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December 23, 2008

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC
William States Lee III Nuclear Station - Docket Nos. 52-018 and 52-019
AP1000 Combined License Application for the
William States Lee III Nuclear Station Units 1 and 2
Partial Response to Request for Additional Information (RAI No. 50)
Ltr # WLG2008.12-30

Reference: Letter from Brian C. Anderson (NRC) to Peter S. Hastings (Duke Energy), *Request for Additional Information Letter No. 025 Related to SRP Section 13.3 for the William States Lee III Units 1 and 2 Combined License Application*, dated September 26, 2008.

This letter provides the Duke Energy response to the Nuclear Regulatory Commission's (NRC) requests for the following additional information (RAI) included in the reference letter:

| | |
|---|---|
| 13.03-54, SITE-1 | 13.03-62, SITE-9 |
| 13.03-55, SITE-2 | 13.03-63, SITE-10 |
| 13.03-61, SITE-8 | 13.03-64, SITE-11 |

Responses to the NRC information requests described in the referenced letter are addressed in separate enclosures, which also identify associated changes, when appropriate, that will be made in a future revision of the applicable part of the combined license application.

If you have any questions or need any additional information, please contact Peter S. Hastings at 980-373-7820.

Bryan J. Dolan
Vice President
Nuclear Plant Development

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NRO

Enclosures:

1) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-54 (SITE-1)
2) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-55 (SITE-2)
3) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-61 (SITE-8)
4) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-62 (SITE-9)
5) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-63 (SITE-10)
6) Duke Energy Response to Request for Additional Information Letter 025, RAI 13.03-64 (SITE-11)

AFFIDAVIT OF BRYAN J. DOLAN

Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William States Lee III Nuclear Station and that all the matter and facts set forth herein are true and correct to the best of his knowledge.

Bryan J. Dolan

Bryan J. Dolan

Subscribed and sworn to me on December 23, 2008

Kim N Slays

Notary Public

My commission expires: April 19, 2010

SEAL

KIM N. SLAYS NOTARY PUBLIC NEW HANOVER COUNTY, N.C.

xc (w/o enclosures):

Loren Plisco, Deputy Regional Administrator, Region II
Stephanie Coffin, Branch Chief, DNRL

xc (w/enclosures):

Brian Anderson, Project Manager, DNRL
Brian Hughes, Senior Project Manager, DNRL

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 25**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP))**

**Reference NRC RAI Number(s): 13.03-054**

**NRC RAI:**

**SITE-1:** Assignment of Primary Responsibilities for Emergency Response Basis: 10 CFR 50, Appendix E.IV.A.8; NUREG-0654/FEMA-REP-1, Evaluation Criterion A.1.c.; Evaluation Criterion A.3

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 2 and 18

A. Section II.A, "Assignment of Responsibility (Organizational Control)", of the Lee Emergency Plan (pages II-1/11) defines assignment of responsibility. However, the Plan does not give the title of officials responsible for planning, ordering and controlling protective actions. Provide, by title, the State and/or local officials that will be responsible for implementing offsite protective actions.

B. Section II.A.1.c,"Organizational Interrelationships" (page II-8), of the Lee Emergency Plan contains a block diagram illustrating the interrelationships of all organizations participating in emergency response [Figure II-1"Emergency Response Organization Interrelationships" (page II-9)]. The diagram does not show specific State and local agencies. The relationships are only shown by organization and not by position or title. The diagram does not make clear how organizations interact with each other. Provide the specific positions or titles that will interact during an emergency.

C. Appendix 7, "Certification Letters" (page A7-1), of the Lee Emergency Plan contains copies of the certification letters established between Duke Energy, State, local government agencies, and private sector organizations that will be supporting the emergency response effort. The actual agreement letters will not be available until later in the process. Clarify when the Letters of Agreement will be available.

**Duke Energy Response:**

A. The South Carolina Operational Radiological Emergency Response Plan (SCORERP), Section IV.B.1.c, identifies the Governor or his/her designee, normally the Director of the South Carolina Emergency Management Division (SCEMD), as the principal in charge of emergency response for the State of South Carolina. Section IV.B of the Proposed Cherokee County Emergency Operations Plan (EOP), Annex Q – Fixed Nuclear Facility and Section IV.B of the York County EOP, Annex Q describe direction and control for each respective County.

   The South Carolina Department of Health and Environmental Control (DHEC) provides Protective Action Recommendations (PARs) to the Emergency Management Division (EMD) and the Governor, who is responsible for ordering protective actions. EMD is responsible for coordinating radiological emergency planning activities and for coordinating

the implementation of corrective actions ordered by the Governor. In the event of a rapidly-developing emergency condition that requires implementation of PARs before the State Emergency Operations Center can be activated, the County Manager may implement the facility-recommended PARs without prior consultation with the Director of the Emergency Management Division and the Governor.

Responsibility for direction and control for Cherokee County is as follows:

1. Cherokee County Council Chairman
2. County Administrator
3. Cherokee County Emergency Management Director

Similarly, responsibility for direction and control for York County is as follows:

1. County Manager
2. Assistant County Manager
3. Emergency Management Director (Office of Emergency Management)

With respect to the State of North Carolina, Section II.D of the proposed North Carolina Radiological Emergency Response Plan Part 2, Section 4, Cleveland County Radiological Emergency Response Plan states the Cleveland County Emergency Management Coordinator, or alternate, will be in charge of the planning, organizing and coordinating the general response conducted by Cleveland County government.

County and local governments are given the responsibility and retain the responsibility for PARs until relinquished to the State. This decision to relinquish responsibility is typically requested by local officials. However, the Governor may take control by declaration of a State of Emergency. Section II.B of the North Carolina Radiological Emergency Response Plan (NCRERP) states the Director, North Carolina Division of Emergency Management (NCEM), is responsible for planning, organizing, directing and supervising emergency operations conducted by the State. The Director, NCEM, has a staff of specialists representing tasked agencies to assist in carrying out his duties. This staff is organized into a State Emergency Response Team (SERT) for which the Director or designated representative serves as the leader. The SERT is comprised of senior representatives of State agencies, state level volunteer and non-profit organizations, and state level corporate associations who have knowledge of their organizations' resources and have the authority to commit those resources to emergency response. The senior Radiation Protection Section (RPS) representative on SERT is responsible for recommending the appropriate protective actions to the SERT Leader for decision and implementation.

B. Evaluation Criteria II.A.1.a and II.A.1.b of NUREG-0654 pertain to organizations intended to be part of the emergency response effort. Subsequently, Evaluation Criterion II.A.1.c states that these interrelationships should be presented in a block diagram. The intent of Figure II-1 is to present the interrelationships of the response organizations. The positions/titles of the onsite organization are shown in Figure II-2. Section IV.B of the SCORERP and Section IV.B of the Proposed Cherokee County and York County Emergency Operations Plans identify principals in charge of emergency response for state, county and local organizations that have radiological incident response responsibilities.

When additional details regarding specific titles or positions that will interact during an emergency are available, they will be provided, as necessary, to support timely completion of NRC inspection and audit functions.

C. Certification letters have been provided in Lee Emergency Plan Appendix 7 to document the commitment of affected government agencies to support future emergency planning efforts as development of the facility and its programs progresses. Letters of Agreement with affected organizations that result from the ongoing emergency planning efforts will be developed and submitted on a schedule that supports NRC inspection activities and the full participation emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

**Associated Revision Part 5 of the COLA, Lee Nuclear Station Emergency Plan:**

Revise Section II.A.1.b of the Lee Emergency Plan as shown in Attachment 1.

**Attachments:**

1. Mark-up of Affected Portion of Lee Emergency Plan Subsection II.A.1.b.

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-054**

**Mark-up of Affected Portion of Lee Emergency Plan Section II.A.1.b**

1. COLA Part 5, Lee Emergency Plan. Subsection II.A.1.b, under the subheading "The State of South Carolina," will be revised as follows:

The State of South Carolina

The response provided by the State of South Carolina is described in the South Carolina Operational Radiological Emergency Response Plan. The principal State agency for mobilization of State resources to cope with an emergency is the Emergency Management Division under the office of the Adjutant General. This agency is supported by the Department of Health and Environmental Control, which provides radiological assessment and protection functions, and by other State agencies as described in the State Plan.

Within the State of South Carolina, the Department of Health and Environmental Control (DHEC) provides Protective Action Recommendations to the Emergency Management Division (EMD) and the Governor, who is responsible for ordering protective actions. EMD is responsible for coordinating radiological emergency planning activities and for coordinating the implementation of corrective actions ordered by the Governor. In the event of a rapidly-developing emergency condition that requires implementation of PARs before the State Emergency Operations Center can be activated, the County Manager may implement the facility-recommended PARs without prior consultation with the Director of the Emergency Management Division and the Governor.

For an emergency at the Lee Nuclear Station, the State of South Carolina operates out of the State Emergency Operations Center in West Columbia, South Carolina.

2. COLA Part 5, Lee Emergency Plan. Subsection II.A.1.b, under the subheading "The State of South Carolina," will be revised as follows:

The State of North Carolina

The response by the State of North Carolina is described in the North Carolina Emergency Operations Plan and the North Carolina Emergency Response Plan for Nuclear Power Facilities.

The Division of Emergency Management (NCEM) is the principal State agency for mobilization of State resources to respond to an emergency. Technical support for radiological assessment and protection functions is provided by the Division of Environmental Health, Radiation Protection Section.

NCEM mobilizes North Carolina State agencies for response as the State Emergency Response Team (SERT), as designated in the State Plan. When activated, the SERT is the primary emergency response authority for North Carolina. Within the State of North Carolina, the Department of Environment and Natural Resources (DENR), Division of Environmental Health recommends protective actions for the public. The Department Of Crime Control and Public Safety (CCPS) is responsible for providing PARs to the Governor, who is responsible for ordering protective actions. The Director, North Carolina Division of Emergency Management (NCEM), is responsible for planning, organizing, directing and supervising emergency operations conducted by the State. In the event of a rapidly-developing emergency condition that requires implementation of PARs before the State Emergency Operations Center can be activated, the Chairman of the Board of County Commissioners may implement the facility-recommended PARs without prior consultation with the Department of Environment and Natural Resources, Division of Environmental Health, and the Governor. For an emergency at the Lee Nuclear Station, the SERT is activated at the State Emergency Operations Center in Raleigh, North Carolina.

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 025**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP))**

**Reference NRC RAI Number(s): 13.03-055**

**NRC RAI:**

**SITE-2:** Onsite Emergency Response Organization Assignments

Basis: 10 CFR 50, Appendix E.IV.A.2.b; NUREG-0654/FEMA-REP-1, Evaluation Criterion B.1, Evaluation Criterion B.3, Evaluation Criterion B.5, Evaluation Criterion B.7, Evaluation Criterion B.8, Evaluation Criterion B.9

SRP ACCEPTANCE CRITERIA: Requirements A and B; Acceptance Criteria 1 and 18

A. Section II.B, "On-Site Emergency Organization", Table II-2 "Plant Staff Emergency Functions" (pages II-19/20), of the Lee Emergency Plan includes several positions that do not have sufficient detail to determine that the correct individual is assigned to the functional area. There is no position identified to address the following activities: accountability, decontamination and public information. Define who the communicator will be under the functional area for notification and communications. Define who will be the Emergency Operations Facility (EOF) Senior Manager under the functional area for radiological accident assessment. Provide information on which position and functional area will be responsible for accountability, decontamination and public information.

B. Lee Final Safety Analysis Report (FSAR), Table 13.1- 201, "Plant Management Organization" (no page #), provides generic titles and functions provided. Figure II-2, "Emergency Response Organization – Site Only" (page II-17) and Figure II-3, "Off-Site Emergency Response Organization" (page II-18), in the Lee Emergency Plan show the high level organizations that will be located in the Emergency Response Facilities (ERFs), but there are no details of the actual functions and titles of staff that will be located in these blocks on the diagrams. It is not possible from these figures to determine if all functions in the ERFs are adequately covered. Provide additional detail on functions and titles of staff assigned to the ERF positions.

C. Section II.B (page II-12) of the Lee Plan states that the Unit Supervisor on shift assumes the Emergency Coordinator position until relieved by a qualified member of management if the Operations Shift Manager is unable to fulfill the duties and responsibilities for any reason. A trained, higher level member of Duke Energy management may assume Emergency Coordinator responsibilities from the Operations Shift Manager after becoming familiar with plant and radiological conditions, status of emergency response/accident mitigation efforts, and determining that the ERFs are staffed adequately enough for them to perform the designated Emergency Coordinator functions. Describe the reasons why or situations where a higher level of Duke Energy management might take over from the Shift Manager.

D. Figure II-3, "Lee Nuclear Station Offsite Emergency Response Organization" (page II-18), of the Lee Emergency Plan is a diagram of the EOF organization however the specific job titles are not available to evaluate whether staffing is adequate. Additional information on

staffing of the EOF is said to be described in Emergency Plan Implementing Procedures (EPIPs) but not provided. Provide additional information on the organization of the EOF that will be included in the EPIPs.

E. Section II.B.8, "Support from Contractor and Private Organizations" (pages II-15/16), of the Lee Emergency Plan identifies information on the principal organizations in the private sector that are part of the overall response organization. Section II.B.9, "Local Emergency Response Support", (page II-16) of the Lee Emergency Plan identifies that Duke Energy has established and maintains agreements for local emergency response support services, including firefighting, rescue squad, medical and hospital services. However, only four specific organizations identified as "principle" are listed. Generic references are made to the architect/engineering firm, reactor supplier and other consultants and vendors that could be contacted. Provide the names of the designated engineering/technical services support firms and other consultants and vendors, as well as the supporting memorandum of understanding/memorandum of agreements (MOUs/MOAs) that might be requested to provide support during an emergency or determine if an Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) is needed.

F. Subsection 5, "Plant Emergency Response Staff," of Section II.B, "On-site Emergency Organization," states that the minimum emergency response staffing in Table II-2, "Plant Staff Emergency Functions," of the Lee Emergency Plan is based upon guidance provided in Table B-1, "Minimum Staffing Requirements for NRC Licensees for Nuclear Power Plant Emergencies," of NUREG-0654. In addition, the justification provided in Subsection 5 states that the 75 minute goal for emergency response staff augmentation is consistent with those implemented for existing Duke Energy nuclear facilities. However, Table B-1 identifies the need for a capability for additional staff within 30 and 60 minutes while Table II-2 of the Lee Emergency Plan identifies a capability for additional staff within 75 minutes. Provide a justification for extending the augmentation times.

G. Table II-2, "Plant Staff Emergency Functions," in the Lee Emergency Plan indicates that the STA will perform the technical support tasks on shift at all times. However, footnote 1 states that shift staffing may vary with one or more units in cold shutdown or refueling mode as provided in FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant." Note (1) in Table 13.1-202 states that the shift manager or another SRO on shift may also serve as the STA. The footnote also states that the combined SRO/STA position is addressed as Option 1 in NRC Generic Letter 86-04, "Policy Statement on Engineering Expertise on Shift." Discuss how the individual filling the SRO/STA combined position can handle the response tasks expected to be performed by an SRO and an STA during an emergency and specify the applicable mode ensuring that this emergency response function is staffed in all operating modes.

H. Table II-2, "Plant Staff Emergency Functions," in the Lee Emergency Plan indicates that there will be one health physics/chemistry technician and one individual with senior radiation protection expertise on shift at all times. However, footnote (4) states that a radiation protection technician need only be on site when there is fuel in a reactor and footnote (5) states that a chemistry technician needs to be on site during plant operation in modes other than shutdown and refueling as provided in FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant." In light of the staffing levels specified in

Table II-2, discuss how/why the emergency response functions are filled for all operating modes.

I. Table II-2, "Plant Staff Emergency Functions," in the Lee Emergency Plan indicates that there will be two non-licensed operators (NLOs) on each shift, whereas FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant" identifies a minimum number for NLOs as three. Discuss the rationale for not having three NLOs in Table II-2.

J. Table II-2, "Plant Staff Emergency Functions," in the Lee Emergency Plan states in footnote 2 that for each unaffected unit in operation, maintain one Control Room Supervisor, one Reactor Operator, and one Non-licensed Operator. FSAR Table 13.1-202, "Minimum On-duty Operations Shift Organization for Two-unit Plant" shows that with one unit in operation eight individuals are needed on-duty. Discuss what functions the remaining eight individuals at the unaffected unit will perform in the event of an emergency at the other unit.

K. Staff augmentation methodology is required per 10 CFR 50.47(b)(2), with additional guidance and information provided in NUREG-0654 and NEI-99-01, Revision 4, Sections 3.12, "Classifying Transient Events," and 3.13, "Operating Mode Applicability." In footnote 3 on page II-2 of the Lee Emergency Plan deviations from staff augmentation are discussed, which appear to allow latitude to not augment the staff in some cases. Explain how the actions represented by this footnote satisfy acceptable or appropriate precautionary actions in accordance with regulations, and guidance.

L. The terms "operational" and "activated" are not defined in the Lee Emergency Plan, but have specific relevance regarding emergency response facility functional capabilities. Define these terms in regard to facility functional capabilities. Discuss EOF, TSC and OSC activation, operation, full operation time capabilities with respect to staffing levels.

M. Dose assessment capability and use in determination for radiological protective action decision-making is required per 10 CFR 50.47(b)(9), and is further described in guidance in NUREG-0654; however it is not clear that function is assigned to on-shift or early response personnel. This specific functional capability discussion does not appear to be consistently described in the Lee Emergency Plan, (for example, pages II-10 and II-19). On-shift capability for dose assessment in the determination of emergency classification, on-site protective action, and offsite protective action recommendations does not appear to be specifically addressed. Provide additional information on the specific emergency responder assignments for dose assessment on-shift, and how on-shift and augmented staff functional assignments for this activity meet or exceed NUREG-0654 augmentation guidance, as you commit on page II-12.

N. On Table II-1, "Responsibility for Emergency Response Functions," on page II-10 of the Lee Emergency Plan, emergency response functions are not consistently described as a comparison to NUREG-0654 functional capabilities. For example, functions for firefighting, rescue, and security are missing from the table, but appear under functional capabilities in Table II-2, "Plant Staff Emergency Functions," on page II-19. Additionally, some functional capabilities listed in Table II-1 in relation to facility and classification do not appear to agree with Table II-2 functional capabilities based on personnel availability.

O. Section II.B.1, "On-site Emergency Organization," of the Lee Emergency Plan does not appear to agree with the on-shift personnel availability or functional capabilities described in Table II-2, "Plant Staff Emergency Functions." Provide information on how the narrative in Section B.1 applies to personnel assignments and capabilities listed in Table II-2.

