support to other emergency operation centers as necessary.

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3.2.3 Site Emergency Director

- A. The SED is responsible for directing onsite accident mitigation activities; consulting with the CECC Director and Site Vice President on significant events and their related impacts; protective actions; coordinating accident mitigation actions with the NRC; makes final decision on personnel entrance to radiologically-hazardous areas when Rad Protection recommends against the entry; and initiating long-term 24-hour per day accident mitigation operations.
- B. The SED is responsible for determining the emergency classification. The SED makes recommendations for protective actions (if necessary) to the State and local agencies prior to the CECC being **activated** (this responsibility can be transferred only to the CECC Director). The SED or MCR staff is responsible for making initial notifications to the appropriate state organization. The SED is also responsible for emergency dose authorizations for personnel under his direction and control (these responsibilities cannot be delegated).

3.2.4 Operations Manager

The Operations Manager is responsible for onsite operational activities; keeps the SED informed on plant status and operational problems; performs damage assessment as necessary; and recommends solutions and mitigating actions for operational problems.

3.2.5 Technical Assessment Manager

The Technical Assessment Manager is responsible for providing information, evaluations, and projections to the SED; coordinating assessment activities with the CECC; keeping the assessment team informed of plant status; assessing effluents; directing the technical assessment team; and projecting future plant status based on present conditions. Pertinent information is provided to appropriate organizations via a continuously used and monitored telephone communications hookup.

3.2.6 OSC Manager

The OSC Manager is responsible for directing the repair and corrective action teams; performing damage assessment; coordinating OSC teams and ensuring proper briefings and accompaniment by Rad Protection.

3.2.7 Radiological Protection (Rad Protection) Manager

The Rad Protection Manager is responsible for assessing inplant and onsite radiological conditions; directing the onsite Rad Protection activities; coordinating additional Rad Protection support with the CECC; recommending protective actions for onsite personnel to the SED; maintaining the offsite radiological conditions status information; coordinating assessment of radiological conditions with the CECC; maintaining the inplant radiological status boards; assisting the Maintenance Superintendent in briefing maintenance teams; assigning appropriate Rad Protection support to maintenance teams; and making final recommendation to the SED for personnel entry to radiologically hazardous environments.

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3.2.8 Chemistry Manager

The Chemistry Manager is responsible for coordinating assessment of effluents with the CECC; directing post-accident sampling activities; directing radiochemical lab activities; assessing effects on radwaste and effluent treatment systems.

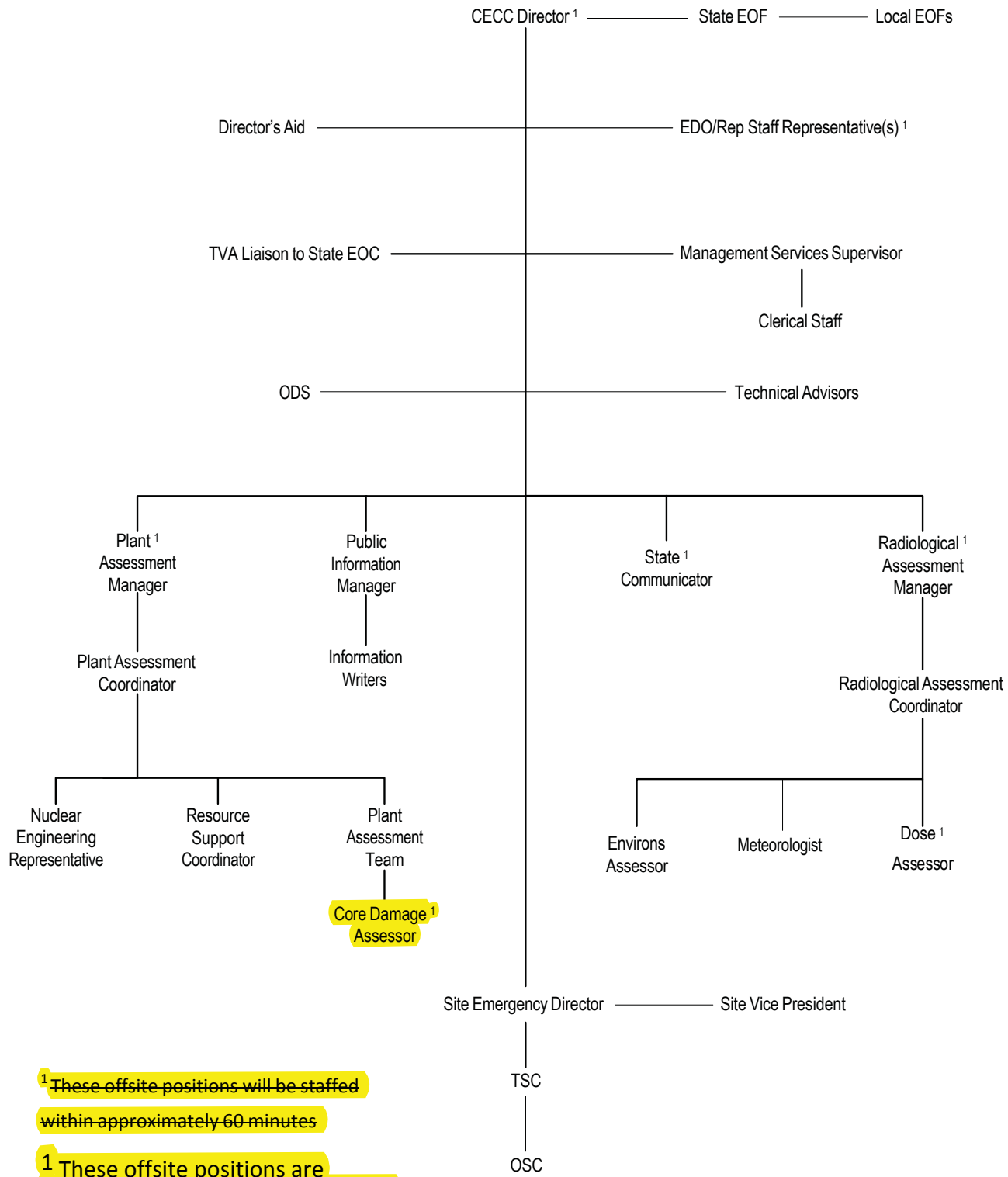
3.3 Offsite Organization

A diagram of the Offsite Organization is provided in Figure 3-1. Positions that must respond within approximately 60 minutes of an alert or higher declaration are indicated on the Figure.

The CECC is to be activated fully staffed in the expected maximum time of 60 minutes, and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action.

3.3 Offsite Organization (continued)

Figure 3-1
OFFSITE EMERGENCY ORGANIZATION



¹ These offsite positions will be staffed within approximately 60 minutes

¹ These offsite positions are Minimum Activation Staff Positions

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4.1.3

Alert (continued)

- B. The purposes of the Alert class are:
1. To ensure that emergency personnel are readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring, if required; and
 2. To provide offsite authorities current status information.
 - ~~2.3.~~ To ensure that monitoring teams are dispatched (Sequoyah only).
- C. The Alert class is maintained until event termination or escalation to a higher class. The State authorities are notified and in turn notify the local authorities. Following closeout, State authorities are briefed and no later than the next working day a written summary of significant events which occurred is forwarded to the State.

4.1.4 Site Area Emergency

- A. A Site Area Emergency is declared when events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or Hostile Action that results in intentional damage or malicious acts (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.
- B. The purposes of the Site Area Emergency class are:
1. To ensure that response centers are ~~activated~~ ~~staffed~~.
 2. To assure that monitoring teams are dispatched.
 3. To assure that personnel required for evacuation of nearsite areas are at duty stations if the situation becomes more serious.
 4. To provide current information for, and consultation with, offsite authorities and the public.
- C. The Site Area Emergency class is maintained until event termination or escalation to a higher class. The State authorities are notified and in turn notify the local authorities. Following closeout, State authorities are briefed and no later than the next working day a written summary of significant events which occurred is forwarded to the State.

4.1.5 General Emergency

- A. A General Emergency is declared when events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more that the immediate site area.
- B. The purposes of the General Emergency class are:

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5.1 Onsite

Upon detection of a known or suspected emergency, the Shift Manager on duty will utilize the site-EPIP-1 to determine the classification of the emergency. After determining the classification of the emergency, the SED will initiate the appropriate procedures referenced by the site-EPIP-1. Each procedure referenced by site-EPIP-1 gives specific instructions on staffing the TSC and OSC and for notifying the State, ODS, and NRC.

5.2 Offsite

Implementing procedures are provided to activate TVA and State emergency staffs. Essential emergency positions are covered on a 24-hour-a-day basis by duty personnel. Emergency centers are located to ensure rapid and effective response of personnel needed to assess and evaluate offsite conditions.

5.2.1 Notification of Unusual Event (NOUE)

Upon declaration of this class, the following actions are performed:

- A. The MCR notifies and relays the information to the State within 15 minutes of declaration of the event.
- B. The ODS in Chattanooga is notified of the event by the MCR and records the details of the event in accordance with the appropriate EPIP.
- C. The ODS notifies and relays the information to the EDO and CECC Director.
- D. The EDO keeps the CECC Director and the Public Information Manager informed of the situation as necessary.
- E. The PIM notifies the Site Communications Consultant; Director, Public Relations & Corporate Information; and TVA News Bureau (Knoxville).
- F. The SED augments plant shift personnel as necessary to initiate corrective or protective actions.

5.2.2 Alert

Upon declaration of this class, the following minimum actions are performed:

- A. Notifications described in Section 5.2.1 are performed.
- B. The CECC is activated staffed.
- C. Environmental sampling teams are may be dispatched for Sequoyah and may be dispatched at this classification level for Browns Ferry and Watts Bar.
- D. The TSC and the OSC are activated.
- E. The situation is analyzed and any appropriate corrective or preventive actions initiated.
- F. Hourly, or more often as necessary, the State agencies are updated through the CECC on appropriate plant status and environmental conditions as follows:

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8.0 EMERGENCY RESPONSE FACILITIES, EQUIPMENT, AND SUPPLIES

8.1 Nuclear Site Facilities

8.1.1 Technical Support Centers (TSC)

Each site will have a TSC. The TSC is an area within the plant near the control room dedicated for use during an emergency. The TSC will be the focal point of onsite activity and will be the primary source of communication from the site with offsite organizations during the event. The TSC will have sufficient staff to provide management control of the site response to the event. Equipment will be available to enable the TSC staff to communicate with onsite and offsite TVA emergency personnel. An area within the TSC will be dedicated for NRC use and will include five telephone sets and the NRC FTS 2000 System telephones. The TSC will have the same habitability as the control room. Sufficient plant parameter information will be available to the TSC to enable the TSC staff to assess the consequences of an event and assist the control room personnel in mitigating the accident. Sufficient information will be transmitted to the CECC to enable the CECC Director to make protective action recommendations to State authorities. Specific plant TSC information is provided in the site-specific appendix. The TSC is to be **activated fully-staffed in** the expected maximum time of 60 minutes (90 minutes for WBN), and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes (90 minutes for WBN) during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action. [Commitment No. 116118631]

8.1.2 Operations Support Center (OSC)

Each site will have an OSC. The OSC is a pre-designated area for the assembly of personnel to support the control room operations crew during an emergency. The OSC area(s) will be under the control of the SED in the Control Room until the TSC is **activated staffed** and will provide damage assessment, maintenance and repair services, and necessary technical services. Communications will be available to the TSC. The OSC will also establish and maintain appropriate communications with any teams that may enter the plant for assessment or repair. Specific plant OSC information is provided in the site-specific appendix. The OSC is to be **activated fully-staffed** in the expected maximum time of 60 minutes (90 minutes for WBN), and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes (90 minutes for WBN) during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action. [Commitment No. 116118631]

8.1.3 Local Recovery Center (LRC)

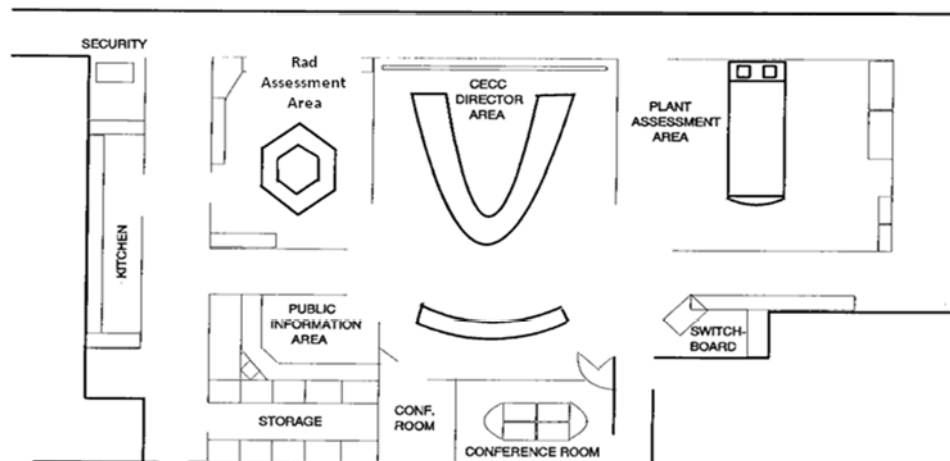
Each site will have an LRC. The LRC is an area pre-designated for use by offsite TVA and NRC personnel that may be assigned to the site for recovery operations. In addition, the LRC may be used by the NRC during the event as an area near the site for assessment and assistance and has the capability to communicate with the TSC and offsite. The LRC will be located near the site so that personnel will have access to necessary drawings and documents. Meteorological information will also be available in the LRC.