P. Table II-2, "Plant Staff Emergency Functions," describes the proposed staff augmentation capabilities for listed emergency functions.

P.1. Discuss how specifically the on-shift/per unit personnel numbers would be assigned without collateral duty assignments. Of specific interest include the repair and corrective action and radiation protection functions. Identify the total number of personnel that are not assigned collateral duties.

P.2. Describe how a 75 minute timeliness to fulfill the dose assessment function is in accordance with regulations and meets or exceeds NUREG-0654 guidance.

P.3. Though implied, the Lee Emergency Plan should state whether activation time clock initiates upon declaration of the emergency classification or some other initiator.

Q. Appendix 2, "Radiological Monitoring and Assessment," to the Lee Emergency Plan does not describe the emergency response facilities (including the control room) where the capability to perform dose assessment resides. Provide additional information on where this capability exists and align other references in the emergency plan, in tables such as Tables II-1 and II-2).

**Duke Energy Response:**

A. Section II.B, "On-Site Emergency Organization", Table II-2 "Plant Staff Emergency Functions" of the Lee Emergency Plan indicates the numbers of personnel on shift that are immediately available to deal with emergency conditions. The responsibility for on-site personnel accountability resides with the Security personnel on shift. Decontamination activities would be the responsibility of the RP Technicians on shift until the arrival of augmented staff. A communicator will be assigned by the Operations Shift Manager/Emergency Coordinator from the on shift staff. This would generally be a Control Room Operator or Non-Licensed Operator from the unaffected unit who has been trained to perform this function. "Public Information" is not a function for which on-site staff is maintained. This function is a responsibility provided by an Emergency Operations Facility (EOF) position within 75 minutes of an emergency declaration. Also within 75 minutes of declaration, the Dose Assessment responsibility will reside with a senior Radiation Protection professional in the EOF.

B. Details regarding staffing of Emergency Response Facilities are addressed in Emergency Plan Implementing Procedures in place for Duke Energy's operating nuclear plants. Duke expects that staffing similar to that addressed in Catawba Nuclear Station Procedures RP/0/A/5000/022, "Technical Support Center Activation Procedure," and RP/0/A/5000/024, "OSC Activation Procedure" will be used at the Lee Nuclear Station. These procedures are provided as Attachments 1 and 2, respectively, to this response. Additionally, the Offsite Emergency Response Organization is more thoroughly addressed in corporate procedure SR/0/B/2000/003, "Activation of the Emergency Operations Facility," which is provided as

Attachment 3. This procedure does not currently address the Lee Nuclear Station, but will be revised on a schedule to support the required full-participation exercise.

C. Duke Energy maintains qualified Emergency Coordinators within the senior management of the company. In an emergency situation, it may be appropriate to have a trained and qualified member of senior management assume Emergency Coordinator responsibilities for any number of reasons. Examples may be to permit the Unit Supervisor or Operations Shift Manager, as the case may be, the time to ensure adequate rest or to allow for them to accomplish other station management activities for which they are more familiar. Additionally, the Unit Supervisor/Operations Shift Manager may be needed to discuss events that lead up to the emergency or to plan for future reentry/recovery operations.

D. As discussed in response B, above, the corporate procedure SR/0/B/2000/003, "Activation of the Emergency Operations Facility," (Attachment 3 of this response) provides additional information on the organization of the EOF.

E. Consistent with NUREG-0654/FEMA-REP-1, Section II.B.8 of the Lee Emergency Plan lists organizations that "may be requested to provide technical assistance to and augmentation of the emergency organization." In this context, the emergency organization under discussion is the onsite emergency organization, which is the topic of NUREG-0654/FEMA-REP-1, Planning Standard II.B. Although these organizations are identified to the extent they are currently known in the appropriate sections of the Lee Emergency Plan, Duke agrees that summation of this information in the organizational sections of the plan could enhance the clarity of the Plan. Consistent with the guidance provided in NUREG-0654, Section II.B.8 of the Lee Emergency Plan identifies the Draytonville-McKown Mountain-Wilkinsville Volunteer Fire Department, Upstate Carolina Medical Center and Piedmont Medical Center (Rock Hill, SC). Section II.B.8 will be revised to identify Westinghouse Electric Company. Additional engineering and technical services support firms, as discussed in Section II.B.8, have not yet been identified. When additional supporting organizations are identified, details regarding arrangements and supporting Letters of Agreement will be developed.

With regard to hospital support, Piedmont Medical Center, Upstate Carolina Medical Center and REAC/TS provide offsite medical support, but Duke does not consider this support to "provide technical assistance to and augmentation of the emergency organization," as discussed in NUREG-0654/FEMA-REP-1, Evaluation Criterion II.B.8." Therefore, these organizations are correctly identified in Lee Emergency Plan Sections II.C.1 and II.C.4, and II.L.

COLA Part 5, Lee Emergency Plan, Section II.B.8, first paragraph, will be revised in a future revision. A draft of the proposed revision is provided as Attachment 4 to this response.

F. The projected time frame for augmenting staff for the OSC, TSC, and EOF is 75 minutes following declaration of an Alert or higher level emergency. The 75-minute staffing goal is consistent with the minimum staffing requirements previously approved for the emergency response facilities of Duke's Oconee, McGuire, and Catawba Nuclear Stations. Consistent with Duke's experience at its operating nuclear plants, positions identified as 30-minute augmentation time are covered by shift personnel. Considering demographics for Duke's operating plant staffs and experience operating the EOF for three sites, 75 minutes is appropriate for providing additional management, technical, and communications support to the plant staff. Duke's experience in conducting drills and exercises and responding to

emergency conditions at the existing facilities indicate that the plant staff is capable of carrying out the initial emergency response activities prior to activation of the emergency response facilities and that the proposed staff augmentation times of 75 minutes versus the 60 minutes goal recommended in NUREG 0654/FEMA-REP-1 Table B-1 do not adversely affect Duke's emergency response capabilities, particularly when viewed in the context of the specific activities that will migrate to the other facilities (for example, management of plant operations and technical support for reactor operations). Item N, this letter, provides additional information regarding implementation of the guidance in NUREG 0696. The 75-minute staffing goal is also consistent with Duke Energy's corporate response to an emergency at its other operating nuclear stations.

G. Generic Letter 86-04 encourages licensees to transition to a dual role SRO/STA position. Duke assumes that the NRC considered both routine and emergency duties prescribed by existing regulations and guidance when promulgating Generic Letter 86-04. Duke has attempted to comply with the NRC's stated position.

With regard to the response tasks assigned to the SRO/STA, Table B-1 of NUREG-0654/FEMA-REP-1 indicates that the functions assigned to the Shift Supervisor include "Plant Operations and Assessment of Operational Aspects" and "Emergency Direction and Control (Emergency Coordinator)." The functions assigned to the STA include "Emergency Direction and Control (Emergency Coordinator)" and "Plant System Engineering, Repair and Corrective Actions." Table B-1 further indicates that the "Emergency Direction and Control (Emergency Coordinator)" function may be provided by shift personnel assigned other functions. The individual filling the combined emergency response roles of the SRO/STA position is expected to delegate responsibilities as needed to focus on the highest priority activities as needed to protect the public health and safety. As a matter of practice, there is significant overlap between the "Plant Operations and Assessment of Operational Aspects" function and the "Plant System Engineering, Repair and Corrective Actions" function. The Shift Manager performs both of these functions on an ongoing basis as part of the routine activities of that position. In addition, as discussed in Lee Emergency Plan Section II.A.1.b., Duke has assigned responsibility for making emergency notifications to the Operations Shift Manager.

The Duke licensed operator training program for SROs has been modified to include the accident assessment skills that a Shift Technical Advisor (STA) would possess. By virtue of training and testing all SROs in the performance of SRO as well as STA duties, a single individual can perform the dual role of SRO/STA. The dual role was endorsed by the NRC in GL 86-04 and has been implemented at existing operating stations. Therefore, Duke does not believe that the combination of these positions will impair the emergency response capabilities of the on-shift staff.

H. Lee EP Table II-2 indicates that there are two Radiation Protection technicians on shift and that one chemistry technician will be augmented within 75 minutes. Similarly, it shows that a senior Radiation Protection expertise will be available within 75 minutes and is therefore not on shift at all times. Note 5 of FSAR Table 13.1-202 states a chemistry technician will be onsite during plant operation in all modes other than cold shutdown and refueling. With regard to footnotes 4 and 5 from FSAR Table 13.1-202, minimum shift crew size will always be maintained in a fashion consistent with 10 CFR 50.54 and the plant Technical Specifications.

I. FSAR Table 13.1-202 addresses the minimum number of personnel required for operations of a two-unit plant. As indicated by Lee Emergency Plan Table II-2, Note 1, the on-shift staffing in this Table is cited as individuals per unit and is as defined in 10 CFR 50.54(m)(2)(i). Note 2 of Table II-2 of the Lee Emergency Plan specifies that if one unit is shut down the number of NLOs for that Unit is reduced to 1. Thus the tables are identical although presented differently. Therefore, to satisfy the requirements of the Lee Emergency Plan, the minimum number of non-licensed operators required to support operations for a two-unit plant, with both units operating, under declared emergency conditions, is four.

J. FSAR Table 13.1-202 shows a shared staff between two operating units. In the event of an emergency, Lee Emergency Plan, Table II-2 of the Lee Emergency Plan makes available the Operations Shift Manager, one Unit Supervisor, 2 Reactor Operators, 2 Non-Licensed Operators and the Shift Technical Advisor to support the emergency. Consistent with Note 5 of Table II-2, the Shift Technical Advisor may be a shared SRO/STA position. The Emergency Coordinator may assign an additional member from the unaffected unit to support the emergency as a communicator until relieved by augmented staff. This may be one of the Reactor Operators or Non-Licensed Operators. The remaining Unit Supervisor, Reactor Operators, and Non-Licensed Operators in the unaffected unit will continue to support the operations of that unit. The minimum staffing for the unaffected Unit will be consistent with Table 13.1-202 of the FSAR.

K. With regard to staff augmentation, 10 CFR 50.47(b) requires that "timely augmentation of response capabilities is available." Lee Emergency Plan Sections II.B and II.H discuss Duke's plans for complying with this requirement. Footnote 3 on page II-2 of the Lee Emergency Plan reflects a common sense approach to staffing of the emergency response facilities in that Duke does not intend to staff the facilities for a condition that no longer exists and requires no follow-up action by the augmented staff.

With regard to the guidance provided in NEI 99-01, this guidance addresses whether or not the facility should declare an emergency for a transient event; it does not preclude implementation of a common sense approach to facility staffing. Consistent with this guidance, Footnote 1 on page II-2 of the Lee Emergency Plan indicates that the transient event would be properly classified and required notifications would be made.

L. Within current Duke plans and procedures, the term "activate" refers to the process of mobilizing resources to the emergency response facility and preparing the facility and its staff and systems to discharge their intended functions. The term "operational" indicates that the facility is prepared to discharge the intended functions. With regard to times required to activate the facilities, this terminology may be somewhat confusing because, at the end of facility "activation," the facility is "operational." As indicated in the Lee Emergency Plan Section II.B.5, Duke's goal for activation (and therefore achieving operational status) of the full on-site emergency response organization is 75 minutes following the decision to activate. The EOF, as part of the off-site emergency response organization, is required to be activated within 75 minutes but additional time is allowed for turnover of TSC functions before it becomes operational.

M. Emergency classification of events, on-site protective actions and off-site protective action recommendations by on-shift staff is based on radiological monitoring and event diagnosis. Offsite dose assessment is in not specified as an on-shift function in 10 CFR 50, NUREG-0654 or within the Lee Emergency Plan. The offsite dose assessment function is performed by qualified dose assessors located in the Emergency Operations Facility.

N. Lee Emergency Plan Table II-1 and NUREG-0696 Table 1 address locations of specific functions and transfer of those functions due to escalation of the emergency class. Lee Emergency Plan Table II-2 and NUREG-0654/FEMA-REP-1 Table B-1 address emergency response organization staffing and staff augmentation. Lee Emergency Plan Table II-1 has been provided to replicate the licensee responsibilities provided in Table 1 of NUREG-0696. In developing this table, there was no intent to provide a line-by-line cross-reference to Table II-2, just as there is no line-by-line cross-reference between NUREG-0696 Table 1 and NUREG-0654/FEMA-REP-1 Table B-1. To the extent there are any inconsistencies, these inconsistencies arise from the source guidance documents.

With regard to firefighting, rescue, and security functions, there are no plans to transfer these functions between facilities due to escalation of the emergency class; therefore, they are not included in Lee Emergency Plan Table II-1.

O. Lee Emergency Plan Section II.B.1 discusses the on-shift plant staff and their responsibilities under emergency conditions with reference to Appendix E of 10 CFR 50.54(m) and the FSAR. Section II.B.1 indicates that members of the plant staff fulfill corresponding roles in the emergency response organization. Table II-2 reflects this organization. Table II-2 indicates that the Operations staff is assigned to major functional area of "Plant Operations and Assessment of Operational Aspects." Radiation Protection and Chemistry Personnel are assigned to "Radiological Accident Assessment and Support of Operational Accident Assessment." The STA is assigned to "Plant System Engineering, Repair and Corrective Actions." Members of the maintenance organization are assigned to "Repair and Corrective Actions." Security personnel are assigned to discharge Security functions. All of these assignments are consistent with the individuals' normal duties as discussed in the Lee Emergency Plan. Some individuals may have additional emergency response duties, such as fire-fighting and first aid, for which they are specifically trained.

P.1. The number of individuals who do not have collateral emergency response duties has not yet been determined. Details regarding staffing of certain functions, such as fire-fighting and first aid functions, are not currently known. Details regarding these functions will be developed based on an assessment of plant design features and Duke's operating experience with its existing nuclear facilities such that sufficient numbers are available. Details regarding staffing of these functions and collateral duties will be developed on a schedule to support execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

P.2. 10 CFR 50.47(b)(9) requires the onsite and offsite emergency response plans for nuclear power reactors must [include] adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use. 10 CFR 50 Appendix E, IV.B requires that the applicant's emergency plan contain information to demonstrate compliance with 10 CFR 50.47(b), including the means

to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials. Neither describes a requirement for on-shift dose assessment personnel.

Similarly, NUREG-0654 does not describe a requirement for an on-shift dose assessment function. NUREG-0654 Table B.1 describes that a dose assessment function be available within 30 minutes. Duke Energy believes this requirement can be relaxed based on: (a) the enhanced safety of the AP1000 design; (b) the training of the on-shift Operations staff to provide PARs based on radiological monitoring and event diagnosis; and (c) the availability of the dose assessment function within 75 minutes with the remainder of the ERO.

P.3. The activation time clock initiates upon declaration of an emergency that requires activation.

Q. Dose assessment functions are performed for Duke Energy facilities using a computer program called Raddose-V. The program can be performed in the Control Room, TSC, and EOF or at other Duke facilities if necessary. Following activation of the emergency response facilities, dose assessment functions are normally completed in the EOF. The EOF is staffed upon declaration of an Alert or higher level emergency.

**Associated Revision to the Lee Nuclear Station Final Safety Analysis Report or Emergency Plan:**

1. Revise Section II.B.8 of Lee Emergency Plan

**Attachments:**

1. Technical Support Center Activation Procedure, RP/0/A/5000/020
2. OSC Activation Procedure, RP/0/A/5000/024
3. Activation of the Emergency Operations Facility, SR/0/B/2000/003
4. Mark-ups of Lee Emergency Plan Subsection II.B.8

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-055**

**RP/0/A/5000/020, "Technical Support Center Activation Procedure"**

| Duke Energy<br>Catawba Nuclear Station<br>**Technical Support Center (TSC) Activation Procedure**<br><br>**Reference Use** | Procedure No.<br>**RP/0/A/5000/020**<br>Revision No.<br>**024**<br>Electronic Reference No.<br>**CN005GNZ** |
|---|---|

**PERFORMANCE**

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**(ISSUED) - PDF Format**

## 1. Symptoms

Conditions exist where events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant and activation of the Emergency Response Organization (ERO) has been initiated.

## 2. Immediate Actions

**NOTE:**

1. The TSC must be "ACTIVATED" within 75 minutes of the emergency classification time.
2. This procedure is not required to be followed in step-by-step sequence. Sections of the procedure are to be implemented as the applicable action becomes necessary.
3. Specific telephone numbers are not provided in this procedure. Telephone numbers are located in the Emergency Response Telephone Directory. A hard copy of the Emergency Response Telephone Directory is located in the TSC. An electronic version of the Emergency Response Telephone Directory is available on the Catawba Nuclear Site Emergency Planning Web Page.

2.1 Upon notification to activate the TSC, Emergency Response Organization (ERO) personnel assigned to the TSC shall report to the TSC.

2.2 The Emergency Coordinator may initially report to the Control Room to discuss plant status with the Operations Shift Manager.

2.3 **IF** the TSC is not habitable, direct the OSC Coordinator and TSC staff to establish emergency response operations in the Administration Building per Enclosure 4.18, "Setup of the Alternate TSC and OSC."

## 3. Subsequent Actions

3.1 Each represented group is responsible for ensuring their appropriate Checklist is completed (Enclosures 4.1 through 4.17) and for reviewing their Responsibilities.

3.2 The following definitions are applicable to the Emergency Notification Form:

3.2.1 **Degrading:** Plant conditions involve at least one of the following:

- Plant parameters (ex. temperature, pressure, level, voltage, frequency) are trending unfavorably away from expected or desired values **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.
- Environmental site conditions (ex., wind, ice/snow, ground tremors, hazardous/toxic/radioactive material leak, fire) impacting plant operations or personnel safety are worsening **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.

3.2.2 **Improving**: Plant conditions involve at least one of the following:

- Plant parameters (ex., temperature, pressure, level, voltage, frequency) are trending favorably toward expected or desired values **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.

- Environmental site conditions (ex., wind, ice/snow, ground tremors, hazardous/toxic/radioactive material leak, fire) have become less of a threat to plant operations or personnel safety **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.

3.2.3 **Stable:** Plant conditions are neither **degrading** nor **improving**.

3.2.4 **Critical Task:** A task that must be completed as soon as possible and normally becomes the number one priority task. The Assessment and repair Team is dispatched immediately from the OSC. Examples include: SSF Startup, Fire Response, MERT or any task vital to protection of the reactor core.

3.2.5 **Essential Personnel:** Any personnel required to assist in the performance of assigned emergency response tasks. These personnel would not evacuate in the event of Site Evacuation

3.2.6 **Emergency Release:** An unplanned, quantifiable radiological release to the environment during an emergency event. The release does not have to be related to the declared emergency. Base determinations on information such as EMF readings, containment pressure and other instrument indications, field monitoring results, and knowledge of the event and its impact on system operation and resultant release pathways. **IF** any of the following exists, a release is occurring **OR** a release has occurred:

- EMF 38 or 39 readings indicate an increase **AND** containment pressure greater than 0.3 psig.

- EMF 38 or 39 readings indicate an increase **AND** a known leak path existing from containment.

- EMF 35 or 36 readings indicate an increase in activity.

- EMF 33 or other alternate means indicate Steam Generator tube leakage.

- A known release path exists

- Alternate method of release determination.

- Field Monitoring Team results.

3.2.7 **10CFR50.54(x) Action** - Reasonable actions that depart from a license condition or Technical Specification may be performed in an emergency when this action is immediately needed to protect the health and safety of the public, and no action consistent with the license condition or Technical Specification that can provide adequate or equivalent protection is immediately apparent. Deviation from the intent of an emergency procedure constitutes a 10CR50.54(x) action.

3.3 The following SDS Group Displays have been established for emergency response use. To access these group displays type, GD (space) Group Display Name, in the white box at the upper right portion of the screen.

| | Group Display Name | Group Display Description |
|---|---|---|
| 3.3.1 | EROCONT | Selected values associated with Containment |
| 3.3.2 | EROCORE1 | Incore temperature values |
| 3.3.3 | EROCORE2 | Additional Incore temperature values |
| 3.3.4 | EROCORE3 | Additional Incore temperature values |
| 3.3.5 | EROEMF | Selected EMF instantaneous values |
| 3.3.6 | EROEMF15 | Selected EMF 15 minute average values |
| 3.3.7 | EROENV | Selected Meteorological values |
| 3.3.8 | EROINJCT | Selected Letdown/Charging values |
| 3.3.9 | EROPLEAK | Selected Primary to Containment Leakage Values |
| 3.3.10 | EROPRIM | Selected Primary system values |
| 3.3.11 | ERORD5 | Selected Raddose V Dose Assessment Points |
| 3.3.12 | EROSAMG | Selected SAMG values |
| 3.3.13 | EROSECND | Selected Secondary system values |
| 3.3.14 | EROSLEAK | Selected Primary to Secondary Leakage Values |
| 3.3.15 | ERORXG | Selected values for the Reactor Engineer |
| 3.3.16 | ERDS1 | ERDS Group 1 |
| 3.3.17 | ERDS2 | ERDS Group 2 |

3.4 Personnel with training deficiencies must be approved by the Emergency Coordinator prior to participating as an ERO member. This approval shall be documented in the TSC Log.

3.5 Contact the TSC Data Coordinator for resolution of any computer hardware/software problems, or the OSC NSC Manager for resolution of other equipment problems.

3.6 Emergency Planning shall coordinate participation in a post-event critique with the states and counties to determine and document lessons learned.

## 4. Enclosures

4.1 Emergency Coordinator Checklist

4.2 TSC Dose Assessor Checklist

4.3 TSC Off-Site Agency Communicator

4.4 NRC Communicator Checklist

4.5 Operations Superintendent Checklist

4.6 Operations Engineer Checklist

4.7 Assistant Operations Engineer Checklist

4.8 Engineering Manager Checklist

4.9 Reactor Engineer Checklist

4.10 System Support Engineer Checklist

4.11 TSC Emergency Planner Checklist

4.12 TSC Logkeeper Checklist

4.13 TSC Data Coordinator Checklist

4.14 RP Support Checklist

4.15 Security Manager Checklist

4.16 Assistant Emergency Coordinator Checklist

4.17 Evacuation Coordinator Checklist

4.18 TSC Pre-activation Checklist

4.19 Setup of Alternate TSC and OSC

4.20 Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4} .

4.21 Commitments for RP/0/A/5000/020

**Emergency Coordinator Checklist**

Initial

**Prepare to assume the position of TSC Emergency Coordinator**

_____ Print your name and arrival time on the TSC sign-in board.

_____ Sign TSC roster as Emergency Coordinator.

_____ Obtain an electronic dosimeter (ED) at TSC entrance.

_____ Activate the ED under RWP #33.

_____ Establish 24-hour staffing for the TSC Emergency Coordinator position:

- _____ Determine a shift rotation from the available TSC Emergency Coordinators
- _____ Print the names of assigned shift TSC Emergency Coordinator and the 24-hour relief person on the TSC sign-in board

_____ Read the following definitions as they apply to the Emergency Notification Form (listed in Subsequent Actions):

- Improving
- Stable
- Degrading
- Release
- 10CRFR50.54(x)
- Critical Task

_____ Review the TSC Emergency Coordinator Task List on page 4 of this enclosure.

_____ **IF** a shift turnover is in progress, perform the following steps:

- _____ Review the events and actions taken by the shift on duty.
- _____ Verify the current status of the TSC, OSC and EOF.
- _____ Verify the time of the next off-site notification and which facility will perform it.
- _____ Assume the duty of TSC Emergency Coordinator.
- _____ Ensure the TSC and OSC are adequately staffed with essential personnel to continue emergency facility operations.

_____ Perform the following actions based on the situation and progress in the event:

- _____ Activate the TSC and OSC.
- _____ Turn over command and control of the event to the EOF Director.
- _____ Execute actions identified on the TSC Emergency Coordinator Task List.
- _____ Implement Contingency Actions as necessary.

**Emergency Coordinator Checklist**

Initial

**Activate TSC/OSC** (Station Manager or designee assumes role of TSC Emergency Coordinator) **by completing the following steps:**

_____ A. Ensure Enclosure 4.18, "TSC Pre-activation Checklist," is being completed:

_____ 1. Contact TSC Emergency Planner to determine status.

_____ 2. **IF** TSC Emergency Planner is not available, assign Enclosure 4.18 completion to a TSC Off-site Agency Communicator.

> **NOTE:** Job aids (Emergency Coordinator Site Update and TSC/OSC/EOF Update Briefing) are available in the position notebook for use in the preparation of announcements to be made over the public address system.

_____ B. Contact OSM to determine the current status of the emergency situation.

_____ C. Inform the TSC and OSC of the status of the emergency situation.

_____ D. **WHEN** Public Affairs calls in on the Bell Line in preparation for the Public Spokesperson's media briefing, be prepared to:

_____ Discuss the details of the event.

_____ Provide requested information from the TSC and OSC staffs.

_____ E. Conduct a pre-activation conference with the TSC staff and OSC Coordinator:

_____ 1. Ensure TSC is adequately staffed (minimum to activate).

_____ 2. Ensure OSC is adequately staffed (minimum to activate).

_____ 3. Ensure TSC Off-site Communicators are prepared to perform off-site notifications.

_____ F. Ensure Enclosure 4.18, "TSC Pre-activation Checklist," is complete (Emergency Planner or Off-site Communicator).

> **NOTE:**
> 1. Upon activation of the TSC, the Emergency Coordinator is responsible for classifying emergencies, notifying off-site agencies and making Protective Action Recommendations. This responsibility shall not be delegated and remains in effect until the EOF is activated.
> 2. Command and control of the event shall be transferred from the Control Room to the TSC in a manner that does not interfere with emergency response actions or notifications/recommendations to off-site agencies.

_____ G. **WHEN** conditions allow, contact the Operations Shift Manager (OSM) to take turnover of command and control as follows:

_____ 1. Complete the "OSM to Emergency Coordinator Turnover Form."

_____ 2. Announce to the OSM that the TSC Emergency Coordinator is taking command and control of the emergency.

_____ 3. Ensure the OSM acknowledges turnover of command and control from the Control Room to the TSC and activation of the TSC/OSC.

_____ H. Declare TSC/OSC activated as of _____ hours.

_____ I. Inform the site of the TSC/OSC activation and the status of the emergency situation.

**Turn over command and control of the event to the EOF Director by completing the following steps:**

**NOTE:**
1. Command and control of the event shall be transferred from the TSC to the EOF in a manner that does not interfere with emergency response actions or notifications/ recommendations to off-site agencies.
2. Upon activation of the EOF, the EOF Director is responsible for classifying emergencies, notifying off-site agencies and making Protective Action Recommendations. This responsibility shall not be delegated and remains in effect until the termination of the event or transfer of command and control back to the TSC.

_____ A. **WHEN** conditions allow, contact the EOF Director to give turnover of command and control by performing the following:

_____ 1. Complete the Emergency Coordinator Turnover Form in this enclosure.

_____ 2. Fax the completed Turnover Form to the EOF.

_____ 3. Conduct a verbal turnover with the EOF Director.

_____ 4. **WHEN** the EOF Director assumes command and control of the event and declares the EOF activated, verbally acknowledge the declaration.

_____ B Announce to the TSC and OSC that the EOF is activated as of _____ hours.

_____ C. Ensure the NRC is notified (NRC Communicator) that the EOF is activated (taken the command and control function for the emergency).

**Emergency Coordinator Checklist**

**Task List**

**Tasks performed upon TSC activation until EOF is activated:**

_____ Declare emergency classifications (RP/0/A/5000/001).

_____ Facilitate the completion and approval of the Emergency Notification Forms (RP/0/A/5000/006B).

_____ Approve Protective Action Recommendations to off-site agencies (RP/0/A/5000/005).

_____ Evaluate the emergency situation for classification downgrade or termination (Emergency Classification Downgrade/Termination Criteria [pages 11 & 12 of this enclosure] and RP/0/A/5000/006B).

**Tasks performed upon TSC activation until the termination of the emergency:**

_____ Set priorities for staff and work actions.

_____ Identify critical tasks (defined in step 3.2.4) and immediately inform the OSC Coordinator.

_____ Maintain position logs in TSC sufficient enough to conduct a turnover for the on-coming shift.

_____ **IF** the emergency involves one or more of the following specific events, consider implementing the Contingency Actions listed in this enclosure:

- Radiological Release
- Security Threat
- Severe Accident
- 10CFR50.54(x)
- Facility and Equipment Failures

_____ Approve NRC Notifications (RP/0/B/5000/013).

_____ Conduct TSC staff briefings to update ERF staffs (EOF, OSC, TSC) on a periodic and as-needed basis (30-60 minutes, depending on the change in status).

_____ Direct TSC Off-site Communicators to fax the completed TSC/OSC/EOF Update Briefing form to the OSC and EOF.

_____ Update site personnel on a periodic and as-needed basis over the public address system (a job aid, Emergency Coordinator Update, is available in the position notebook for use in the preparation of announcements to be made over the public address system).

_____ Authorize the evacuation of non-essential personnel (RP/0/A/5000/010).

_____ Establish Recovery Organization following emergency termination (RP/0/B/5000/025).

_____ Conduct a turnover of TSC Emergency Coordinator responsibilities with the on-coming shift.

_____ _____

Off-going Shift On-coming Shift

**Emergency Coordinator Checklist**

**Contingency Actions for Specific Events List**

**Radiological Events**

_____ Discuss the consequences of any radiological release on site and off site with TSC Dose Assessors.

| | |
|---|---|
| **NOTE:** | A decision to evacuate site personnel at Alert and Site Area Emergency should be based on avoided dose and the ability to functionally support plant operations. |

_____ Evaluate the need to relocate personnel on site or conduct a site evacuation of non-essential personnel with the RP Manager (OSC) and the TSC staff.

_____ **IF** a decision is made to relocate personnel on site, notify the EOF Director of the planned action.

_____ **IF** a decision is made to evacuate non-essential personnel to an off-site location, ensure the following are notified of locations and the number of personnel:

_____ TSC Emergency Planner

_____ EOF Director

_____ Off-site Agencies

_____ Evaluate the need to issue a blanket dose extension for the event with the RP Manager.

_____ **IF** a blanket dose extension is issued, announce the following to TSC and OSC staff:

**"Attention all personnel. This is an emergency (a drill). This is an emergency (a drill). The RP Manager has approved a blanket dose extension for this event. If you have any questions concerning your dose limit, please contact RP in the OSC."** (If a drill or exercise, announce **"This is a drill."**)

_____ **IF** emergency worker doses are expected to exceed the blanket dose extension limits, ensure the RP Manager implements RP/0/B/5000/018, "Emergency Worker Dose Extension."

_____ Ensure RP surveys the TSC and OSC for radioactive contamination prior to the delivery and consumption of food or drink.

_____ **IF** RP determines that eating and drinking is allowed in the TSC and OSC, make the following announcement:

**"Attention all personnel. This is an emergency (a drill). This is an emergency (a drill). Eating and drinking are now allowed in the TSC and OSC."** (If a drill or exercise, announce, **"This is a drill."**)

**Emergency Coordinator Checklist**

**Contingency Actions for Specific Events List**

**Security Threat:**

| | |
|---|---|
| **NOTE:** | Security events attributed to an "insider" threat require securing all CAD doors to vital areas and implementation of the 2-person rule. |

_____ Evaluate considerations listed in RP/0/B/5000/026 (Site Response to a Security Threat) with the Security Manager and TSC Emergency Planner.

_____ **IF** off-site power is lost, ensure the RN System is protected to support D/G operations.

| | |
|---|---|
| **NOTE:** | A decision to evacuate site personnel at Alert and Site Area Emergency should be based on the security response plan and the ability to functionally support plant operations. |

_____ Evaluate the need to shelter or relocate personnel on site or conduct a site evacuation of non-essential personnel with the Security Manager and the TSC Emergency Planner.

_____ **IF** a decision is made to locate and isolate a hostile force, make the following announcement to the site:

**"Attention all personnel. This is an emergency (a drill). This is an emergency (a drill). A security event is in progress. Seek shelter in your current location and report suspicious activities to Security."** (If a drill or exercise, announce, **"This is a drill."**)

_____ **IF** a decision is made to relocate personnel on site, notify the EOF Director of the planned action.

_____ **IF** a decision is made to evacuate non-essential personnel to an off-site location, ensure the following are notified of locations and the number of personnel evacuated:

_____ TSC Emergency Planner

_____ EOF Director

_____ Off-site Agencies

_____ Ensure the Security Manager screens all information for Safeguards implications prior to releasing the information from the TSC.

**Emergency Coordinator Checklist**

**Contingency Actions for Specific Events List**

**Severe Accident (SAMG):**

_____ **IF** SACRG-1 or SACRG-2 is implemented by the Control Room, make the following announcement to the TSC and OSC:

**"Attention all personnel. This is an emergency (a drill). This is an emergency (a drill). This is the TSC Emergency Coordinator. As of _____ hours the Control Room has entered SACRG-1(2). I am the Lead Decision Maker. Evaluate plant conditions using the SAMG Diagnostic Flow Chart and the Severe Challenge Status Tree."** (If a drill or exercise, announce, **"This is a drill."**)

**Use of 10CFR50.54(x) (defined in Subsequent Actions of this procedure):**

_____ **IF** a decision to implement 10CFR50.54(x) is made, ensure as a minimum that a licensed SRO approves the intended action prior to taking the action.

_____ Ensure the following requirements are met within one hour of initiating an action justified by 10CFR50.54(x):

_____ Report the action to the NRC using RP/0/B/5000/013 (NRC Notification Requirements). {1}

_____ Document the action taken in the Reactor Operator's Logbook.

_____ Document the action taken in the TSC Log.

**Facility and Equipment Failures**

_____ **IF** the TSC becomes uninhabitable, relocate the TSC staff to the Administration Building per Enclosure 4.19, "Setup of the Alternate TSC and OSC."

_____ **IF** normal electrical power is lost in the TSC, direct the staff to determine power requirements utilizing TSC Electrical Drawing in Emergency Planning Group Manual Guideline 5.3.4.1 (CNS Emergency Response Facility Drawings).

_____ **IF** a LOOP occurs, evaluate PRA with EOF to determine timing of power restoration. {5}

**Emergency Coordinator Checklist**

**OSM to Emergency Coordinator Turnover Form**

1. Plant Status:

   Unit 1: _____

   _____

   Unit 2: _____

   _____

2. Emergency Classification: _____

   Time Declared: _____

3. Off-Site Agency Notifications Turnover to TSC Complete? _____(Y/N)

4. Time Next Notification Due: _____

5. Significant Events:

   _____ Radioactive Release
   Y/N

   _____ Injured Personnel
   Y/N

   _____ Other (Specify _____)
   Y/N

6. Protective Actions in Progress:

   _____ Site Assembly (Time Initiated _____)
   Y/N

   _____ Off-Site Protective Actions Recommended
   Y/N (List)_____

   _____ Other (Specify _____)
   Y/N

7. Response Procedure In Progress: _____

   RP _____ RP _____ RP _____

8. Actions in Progress:

   _____

   _____

   _____

   _____

   _____

Add additional pages if more information is needed for turnover

## Emergency Coordinator Checklist

UNIT(S) AFFECTED: CATAWBA U1_____ U2_____ MCGUIRE U1 _____ U2_____

**GENERAL**

DATE: _____

TIME: _____

| | POWER LEVEL | NCS TEMP | NCS PRESS |
|---|---|---|---|
| U-1 | _____ | _____ | _____ |
| U-2 | _____ | _____ | _____ |

**EMERGENCY CLASSIFICATION**

NOUE DECLARED AT: _____
ALERT DECLARED AT: _____
SAE DECLARED AT: _____
G.E. DECLARED AT: _____

TSC ACTIVATED AT: _____
EOF ACTIVATED AT: _____

REASON FOR EMER. CLASS _____

**SITE ASSEMBLY SITE EVACUATION**

| | YES | NO | TIME | LOCATION OR COMMENTS |
|---|---|---|---|---|
| SITE ASSEMBLY | _____ | _____ | _____ | _____ |
| SITE EVAC. (NON-ESSEN.) | _____ | _____ | _____ | _____ |
| SITE EVAC. (ESSENTIAL) | _____ | _____ | _____ | _____ |
| OTHER OFFSITE AGENCY INVOLVEMENT | _____ | _____ | _____ | _____ |
| MEDICAL | _____ | _____ | _____ | _____ |
| FIRE | _____ | _____ | _____ | _____ |
| POLICE | _____ | _____ | _____ | _____ |

**RADIOLOGICAL**

| | NUMBER ASSEM. | NUMBER DEPLOYED |
|---|---|---|
| FIELD MON. TEAMS | _____ | _____ |

| | ZONES EVAC | | ZONES SHELTERED |
|---|---|---|---|
| PARS: | _____ | _____ | _____ |

| | YES | NO |
|---|---|---|
| RELEASE IN PROGRESS | _____ | _____ |

RELEASE PATHWAY _____

CONTAINMENT PRESSURE _____ PSIG

WIND DIRECTION _____ WIND SPEED_____

**OFFSITE COMMUNICATIONS**

| | NUMBER | TIME |
|---|---|---|
| LAST MESSAGE SENT: | _____ | _____ |
| NEXT MESSAGE DUE: | _____ | _____ |

NOTE: EOF COMMUNICATION CHECKS SHOULD BE COFMPLETED PRIOR TO ACTIVATING THE EOF.