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8.2 Central Emergency Control Center (CECC) (continued)

- G. The CECC is to be **activated fully staffed in** the expected maximum time of 60 minutes, and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action.

FIGURE 8-1
CENTRAL EMERGENCY CONTROL CENTER



8.3 Radiological Monitoring Control Center (RMCC)

- A. The RMCC is staffed by the TVA Field Coordinator and personnel from the state. These personnel cooperate in providing direction and control of the monitoring teams.
- B. Monitoring Teams have maps of the area and are directed to selected monitoring points or locations to collect data. This data is transmitted to the RMCC and CECC for analysis.
- C. Facilities at the RMCC include radio and telephone communications, and necessary desks, tables, and chairs. Maps of the 10-mile EPZ and the 50-Mile EPZ are located at the RMCC.

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9.2.1

General Information (continued)

This procedure is designed to direct the activities of the Meteorologist during a radiological emergency to provide a timely response, consistent and accurate meteorological information, and atmospheric transport and dispersion advice.

R. CECC-EPIP-18-TRANSPORTATION AND STAFFING UNDER ABNORMAL CONDITIONS

This procedure provides instructions for the transportation of TVA employees under certain limited circumstances. It also includes instructions for lodging and meals as necessary under those circumstances.

S. CECC-EPIP-19- POST ACCIDENT FUEL DAMAGE ASSESSMENT

This procedure provides a method to assess the degree of reactor core damage from measured fission product concentrations and interpretations of other plant parametric data under accident conditions. The procedure also provides guidance in obtaining necessary information to predict radionuclide releases (source term) from TVA nuclear plants during accident conditions.

T. CECC-EPIP-20- NOT ACTIVE AT THIS TIME

U. CECC-EPIP-21- EMERGENCY DUTY OFFICER PROCEDURE FOR NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, AND GENERAL EMERGENCY

This procedure is designed to direct the EDO in notifying key TVA organizations and contacts in the event of a Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency.

V. CECC-EPIP-22- OPERATIONS DUTY SPECIALIST TRANSPORTATION INCIDENTS INVOLVING A SHIPMENT OF RADIOACTIVE MATERIAL

This procedure directs the ODS in obtaining information concerning a transportation accident involving radioactive material.

W. CECC-EPIP-23- RADIOACTIVE MATERIAL TRANSPORTATION INCIDENTS

The objective of this procedure is to provide guidance and instructions to emergency personnel concerning transportation accidents involving radioactive materials.

9.2.2 Sampling Team

TVA has vans equipped to monitor the environment for radioactivity. Each site van has an air sampler, radiation measurement equipment, a generator, radio, and other assorted equipment. A detailed listing of the minimum required equipment is available in the CECC-EIPs.

- A. These vehicles are dispatched for environmental monitoring for Site Area Emergency and General Emergency classifications **for Brown's Ferry and Watts Bar and at the Alert or higher classification for Sequoyah.**

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9.2.2

Sampling Team (continued)

- B. They may be deployed for ~~lower~~the Notification of Unusual Event and Alert classifications, if warranted.
- C. Van(s) are stationed at each site.
- D. Each team has the capability to:
 - 1. Obtain environmental samples for analysis.
 - 2. Make direct radiation readings.
 - 3. Collect air samples and analyze them for gross beta-gamma radioactivity over a range of energies.
 - 4. Collect air samples and analyze them for radioiodine in the field, to concentrations as low as 10^{-7} microcuries/cc.
- E. Within 30 minutes (60 minutes for SQN) of ~~an~~the applicable emergency declaration, one sampling team can be deployed from the plant for environmental assessment. Additional teams can be dispatched from other facilities. At least one additional team can be deployed within approximately one hour (90 minutes for SQN) of notification. Composition and activation of sampling teams are described in the EIPs.
- F. For the Site Area Emergency, and General Emergency classifications, teams are dispatched from the nearest location.
- G. They may be deployed for the Notification of Unusual Event or Alert, as noted in 9.2.2.B, if warranted. If necessary, teams can be transported in a helicopter or fixed-wing aircraft.
- H. The TSC Rad Protection Manager or CECC Environs Assessor can request assistance from a neighboring plant for environmental monitoring, if deemed necessary.
- I. TVA has aquatic monitoring teams located at Chattanooga, Tennessee and Athens, Alabama. These teams have boats that can be deployed to obtain samples from the river for subsequent analysis for radioactivity in the laboratories.
- J. State agencies have the responsibility to coordinate and evaluate offsite assessment actions. All environmental monitoring activities will be coordinated through the RMCC. State environmental monitoring capabilities and the RMCC operations are referenced in Appendix E. TVA will be co-located in the RMCC and coordination of TVA and State monitoring teams will be conducted from that point. Environmental monitoring data will be shared between the State and TVA.
- K. Additional environmental monitoring assistance can be obtained by contacting the DOE offices at Oak Ridge, Tennessee or Aiken, South Carolina. The EPA in Montgomery, Alabama can also provide assistance. Environmental monitoring teams and mobile radioanalytical laboratories can be supplied. The State agencies usually request and coordinate these services.

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10.2 Onsite Protective Actions for Hostile Action Events

A range of protective actions to protect onsite personnel during a Hostile Action event have been developed to ensure the continued ability to safely shut down the reactor and perform the functions of the emergency plan. This range of protective actions are contained in site specific abnormal procedures. These site-specific procedures are classified security sensitive.

10.3 Offsite

Should an event be initially classified as a General Emergency, the SED has the responsibility to determine an initial protective action for recommendation to State and local government agencies.

- A. A logic diagram is provided in the site-EIPs as a decisional aid to facilitate this recommendation. These diagrams provide the site specific information contained in the CECC logic diagram (Figure 10-1).
- B. After the CECC is activated and staffed, the responsibility for PARs is transferred to the CECC Director.
- C. The CECC Plant Assessment Manager will provide an assessment of actual and projected plant conditions.
- D. The Radiological Assessment Manager will provide an assessment of actual and/or projected radiological conditions offsite.
- E. The Radiological Assessment Manager will provide a recommendation for a specific protective action.
- F. The CECC Director will evaluate the recommendation from his staff and make a recommendation to the State.

The logic diagram for plume exposure pathway recommendations is provided in Figure 10-1 and in the CECC-EIPs as a decisional aid to facilitate the recommendation.

The State and local agencies are responsible for implementing actions to protect the health and safety of the public offsite. Although TVA may recommend protective actions to these agencies, the State and local governments are responsible for deciding if any actions are needed and what they should be.

The CECC will discuss and provide ingestion pathway recommendations (i.e., agricultural) and recommendations for liquid releases (i.e., closing of public water supplies) with the state as appropriate.

The decision to implement one or more of the above actions is based upon some or all of the following considerations:

- Projected offsite integrated doses.
- Actual measured dose rates.
- Present and future weather conditions.

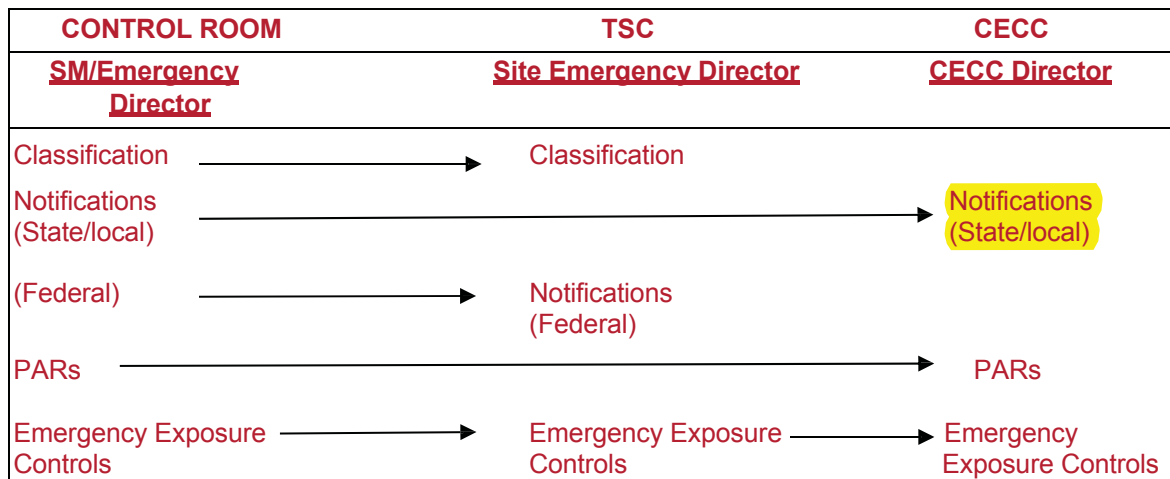
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APPENDIX B

SEQUOYAH NUCLEAR PLANT

B.5 SITE EMERGENCY ORGANIZATION

SQN maintains an organization capable of responding to a radiological emergency. The TSC, and OSC, and Control Room staffing for response to emergencies is shown on Figure B-1. Figure B-1 also identifies minimum staff positions required to activate the TSC and OSC. Facility activation will be completed within 60 minutes of an Alert or higher classification. The minimum on shift emergency response staffing is shown in Figure B-2. The typical Command and Control transfer process is outlined in the diagram below. The TSC retains the capability to perform all command and control functions should the CECC be unavailable for any reason.



Typical Transition of Command and Control Functions

B.5.1 Emergency Response Positions

TSC and OSC emergency response positions are described in SQN EPIP-6, "Activation and Operation of the Technical Support Center" and SQN EPIP-7, "Activation and Operation of the Operations Support Center."

B.5.1.1 Site Vice President

The Site Vice President serves as a corporate interface for the SED, relieving him from duties which could distract from the SED's primary purpose of plant operations and accident mitigation activities. The Site Vice President shall provide assistance in the following areas:

1. Provides TVA policy direction to the Site Emergency Director.
2. Directs the site resources to support the Site Emergency Director in the accident mitigation activities.
3. Provides direct interface on overall site response activities with:
 - a. NRC, FEMA, or other Federal organizations responding to the site.
 - b. CECC Director.
 - c. Onsite media.

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~~4. At his discretion, may provide interface at the appropriate offsite location on the overall site response activities with:~~

~~a. State and local agencies.~~

~~b. NRC region/corporate.~~

~~c. Joint Information Center.~~

~~5. Provides support to other emergency operation centers as necessary.~~

B.5.1.12 Site Emergency Director

1. Directs onsite emergency accident mitigation activities.
2. Consults with CECC Director ~~and Site Vice President~~ on significant events and their related impacts.
3. Initiates onsite protective actions.
4. Coordinates accident mitigation actions with NRC.
5. Initiates long-term 24-hour accident mitigation operations.
- ~~6. Prior to the CECC being activated/staffed, makes recommendations for protective actions (if necessary) to State and local agencies through the Operations Duty Specialist. This responsibility cannot be delegated except to the CECC Director after the CECC is activated/operational.~~
- ~~67.~~ Responsible for determining the emergency classification. This responsibility cannot be delegated.
- ~~78.~~ Approves or authorizes emergency doses. This responsibility cannot be delegated.

B.5.1.23 Operations Manager

1. Directs operational activities.
2. ~~Informs Site Emergency Director of plant status and operational problems.~~ **Accepts responsibility for Federal Notification function from the control room.**
- ~~3. Assures the control room is aware of the accident assessment and response.~~
- ~~43.~~ Recommends solutions and mitigating action for operational problems.

B.5.1.3 Operations Communicator

1. **Informs the Operations Manager of plant status and operational problems.**
2. **Assures the control room is aware of the accident assessment and response.**
3. **Provides support for performance of Federal Notification function.**

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B.5.1.4 Technical Assessment Manager

1. Directs onsite effluent assessment.
2. Directs activities of technical assessment team.
3. Projects future plant status based on present plant conditions.
4. Keeps assessment team informed of plant status.
5. Provides information, evaluations, and projects to Site Emergency Director.
6. Coordinates assessment activities with the CECC plant assessment team.
7. Establishes and maintains a status of significant plant problems.

B.5.1.5 OSC Manager

1. Directs repairs and corrective actions in coordination with the TSC.
2. Performs damage assessment.
3. Directs activities of Operations Support Center.
4. Coordinates maintenance teams and ensures they have received proper briefings and are accompanied by a Rad Protection technician, as necessary.

B.5.1.6 ~~TSC Clerks~~

1. ~~Answer telephones.~~
2. ~~Distribute plant parameter data sheets.~~
3. ~~Maintain TSC organization board.~~
4. ~~Operate facsimile machine.~~
5. ~~Other duties as assigned by Site Emergency Director.~~

B.5.1.67 Nuclear Security Manager

1. Directs activities of Nuclear Security Services personnel.
2. Controls access to site and control rooms.
3. Reports on site accountability/evacuation as defined in SQN-EIPs.

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~~B.5.1.12 Emergency Preparedness Manager~~

~~1. Advises Site Emergency Director regarding overall radiological emergency plan, use of implementing procedures, emergency equipment availability, and coordination with CECC.~~

~~2. Confirms TSC is operating properly.~~

B.5.1.113 Technical Assessment Team

1. Prepares and provides periodic current assessments on plant conditions and provides this information to the CECC plant assessment team.
2. Projects future plant status based on present plant conditions.
3. Provides technical support to plant operations on mitigating actions.

B.5.1.124 OSC Assistant Manager

1. Oversees the operations of OSC teams.
2. Maintain continuous communications with the TSC.
3. Maintains team tracking boards.
4. Assigns TSC tasks to team briefers.