OTHER NOTES RELATED TO THE ACCIDENT/EVENT/PLANT EQUIPMENT FAILED OR OUT OF SERVICE

_____

_____

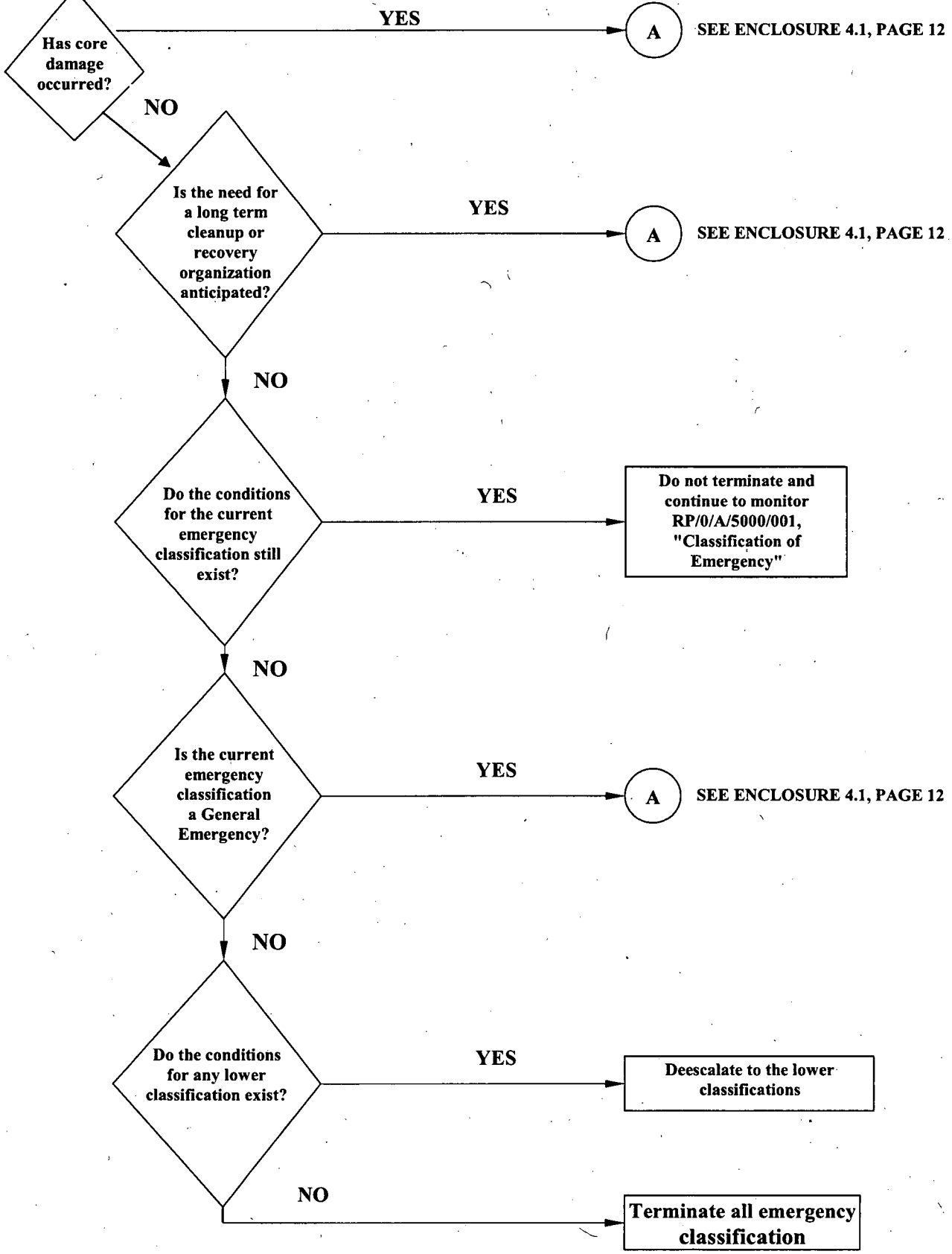
**Emergency Coordinator Checklist**

| | | AVAILABLE | NOT AVAILABLE | COMMENTS |
|---|---|---|---|---|
| S/G HEAT REMOVAL | AFW TRAIN A | | | |
| | AFW TRAIN B | _____ | _____ | |
| | TD AFW TRAIN | _____ | _____ | |
| ECCS | NV TRAIN A | _____ | _____ | COMMENTS |
| | NV TRAIN B | _____ | _____ | |
| | NI TRAIN A | _____ | _____ | |
| | NI TRAIN B | _____ | _____ | |
| | ND TRAIN A | _____ | _____ | |
| | ND TRAIN B | _____ | _____ | |
| | STAND BY MU WATER PMP | _____ | _____ | |
| COOLING WATER | KC TRAIN A | _____ | _____ | COMMENTS |
| | KC TRAIN B | _____ | _____ | |
| | RN TRAIN A | _____ | _____ | |
| | RN TRAIN B | _____ | _____ | |
| POWER SYSTEMS | BUSLINE A | _____ | _____ | COMMENTS |
| | BUSLINE B | _____ | _____ | |
| | DG A | _____ | _____ | |
| | DG B | _____ | _____ | |
| | SATA | _____ | _____ | |
| | SATB | _____ | _____ | |
| | TRAIN A DC POWER | _____ | _____ | |
| | TRAIN B DC POWER | _____ | _____ | |
| | SSF DG | _____ | _____ | |
| CONTAINMENT | CONT. SPRAY TRAIN A | _____ | _____ | COMMENTS |
| | CONT. SPRAY TRAIN B | _____ | _____ | |
| | $H^2$ IGNITERS TRAIN A | _____ | _____ | |
| | $H^2$ IGNITERS TRAIN B | _____ | _____ | |
| | CONT. AIR RETURN FANS TRAIN A | _____ | _____ | |
| | CONT. AIR RETURN FANS TRAIN B | _____ | _____ | |
| | | ACTUATED | ISOL. COMPL. | |
| | CONT. ISOL. TRAIN A | _____ | _____ | |
| | CONT. ISOL. TRAIN B | _____ | _____ | |

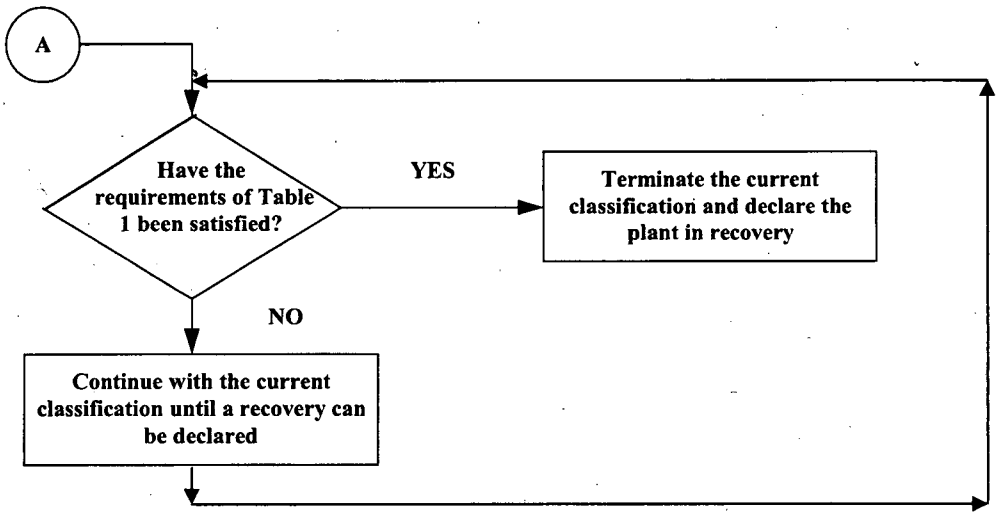
**NOTE:** This form is not required for TSC/EOF Turnover. It is made available as a job aid only and can be used for other activities (e.g., Briefing the NRC).

# Emergency Coordinator to EOF Turnover Form

## EMERGENCY CLASSIFICATION DOWNGRADE/TERMINATION CRITERIA



## EMERGENCY CLASSIFICATION DOWNGRADE/TERMINATION CRITERIA




## TABLE 1

**Recovery Conditions**

_____ Security threat has been contained.

_____ No new evacuation or sheltering protective actions are anticipated.

_____ Containment pressure is being maintained less than design pressure.

_____ Containment hydrogen levels are less than 9% and stable or decreasing.

_____ Decay heat rejection to the ultimate heat sink has been established and is stable. This is indicated by either of the following (circle one):

- Decay heat removal is considered stable if supported by redundancy or diversity
  - Examples of a satisfactory state include:
    - 2 trains of systems for sump recirculation
    - 2 trains of Decay Heat Removal (DHR)
    - 1 train of DHR and the ability to cool with the steam generators
    - steam generator cooling with 2 trains of feed capability

**OR**

- Decay heat removal is considered stable if no additional fission product barrier challenges would be expected for at least 2 hours following interruption of core cooling.

_____ The Public Information Coordinator, NRC officials, and State representatives have been consulted to determine the effects of termination on their activities.

_____ The recovery organization is ready to assume control of recovery operations:

- Catawba - RP/0/B/5000/025
- McGuire - RP/0/A/5700/024
- Oconee - RP/0/B/1000/027

**Emergency Coordinator Checklist**

| PROCESSES/SITUATIONS | RP# | RESPONSIBILITY |
|---|---|---|
| **PROCESSES** | | |
| Core Damage Assessment | RP/15 | Reactor Engineer |
| Classification of Emergency | RP/01 | Operations Superintendent |
| Emergency Classification Response | RP/02-NOUE<br>RP/03-Alert<br>RP/04-SAE<br>RP/05-GE | Operations Engrs/OSM |
| Emergency Dose Extension | RP/18 | Radiation Protection Mgr (OSC) |
| Emergency Notification Form/ Offsite Agency Notifications | RP/06B | Offsite Communicators, Operations, Dose Assessment, Emergency Planner, Emergency Coordinator |
| OSC Activation | RP/24 | OSC Coordinator and OSC Staff |
| NRC Notifications | RP/13 | NRC Communicator, Reg Compliance (on call) |
| Public Affairs and News Media Mgmt | RP/28 | Community Relations (Media Mgr and Public Spokesperson) |
| Recovery and Re-entry | RP/25 | EOF Director and TSC Emergency Coordinator |
| Site Assembly | RP/10, immediate actions | Security |
| Site Evacuation | RP/10, subsequent actions<br><br>RP/20 (Encl. 4.17) | Emergency Planner, Security, Radiation Protection, Evacuation Coordinator,<br><br>Evacuation Coordinator |
| TSC Activation | RP/20 | TSC Emergency Coordinator and TSC Staff |
| **SITUATIONS** | | |
| Site Response to a Security Threat | RP/26 | Operations Engrs/Environmental/ Emergency Planner |
| Collisions or Explosions | RP/09 | Operations (Fire Bde) |
| Fire | RP/29 | Operations (Fire Bde) |
| Medical Emergency | N/A | Security (MERT) |
| Natural Disasters (Tornado, Hurricane, Earthquake, Flooding, Low Lake Level) | RP/07 | Operations OSM, Emergency Planner |
| Severe Weather Preparations (High Winds, Heavy Icing) | RP/30 | All Site Groups |
| Spills/HAZMAT | RP/08 | Operations (Fire Bde), HAZMAT, EH&S, NSC (OSC) |

**TSC Dose Assessor Checklist**

Initial

**NOTE:**
1. Off-site Agency Communicators will be contacting Dose Assessment to provide information for the Electronic Emergency Notification Form.
2. Procedure steps may be completed out of sequence at the discretion of the person performing this enclosure.

☐ Upon arrival in the TSC, perform the following:

- Print name and time arrived on TSC sign-in board.
- Print the name of 24-hour staffing relief for your position on the TSC sign-in board.
- Sign in on the TSC roster.
- Obtain an electronic dosimeter (ED) at TSC entrance.
- Activate the ED under RWP #33.
- Obtain and put on position badge.

☐ Establish a TSC Dose Assessor position log of activities (e.g., evolutions impacting this position, decisions made by this position, communications to/from other groups) sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

☐ Perform the following to start the TSC air monitoring when the TSC is activated and/or following the restoration of a LOOP event:

| EMF 55A | EMF 55B |
|---|---|
| ☐ A. **IF** ON, press STOP button. | ☐ A. **IF** ON, press STOP button. |
| ☐ B. Acknowledge any alarms by pressing the ACKNOWLEDGE button. | ☐ B. Acknowledge any alarms by pressing the ACKNOWLEDGE button. |
| ☐ C. Wait 30 seconds before proceeding to start monitors. | ☐ C. Wait 30 seconds before proceeding to start monitors. |
| ☐ D. Start monitor by pressing start. | ☐ D. Start monitor by pressing start. |
| ☐ E. Acknowledge any alarms. | ☐ E. Acknowledge any alarms. |
| ☐ F. Wait 30 seconds. | ☐ F. Wait 30 seconds. |
| ☐ G **IF** the alarm or monitor fails to start, repeat steps A thru F. | ☐ G. **IF** the alarm or monitor fails to start, repeat steps A thru F. |
| ☐ H. **IF** the EMF monitor fails to operate properly, request that TSC RP support initiate manual air sampling of the TSC. | ☐ H. **IF** the EMF monitor fails to operate properly, request that TSC RP support initiate manual air sampling of the TSC. |
| ☐ I. **IF** necessary, initiate a work request for inspection/repair of EMF monitor. | ☐ I. **IF** necessary, initiate a work request for inspection/repair of EMF monitor. |

☐ Evaluate any protective actions that have been recommended.

**TSC Dose Assessor Checklist**

☐ Power up both the Dose Assessment computers and logon to the network.

☐ Initiate the following emergency response procedures, as necessary:

- SH/0/B/2005/001, "Emergency Response Offsite Dose Projections"
- HP/0/B/1009/014, "Radiation Protection Actions Following an Uncontrolled Release of Liquid Radioactive Material"
- HP/0/B/1009/006, "Alternative Method for Determining Dose Rate within the Reactor Building"

☐ Ensure the NRC Health Physics Network (HPN) is activated. Information that may be requested over the HPN line could include, but is not limited to the following:

- Is there any change to the classification of the event? If so, what is the reason?
- Have toxic or radiological releases occurred or been projected (including changes in the release rate)? If so, what are the actual or currently projected on-site and off-site releases, and what is the basis for this assessment?
- What are the health effects or consequences to on-site and off-site people?
- How many on-site or off-site people are being or will be affected and to what extent?
- Is the event under control? When was control established, or what is the planned action to bring the event under control?
- What mitigative actions are currently underway or planned?
- What on-site protective measures have been taken or are planned?
- What off-site protective actions are being considered or have been recommended to state and local officials?
- What are the current meteorological conditions?
- What are the dose and dose rate readings on-site and off-site? {2}

**NOTE:** 1. EMF isolation or loss of sample flow can indicate invalid EMF readings.
2. Be aware of the effects of loss of power on critical EMFs.

☐ Calculate off-site dose projections approximately every fifteen minutes or at frequency intervals appropriate to plant conditions.

☐ **IF** necessary, contact OSC RP Supervisor to request radiation surveys inside the Protected Area fence.

**NOTE:** CNS bridge line and wireless phone instructions are located in the TSC Dose Assessor notebook.

☐ Establish communications with EOF Dose Assessment Team via the Dose Assessment bridge line.

☐ Perform the following as needed:

- Provide computer off-site dose projection results.
- Coordinate turnover to the EOF.
- Provide support to the EOF team after EOF activation as needed.
- Be prepared to resume dose assessment activities if EOF functions are transferred back to the TSC.

☐ Provide a listing of essential personnel for your position that should not leave the site during a site evacuation to RP Support.

**NOTE:** A job aid (TSC Update Briefing - Dose Assessor) is available in the position notebook to provide thoroughness and consistency in the preparation and delivery of TSC updates.

☐ Consider the following items that may be applicable in order to provide the latest status to the Emergency Coordinator staff and ERO during TSC update briefings:

- Any potential release or release in progress (especially at the site boundary).
- Specific areas where off-site dose rates increasing
- Meteorological Data (wind speed and wind direction, measured Δ temperature, stability class, and precipitation)
- Dose projections based on changes in meteorological status
- Dose projections at site boundary
- Off-site dose projections that may be above or below normal operating limits
- Any release in progress, including dose rates
- Field Team Status/Data
- Analyzed source term
- Source Term Mitigation Strategies
- Special evaluation for off-site dose consequences in such cases as a containment loss of integrity or steam generator tube rupture
- Projected or changing plant conditions
- Increase or decrease of release path EMF readings
- Significant changes in radiological conditions
- On-site radiological concerns
- Radiological EAL criteria per RP/0/A/5000/001

**NOTE:**

1. Radiological dose projection information is not required for Emergency Notification Forms that are sent as initial notification of an emergency classification or initial notification of a change to the emergency classification.
2. Off-site dose assessment results, including projections, are to immediately follow the initial notifications.
3. The primary method of providing dose information to the Off-site Agency Communicators is via the Emergency Notification Form.

☐ Provide Off-site Agency Communicators with dose assessment information and other pertinent radiological information as requested.

☐ Recommend off-site and on-site protective actions to the Emergency Coordinator (until TSC/EOF dose assessor turnover occurs and the EOF is activated).

**TSC Dose Assessor Checklist**

☐ Perform the following to stop the TSC air monitoring upon securing from TSC activation:

| EMF 55A | EMF 55B |
|---|---|
| ☐ A. **IF** ON, press **STOP** button. | ☐ A. **IF** ON, press **STOP** button. |
| ☐ B. Acknowledge any alarms by pressing the **ACKNOWLEDGE** button. | ☐ B. Acknowledge any alarms by pressing the **ACKNOWLEDGE** button. |
| ☐ C. Verify monitors are **OFF** by confirming the **ON** light goes out and that the acknowledge and alarm lights are **ON.** | ☐ C. Verify monitors are **OFF** by confirming the **ON** light goes out and that the acknowledge and alarm lights are **ON.** |
| ☐ D. Repeat steps A, B and C as necessary. | ☐ D. Repeat steps A, B and C as necessary. |
| ☐ E. **IF** necessary, initiate a work request for inspection/repair of EMF monitor. | ☐ E. **IF** necessary, initiate a work request for inspection/repair of EMF monitor. |

☐ Restore dose assessor work area and all equipment to a ready state condition after a drill or event is terminated.

☐ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

☐ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ _____

Off-going Shift On-coming Shift

**TSC Off-Site Agency Communicator Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Establish a TSC Off-Site Agency Communicator position log that captures as a minimum:

A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups as needed

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Obtain a copy of RP/O/A/5000/006B, "Notifications to the State and Counties from the Technical Support Center."

_____ Execute RP/O/A/5000/006B, "Notifications to the State and Counties from the Technical Support Center."

_____ Verify all TSC clocks are synchronized with the Control Room satellite clock.

_____ Ensure off-site agency communicators in the EOF are aware of information affecting off-site agencies even after turnover has occurred (e.g., fire in the motor control center has been put out).

**NOTE:** A job aid (TSC Update Briefing - Off-site Communications) is available in the position notebook to provide thoroughness and consistency in the preparation and delivery of TSC updates.

_____ Provide the status of off-site agency notifications to the Emergency Coordinator and staff during TSC update briefings.

_____ Provide the TSC Emergency Planner with a listing of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Off-going Shift

_____ On-coming Shift

**Enclosure 4.4**

**NRC Communicator Checklist**

| | |
|---|---|
| **NOTE:** | The NRC Communicator position is initially filled by shift personnel in the Control Room. This position transfers to the TSC upon TSC activation. |

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Establish an NRC Communicator position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups as needed

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

| | |
|---|---|
| **NOTE:** | RP/0/B/5000/013, "NRC Notification Requirements," provides primary and alternate phone numbers for the NRC Operations Center. |

_____ Establish continuous communications with the NRC Operations Center upon request by the NRC.

Perform the following activities as necessary throughout the event:
_____ A. Inform the NRC of TSC/EOF activation/deactivation.
_____ B. Inform the NRC of plant conditions at all times.
_____ C. **IF** the Regulatory Compliance Engineer position is staffed, inform the RC Engineer of planned NRC activities.
_____ D. Inform the Logkeeper of all NRC notifications.

| | |
|---|---|
| **NOTE:** | Instructions for use of the OPS bridge line are provided in the Emergency Response Telephone Directory. |

_____ To listen in on the Operations communication loop, dial the OPS bridge line. Be sure the phone/headset is on mute.

_____ Provide the TSC OPS Superintendent with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

**NRC Communicator Checklist**

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Operations Superintendent Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Establish an Operations Superintendent position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

| | |
|---|---|
| **NOTE:** | Instructions for use of the wireless phone and OPS bridge line are provided at phone location and in the Emergency Response Telephone Directory. |

_____ Establish communications with the Control Room, OSC and EOF with the wireless phone/headset via the OPS bridge line.

_____ Perform the following as necessary throughout the event:

A. Provide technical expertise regarding solutions to operational problems to the TSC, Control Room, OSC and other members of the ERO as required.

B. Advise Emergency Coordinator on the anticipated course of the event.

C. Assist in making decisions on emergency classifications, mitigation strategies, and contingency plans.

D. Ensure each operating shift is staffed with adequate personnel to support all emergency situations, augmenting with additional resources as necessary.

E. Assist the TSC Off-Site Agency Communicators in completion of the Emergency Notification Forms using Step 3.2 for definitions associated with Emergency Notification Form.

**Operations Superintendent Checklist**

Initial

_____ Establish direct communications with OSM for the following conditions:
A. During all 10CFR50.54x discussions.
B. Anytime it is required to back-track in procedures.
C. Anytime the TSC recommends skipping procedure steps.
D. During all discussion of significant troubleshooting plans.
E. Anytime confusion, misunderstanding or disagreement exists between the Control Room and the TSC.

| |
|---|
| **NOTE:** A job aid (TSC Update Briefing - Operations) is available in the position notebook to provide thoroughness and consistency in the preparation and delivery of TSC updates. |

A. Provide the status of the following items as applicable to the Emergency Coordinator staff during update briefings.
- Current Emergency Classification
- Basis for Current Emergency Classification/Anticipated Changes to Emergency Classification
- Current Mode
- NC Temperature
- NC Pressure
- S/G Level
- Current Plant Condition (Improving/Stable/Degrading)
- Basis for Current Plant Condition
- Key Problem Area/Recommended Priorities

B. Evaluate and prioritize requests for information from the TSC staff, EOF staff, NRC and others.
C. Evaluate and consult with Control Room personnel on suggested mitigation strategies.

_____ Assist Emergency Coordinator as a Decision-maker upon entry into Severe Accident Management Guidelines.

_____ Determine the essential personnel that will remain on site to staff and support TSC operations should a site evacuation be required for the emergency situation.

A. Complete the "Operations 24-Hour TSC Essential Staffing List"

B. Provide the TSC Logkeeper with the completed staffing list.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ _____
Off-going Shift On-coming Shift

## Operations 24 Hour TSC Essential Staffing List

| JOB FUNCTION | CURRENT RESPONDER'S NAME/ ARRIVAL TIME | 24 HOUR STAFFING RELIEF'S NAME |
|---|---|---|
| **75 MINUTE RESPONDERS - DESIRED** | | |
| Operations Superintendent | (1) _____ / _____ | (1) _____ |
| Operations Engineer | (1) _____ / _____ | (1) _____ |
| Assistant Operations Engineer | (1) _____ / _____ | (1) _____ |
| NRC Communicator | (1) _____ / _____ | (1) _____ |
| Control Room/TSC Communicator | (1) _____ / _____ | (1) _____ |
| **OTHER ESSENTIAL PERSONNEL** | | |
| Other Essential OPS Personnel (as needed) | (1) _____ / _____ | (1) _____ |
| | (2) _____ / _____ | (2) _____ |
| | (3) _____ / _____ | (3) _____ |
| | (4) _____ / _____ | (4) _____ |
| | (5) _____ / _____ | (5) _____ |
| | (6) _____ / _____ | (6) _____ |
| | (7) _____ / _____ | (7) _____ |
| | (8) _____ / _____ | (8) _____ |

**Operations Engineer Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Verify that the TSC ventilation system is operable (capable of operating in filter mode).

_____ Establish an Operations Engineer position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

**NOTE:** Instructions for use of the wireless phone and OPS bridge line are provided at phone location and in the Emergency Response Telephone Directory.

_____ Establish communications with the Control Room, OSC and EOF with the wireless phone/headset via the OPS bridge line.

_____ Perform the following as necessary throughout the event:
A. Follow Response Procedures (RPs) and ensure completion of appropriate steps.
B. Maintain contact with Operations personnel in the Control Room, OSC and EOF.
C. Provide recommends to the Operations Superintendent for emergency classification and protective action recommendation changes based on plant conditions.
D. Consult the EOF for possible solutions if procedural adequacy becomes a concern.
E. Provide information to Off-site Agency Communicator and the NRC Communicator as requested regarding changes in plant conditions and protective action recommendations due to plant conditions using Step 3.2 under heading 3, Subsequent Actions, for definitions associated with the Emergency Notification Form.

_____ Serve as Lead Evaluator upon entry into Severe Accident Management Guidelines.

_____ Provide the OPS Superintendent with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon TSC deactivation.

**Operations Engineer Checklist**

| | |
|---|---|
| **NOTE:** | Procedures should be replaced by SSAs when pages are removed or the procedure is written upon. |

_____ Notify the shift SSA of specific procedures to restore in the Operations TSC procedure files upon TSC deactivation.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Assistant Operations Engineer Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Establish an Assistant Operations Engineer position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Obtain a copy of RP/0/A/5000/001," Classification of Emergency," from the procedure cabinet.

_____ Obtain a copy of the current classification procedure and any applicable EOP.

| |
|---|
| **NOTE:** Instructions for use of the wireless phone and OPS bridge line are provided at phone location and in the Emergency Response Telephone Directory. |

_____ Establish communications with the Control Room, OSC and EOF with the wireless phone/headset via the OPS bridge line.

_____ Perform the following as necessary throughout the event:
A. Support Control Room and TSC with EOPs and RPs.
B. Provide recommends to the Operations Superintendent for emergency classification and protective action recommendation changes based on plant conditions.
C. Assist the Operation Engineer in following Response Procedures (RPs) and ensure completion of appropriate steps.
D. Assist the Operations Engineer in providing back-up service to Control Room personnel ensuring the correct procedural flowpath is followed.
E. Assist the Operations Engineer in preparing Control Room personnel of possible difficult points in the procedures by a look ahead.
F. Assist Operations Engineer in development of Severe Accident Management Guidelines Strategies.
G. Consult with Engineering to evaluate contingencies associated with Rotork valve operators that may have been exposed to high temperatures. Reference PIP C-04-2668 and Engineering 10CFR21 Notification Summary for Operations document. {3}

**Assistant Operations Engineer Checklist**

_____ Provide the OPS Superintendent with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Engineering Manager Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Ensure Engineering Manager PC is on and displaying plant status.

_____ Establish an Engineering Manager position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

**NOTE:** Instructions for use of the wireless phone and OPS bridge line are provided at phone location and in the Emergency Response Telephone Directory.

_____ Establish communications with the Control Room, OSC and EOF with the wireless phone/headset via the OPS bridge line.

_____ Confirm that the System Engineer has verified the proper response of TSC computers (information displayed matches plant conditions).

_____ Obtain the following information from the System Support Engineer
A. System Initiating Event
B. System Fault
C. Equipment Out Of Service

_____ Establish verbal communications with TSC Dose Assessment personnel.

_____ Establish communications with OSC Equipment Engineer.

OSC Equipment Engineer Contacted:_____

_____ Establish communications with the Accident Assessment Manager in the EOF.

EOF Accident Assessment Manager Contacted:_____

**Engineering Manager Checklist**

Initial

_____ Perform the following as necessary throughout the event:

A. Continually assess plant conditions and inform the TSC Emergency Coordinator of potential for changing conditions.

B. Provide the status of the following items to the Emergency Coordinator staff during update briefings. (Update briefings are conducted at approximately 30 minute intervals). The following page provides a sheet that may be used to note status information.

- Known system fault(s)
- Level of Core Damage
- Estimated time to core uncovery/core damage
- Shutdown Margin
- Subcooling Margin
- ECCS Status (injection flow rates, proper ECCS response) (Primary heat removal capability)
- Aux Feed Status (feedwater flows, proper CA response) (Secondary heat removal capability)
- Reactor Vessel Integrity Status
- Manage overall site engineering effort and ensure adequate levels of engineering resources are available to support the TSC and OSC.
- Serve as point of contact for TSC Reactor Engineer, TSC Systems Support Engineer and OSC Equipment Engineer.

Determine the essential personnel that will remain on site to staff and support TSC operations should a site evacuation be required for the emergency situation.

_____ A. Complete the "Engineering 24 Hour TSC Essential Staffing List."

_____ B. Provide the TSC Logkeeper with the completed staffing list.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Engineering Manager Status Information**

1. **Known system fault(s)**

2. **Level of Core Damage**

3. **Estimated time to core uncovery/core damage**

4. **Shutdown Margin (TIME/MARGIN)**

5. **Subcooling Margin (TIME/MARGIN)**

6. **ECCS Status (injection flow rates, proper ECCS response) (Primary heat removal capability)**

7. **Aux Feed Status (feedwater flows, proper CA response) (Secondary heat removal capability)**

8. **Reactor Vessel Integrity Status**

9. **Containment Integrity Status (including penetrations and intersystem flow paths)**

**Engineering Manager Checklist**

**Engineering 24 Hour TSC Essential Staffing List**

| JOB FUNCTION | CURRENT RESPONDER'S NAME/ ARRIVAL TIME | 24 HOUR STAFFING RELIEF'S NAME |
|---|---|---|
| **75 MINUTE RESPONDERS - REQUIRED** | | |
| Reactor Engineer | (1) _____ / _____ | (1) _____ |
| **75 MINUTE RESPONDERS - DESIRED** | | |
| Engineering Manager | (1) _____ / _____ | (1) _____ |
| Systems Support Engineer | (1) _____ / _____ | (1) _____ |
| **OTHER ESSENTIAL PERSONNEL** | | |
| Other Essential Engineering Personnel (as needed) | (1) _____ / _____<br>(2) _____ / _____<br>(3) _____ / _____<br>(4) _____ / _____ | (1) _____<br>(2) _____<br>(3) _____<br>(4) _____ |

**Reactor Engineer Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Turn on Reactor Engineer computer, log on LAN under ID with write privilege for NE-LIB and verify software.

_____ Establish a Reactor Engineer position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ **IF** applicable, obtain a copy of and execute RP/0/A/5000/015, "Core Damage Assessment."

**NOTE:** Instructions for use of the OPS bridge line are provided at phone location and in the Emergency Response Telephone Directory.

_____ To listen in on the Operations communication loop, dial the OPS bridge line. Be sure that the phone/headset is on mute.

_____ Perform the following as necessary throughout the event:
A. Evaluate plant and reactor performance using available data in terms of:
- Level of core damage.
- Estimated time to core uncovery/core damage
- Shutdown margin
- Subcooling margin
- Trend appropriate parameters to monitor recovery

**NOTE:** The "TSC Engineering Manager Update Worksheet" of this enclosure may be used to maintain data to be provided to the TSC Engineering Manager.

B. Provide TSC Engineering Manager and/or TSC Operations Superintendent with information concerning any abnormal core conditions.
C. Ensure control and accountability of Special Nuclear Materials.
D. Exchange information with EOF Accident Assessment Group as requested.

**Reactor Engineer Checklist**

_____ Provide the Engineering Manager with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Reactor Engineer Checklist**

**TSC Engineering Manager Update Worksheet**

**Shutdown Margin**

| | | MINIMUM TEMPERATURE FOR SHUTDOWN | |
|---|---|---|---|
| TIME | ESTIMATED BORON CONCENTRATION | WITH XENON | WITHOUT XENON |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

**Core Status**

| TIME | CORE EXIT T/C 5 (HIGHEST) °F | PZR LEVEL | RVLIS LEVEL | SUBCOOLING MARGIN | EMF 53 | CONTAINED $H_2$ |
|---|---|---|---|---|---|---|
| | | | | | | |
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**Enclosure 4.10**

**System Support Engineer Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Establish a System Support Engineer position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Verify the proper response of TSC computers (information displayed matches plant conditions).

_____ Provide the following information to the TSC Engineering Manager:

A. Initiating Event:

B. Primary Systems Equipment OOS:

C. Primary Systems Faults:

D. Secondary Systems Equipment OOS:

E. Secondary Systems Faults:

F. Electrical Systems Equipment OOS:

G. Electrical Systems Faults:

H. Containment Status (including penetrations and interfacing systems VE, VY, SM, ND, NV)

**Enclosure 4.10**

**System Support Engineer Checklist**



Initial

_____ Perform the following as necessary throughout the event:

| | |
|---|---|
| **NOTE:** | The "TSC Engineering Manager Update Worksheet" of this enclosure may be used to maintain data to be provided to the TSC Engineering Manager. |

A. Provide TSC Engineering Manager and/or TSC Operations Superintendent with the following information:
   - Known system fault(s)
   - ECCS Status (injection flow rates, proper ECCS response, Primary heat removal capability)
   - Aux Feed Status (feedwater flows, proper CA response, Secondary heat removal capability)
   - Trend appropriate parameters to monitor recovery.

B. Advise TSC Engineering Manager on current systems status and accident mitigation strategies.

C. Exchange information with EOF Accident Assessment Group.

D. Evaluate contingencies associated with Rotork valve operators that may have been exposed to high temperatures and provide recommendations to Operations. Reference PIP C-04-2668 and Engineering 10CFR21 Notification Summary for Operations document. {3}

_____ Provide the TSC Engineering Manager with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Off-going Shift

_____ On-coming Shift

**Enclosure 4.10**



**System Support Engineer Checklist**

**TSC Engineering Manager Update Worksheet**

TIME: _____

Known system fault(s)(including containment integrity): _____

ECCS Status (injection flow rates, proper ECCS response, Primary heat removal capability): _____

Aux Feed Status (feedwater flows, proper CA response, Secondary heat removal capability):

Trend appropriate parameters to monitor recovery: _____

**Enclosure 4.11**

**TSC Emergency Planner Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board area.

_____ Activate the ED under RWP #33.

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Complete Enclosure 4.18, "TSC Pre-activation Checklist," and provide completed enclosure to Emergency Coordinator for approval.

_____ Obtain a current copy of the qualified Catawba Nuclear Site Emergency Response Organization.

_____ Verify that all TSC and OSC positions are staffed by qualified Catawba Nuclear Site Emergency Response Organization personnel.

_____ Perform the following as necessary throughout the event:

A. Directly support the Emergency Coordinator providing:
   - Support for activation and operation of the TSC.
   - Emergency Plan information
   - Interface with NRC
   - Interface with state and county agencies
   - Any other support as requested by the Emergency Coordinator

B. Facilitate the operation of the TSC.

C. Assist Off-Site Agency Communicators in preparation of emergency notification forms.

D. Act as site evacuation point of contact for Emergency Coordinator **AND** serve as interface between Security Manager, Evacuation Coordinator and the Radiation Protection Manager for evacuation purposes as needed.

E. **IF** a security event occurs, perform the following for the Emergency Planner bridge line:

   _____ Notify Community Relations to contact the TSC on the Emergency Planner bridge line.

   _____ Hang up the Community Relations speakerphone located to the left of the Emergency Coordinator's position.

   _____ Demand authentication from any person entering the bridge line.

   _____ Record the name and function of all persons on the bridge line.

   _____ Connect Security Manager to bridge line to ensure only appropriate information is discussed.

**Enclosure 4.11**



**TSC Emergency Planner Checklist**



_____ Establish communications with the EOF Emergency Planner on the Emergency Planning bridge line.

_____ Establish communications with the Evacuation Coordinator and keep Evacuation Coordinator informed of site evacuation status.

Determine the essential personnel that will remain on site to staff and support TSC operations should a site evacuation be required for the emergency situation.