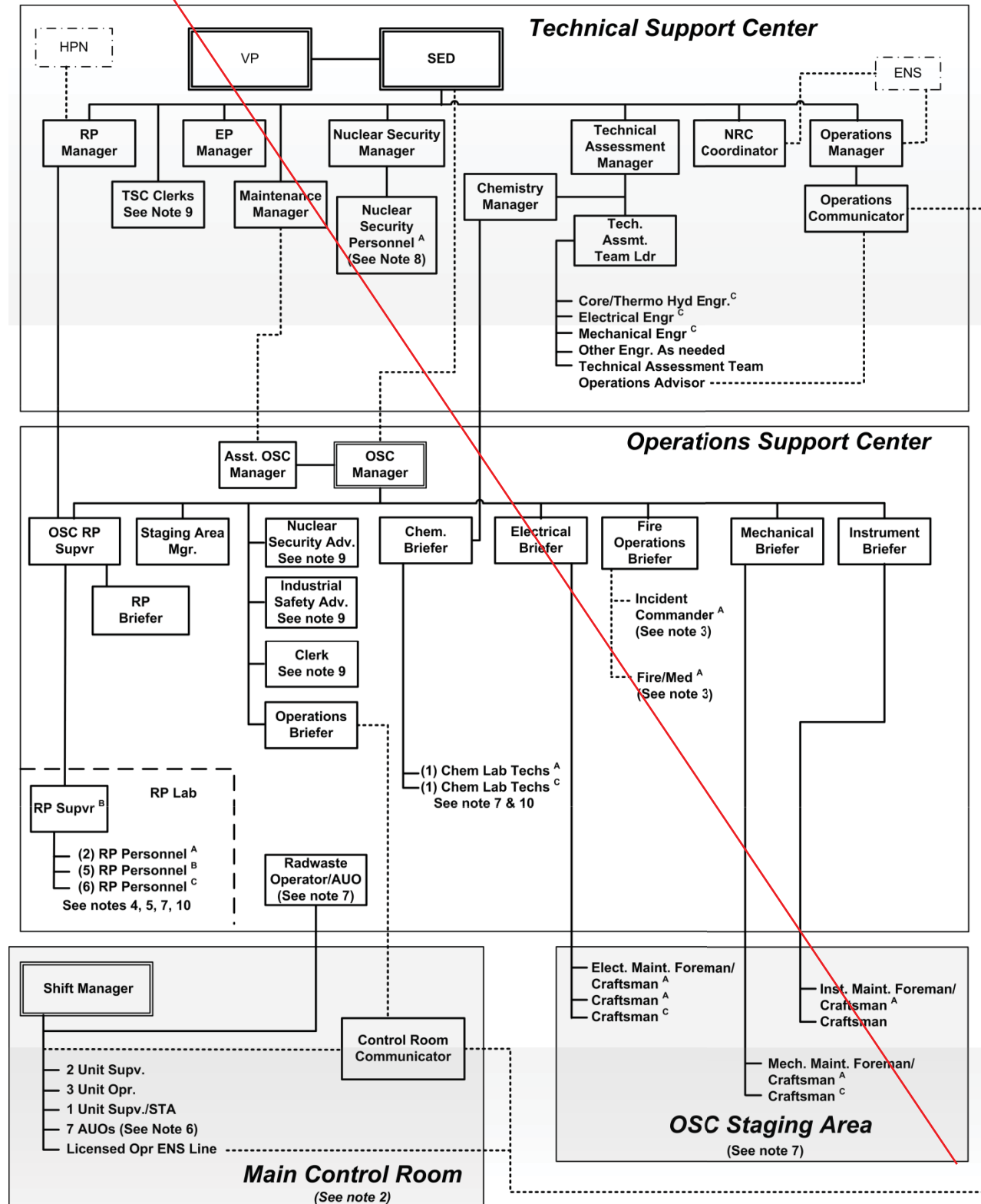
B.5.1.135 OSC Rad Protection Supervisor

1. Directs activities of the Rad Protection lab.
2. Ensure Rad Protection coverage of damage repair teams.
3. Verify habitability of the TSC, OSC, and Control Room.
4. Briefs the OSC Manager and TSC on radiological status.

B.5.1.146 Briefing Teams

1. Provide mechanical, electrical, and instrumentation technical expertise.
2. Evaluate task conditions and provide methods best suited to safely perform an assignment.
3. Brief OSC teams.
4. Track OSC teams in the field.
5. Debrief OSC teams after task completion.

**Figure B-1
SITE EMERGENCY ORGANIZATION
(Including Minimum Staffing and Augmentation) (See Note 1)**



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Figure B-1 (Continued)

Notes

- Note 1- ERO members shown report to assigned facilities within approximately 60 minutes except as provided in these notes and the following which is used for clarification in NUREG 0654 Table B-1;
- A. on-shift
 - B. 30 minutes
 - C. 60 minutes
- Note 2- Main Control Room on-shift staffing (assuming both units in mode 4 or above) except the Control Room Communicator who is a 60 minute ERO member of the TSC and as provided in the following:
- As allowed by 10CFR50.54(m) Table (2)(i), 2 SROs and 3 Licensed Operators are required as a minimum for two unit plant with a common control room. Temporary deviations shall be in accordance with Tech Specs.
- Additionally, Table B-1 requires that each unaffected nuclear unit in operation maintain at least 1 Unit Supervisor, Unit Operator, and 1 AUO except units sharing a control room may share a Unit Supervisor if all functions are covered. 1 Licensed Operator has been added to the above requirements in order to address communications.
- Note 3- Fire Brigade personnel on-shift will be in accordance with the Fire Protection Report. This group also provides medical and rescue functions.
- Note 4- Offsite Dose Assessment task as shown in NUREG 0654 Table B-1 is provided by a qualified Radiation Protection individual.
- Note 5- Two Radiation Protection Technicians are required on-shift per NUREG 0654 Table B-1. One is required for in-plant surveys, the other may be provided by shift personnel assigned other functions. Six additional techs are required in 30 minutes and six more in 60 minutes. The Radiation Protection Supervisor may fill one of the six 30 minute responder positions.
- Note 6- Depicts reporting to the Shift Manager of non-control room on-shift personnel prior to staffing of the OSC at which time they report to the Staging Area.
- Note 7- Personnel at 30 minutes and/or 60 minutes may be on shift.
- Note 8- On-shift security personnel per the Security Plan.
- Note 9- Call in as needed
- Note 10- Chemistry Supervisor/Radiation Protection Supervisor, if holding proper qualifications, may fill the position of technician.

..... **Shows communication networks.**

Figure B-1
TSC EMERGENCY ORGANIZATION
(Including Minimum Staffing and Augmentation)

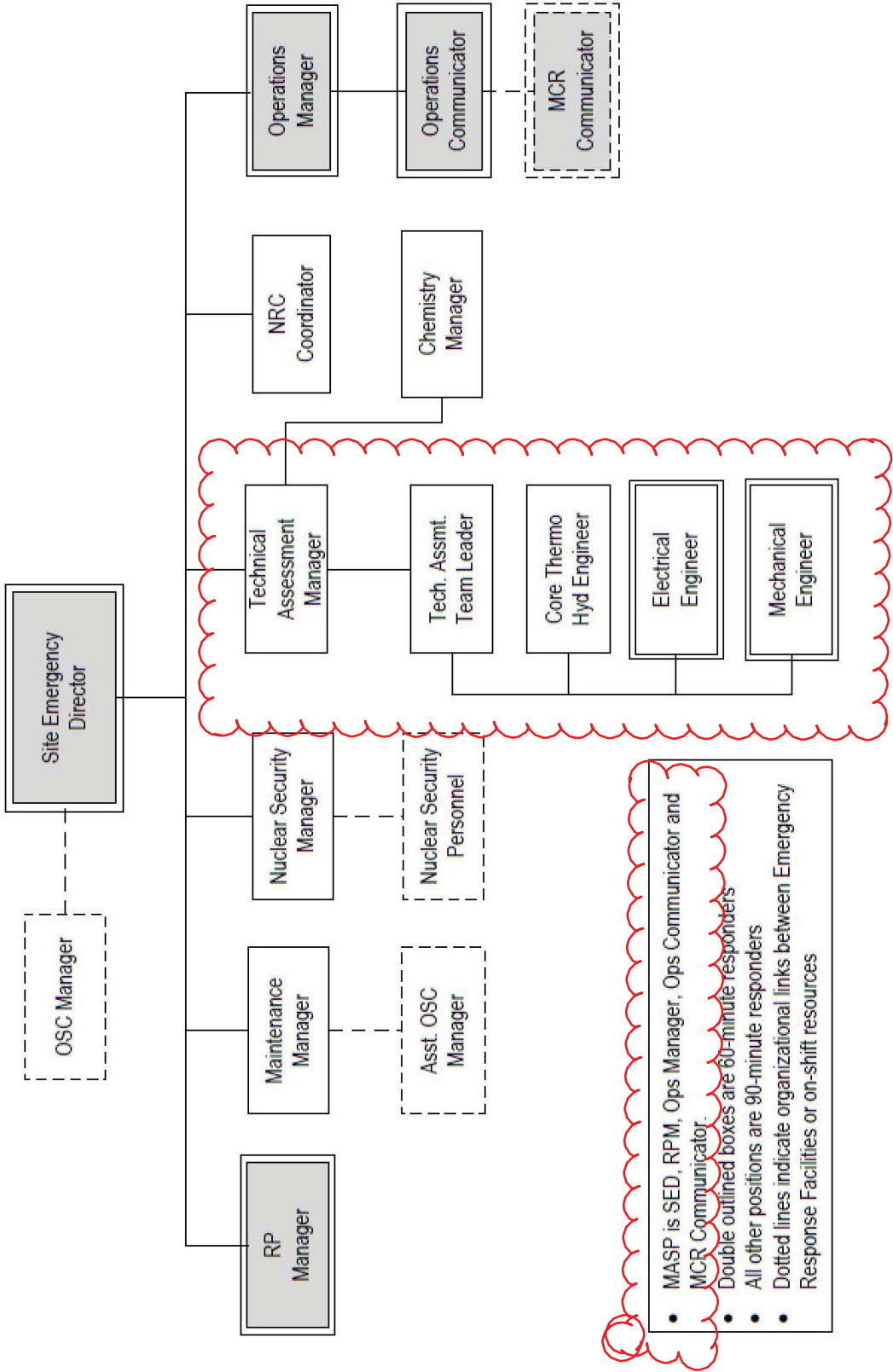
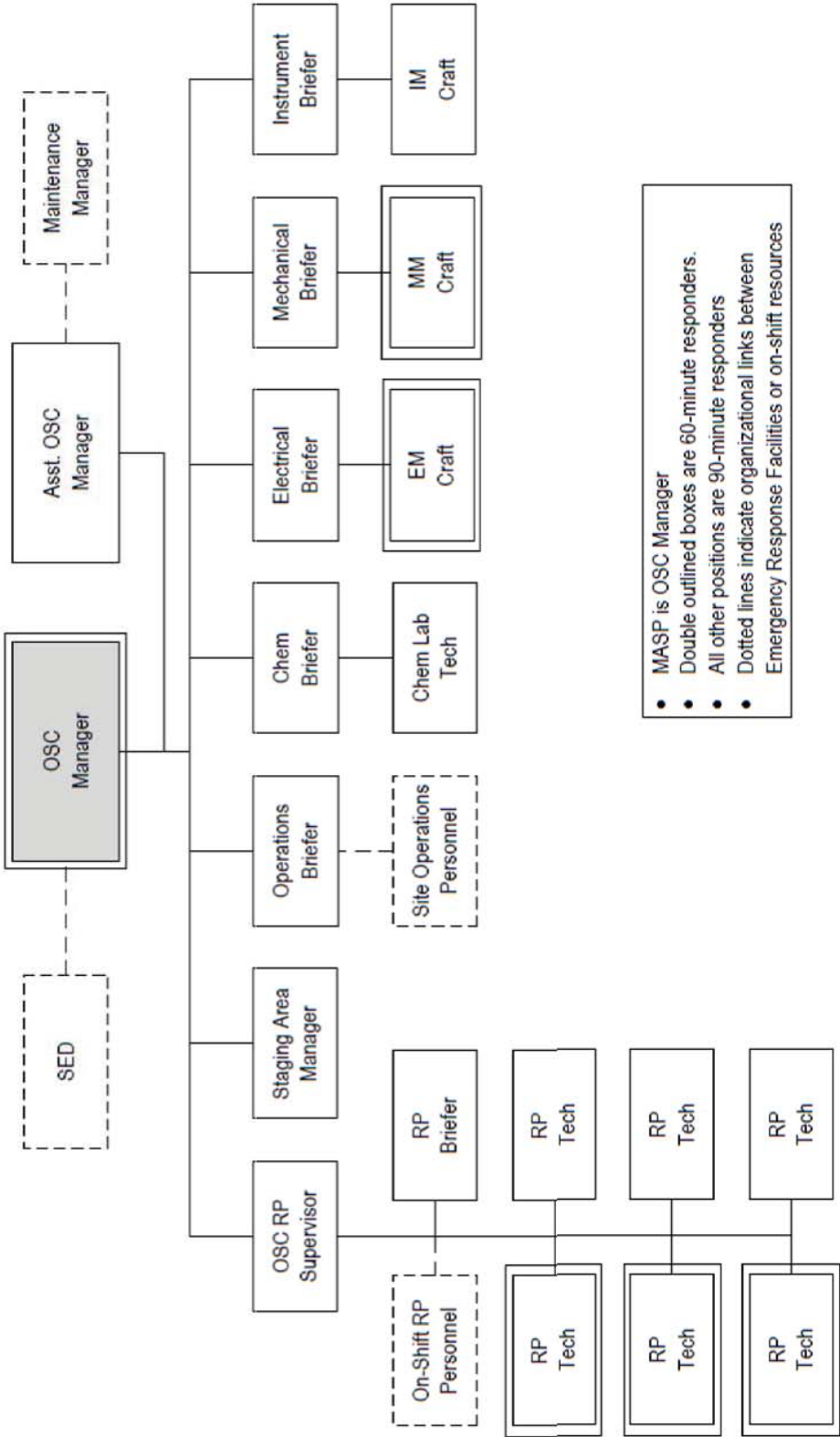


Figure B-1 (continued)
OSC EMERGENCY ORGANIZATION
(Including Minimum Staffing and Augmentation)



- MASP is OSC Manager
- Double outlined boxes are 60-minute responders.
- All other positions are 90-minute responders
- Dotted lines indicate organizational links between Emergency Response Facilities or on-shift resources

FIGURE B-2
MINIMUM ONSHIFT RESPONSE PERSONNEL

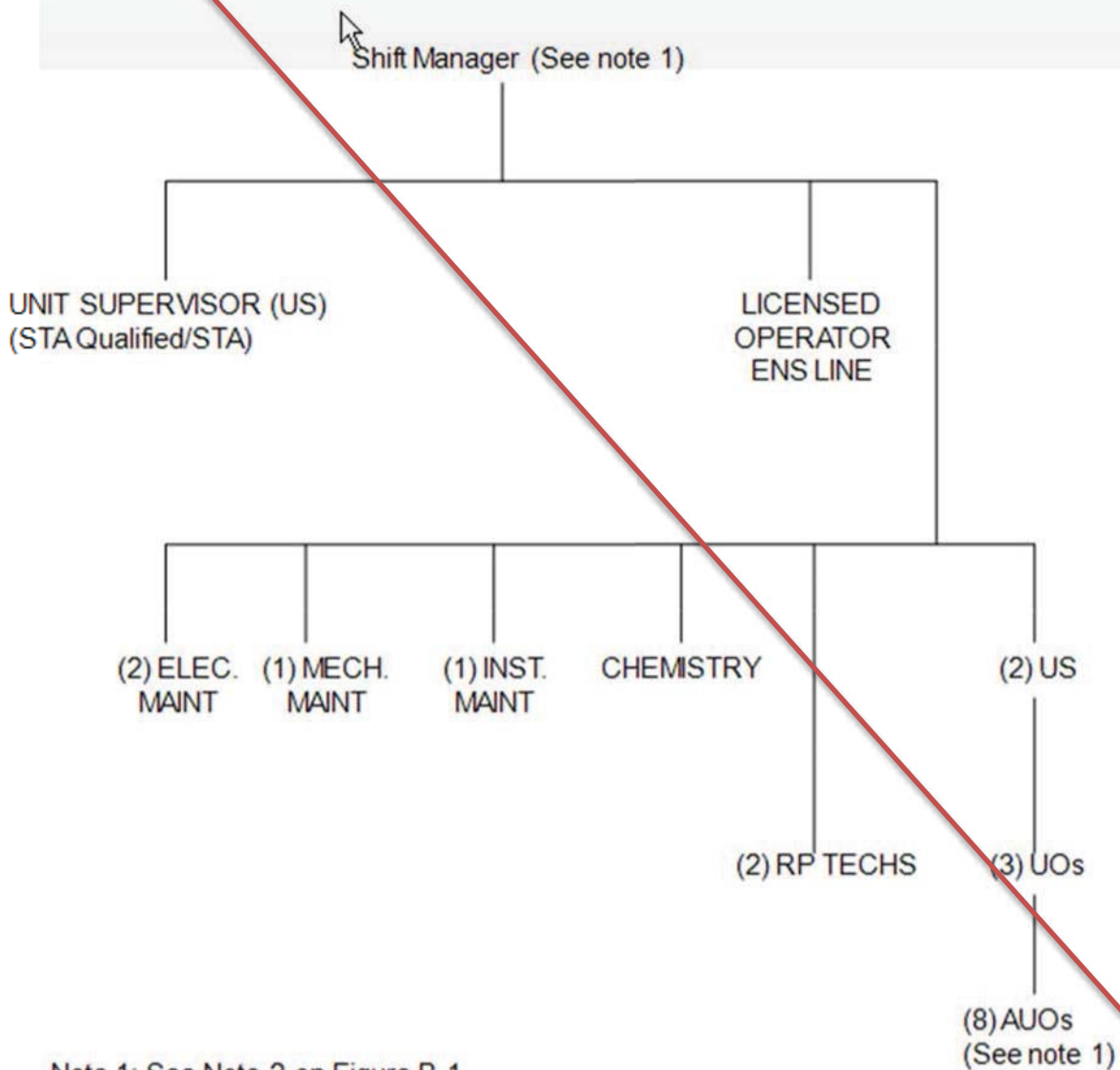


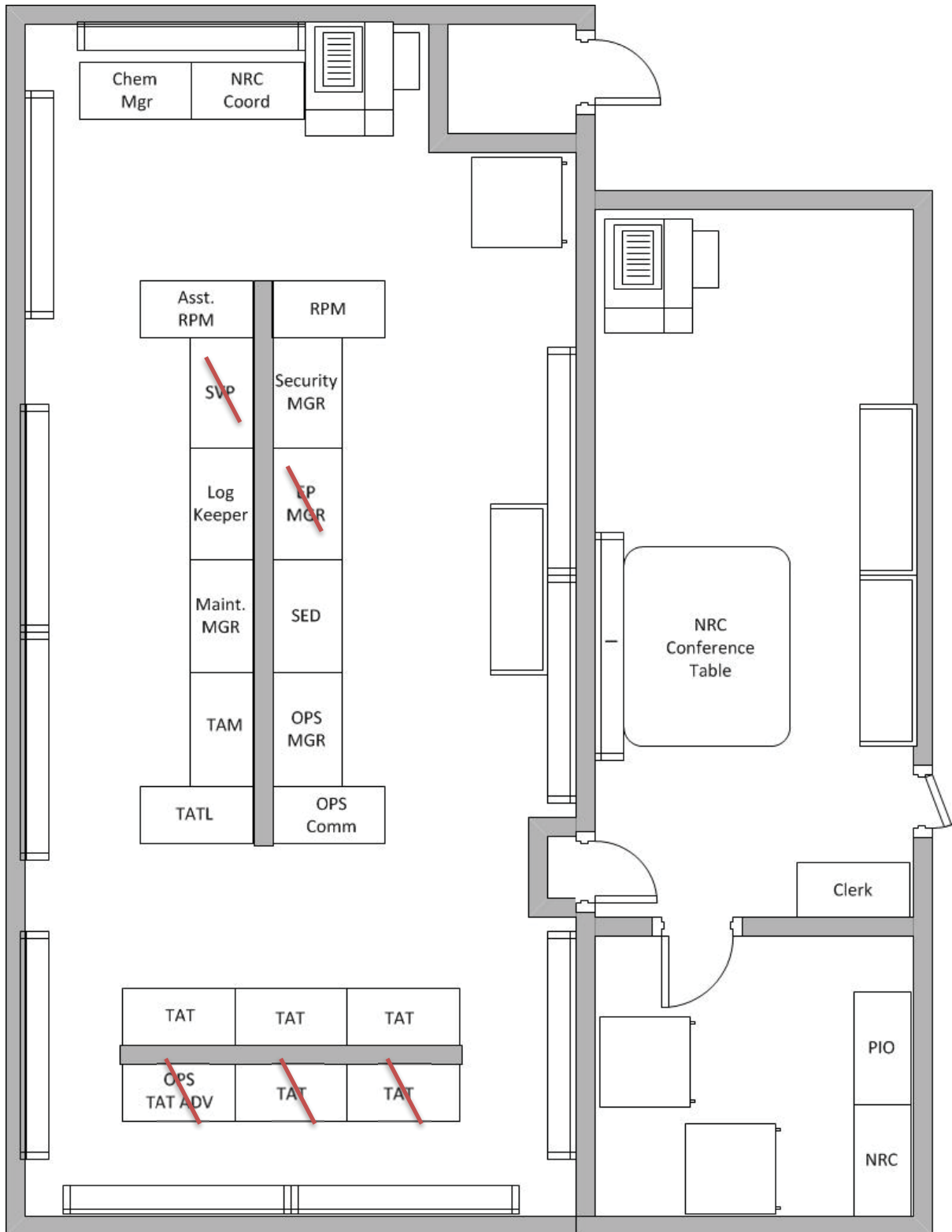
Figure B-2
MINIMUM ONSHIFT RESPONSE PERSONNEL

Major Functional Area	Major Tasks	Position Title or Expertise	On-Shift	Augmented Response	
				60 min	90 min
Plant Operations and Shift Supervisor (SRO): Assessment of Control Room Reactor Operational Aspects		Shift Manager/ED (SRO)	1	-	-
		Unit Supervisors (SRO)	2	-	-
		Unit Operators (UO)	3	-	-
		Auxiliary Unit Operators (AUO)	8	-	-
Notification/Communication	Notify State, local and Federal personnel & maintain communication	Emergency Communicator (Shift)	1	-	-
		MCR Communicator (CR)	-	1	-
		Ops Manager (TSC)	-	1	-
		Ops Communicator (TSC)	-	1	-
		State Communicator (CECC)	-	1	-
		EDO (CECC)	-	1	-
Radiological Accident Assessment and Support or Operational Accident Assessment	Emergency Operations Facility Director	SED (TSC)	-	1	-
		CECC Director	-	1	-
	Offsite Dose Assessment	Plant Assmt Manager (CECC)	-	1	-
		Chemistry Technician (Shift)	1**	-	-
		RP Manager (TSC)	-	1	-
		RAM/RAC (CECC)	-	1	-
	Offsite Surveys	Dose Assessor (CECC)	-	1	-
		RP Tech /Support	-	2	2
	Onsite Surveys (out-of-plant) and In-Plant Surveys	RP Tech	1	1	1
		Chemistry Technician	1	-	1
Plant System Engineering	Technical Support	Shift Technical Advisor (SRO)	1	-	-
		Tech Assmt Manager (TSC)	-	-	1
		Tech Assmt Team Lead (TSC)	-	-	1
		Core Damage Assessor (CECC)	-	1	-

Major Functional Area	Major Tasks	Position Title or Expertise	On-Shift	Augmented Response	
				60 min	90 min
Plant System Engineering (cont'd)	Technical Support (cont'd)	Core/Thermal Engineer	-	-	1
		Electrical Engineer	-	1+	4+
		Mechanical Engineer	-	1+	4+
	Repairs and Corrective Actions	Mechanical Maintenance	-	1	-
Repair and Corrective Actions	Corrective Actions	Electrical Maintenance	-	1	-
		Instrument Control	-	-	1
		OSC Manager	-	1	-
	Radiation Protection:	RP Tech	1	2+	2+
Protective Actions (In-Plant)	a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first-aid & firefighting c. Personnel monitoring d. Dosimetry				
Fire Fighting		Fire Brigade	5	Local Support	Local Support
Rescue Operations and First Aid		Incident Commander (SRO)	1		
		Other Site personnel	2**	Local Support	Local Support
Site Access Control And Personnel Accountability	Security, firefighting, communications personnel accountability	Security Personnel	Per Security Plan	Per Security Plan	Per Security Plan
		TOTAL	25	22+9	10

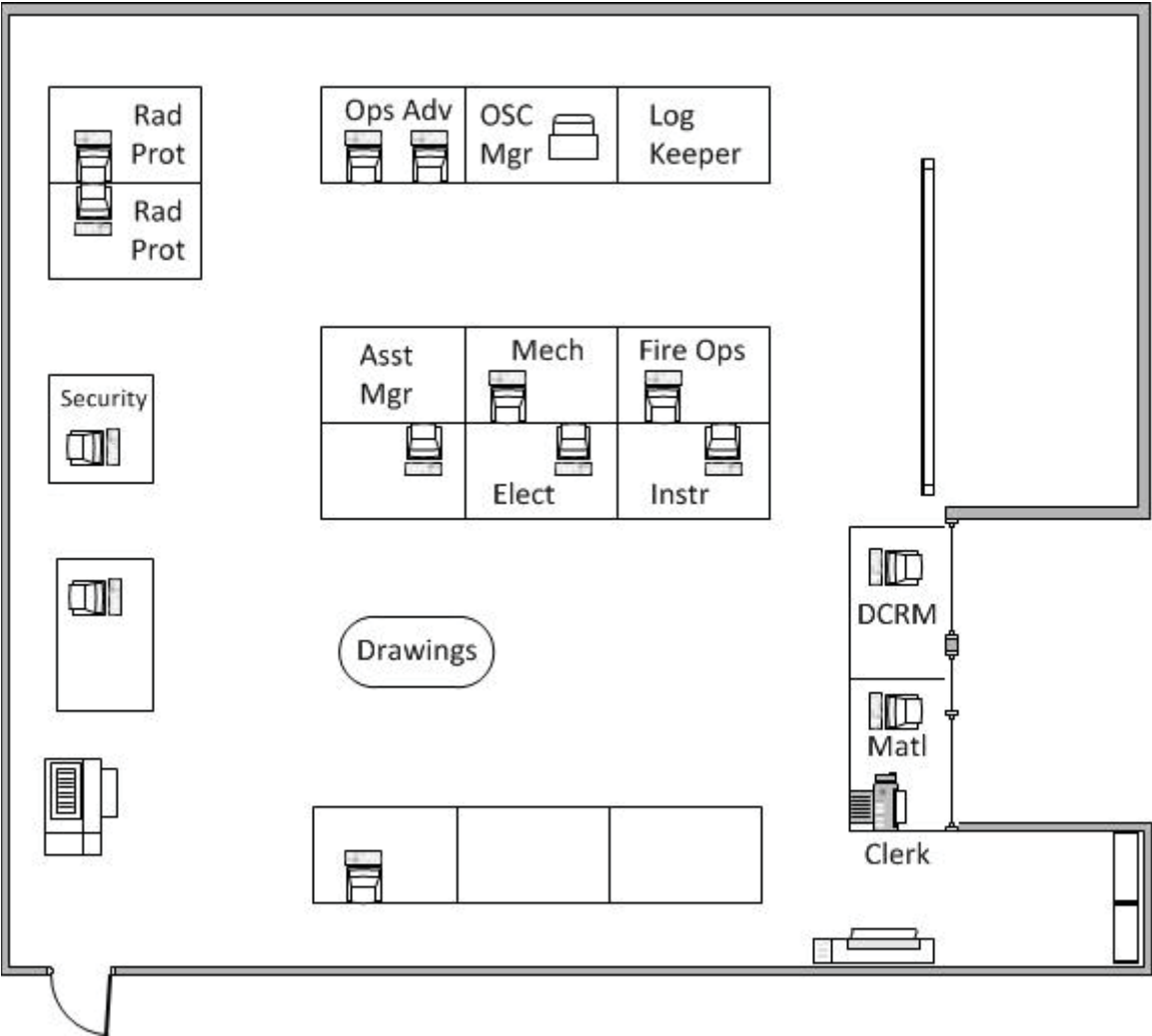
** May be provided by shift personnel assigned other functions