_____ A. Complete the "Command and Special Staff 24 Hour TSC Essential Staffing List."

_____ B. Provide the TSC Logkeeper with the completed staffing list.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

_____ Assist the NRC Resident in setting up listen only communication on the OPS bridge line.

_____ **WHEN** the emergency event (or drill) is terminated, announce over the TSC/OSC public address system:

**"Attention in the TSC and OSC. Gather all completed procedures and event log sheets. Give all documentation to Emergency Planning. A post event critique will be held at _____ hours on _____/_____/_____ in the TSC."**

**Command and Special Staff 24 Hour TSC Essential Staffing List**

| JOB FUNCTION | CURRENT RESPONDER'S NAME/ ARRIVAL TIME | 24 HOUR STAFFING RELIEF'S NAME |
|---|---|---|
| **75 MINUTE RESPONDERS - REQUIRED** | | |
| Emergency Coordinator | (1) _____ / _____ | (1) _____ |
| **75 MINUTE RESPONDERS - DESIRED** | | |
| Assistant Emergency Coordinator | (1) _____ / _____ | (1) _____ |
| Security Manager | (1) _____ / _____ | (1) _____ |
| TSC Emergency Planner | (1) _____ / _____ | (1) _____ |
| TSC Off-site Agency Communicator | (1) _____ / _____ | (1) _____ |
| TSC Logkeeper | (1) _____ / _____ | (1) _____ |
| TSC Data Coordinator | (1) _____ / _____ | (1) _____ |
| Evacuation Coordinator | (1) _____ / _____ | (1) _____ |
| NRC Resident | (1) _____ / _____ | (1) _____ |
| **ON CALL PERSONNEL** | | |
| Regulatory Compliance Engineer (as needed) | (1) _____ / _____ | (1) _____ |

**Enclosure 4.11**

**TSC Emergency Planner Checklist**



**24 Hour TSC Essential Staffing List**

| JOB FUNCTION | CURRENT RESPONDER'S NAME/ ARRIVAL TIME | 24 HOUR STAFFING RELIEF'S NAME |
|---|---|---|
| **ADDITIONAL ESSENTIAL PERSONNEL** | | |
| Additional Essential Personnel (as needed) | (1) _____ / _____ | (1) _____ |
| | (2) _____ / _____ | (2) _____ |
| | (3) _____ / _____ | (3) _____ |
| | (4) _____ / _____ | (4) _____ |
| | (5) _____ / _____ | (5) _____ |
| | (6_____ / _____ | (6) _____ |
| | (7) _____ / _____ | (7) _____ |
| | (8) _____ / _____ | (8) _____ |
| | (9) _____ / _____ | (9) _____ |
| | (10) _____ / _____ | (10) _____ |
| | (11) _____ / _____ | (11) _____ |
| | (12) _____ / _____ | (12) _____ |
| | (13) _____ / _____ | (13) _____ |
| | (14) _____ / _____ | (14) _____ |
| | (15) _____ / _____ | (15) _____ |
| | (16) _____ / _____ | (16) _____ |
| | (17) _____ / _____ | (17) _____ |
| | (18) _____ / _____ | (18) _____ |
| | (19) _____ / _____ | (19) _____ |
| | (20) _____ / _____ | (20) _____ |

**Enclosure 4.11**



**TSC Emergency Planner Checklist**

**TSC Facility Post Event Checklist**

Initial

_____ Obtain printed copy of TSC Log

_____ Retrieve:
- ____ DVD (if used)
- ____ Completed Procedures
- ____ Notes

_____ Turn off:
- ____ Copier
- ____ Computers
- ____ PA System (Used for Critique)

_____ Perform:
- ____ Supply Cabinet Inventory (PT/0/B/4600/004) Checklist
- ____ Clean Tables Off
- ____ Put all Trash in Containers
- ____ Erase Status Boards
- ____ Procedure Cabinet Inventory

  - ____ RP/0/A/5000/001 3 copies
  - ____ RP/0/A/5000/002 3 copies
  - ____ RP/0/A/5000/003 3 copies
  - ____ RP/0/A/5000/004 3 copies
  - ____ RP/0/A/5000/005 3 copies
  - ____ RP/0/A/5000/006B 2 copies
  - ____ RP/0/A/5000/007 2 copies
  - ____ RP/0/B/5000/008 2 copies
  - ____ RP/0/A/5000/009 2 copies
  - ____ RP/0/A/5000/010 2 copies
  - ____ RP/0/B/5000/013 2 copies
  - ____ RP/0/A/5000/015 2 copies
  - ____ RP/0/A/5000/018 2 copies

**Enclosure 4.11**



**TSC Emergency Planner Checklist**

**TSC Facility Post Event Checklist**

| | |
|---|---|
| **NOTE:** | RP/0/A/5000/020 enclosure copies shall be attached to Procedure Process Record and main body of RP/0/A/5000/020 |

___ RP/0/A/5000/020 2 copies

- ___ Enclosure 4.1 1 copy
- ___ Enclosure 4.2 1 copy
- ___ Enclosure 4.3 1 copy
- ___ Enclosure 4.4 1 copy
- ___ Enclosure 4.5 1 copy
- ___ Enclosure 4.6 1 copy
- ___ Enclosure 4.7 1 copy
- ___ Enclosure 4.8 1 copy
- ___ Enclosure 4.9 1 copy
- ___ Enclosure 4.10 1 copy
- ___ Enclosure 4.11 1 copy
- ___ Enclosure 4.12 1 copy
- ___ Enclosure 4.13 1 copy
- ___ Enclosure 4.14 1 copy
- ___ Enclosure 4.15 1 copy
- ___ Enclosure 4.16 1 copy (Include a copy of Enclosure 4.1)
- ___ Enclosure 4.17 1 copy
- ___ Enclosure 4.18 1 copy
- ___ Enclosure 4.19 1 copy

___ RP/0/B/5000/025 2 copies
___ RP/0/B/5000/026 2 copies
___ RP/0/B/5000/029 2 copies
___ RP/0/B/5000/030 2 copies
___ RP/0/B/5000/031 2 copies
___ HP/0/B/1009/001 2 copies
___ HP/0/B/1009/003 2 copies
___ HP/0/B/1009/004 2 copies
___ HP/0/B/1009/006 2 copies
___ HP/0/B/1009/007 2 copies
___ HP/0/B/1009/009 2 copies
___ HP/0/B/1009/014 2 copies
___ HP/0/B/1009/019 2 copies
___ HP/0/B/1009/024 2 copies
___ HP/0/B/1009/026 2 copies
___ SH/0/B/2005/001 5 copies
___ SH/0/B/2005/003 2 copies

**TSC Facility Post Event Checklist**

| | | |
|---|---|---|
| ___ | SAMG Drill Strategy Sheets | 5 copies |
| ___ | SAMG Emergency Strategy Sheets | 5 copies |
| ___ | EG/1/A/CSAM/SACRG1 | 2 copies |
| ___ | EG/1/A/CSAM/SACRG2 | 2 copies |
| ___ | EG/2/A/CSAM/SACRG1 | 2 copies |
| ___ | EG/2/A/CSAM/SACRG2 | 2 copies |
| ___ | EG/0/A/CSAM/DFC | 5 copies |
| ___ | EG/0/A/CSAM/SAG-1 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-2 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-3 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-4 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-5 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-6 | 5 copies |
| ___ | EG/0/A/CSAM/SAG-7 | 5 copies |
| ___ | EG/0/A/CSAM/SCST | 5 copies |
| ___ | EG/0/A/CSAM/SCG-1 | 5 copies |
| ___ | EG/0/A/CSAM/SCG-2 | 5 copies |
| ___ | EG/0/A/CSAM/SCG-3 | 5 copies |
| ___ | EG/0/A/CSAM/SCG-4 | 5 copies |
| ___ | EG/0/A/CSAM/SAEG-1 | 5 copies |
| ___ | EG/0/A/CSAM/SAEG-2 | 5 copies |
| ___ | SAAG File No: 428 - CA-1 through CA-7 | 5 sets |

___ Copy of Qualified ERO Listing and ERO member contact list (TSC & OSC only) for procedure cabinet

___ ERO Position Specific Notebooks - attach the following enclosures to copy of Procedure Process Record and main body of Procedure RP/0/A/5000/020. In addition, verify each book contains a sufficient amount of log sheets.

___ Enclosure 4.1 1 copy
___ Enclosure 4.2 1 copy
___ Enclosure 4.3 1 copy (Include 1 copy of EP FAM 3.15, attachment 3.15.3.3, 1 copy of RP/0/A/5000/006B and 5 copies of Emergency Notification Form)
___ Enclosure 4.4 1 copy
___ Enclosure 4.5 1 copy
___ Enclosure 4.6 1 copy
___ Enclosure 4.7 1 copy
___ Enclosure 4.8 1 copy
___ Enclosure 4.9 1 copy
___ Enclosure 4.10 1 copy
___ Enclosure 4.11 1 copy
___ Enclosure 4.12 1 copy
(Include 1 copy of EP FAM 3.15, attachment 3.15.3.2)

**Enclosure 4.11**



**TSC Emergency Planner Checklist**

**TSC Facility Post Event Checklist**

Initial

___ Enclosure 4.13 1 copy
___ Enclosure 4.14 1 copy
___ Enclosure 4.15 1 copy
___ Enclosure 4.16 1 copy (Include a copy of Enclosure 4.1)
___ Enclosure 4.17 1 copy
___ Enclosure 4.18 1 copy
___ Enclosure 4.19 1 copy

_____ Perform the following with regards to the TSC wireless phones:
___ Assure all TSC cell phones have been turned off
___ Remove battery from phone and place in charger

_____ Replenish:
____ Procedure cabinet
____ Supplies as necessary (Reseal Cabinets)
____ Off-site communicators' pre-printed ENF Drawer (Inspect and replenish as needed)
____ The TSC Briefing Book

_____ Call:
____ Cleaning Crew
____ Southern Food (If items need to be picked up)

_____ Turn in to Emergency Planning:
____ Logs
____ Completed Procedures
____ Notes
____ Video Media
____ Supply Inventory Checklist

_____ Verify that the WebEOC EN Form Dual Commit is unchecked.

**Enclosure 4.11**



**TSC Emergency Planner Checklist**

**OSC Facility Post Event Checklist**

Initial

_____ Print:
- ____ Copy of OSC Log
- ____ Team Task Sheets

_____ Retrieve:
- ____ Completed Procedures
- ____ Notes

_____ Turn off:
- ____ Copier
- ____ Computers
- ____ PA System

_____ Perform:
- ____ Supply Cabinet Inventory If Tamper Seal Is Broken (PT/0/B/4600/04) Checklist
- ____ Clean Tables Off
- ____ Put all Trash In Containers
- ____ Erase Status Boards
- ____ Procedure Cabinet Inventory
  - ____ RP/0/B/5000/008 2 copies
  - ____ RP/0/A/5000/010 2 copies
  - ____ RP/0/A/5000/024 1 copy
  - ____ RP/0/B/5000/029 2 copies
  - ____ RP/0/B/5000/030 2 copies
  - ____ HP/0/B/1009/001 2 copies
  - ____ HP/0/B/1009/003 2 copies
  - ____ HP/0/B/1009/005 2 copies
  - ____ HP/0/B/1009/006 2 copies
  - ____ HP/0/B/1009/007 2 copies
  - ____ HP/0/B/1009/008 2 copies
  - ____ HP/0/B/1009/009 4 copies
  - ____ HP/0/B/1009/014 2 copies
  - ____ SH/0/B/2005/003 2 copies

**Enclosure 4.11**



**TSC Emergency Planner Checklist**

**OSC Facility Post Event Checklist**

Initial

_____ Replace: RP/0/A/5000/024 - 1 copy each
- ____ Equipment Engineer
- ____ Maintenance Manager
- ____ Radiation Protection Manager
- ____ Radiation Protection Supervisor
- ____ DRC Supervisor
- ____ Chemistry Manager
- ____ EH&S Manager
- ____ OSC Coordinator
- ____ OSC Operations Supervisor
- ____ OSC Log/Status Keeper (Include a copy of EP FAM 3.15, Attachment 3.15.3.1)
- ____ NSC Manager
- ____ Procedure Cabinet

_____ Replenish:
- ____ Procedures
- ____ Supplies as necessary (Reseal Cabinets)

_____ Call:
- ____ Cleaning Crew
- ____ Southern Foods if items need to be picked up

_____ Turn in to Emergency Planning
- ____ Logs
- ____ Team Task Sheets
- ____ Completed Procedures
- ____ Notes
- ____ Supply Inventory Checklist (PT/0/B/4600/004)

**Enclosure 4.12**

**TSC Logkeeper Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

> **NOTE:** The Log Keeper's PC controls the displays for the three main screens in the Emergency Coordinator's Area. The screens are an extension of the Logkkeeper's monitor.

_____ Startup TSC Logkeeper Computer.

_____ Ensure the Projectors are powered up and displaying the Logkeeper's Computer.

_____ Refer to EP FAM Section 3.15, Attachment 3.15.3.2 for WebEOC Instructions.

_____ Set up the Display projectors as follows:

- **Left Projector** - SDS
- **Center Projector** - Communicator's Notification Form
- **Right Projector** - Facility Log

> **NOTE:** Instructions for operating the electronic message board are displayed on the back of the electronic message board remote control.

_____ Verify that current Emergency Classification is displayed on electronic message board.

> **NOTE:**
> 1. Incorrect log entries may be corrected by making the needed correction for the specific entry and flagging it as a "corrected item".
> 2. The TSC Log Recorder should enter TSC specific information and/or other information as directed by the TSC Emergency Coordinator or Assistant Emergency Coordinator.
> 3. Log activities must be detailed enough to "tell the story" in order to reconstruct events for effective turnovers and briefings.

_____ Perform the following as necessary throughout the event:

1. Provide logkeeping of the event for the Emergency Coordinator. (i.e. TSC specific items)
2. <u>IF</u> logging program becomes inoperable, maintain log manually.
3. Ensure the electronic event classification status board is maintained with current emergency classification.

**Enclosure 4.12**

**TSC Logkeeper Checklist**



4. Coordinate data displays as requested by the Emergency Coordinator.
5. Ensure that emergency declaration times stated in the TSC Log are consistent with the emergency declaration times stated on the applicable Emergency Notification Form.

_____ Establish an official log of all significant TSC activities and Emergency Coordinator decisions.

Log entries should include but are not limited to the following examples:
- Emergency Coordinator and any change in Emergency Coordinator staffing
- Time at which the EOF is activated
- Present emergency classification, changes in classification, time of declaration
- Plant conditions (Units 1 & 2)
- Core Cooling information (i.e., Time To Boiling, etc.)
- Safety Systems Degraded
- Power Supply Status
- Fission Product Barrier Degradation
- Radiation Releases
- Procedures in effect and any transition to another procedure
- Actions taken that are not a part of an approved procedure
- Any abnormal or unexpected plant response
- Major equipment manipulations
- Major mitigation actions taken
- Site assembly, relocation, or evacuation of all or any part of the plant
- Personnel injuries
- Recovery action(s) in progress
- Expected time of next time-out
- Any parameter that shows how the drill/event is managed (ex. releases, time, communication)
- Protective Action recommendations (onsite and offsite)
- Summary of facility briefings
- Facility priorities
- Approval/transmittal of Emergency Notification Forms
- Approval/distribution of news releases

_____ Provide the TSC Emergency Planner with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Store the 24 Hour TSC Essential Staffing Lists for the following TSC functions:

- Command and Special Staff
- Radiation Protection
- Operations
- Engineering

_____ Provide a printed copy of the final TSC Log to Emergency Planning upon deactivation of the TSC (FAM Section 3.15, Attachment 3.15.3.2 for printing instructions).

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ _____

Off-going Shift On-coming Shift

**Enclosure 4.13**



**TSC Data Coordinator Checklist**

Initial

_____ Ensure TLD has been obtained.

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Obtain a copy of the Data Coordinator's Reference Manual located in the OAC Area of the TSC.

| | | |
|---|---|---|
| **NOTE:** | 1. | Emergency Response Data System (ERDS) transmission to the NRC is required to be initiated within one hour of declaring an actual Alert or higher Emergency Classification. |
| | 2. | The Control Room normally initiates ERDS transmission. |
| | 3. | ERDS transmission is simulated for drills/exercises. |

_____ **IF** classification is Alert or higher, verify ERDS data transmission to the NRC has been established by the Control Room.

_____ **IF** ERDS data transmission has not been established, troubleshoot as necessary and initiate ERDS data transmission per Data Coordinator's Reference Manual.

_____ Perform the following as necessary throughout the event:

A. Verify that TSC and OSC electronic equipment is operating properly per the Data Coordinator's Reference Manual.
B. Establish contact with EOF Data Coordinator.
C. Ensure data is available in the TSC and OSC for use in accident mitigation.
D. Manage data gathering and dissemination by:
   - Maintaining IT hardware/software in the TSC and OSC.
   - Ensuring necessary software graphics and displays operate and meet the needs of the TSC and OSC.
   - Providing TSC and OSC hardware/software oversight.
   - Maintain ERDS transmission to the NRC.

_____ Provide the TSC Emergency Planner with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

**Enclosure 4.13**



**TSC Data Coordinator Checklist**



_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Enclosure 4.14**

**RP Support Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

_____ Establish an RP Support position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Perform the following actions upon arrival at the TSC:
A. Open TSC Emergency Kit
B. Place portable instruments into service.
C. Provide TSC personnel Self Reading Dosimeters (SRDs) as necessary; (e.g., Pocket Dosimeters).
D. Provide Dose Cards to TSC personnel, as necessary.
E. Monitor TSC dose rates, as necessary.
F. Initiate contamination control requirements, as appropriate
G. Inform Emergency Coordinator when eating and drinking is permitted in the TSC and OSC.

_____ Set up personnel monitoring equipment based on contamination levels and site conditions; (e.g., TSC Portal Monitor, and frisker, as necessary).
A. Initiate personnel monitoring contamination control requirements, as necessary.
B. Establish a travel path for personnel entering the TSC, as necessary.
C. Establish a travel path for personnel exiting the TSC, as necessary.
D. Ensure personnel monitoring equipment is used by personnel in the TSC.

_____ Activate Field Monitoring Team (FMT) organization based on information from dose assessors and potential radiological releases.

**NOTE:**
1. Notify RP Supervisor and TSC Dose Assessor of any field teams assigned prior to OSC activation.
2. Field teams may be directed by the EOF Field Monitoring Coordinator (FMC) prior to activation of the EOF.

A. Contact OSC RP Management (RP Supervisor or RP Duty Shift) for FMT support.
B. Request FMT support based on number of RP personnel available in OSC.

Initial

C. Request FMT support based on current meteorological conditions.
D. Request additional FMTs per notification by TSC Dose Assessor or EOF Field Monitor Coordinator, as appropriate.