Figure B-3
TECHNICAL SUPPORT CENTER (SAMPLE)
Control Building Elevation 732'



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FIGURE B-4
 OPERATIONS SUPPORT CENTER **(SAMPLE)**
 Plant Office Building Elevation 706



ENCLOSURE

TVA Response to NRC Request for Additional Information

Attachment 2

Proposed clean pages of the Radiological Emergency Plan



**Radiological
Emergency
Procedure**

**RADIOLOGICAL EMERGENCY PLAN
(GENERIC PART)**

**REP-Generic
Rev. XXX
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Quality Related ☒ Yes ☐ No

Effective Date _____

Level of Use: Information Use

Prepared by: Josh Perrel

Reviewed by: _____
Program Manager, EP Special Projects Date

Concurred by: _____
EP Manager (BFN) Date

Concurred by: _____
BFN PORC Chairman Date

Concurred by: _____
EP Manager (SQN) Date

Concurred by: _____
SQN PORC Chairman Date

Concurred by: _____
EP Manager (WBN) Date

Concurred by: _____
WBN PORC Chairman Date

Concurred by: _____
Director, Emergency Preparedness Date

Approved by: _____
GM, Support Services Date

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3.2 Onsite Organization (continued)

3. This time could vary slightly, depending upon the time of day, weather conditions, immediate availability of personnel, and radiological conditions.
- E. The site emergency organization augments the shift operations crew.
 1. If members of the site emergency organization are not present when an emergency occurs, the Shift Manager on duty, or a designated Unit Supervisor when acting as the Shift Manager, is designated the Site Emergency Director and acts for him until relieved by the Plant Manager or his alternate.
- F. Upon detection of a known or suspected emergency, the Shift Manager on duty refers to the site-EPIP-1 to determine the classification of the emergency.
 1. After determining the classification of the incident, the Shift Manager assumes the responsibilities of Site Emergency Director and initiates the appropriate procedure referenced by site-EPIP-1.
 2. Staffing instructions for the site emergency support centers are specified in the site-EIPs.
- G. Site procedures shall designate site personnel who shall staff the ENS and HPN (NRC FTS 2000 System) Communication Systems.
 1. Site procedures shall designate the interface during TSC operation.
- H. Each site will at a minimum establish the following positions within its emergency response organization with corresponding responsibilities as outlined below. The site-specific appendix gives detailed staffing and organizational data, including additional positions deemed necessary by the site.

3.2.2 Site Vice President (Watts Bar and Browns Ferry Only)

- A. The Site Vice President serves as a corporate interface for the SED, relieving him from duties which could distract from the SED's primary purpose of plant operations and accident mitigation activities. The Site Vice President provides assistance to the SED by providing TVA policy direction; directing site resources to support the SED in accident mitigation activities; and providing a direct interface on overall site response activities with NRC, DHS, or other Federal organizations responding to the site, CECC Director, or onsite media.
- B. At his discretion, he may provide an interface at the appropriate offsite location on the overall site response activities with State and local agencies, NRC region/corporate, or Joint Information Center. He also provides support to other emergency operation centers as necessary.

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3.2.3 Site Emergency Director

- A. The SED is responsible for directing onsite accident mitigation activities; consulting with the CECC Director and Site Vice President on significant events and their related impacts; protective actions; coordinating accident mitigation actions with the NRC; makes final decision on personnel entrance to radiologically-hazardous areas when Rad Protection recommends against the entry; and initiating long-term 24-hour per day accident mitigation operations.
- B. The SED is responsible for determining the emergency classification. The SED makes recommendations for protective actions (if necessary) to the State and local agencies prior to the CECC being activated (this responsibility can be transferred only to the CECC Director). The SED or MCR staff is responsible for making initial notifications to the appropriate state organization. The SED is also responsible for emergency dose authorizations for personnel under his direction and control (these responsibilities cannot be delegated).

3.2.4 Operations Manager

The Operations Manager is responsible for onsite operational activities; keeps the SED informed on plant status and operational problems; performs damage assessment as necessary; and recommends solutions and mitigating actions for operational problems.

3.2.5 Technical Assessment Manager

The Technical Assessment Manager is responsible for providing information, evaluations, and projections to the SED; coordinating assessment activities with the CECC; keeping the assessment team informed of plant status; assessing effluents; directing the technical assessment team; and projecting future plant status based on present conditions. Pertinent information is provided to appropriate organizations via a continuously used and monitored telephone communications hookup.

3.2.6 OSC Manager

The OSC Manager is responsible for directing the repair and corrective action teams; performing damage assessment; coordinating OSC teams and ensuring proper briefings and accompaniment by Rad Protection.

3.2.7 Radiological Protection (Rad Protection) Manager

The Rad Protection Manager is responsible for assessing inplant and onsite radiological conditions; directing the onsite Rad Protection activities; coordinating additional Rad Protection support with the CECC; recommending protective actions for onsite personnel to the SED; maintaining the offsite radiological conditions status information; coordinating assessment of radiological conditions with the CECC; maintaining the inplant radiological status boards; assisting the Maintenance Superintendent in briefing maintenance teams; assigning appropriate Rad Protection support to maintenance teams; and making final recommendation to the SED for personnel entry to radiologically hazardous environments.

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3.2.8 Chemistry Manager

The Chemistry Manager is responsible for coordinating assessment of effluents with the CECC; directing post-accident sampling activities; directing radiochemical lab activities; assessing effects on radwaste and effluent treatment systems.

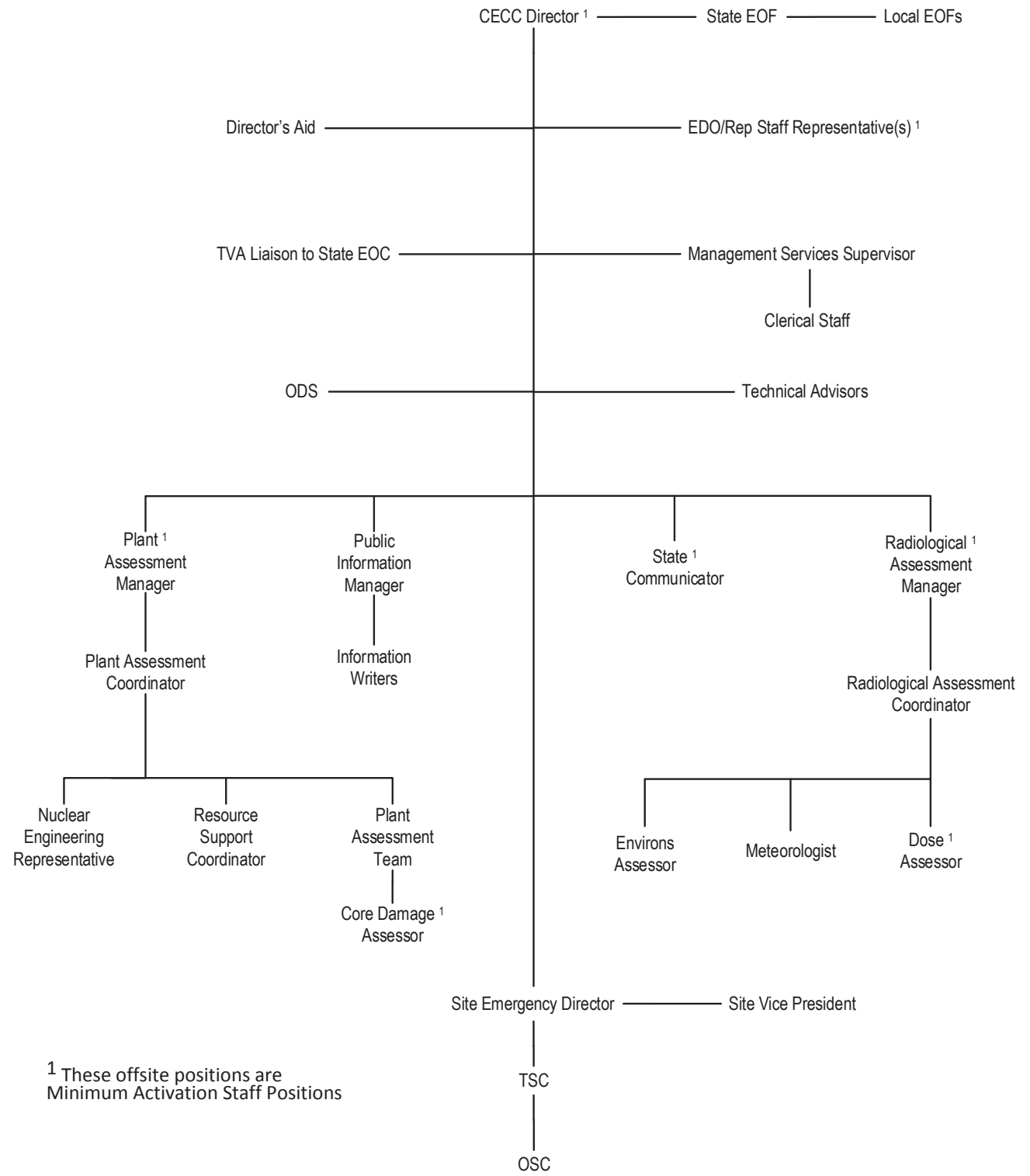
3.3 Offsite Organization

A diagram of the Offsite Organization is provided in Figure 3-1. Positions that must respond within approximately 60 minutes of an alert or higher declaration are indicated on the Figure.

The CECC is to be activated in the expected maximum time of 60 minutes, and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action.

3.3 Offsite Organization (continued)

Figure 3-1
OFFSITE EMERGENCY ORGANIZATION



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4.1.3

Alert (continued)

- B. The purposes of the Alert class are:
 - 1. To ensure that emergency personnel are readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring, if required; and
 - 2. To provide offsite authorities current status information.
 - 3. To ensure that monitoring teams are dispatched (Sequoyah only).
- C. The Alert class is maintained until event termination or escalation to a higher class. The State authorities are notified and in turn notify the local authorities. Following closeout, State authorities are briefed and no later than the next working day a written summary of significant events which occurred is forwarded to the State.

4.1.4 Site Area Emergency

- A. A Site Area Emergency is declared when events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or Hostile Action that results in intentional damage or malicious acts (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.
- B. The purposes of the Site Area Emergency class are:
 - 1. To ensure that response centers are activated.
 - 2. To assure that monitoring teams are dispatched.
 - 3. To assure that personnel required for evacuation of nearsite areas are at duty stations if the situation becomes more serious.
 - 4. To provide current information for, and consultation with, offsite authorities and the public.
- C. The Site Area Emergency class is maintained until event termination or escalation to a higher class. The State authorities are notified and in turn notify the local authorities. Following closeout, State authorities are briefed and no later than the next working day a written summary of significant events which occurred is forwarded to the State.

4.1.5 General Emergency

- A. A General Emergency is declared when events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or Hostile Action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more that the immediate site area.
- B. The purposes of the General Emergency class are:

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5.1 Onsite

Upon detection of a known or suspected emergency, the Shift Manager on duty will utilize the site-EPIP-1 to determine the classification of the emergency. After determining the classification of the emergency, the SED will initiate the appropriate procedures referenced by the site-EPIP-1. Each procedure referenced by site-EPIP-1 gives specific instructions on staffing the TSC and OSC and for notifying the State, ODS, and NRC.

5.2 Offsite

Implementing procedures are provided to activate TVA and State emergency staffs. Essential emergency positions are covered on a 24-hour-a-day basis by duty personnel. Emergency centers are located to ensure rapid and effective response of personnel needed to assess and evaluate offsite conditions.

5.2.1 Notification of Unusual Event (NOUE)

Upon declaration of this class, the following actions are performed:

- A. The MCR notifies and relays the information to the State within 15 minutes of declaration of the event.
- B. The ODS in Chattanooga is notified of the event by the MCR and records the details of the event in accordance with the appropriate EPIP.
- C. The ODS notifies and relays the information to the EDO and CECC Director.
- D. The EDO keeps the CECC Director and the Public Information Manager informed of the situation as necessary.
- E. The PIM notifies the Site Communications Consultant; Director, Public Relations & Corporate Information; and TVA News Bureau (Knoxville).
- F. The SED augments plant shift personnel as necessary to initiate corrective or protective actions.