_____ Contact Field Monitor Team members in Emergency Equipment Storage Room, as appropriate.
A. Determine personnel assignment to Field Monitor Teams.
B. Initiate HP/0/B/1009/019, "Emergency Radio System Operation Maintenance, and Communication"

_____ Update FMT personnel on plant radiological status.
A. Update FMT personnel on any previous or current off-site releases; (e.g., plume of radioactive material, liquid or gaseous activity that has been released).
B. Update FMT personnel on potential off-site release; (e.g., plume of radioactive material, liquid or gaseous activity that may be released).

_____ Obtain current meteorological information.
A. Assess initial plume movement based on meteorological information.

_____ Dispatch one or more Field Monitor Teams as follows:

| Call Sign | Members | Transportation |
|---|---|---|
| Sample Van 1 | 2 | Emergency Van |
| Sample Van 2 | 2 | Emergency Van |
| Alpha | 2 | Land Vehicle |
| Bravo | 2 | Land Vehicle (as necessary) |
| Charlie | 2 | Land Vehicle (as necessary) |
| Delta | 2 | Land Vehicle (as necessary) |

_____ Dispatch Field Monitor Teams based on stability class, wind direction, wind speed, and time of release, as follows:
A. Sample Van 1 to left side of the plume.
B. Sample Van 2 to right side of the plume.
C. Alpha Survey Team to the 0.5 mile site radius to traverse the plume at its estimated arc.
D. Bravo Survey Team in an attempt to intersect the leading edge of the plume.
E. Charlie and Delta Survey Teams to assist in defining any affected areas.

_____ Request field team to assess potential offsite radiological conditions; (e.g., dose rates from gaseous or liquid release).

_____ Instruct Emergency Sample Vans to obtain environmental samples as necessary per HP/0/B/1009/004, "Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station.

Initial

| | | |
|---|---|---|
| **NOTE:** | 1. | Changes in meteorological conditions may affect assembly points. |
| | 2. | On site survey teams, inside the protected area, dispatched from OSC (e.g., Foxtrot Team) should report survey results to OSC RP Supervision. |
| | 3. | TSC RP Support or EOF Field Monitor Coordinator are to be notified of on site survey results using telephone or radio, as appropriate. |

_____ If necessary, assist EOF Field Monitoring Coordinator (FMC) direct field teams.

_____ Monitor radio communication between FMC/Radio Operator and field teams.

_____ Notify RPM and TSC Dose Assessor of plume directional movement as determined by field team surveys.
A. Communicate significant meteorological changes to RPM and TSC Dose Assessor.

_____ Monitor dose rates in TSC.
A. Initiate discussion with RPM on the need to evacuate TSC if General Area dose rate approaches 5 mrem/hr and dose rate is expected to continue.
B. Initiate discussions with RPM regarding need to provide dose extensions for Field Monitoring team members, when appropriate.

_____ Inform RPM and TSC Dose Assessor of any on-site or near site hazards.
A. Notify RPM of vehicle accidents.
B. Notify RPM of personnel accidents.
C. Notify RPM of safety incidents reported by the FMTs

_____ Maintain a 10 mile radius map in the TSC.
A. Confirm approximate plume shape and location using accumulated field team information.
B. Illustrate approximate plume shape and location on the map using accumulated field data.
C. Post current FMT locations.
D. Post latest instrument survey results for each field monitoring location.

_____ Assess field-monitoring strategies for plume assessment.
A. Review plant radiological status.
B. Review field data and meteorological information approximately every fifteen minutes for any changes.

_____ Advise TSC Dose Assessor of field monitoring results.

Initial

_____ Maintain an organized file of sample results/data generated from FMT activities.

_____ Coordinate radiological monitoring of food items supplied to the TSC with Nuclear Supply Chain and Emergency Planning representatives.

_____ Provide radiological event information to Field Monitor Coordinator (FMC) at EOF, as necessary.

| | |
|---|---|
| **NOTE** | TSC RP Support becomes functionally responsible to OSC RPM upon EOF activation. |

_____ Restore RP Emergency Response Kit equipment to a ready state condition after a drill or event is terminated.

Determine the essential personnel that will remain on site to staff and support TSC operations should a site evacuation be required for the emergency situation.

_____ A. Complete the "Radiation Protection 24 Hour TSC essential Staffing List."

_____ B. Provide the TSC Logkeeper with the completed staffing list.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Off-going Shift

_____ On-coming Shift

**Enclosure 4.14**

**RP Support Checklist**



**Radiation Protection 24 Hour TSC Essential Staffing List**

| JOB FUNCTION | CURRENT RESPONDER'S NAME/ ARRIVAL TIME | 24 HOUR STAFFING RELIEF'S NAME |
|---|---|---|
| **75 MINUTE RESPONDERS - REQUIRED** | | |
| Dose Assessors | (1) _____ / _____<br>(2) _____ / _____ | (1) _____<br>(2) _____ |
| **75 MINUTE RESPONDERS - DESIRED** | | |
| RP Support | (1) _____ / _____ | (1) _____ |
| **OTHER ESSENTIAL PERSONNEL** | | |
| Other Essential RP Personnel (as needed) | (1) _____ / _____<br>(2) _____ / _____<br>(3) _____ / _____<br>(4) _____ / _____ | (1) _____<br>(2) _____<br>(3) _____<br>(4) _____ |

**Enclosure 4.15**

**Security Manager Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located at the TSC sign-in board.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

> **NOTE:** Security has the lead role for locating unaccounted personnel identified during a Site Assembly.

_____ Coordinate with the OSC Radiation Protection Manager to control security officer dose in the field.

_____ Notify OSC DRC Supervisor of any MERT responses before or after TSC/OSC activation.

_____ Establish a Security Manager position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

> **NOTE:** A job aid (TSC Update Briefing - Security) is available in the position notebook to provide thoroughness and consistency in the preparation and delivery of TSC updates.

_____ Provide the status of Security operations to the Emergency Coordinator and staff during TSC update briefings.

> **NOTE:** Site Assembly shall be completed within 30 minutes of initiation of the action to determine site accountability. The completion time is that time when the Emergency Coordinator is informed by the Security Manager that site assembly is complete.

_____ Provide site assembly status information to the Emergency Coordinator as soon as it is determined.
A. Number of unaccounted personnel inside the protected area
B. Evaluate the number of unaccounted personnel to determine if making an announcement by name for these personnel to re-swipe their badge in a site assembly card reader is feasible
C. Approximate number of personnel assembled inside and outside the protected area

**Enclosure 4.15**



**Security Manager Checklist**



_____ Notify the Emergency Coordinator when site assembly is completed and discuss discontinuing PA announcements to assemble.

_____ Serve as Security point of contact for:
A. Site Assembly Accountability
B. Site Evacuation
C. MERT Support
D. Security Plan Implementation

_____ Coordinate evacuation with Evacuation Coordinator and Emergency Planner.
A. Provide Emergency Coordinator with approximate number of site evacuees.
B. Ensure RP is preparing for appropriate evacuation site.
C. Inform the Emergency Coordinator when site evacuation has been completed.

_____ Provide the TSC Emergency Planner with the names of essential personnel associated with your position that would not leave the site should a site evacuation be necessary.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Enclosure 4.16**



**Assistant Emergency Coordinator Checklist**

Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located in the TSC sign-in board area.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

_____ Establish an Assistant Emergency Coordinator position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Review Enclosure 4.1, "Emergency Coordinator Checklist" and "Emergency Coordinator Responsibilities."

_____ Perform the following as necessary throughout the event:
A. Assist the Emergency Coordinator in activation of the Technical Support Center
B. Assist the TSC Off-Site Agency Communicator prepare Emergency Notification Forms.

> **NOTE:** Job aids are available in this position's notebook to provide thoroughness and consistency in the preparation and delivery of updates to the site and emergency response facilities (TSC/OSC/EOF):
> - Emergency Coordinator Site Update
> - TSC/OSC/EOF Update Briefing

C. Prepare routine updates to the site and emergency response facilities for the Emergency Coordinator.
D. Assist the Emergency Coordinator in turnover to the EOF
   - Complete the "Emergency Coordinator Turnover Form" from Enclosure 4.1.
   - Review the completed "Emergency Coordinator Turnover Form" with the Emergency Coordinator.
   - Fax the "Emergency Coordinator Turnover Form" to the EOF for use by the EOF Director during turnover.
E. Act as a receiver of information when the Emergency Coordinator is unavailable and relay the information to the Emergency Coordinator in a timely manner.
F. Proactively seek information when the Emergency Coordinator is in a reactive mode.

**Enclosure 4.16**



**Assistant Emergency Coordinator Checklist**



G. Make face-to-face confirmation of information provided when the Emergency Coordinator is unavailable.
H. Serve as the Emergency Coordinator when needed.
I. Assist in making decisions on emergency classifications, mitigation strategies, contingency plans and protective actions for plant personnel and the general public.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the TSC.

_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Enclosure 4.17**

**Evacuation Coordinator Checklist**



Initial

_____ Print name and time arrived on TSC sign-in board.

_____ Print the name of 24-hour staffing relief for your position on the TSC sign-in board.

_____ Sign TSC roster located in the TSC sign-in board area.

_____ Obtain an electronic dosimeter (ED) from the TSC sign-in board.

_____ Activate the ED under RWP #33.

_____ Establish a TSC Evacuation Coordinator position log that captures as a minimum:
A. Evolutions impacting this position
B. Decisions made by this position
C. Communication to/from other work groups

_____ Maintain position logs in the TSC sufficient enough to conduct a turnover for the on-coming shift in an event or activation of the facilities.

_____ Contact non-duty Evacuation Coordinator as needed to assist with managing activities during an evacuation at the relocation site.

_____ Collect essential personnel lists from TSC/OSC Log Keepers for potential evacuation.

_____ **IF** a determination has been made to evaluate the site, contact the Security Manager or Emergency Planner in the TSC to determine the following:

- The chosen evacuation/relocation site is:
  Site York _____
  Site Allen _____

_____ Notify the York County Emergency Operations Center (EOC) for assistance with traffic control. (York County EOC will direct York County Sheriff's Department and/or South Carolina Highway Patrol to assist with traffic control).
- York County EOC (803) 329-1110; if no answer, (803) 329-1116

_____ Contact location management at the chosen evacuation/relocation site to inform them that their location has been selected as the evacuation site of non-essential site personnel.

_____ Site York (York Operations Center) (Figure A)
803-628-3293 (dock area)
803-628-3294

_____ Site Allen (Duke Energy Allen Plant) (Figure B)
704-829-2350 (switchboard)
704-829-2360 (control room - after hours)

**Enclosure 4.17**



**Evacuation Coordinator Checklist**



_____ The Evacuation Coordinator is responsible for the following prior to the arrival of evacuees at the evacuation/relocation site:

- Traveling to and preparing the evacuation/relocation site to receive evacuated employees.
- **IF** Site York has been chosen, the access code for gates and dock area door is 4153/Enter.
- Interfacing with location management of the evacuation/relocation site.
- Establishing communications with the TSC Emergency Planner, TSC Security Manager or, if unavailable, the TSC Emergency Coordinator to indicate that the evacuation/relocation site is ready to receive personnel and provide and/or receive future communications.

_____ The Evacuation Coordinator is responsible for the following duties at the evacuation/relocation site:

- Directing parking at the evacuation/relocation site.
- Accounting for personnel as they arrive at the evacuation/relocation site.
- Periodically reporting status of evacuated employees to the TSC Emergency Planner, TSC Security Manager, or if unavailable, the TSC Emergency Coordinator.
- Disseminating periodic plant status reports to evacuated employees.
- Directing the return of personnel to the plant as needed and issuing road block passes to those personnel who need them.
- Authorizing evacuated employees to go home as the situation warrants.
- Interfacing with the EOF Director and/or EOF Services Manager to provide information or request assistance as needed.
- Arranging shift schedules for management of activities at the evacuation/relocation site.
- **IF** requested, assist RP with establishing contamination control areas/boundaries and organization of site personnel to be surveyed.
- Utilize site personnel as needed to assist with Evacuation Coordinator duties.

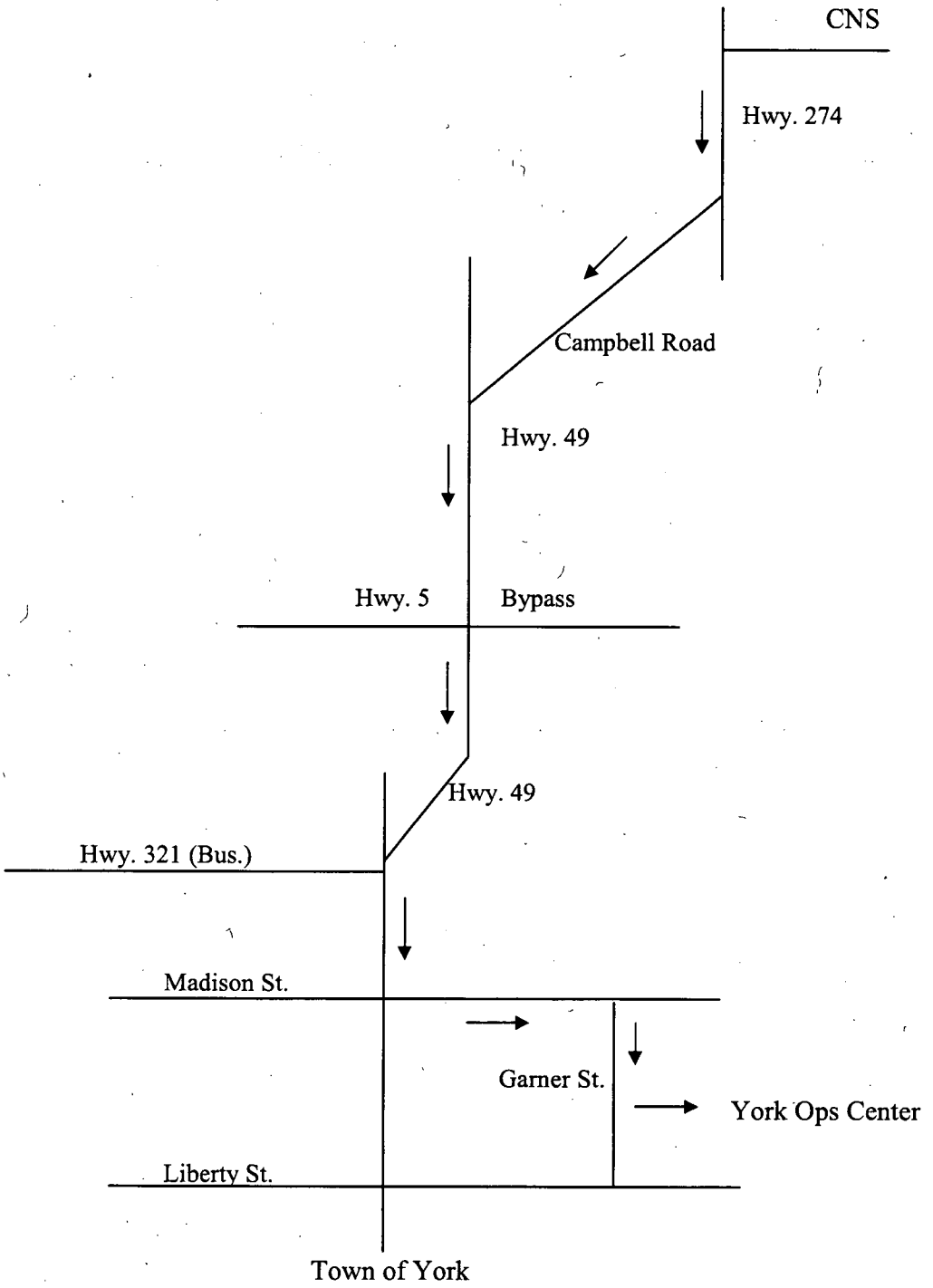
_____ Conduct a turnover for the on-coming shift in an event or activation of the facilities.

| _____ | _____ |
|---|---|
| Off-going Shift | On-coming Shift |

**Enclosure 4.17**

**Evacuation Coordinator Checklist**

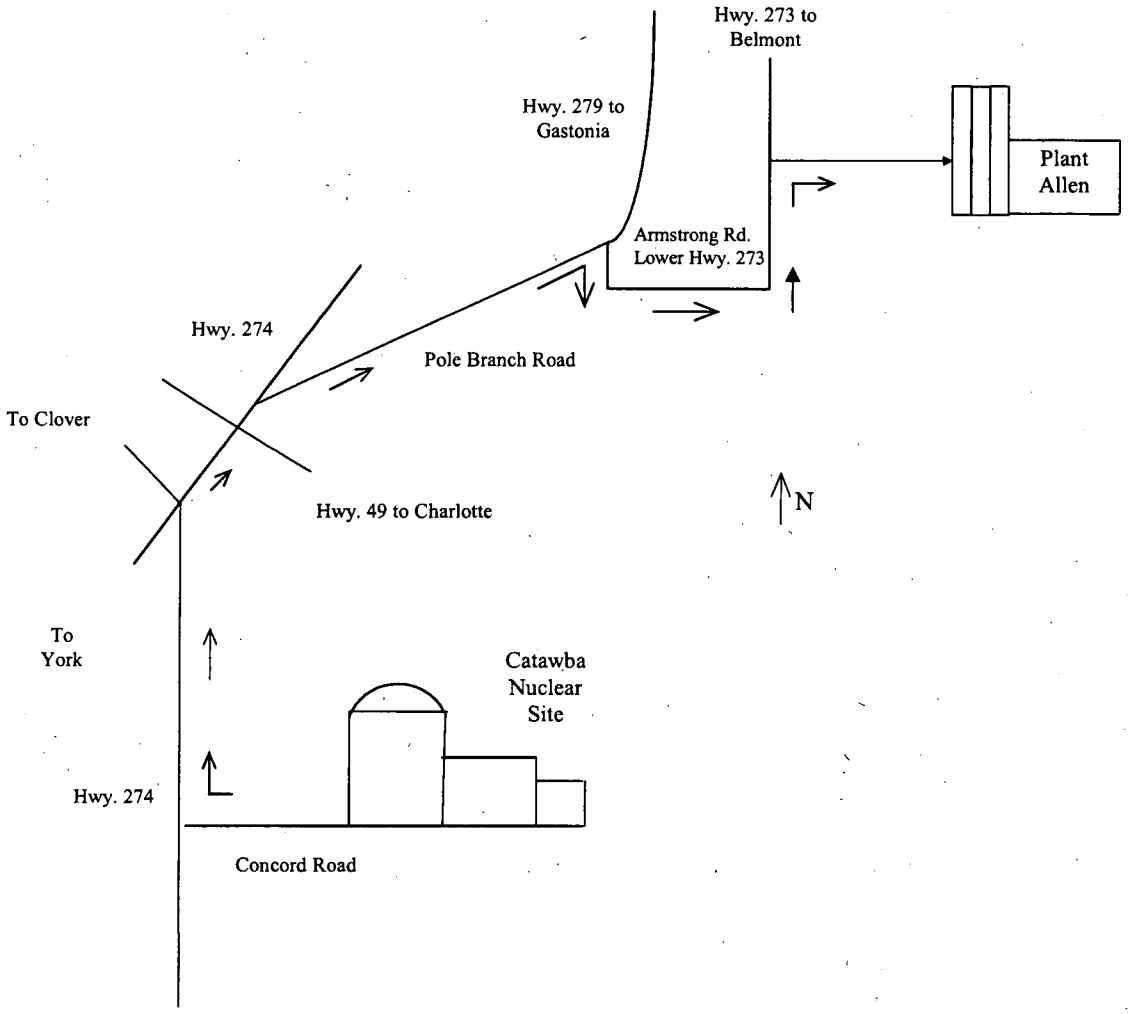
## Figure A
**Evacuation/Relocation Site York**
**York Operations Center**



**Enclosure 4.17**

**Evacuation Coordinator Checklist**

# Figure B
## Evacuation/Relocation Site Allen
## Duke Energy - Plant Allen



**Enclosure 4.18**

**TSC Pre-activation Checklist**



Initial

_____ Verify that personnel qualified to perform the following functions are present in the TSC. These personnel are required to be present within 45 minutes of the Emergency Declaration.