5.2.2 Alert

Upon declaration of this class, the following minimum actions are performed:

- A. Notifications described in Section 5.2.1 are performed.
- B. The CECC is activated.
- C. Environmental sampling teams are dispatched for Sequoyah and may be dispatched at this classification level for Browns Ferry and Watts Bar.
- D. The TSC and the OSC are activated.
- E. The situation is analyzed and any appropriate corrective or preventive actions initiated.
- F. Hourly, or more often as necessary, the State agencies are updated through the CECC on appropriate plant status and environmental conditions as follows:

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8.0 EMERGENCY RESPONSE FACILITIES, EQUIPMENT, AND SUPPLIES

8.1 Nuclear Site Facilities

8.1.1 Technical Support Centers (TSC)

Each site will have a TSC. The TSC is an area within the plant near the control room dedicated for use during an emergency. The TSC will be the focal point of onsite activity and will be the primary source of communication from the site with offsite organizations during the event. The TSC will have sufficient staff to provide management control of the site response to the event. Equipment will be available to enable the TSC staff to communicate with onsite and offsite TVA emergency personnel. An area within the TSC will be dedicated for NRC use and will include five telephone sets and the NRC FTS 2000 System telephones. The TSC will have the same habitability as the control room. Sufficient plant parameter information will be available to the TSC to enable the TSC staff to assess the consequences of an event and assist the control room personnel in mitigating the accident. Sufficient information will be transmitted to the CECC to enable the CECC Director to make protective action recommendations to State authorities. Specific plant TSC information is provided in the site-specific appendix. The TSC is to be activated in the expected maximum time of 60 minutes (90 minutes for WBN), and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes (90 minutes for WBN) during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action. [Commitment No. 116118631]

8.1.2 Operations Support Center (OSC)

Each site will have an OSC. The OSC is a pre-designated area for the assembly of personnel to support the control room operations crew during an emergency. The OSC area(s) will be under the control of the SED in the Control Room until the TSC is activated and will provide damage assessment, maintenance and repair services, and necessary technical services. Communications will be available to the TSC. The OSC will also establish and maintain appropriate communications with any teams that may enter the plant for assessment or repair. Specific plant OSC information is provided in the site-specific appendix. The OSC is to be activated in the expected maximum time of 60 minutes (90 minutes for WBN), and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes (90 minutes for WBN) during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action. [Commitment No. 116118631]

8.1.3 Local Recovery Center (LRC)

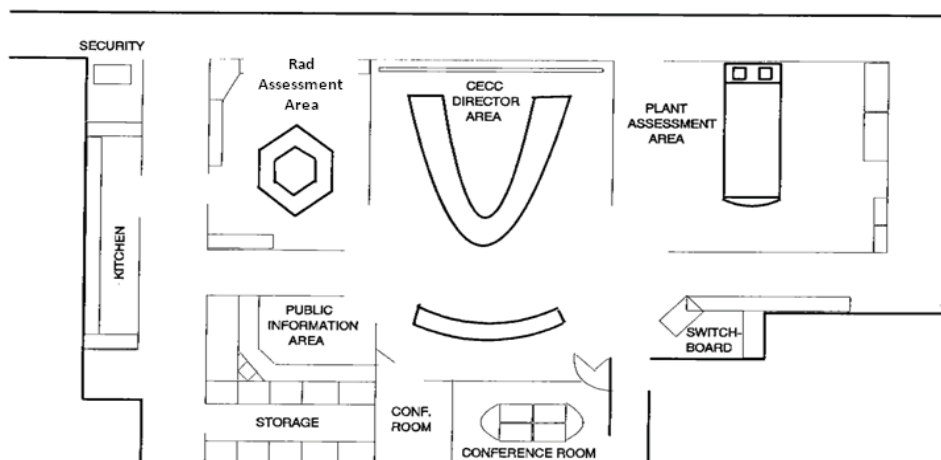
Each site will have an LRC. The LRC is an area pre-designated for use by offsite TVA and NRC personnel that may be assigned to the site for recovery operations. In addition, the LRC may be used by the NRC during the event as an area near the site for assessment and assistance and has the capability to communicate with the TSC and offsite. The LRC will be located near the site so that personnel will have access to necessary drawings and documents. Meteorological information will also be available in the LRC.

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8.2 Central Emergency Control Center (CECC) (continued)

- G. The CECC is to be activated in the expected maximum time of 60 minutes, and the ERO is expected to respond immediately without delay once notified. Circumstances not under TVA's control may occasionally cause a delay in gathering the required minimum number of staff. However, a persistent inability to meet the minimum staffing within 60 minutes during drills, exercises, and actual events, for whatever cause, shall be considered a regulatory concern that warrants corrective action.

FIGURE 8-1
CENTRAL EMERGENCY CONTROL CENTER



8.3 Radiological Monitoring Control Center (RMCC)

- A. The RMCC is staffed by the TVA Field Coordinator and personnel from the state. These personnel cooperate in providing direction and control of the monitoring teams.
- B. Monitoring Teams have maps of the area and are directed to selected monitoring points or locations to collect data. This data is transmitted to the RMCC and CECC for analysis.
- C. Facilities at the RMCC include radio and telephone communications, and necessary desks, tables, and chairs. Maps of the 10-mile EPZ and the 50-Mile EPZ are located at the RMCC.

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9.2.1

General Information (continued)

This procedure is designed to direct the activities of the Meteorologist during a radiological emergency to provide a timely response, consistent and accurate meteorological information, and atmospheric transport and dispersion advice.

R. CECC-EPIP-18-TRANSPORTATION AND STAFFING UNDER ABNORMAL CONDITIONS

This procedure provides instructions for the transportation of TVA employees under certain limited circumstances. It also includes instructions for lodging and meals as necessary under those circumstances.

S. CECC-EPIP-19- POST ACCIDENT FUEL DAMAGE ASSESSMENT

This procedure provides a method to assess the degree of reactor core damage from measured fission product concentrations and interpretations of other plant parametric data under accident conditions. The procedure also provides guidance in obtaining necessary information to predict radionuclide releases (source term) from TVA nuclear plants during accident conditions.

T. CECC-EPIP-20- NOT ACTIVE AT THIS TIME

U. CECC-EPIP-21- EMERGENCY DUTY OFFICER PROCEDURE FOR NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, AND GENERAL EMERGENCY

This procedure is designed to direct the EDO in notifying key TVA organizations and contacts in the event of a Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency.

V. CECC-EPIP-22- OPERATIONS DUTY SPECIALIST TRANSPORTATION INCIDENTS INVOLVING A SHIPMENT OF RADIOACTIVE MATERIAL

This procedure directs the ODS in obtaining information concerning a transportation accident involving radioactive material.

W. CECC-EPIP-23- RADIOACTIVE MATERIAL TRANSPORTATION INCIDENTS

The objective of this procedure is to provide guidance and instructions to emergency personnel concerning transportation accidents involving radioactive materials.

9.2.2 Sampling Team

TVA has vans equipped to monitor the environment for radioactivity. Each site van has an air sampler, radiation measurement equipment, a generator, radio, and other assorted equipment. A detailed listing of the minimum required equipment is available in the CECC-EIPs.

- A. These vehicles are dispatched for environmental monitoring for Site Area Emergency and General Emergency classifications for Brown's Ferry and Watts Bar and at the Alert or higher classification for Sequoyah.
- B. They may be deployed for lower classifications, if warranted.

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9.2.2

Sampling Team (continued)

- C. Van(s) are stationed at each site.
- D. Each team has the capability to:
 - 1. Obtain environmental samples for analysis.
 - 2. Make direct radiation readings.
 - 3. Collect air samples and analyze them for gross beta-gamma radioactivity over a range of energies.
 - 4. Collect air samples and analyze them for radioiodine in the field, to concentrations as low as 10^{-7} microcuries/cc.
- E. Within 30 minutes (60 minutes for SQN) of the applicable emergency declaration, one sampling team can be deployed from the plant for environmental assessment. Additional teams can be dispatched from other facilities. At least one additional team can be deployed within approximately one hour (90 minutes for SQN) of notification. Composition and activation of sampling teams are described in the EPIPs.
- F. For the Site Area Emergency, and General Emergency classifications, teams are dispatched from the nearest location.
- G. They may be deployed for the Notification of Unusual Event or Alert, as noted in 9.2.2.B, if warranted. If necessary, teams can be transported in a helicopter or fixed-wing aircraft.
- H. The TSC Rad Protection Manager or CECC Environs Assessor can request assistance from a neighboring plant for environmental monitoring, if deemed necessary.
- I. TVA has aquatic monitoring teams located at Chattanooga, Tennessee and Athens, Alabama. These teams have boats that can be deployed to obtain samples from the river for subsequent analysis for radioactivity in the laboratories.
- J. State agencies have the responsibility to coordinate and evaluate offsite assessment actions. All environmental monitoring activities will be coordinated through the RMCC. State environmental monitoring capabilities and the RMCC operations are referenced in Appendix E. TVA will be co-located in the RMCC and coordination of TVA and State monitoring teams will be conducted from that point. Environmental monitoring data will be shared between the State and TVA.
- K. Additional environmental monitoring assistance can be obtained by contacting the DOE offices at Oak Ridge, Tennessee or Aiken, South Carolina. The EPA in Montgomery, Alabama can also provide assistance. Environmental monitoring teams and mobile radioanalytical laboratories can be supplied. The State agencies usually request and coordinate these services.

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10.2 Onsite Protective Actions for Hostile Action Events

A range of protective actions to protect onsite personnel during a Hostile Action event have been developed to ensure the continued ability to safely shut down the reactor and perform the functions of the emergency plan. This range of protective actions are contained in site specific abnormal procedures. These site-specific procedures are classified security sensitive.

10.3 Offsite

Should an event be initially classified as a General Emergency, the SED has the responsibility to determine an initial protective action for recommendation to State and local government agencies.

- A. A logic diagram is provided in the site-EIPs as a decisional aid to facilitate this recommendation. These diagrams provide the site specific information contained in the CECC logic diagram (Figure 10-1).
- B. After the CECC is activated, the responsibility for PARs is transferred to the CECC Director.
- C. The CECC Plant Assessment Manager will provide an assessment of actual and projected plant conditions.
- D. The Radiological Assessment Manager will provide an assessment of actual and/or projected radiological conditions offsite.
- E. The Radiological Assessment Manager will provide a recommendation for a specific protective action.
- F. The CECC Director will evaluate the recommendation from his staff and make a recommendation to the State.

The logic diagram for plume exposure pathway recommendations is provided in Figure 10-1 and in the CECC-EIPs as a decisional aid to facilitate the recommendation.

The State and local agencies are responsible for implementing actions to protect the health and safety of the public offsite. Although TVA may recommend protective actions to these agencies, the State and local governments are responsible for deciding if any actions are needed and what they should be.

The CECC will discuss and provide ingestion pathway recommendations (i.e., agricultural) and recommendations for liquid releases (i.e., closing of public water supplies) with the state as appropriate.

The decision to implement one or more of the above actions is based upon some or all of the following considerations:

- Projected offsite integrated doses.
- Actual measured dose rates.
- Present and future weather conditions.

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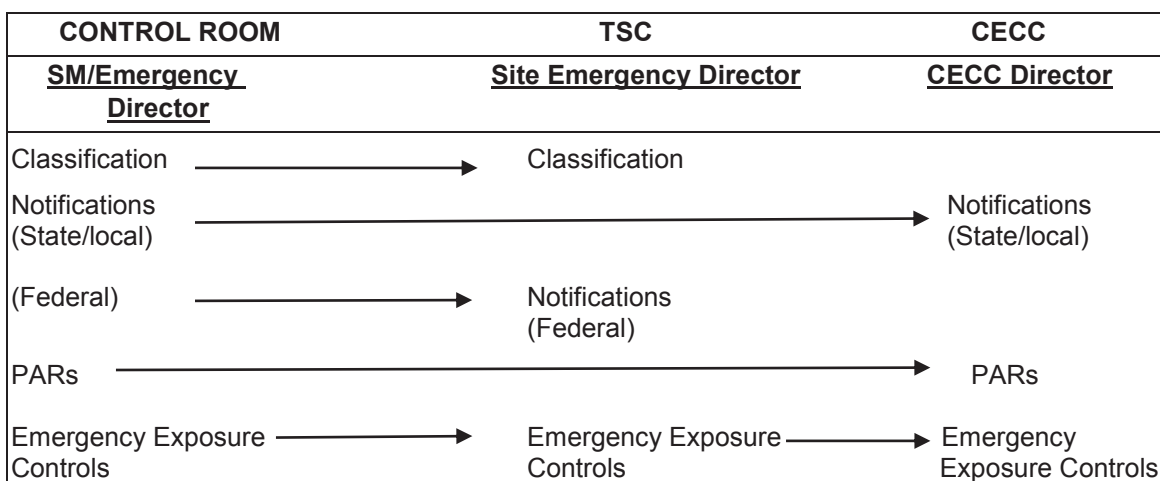
APPENDIX B

SEQUOYAH NUCLEAR PLANT

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B.5 SITE EMERGENCY ORGANIZATION

SQN maintains an organization capable of responding to a radiological emergency. The TSC and OSC staffing for response to emergencies is shown on Figure B-1. Figure B-1 also identifies minimum staff positions required to activate the TSC and OSC. Facility activation will be completed within 60 minutes of an Alert or higher classification. The minimum on shift emergency response staffing is shown in Figure B-2. The typical Command and Control transfer process is outlined in the diagram below. The TSC retains the capability to perform all command and control functions should the CECC be unavailable for any reason.



Typical Transition of Command and Control Functions

B.5.1 Emergency Response Positions

TSC and OSC emergency response positions are described in SQN EPIP-6, "Activation and Operation of the Technical Support Center" and SQN EPIP-7, "Activation and Operation of the Operations Support Center."

B.5.1.1 Site Emergency Director

1. Directs onsite emergency accident mitigation activities.
2. Consults with CECC Director on significant events and their related impacts.
3. Initiates onsite protective actions.
4. Coordinates accident mitigation actions with NRC.
5. Initiates long-term 24-hour accident mitigation operations.
6. Responsible for determining the emergency classification. This responsibility cannot be delegated.
78. Approves or authorizes emergency doses. This responsibility cannot be delegated.

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B.5.1.2 Operations Manager

1. Directs operational activities.
2. Accepts responsibility for Federal Notification function from the control room.
3. Recommends solutions and mitigating action for operational problems.

B.5.1.3 Operations Communicator

1. Informs the Operations Manager of plant status and operational problems.
2. Assures the control room is aware of the accident assessment and response.
3. Provides support for performance of Federal Notification function.

B.5.1.4 Technical Assessment Manager

1. Directs onsite effluent assessment.
2. Directs activities of technical assessment team.
3. Projects future plant status based on present plant conditions.
4. Keeps assessment team informed of plant status.
5. Provides information, evaluations, and projects to Site Emergency Director.
6. Coordinates assessment activities with the CECC plant assessment team.
7. Establishes and maintains a status of significant plant problems.

B.5.1.5 OSC Manager

1. Directs repairs and corrective actions in coordination with the TSC.
2. Performs damage assessment.
3. Directs activities of Operations Support Center.
4. Coordinates maintenance teams and ensures they have received proper briefings and are accompanied by a Rad Protection technician, as necessary.

B.5.1.6 Nuclear Security Manager

1. Directs activities of Nuclear Security Services personnel.
2. Controls access to site and control rooms.
3. Reports on site accountability/evacuation as defined in SQN-EIPs.

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B.5.1.7 Radiological Protection Manager

1. Directs and/or performs assessment of inplant and onsite radiological conditions.
2. Directs onsite Rad Protection activities.
3. Coordinates additional Rad Protection support with CECC Radiological Assessment Manager.
4. Makes recommendations for protective actions for onsite personnel.
5. Maintains status map of offsite radiological conditions.
6. Coordinates assessment of radiological conditions offsite with CECC Radiological Assessment Manager.
7. Maintains inplant radiation status board.
8. Authorizes issue of KI to onsite personnel.
9. Makes recommendations to the Site Emergency Director for personnel entry to radiological hazardous environment.

B.5.1.8 Chemistry Manager

1. Coordinates assessment of radioactive effluents with CECC Rad Assessment Coordinator.
2. Coordinates post-accident sampling activities.
3. Performs release rate calculations.
4. Determines impact of incident on radwaste and various effluent treatment systems.

B.5.1.9 NRC Coordinator

1. Acts as primary liaison with onsite NRC personnel.
2. Updates NRC personnel on plant status.
3. Provides information requests from NRC to TSC personnel.

B.5.1.10 Control Room Communicator

1. Provides operational knowledge for status evaluation of plant systems.
2. Provides advice regarding technical specifications, system response, safety limits, etc.
3. Assists in development of recommended solutions to developing problems.
4. Serves as the control room - TSC - OSC link.

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B.5.1.11 Technical Assessment Team

1. Prepares and provides periodic current assessments on plant conditions and provides this information to the CECC plant assessment team.
2. Projects future plant status based on present plant conditions.
3. Provides technical support to plant operations on mitigating actions.

B.5.1.12 OSC Assistant Manager

1. Oversees the operations of OSC teams.
2. Maintain continuous communications with the TSC.
3. Maintains team tracking boards.
4. Assigns TSC tasks to team briefers.

B.5.1.13 OSC Rad Protection Supervisor

1. Directs activities of the Rad Protection lab.
2. Ensure Rad Protection coverage of damage repair teams.
3. Verify habitability of the TSC, OSC, and Control Room.
4. Briefs the OSC Manager and TSC on radiological status.

B.5.1.14 Briefing Teams

1. Provide mechanical, electrical, and instrumentation technical expertise.
2. Evaluate task conditions and provide methods best suited to safely perform an assignment.
3. Brief OSC teams.
4. Track OSC teams in the field.
5. Debrief OSC teams after task completion.

Figure B-1
TSC EMERGENCY ORGANIZATION
(Including Minimum Staffing and Augmentation)

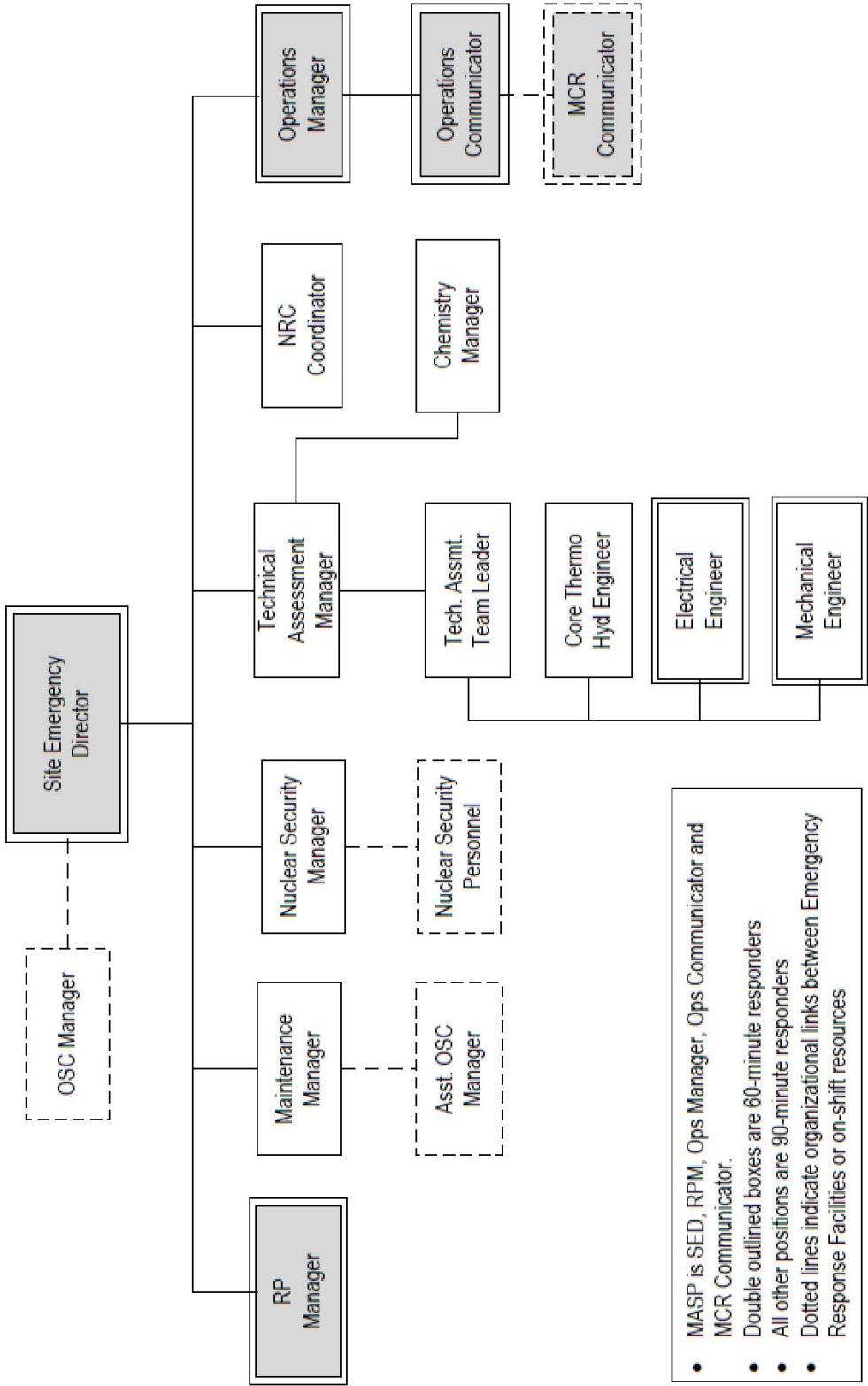
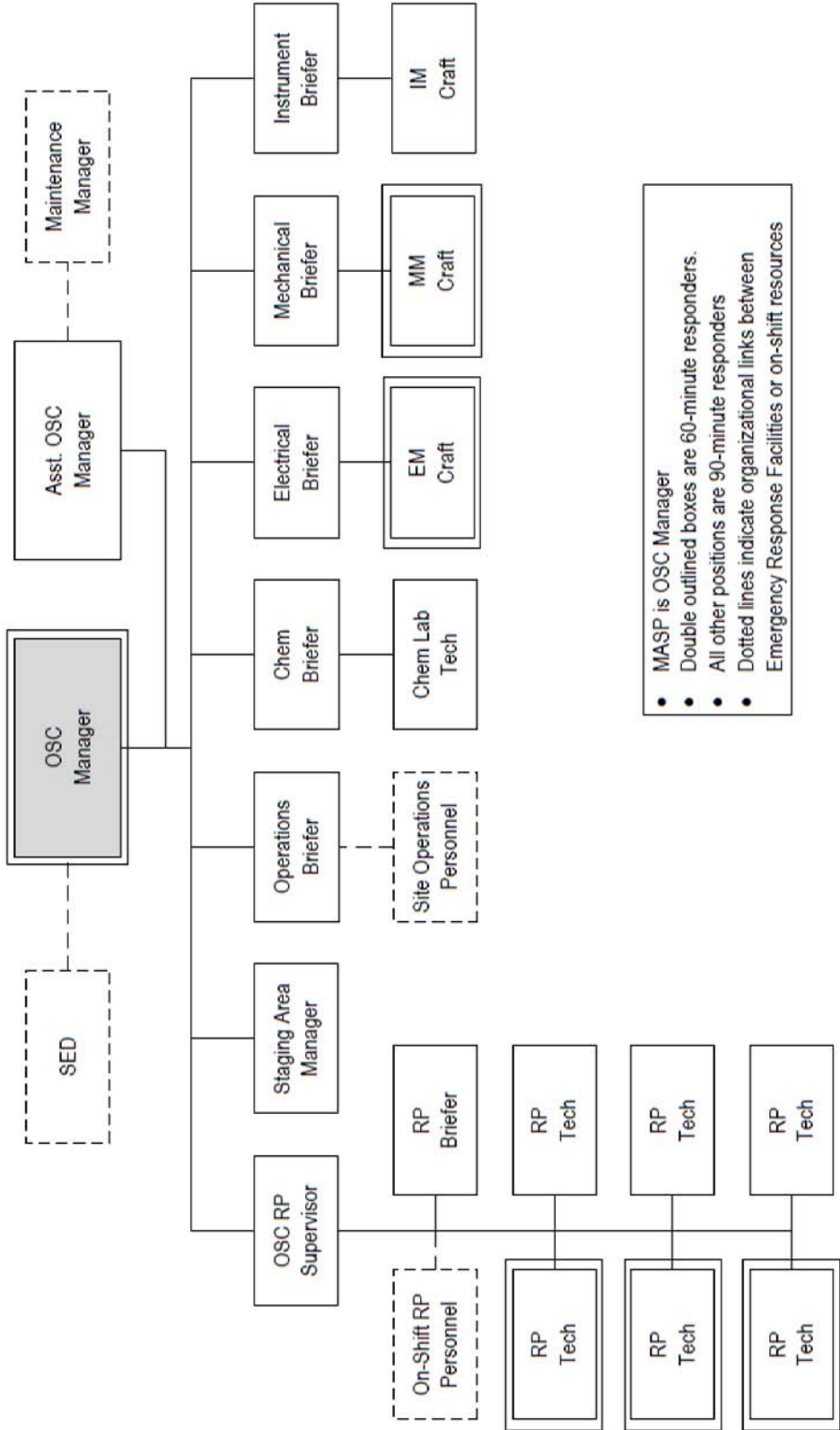


Figure B-1 (continued)
 OSC EMERGENCY ORGANIZATION
 (Including Minimum Staffing and Augmentation)



- MASP is OSC Manager
- Double outlined boxes are 60-minute responders.
- All other positions are 90-minute responders
- Dotted lines indicate organizational links between Emergency Response Facilities or on-shift resources

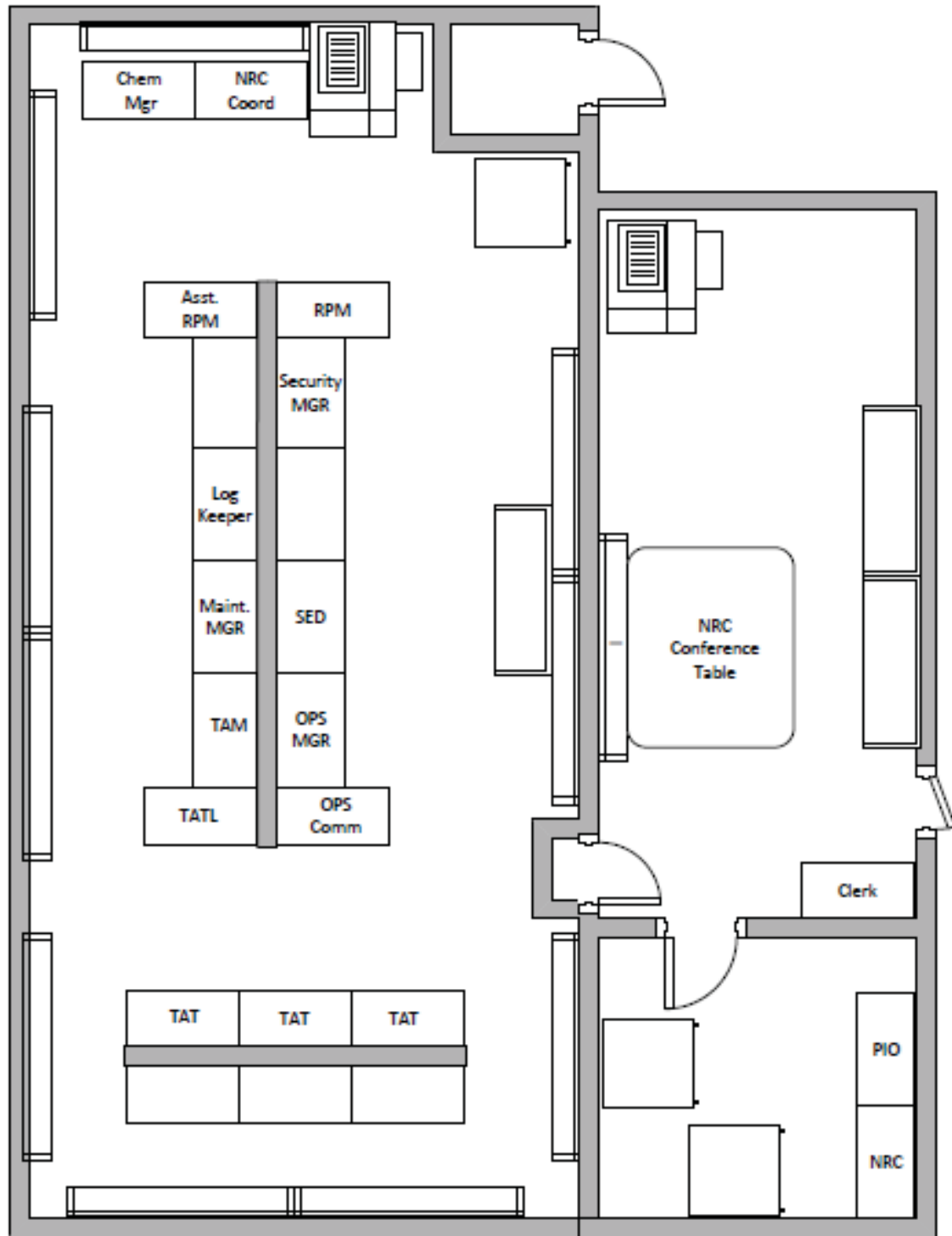
Figure B-2
MINIMUM ONSHIFT RESPONSE PERSONNEL

Major Functional Area	Major Tasks	Position Title or Expertise	On-Shift	Augmented Response	
				60 min	90 min
Plant Operations and Shift Supervisor (SRO): Assessment of Control Room Reactor Operational Aspects		Shift Manager/ED (SRO)	1	-	-
		Unit Supervisors (SRO)	2	-	-
		Unit Operators (UO)	3	-	-
		Auxiliary Unit Operators (AUO)	8	-	-
Notification/Communication	Notify State, local and Federal personnel & maintain communication	Emergency Communicator (Shift)	1	-	-
		MCR Communicator (CR)	-	1	-
		Ops Manager (TSC)	-	1	-
		Ops Communicator (TSC)	-	1	-
		State Communicator (CECC)	-	1	-
		EDO (CECC)	-	1	-
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility Director	SED (TSC)	-	1	-
		CECC Director	-	1	-
	Offsite Dose Assessment	Plant Assmt Manager (CECC)	-	1	-
		Chemistry Technician (Shift)	1**	-	-
		RP Manager (TSC)	-	1	-
		RAM/RAC (CECC)	-	1	-
	Offsite Surveys	Dose Assessor (CECC)	-	1	-
		RP Tech /Support	-	2	2
	Onsite Surveys (out-of-plant) and In-Plant Surveys	RP Tech	1	1	1
		Chemistry Technician	1	-	1
Plant System Engineering	Technical Support	Shift Technical Advisor (SRO)	1	-	-
		Tech Assmt Manager (TSC)	-	-	1
		Tech Assmt Team Lead (TSC)	-	-	1
		Core Damage Assessor (CECC)	-	1	-

Major Functional Area	Major Tasks	Position Title or Expertise	On-Shift	Augmented Response	
Plant System Engineering (cont'd)	Technical Support (cont'd)	Core/Thermal Engineer	-	-	1
		Electrical Engineer	-	1	-
		Mechanical Engineer	-	1	-
Repair and Corrective Actions	Repairs and Corrective Actions	Mechanical Maintenance	-	1	-
		Electrical Maintenance	-	1	-
		Instrument Control	-	-	1
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue, first-aid & firefighting c. Personnel monitoring d. Dosimetry	OSC Manager	-	1	-
		RP Tech	1	2	2
Fire Fighting	Fire Brigade		5	Local Support	Local Support
Rescue Operations and First Aid	Incident Commander (SRO)		1		
	Other Site personnel		2**	Local Support	Local Support
Site Access Control And Personnel Accountability	Security, firefighting, communications personnel accountability	Security Personnel	Per Security Plan	Per Security Plan	Per Security Plan
TOTAL			25	22	10

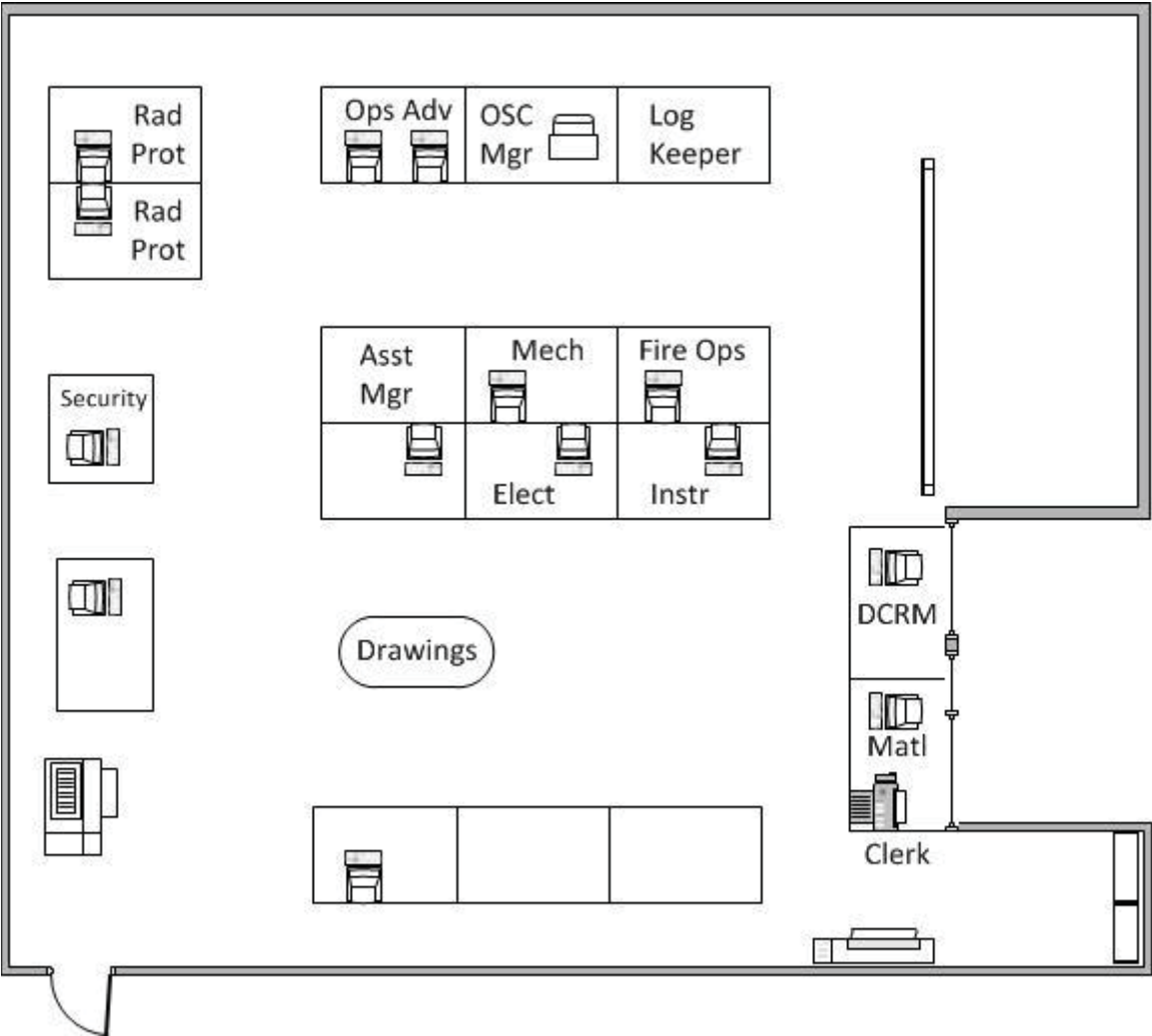
** May be provided by shift personnel assigned other functions

**Figure B-3
TECHNICAL SUPPORT CENTER (SAMPLE)
Control Building Elevation 732'**



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**FIGURE B-4
OPERATIONS SUPPORT CENTER (SAMPLE)
Plant Office Building Elevation 706**



ENCLOSURE

TVA Response to NRC Request for Additional Information

Attachment 3

Proposed mark-up of the NUREG-0654 Table B-1 Comparative Chart

SQN Site On-Shift Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 on-shift	SQN Rev 0 1988	SQN Rev 104 current	SQN Proposed On-shift
Plant Operation and Assessment of Operation Aspects		Shift Supervisor (SRO)	1	1	1	1
		Shift Foreman (SRO)	1	2	2	2
		Control Room Operators	2	3	3	3
		Auxiliary Operators	2	2	8	8
Emergency Direction and Control (Emergency Coordinator) ***		STA. Shift Supervisor or facility manager	1**	1**	1**	1**
Notification / Communication ****	Notify State/local and federal personnel, maintain communication		1****	1****	1	1
Radiological Accident Assessment and Support of Operational Accident Assessment	In-Plant surveys	HP Technicians	1	1	1	1
	Chemistry / Radiochemistry	Chem Technicians	1	2	1	1
Plant System Engineering Repair and Corrective Actions	Technical support	Shift Technical Advisor	1	1	1	1
	Repair and Corrective Actions	Mechanical Maintenance	1**	2	1	
		Electrical Maintenance	1**		2	
		Inst Maintenance		1	1	
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2**	1	1	1
Firefighting		Fire Brigade per Tec Specs				5
Rescue Operations and First-Aid			2**	2**	1	1
Site Access Control and Personnel Accountability	Security, firefighting communications, personnel accountability	Security personnel per security plan				
Total On-Shift			10	16	24	25

***May be provided by shift personnel assigned other functions

****Overall direction of facility response to be assumed by EOF director when all centers fully manned

*****May be performed by engineering aide to shift supervisor

SNQ Site 30 Minute Augmented ERO Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 Augment	SNQ Rev 0 30 min	SNQ Rev 104 30 min	SNQ Proposed 60 Min
Notification / Communication	Notify State/local and federal personnel, maintain communication		1			4
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Response & Recovery Director	Senior Manager				3
	Offsite Dose Assessment	Sr. HP Expertise	1			3
	Offsite Surveys	HP Technician/driver	2	2	2	2
	On-Site Surveys	HP Technician	1	1	1	1
	In-Plant surveys	HP Technician	1	1	1	
Plant System Engineering	Chemistry / Radiochemistry	Chem/HP Technician		1		
	Technical Support	TAM				1
		TATL				1
		Core/Thermal Hydraulics	1	1		1
		Electrical				1
Repair and Corrective Actions		Mechanical				1
	Repair and Corrective Actions	Mechanical Maintenance				1
		Electrical Maintenance	1	1		1
		I&C Technician	1	1		
		OSC Manager				1
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	HP Technicians	2	2	2	24
Total Augmented ERO			11	10	6	2149

SQN Site 60 Minute Augmented ERO Table Comparison

Major Functional Area	Major Tasks	Position Title / Expertise	Table B-1 Augment	SQN Rev 0 60 min	SQN Rev 104 60 min	SQN Proposed 90 Min
Notification / Communication	Notify State/local and federal personnel, maintain communication		2	2	2	
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Response & Recovery Director	Senior Manager	1	4	4	
	Offsite Dose Assessment	Sr. HP Expertise		2	2	
	Offsite Surveys	HP Technician/driver	2	2	2	2
	On-Site Surveys	HP Technician	1	1	1	1
	In-Plant surveys	HP Technician	1	1	1	
	Chemistry / Radiochemistry	Chem/HP Technician	1	1	1	1
Plant System Engineering	Technical Support	TAM				1
		TATL				1
		Core/Thermal Hydraulics			1	1
		Electrical	1	1	1	4
		Mechanical	1	1	1	4
		Mechanical Maintenance	1	1	1	
Repair and Corrective Actions	Repair and Corrective Actions	Electrical Maintenance	1	1	1	
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, corrective actions, search and rescue first-aid & firefighting c. Personnel monitoring d. Dosimetry	I&C Technician				1
		HP Technicians	2	2	2	24
Total Augmented ERO			15	19	20	10