_____ TSC Dose Assessor

_____ Time arrived in TSC

| | |
|---|---|
| **NOTE:** | NRC Communicator position is filled by shift personnel. This position is initially located in the Control Room and transfers to the TSC upon TSC activation. |

_____ Verify that personnel qualified to perform the following functions are present in the TSC. These personnel are required to be present within 75 minutes of the Emergency Declaration.

_____ Emergency Coordinator

_____ Time arrived in TSC

_____ TSC Off-Site Agency Communicator (2)

_____ Time arrived in TSC

_____ Time arrived in TSC

_____ Reactor Engineer (Core/Thermal Hydraulics)

_____ Time arrived in TSC

_____ Announce the following using the TSC/OSC Public Address:

A. **"Anyone who has consumed alcohol within the past five (5) hours, notify either the Emergency Coordinator or the OSC Coordinator."**

B. **"All personnel in the TSC and OSC must have on a TLD and a self-reading dosimeter. Assume areas are contaminated until surveyed by RP."**

C. **"No eating or drinking until the TSC and OSC are cleared by RP."**

_____ **IF** less than 30 minutes have elapsed since a site assembly was initiated, make the following announcement using the plant PA System:

**"A site assembly is in progress. If you have not swiped your identification badge at a site assembly point card reader, swipe the card at this time."**

**Enclosure 4.18**

**TSC Pre-activation Checklist**



Initial

_____ Verify the Operations Engineer has determined the operability of the TSC Ventilation (pressurization and filter, capable of operating in filter mode) System.

_____ **IF** TSC Ventilation System is inoperable, notify the Emergency Coordinator of the following available information:

A. Reason for inoperability _____

_____

B. Expected time duration for return service_____

C. Radiological hazard to TSC personnel _____

_____

_____ Verify the TSC Off-Site Agency Communicator is prepared to take over communications with state and local agencies:

A. Emergency Notification Forms are available.

B. Selective Signaling phone or outside lines are functional.

_____ TSC Pre-activation Checklist complete at _____
(Time)

**Enclosure 4.19**

**Setup of Alternate TSC and OSC**



_____ 1. **IF** wireless phones with headsets and ERO position procedure books can be obtained from the TSC and OSC, take them to the alternate TSC/OSC location (Administration Building layout at end of this enclosure.).

_____ 2. **IF** equipment and procedures in the TSC and OSC are not available, utilize phone equipment and make copies of procedures located in the Administration Building to set up emergency response operations in the following steps.

_____ 3. Locate assigned Administration Building area on layout drawing at the end of this enclosure.

_____ 4. Set up assigned location as follows:

_____ A. Obtain phone equipment necessary to conduct ERO function at assigned location and connect to wall outlets.

_____ B. **IF** a computer is needed, obtain one that is not being used for another ERO function (e.g., Regulatory Compliance section, Business Management group, Human Resources group) and plug it into an electrical outlet and data port connections.

_____ C. **IF** necessary, obtain copies of your position's procedure enclosure from the "Emergency Planning Procedures" cabinet:

- RP/0/A/5000/020 (TSC Activation Procedure)
- RP/0/A/5000/024 (OSC Activation Procedure)

_____ D. **IF** your position utilizes the Emergency Response Organization programs to perform your function, select DAE, Search DAE and type in "emergency." The ERO program provides the following:

- Autolog - Log Keepers
- ENF v2.0 - Off-site Agency Communicators
- ERO Database - Emergency Planner
- SDS Simulator - Operations and Engineering
- Setup for RADOSE 5 - Radiation Protection

_____ E. **IF** copies of plant procedures are required, perform one of the following:

- For Emergency Plan Implementing Procedures (RPs), make a copy from the Control Copy located in the "Emergency Planning Procedures" cabinet.

- For all other procedures print a copy from NEDL Portal on DAE.

**Enclosure 4.19**

**Setup of Alternate TSC and OSC**



_____ 5. Assume or continue ERO role per facility activation procedures:

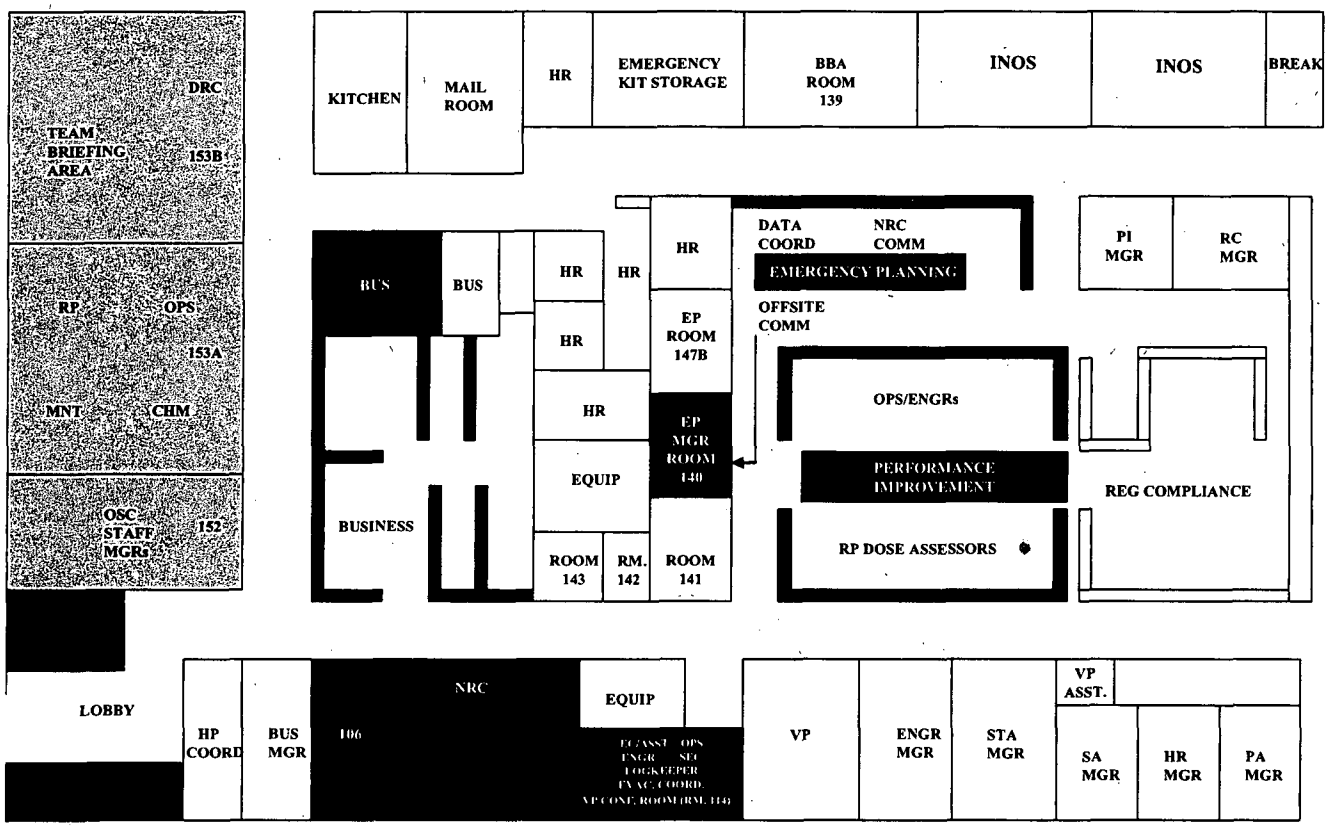
- RP/0/A/5000/020 (TSC Activation Procedure)
- RP/0/B/5000/024 (OSC Activation Procedure)

**Enclosure 4.19**

**Setup of Alternate TSC and OSC**



**ALTERNATE TSC/OSC IN THE ADMIN BLDG**



## ALTERNATE TSC/OSC IN THE ADMIN BLDG

[redacted]

**TSC FUNCTIONAL AREAS:**

VP CONF. ROOM - COMMAND AND CONTROL CENTER (EC, MAJOR STAFF, & LOGKEEPER)

SRG CUBES - OPS ENGRS, DOSE ASSESSORS, SYSTEM AND RX ENGRS

EP MGR OFFICE - OFFSITE COMMUNICATORS

EP CUBES - NRC COMMUNICATOR AND DATA COORDINATOR

[redacted]

**OSC FUNCTIONS:**

ROOM 152 - OSC MANAGERS

ROOM 153A/B - OSC WORK GROUPS

[redacted]

**NRC FUNCTIONS:**

RESIDENTS' OFFICES - RESIDENTS

ROOM 106 AND BUSINESS CUBES - NRC INSPECTION TEAM WORK SPACE AND PHONES

[redacted]

**LOCAL GOVERNMENT AGENCIES:**

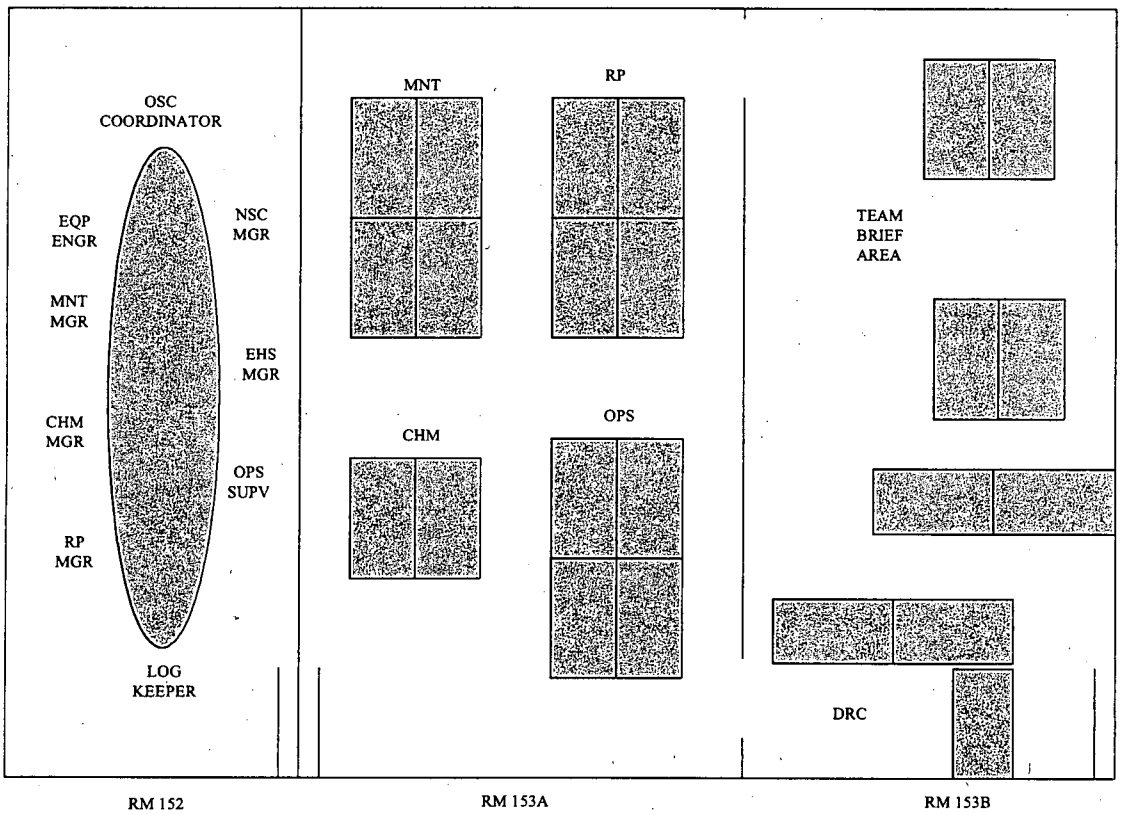
ROOMS 137A & 137B

**Enclosure 4.19**

**Setup of Alternate TSC and OSC**



## ALTERNATE TSC/OSC IN THE ADMIN. BLDG.

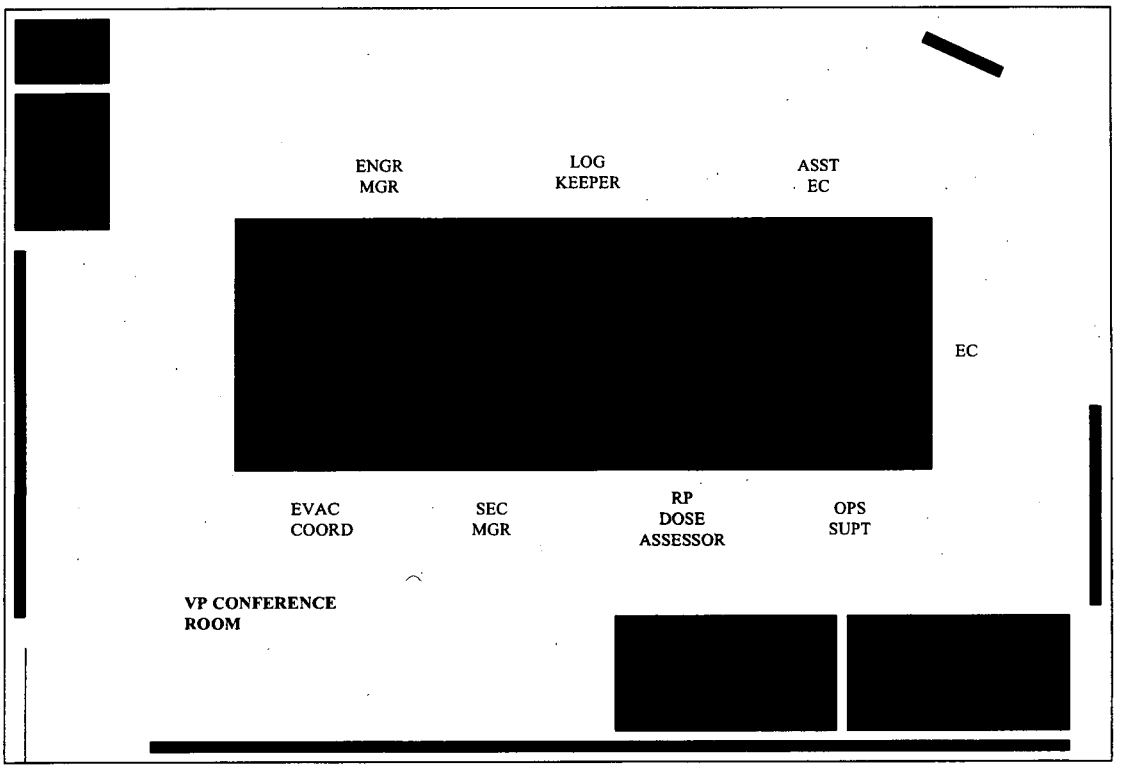


**Enclosure 4.19**

**Setup of Alternate TSC and OSC**



**ALTERNATE TSC/OSC IN THE ADMIN. BLDG**



## BRIDGE LINES (4) and WIRELESS PHONES (8)

OPS (3994/12) - OPS Supt, OPS Engr, OPS Asst Engr, TSC/CR Communicator, OPS Supv (OSC) OPS Interface (EOF)

RP (4980/12) - RP Mgr (OSC), RP Dose Assessors (TSC), RP Dose Assessors (EOF)

EP (4010/12) - E Planner (TSC), E Planner (EOF), P/A (Energy Quest)

EP (4011/6) - EC/Asst EC
5 on 1 spkr phone

OPS Supt

Engr Mgr

Sec Mgr

RP Dose Assess

EOF Director @ EOF

Offsite Communicators

OSC Coordinator
8 on 2 spkr phones

OPS Supv

Equip Engr

MNT Mgr

RP Mgr

CHM Mgr

EHS Mgr

NSC Mgr

**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

**OSC and TSC Personnel Assembling at York or Plant Allen**

**NOTE:**
1. This enclosure is guidance for the OSC and TSC ERO staff positions during security events when assembly off site is directed.
2. The pages of this enclosure are dedicated to the ERO member's actions at a specific facility.

**CAUTION:** Do not communicate information to personnel outside the CNS ERO about your location, the status of the event, nor the purpose for being at the assembly site over a phone or a radio or in person.

1. Sign in on the attendance sheet (pages 5-17 of this enclosure) for your ERO position.

2. Review and assume the command structure for the assembly site shown on page 2 of 19, based on who is present at each assembly site.

3. Expect to be assigned actions delegated by the Assembly Site Commander or Evacuation Coordinator.

4. Maintain an awareness of event status and intended actions of the assembled ERO by attending status update briefings given by the Assembly Site Commander.

5. Prepare to relocate to CNS by ensuring you have the required road block pass and site access credentials:
   a. Yellow mirror hang tag (road block pass available from Evacuation Coordinator)
   b. Duke picture ID (badge)
   c. State Drivers License

6. **WHEN** directed by the Assembly Site Commander, depart the assembly site for your assigned destination:
   a. **IF** you are the first shift, go to the identified CNS TSC/OSC facility (normal or alternate).
   b. **IF** you are a relief shift, go to the designated location (home/other location based on situation) to await assigned ERO shift coverage.

**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| | |
|---|---|
| **NOTE:** | The command structure for each assembly site will vary depending on who assembles at the site. |

Assumption of command authority is mandated by presence of the personnel listed in the order below:

**Assembly Site Commander**

(Off-duty Emergency Coordinator) or (OSC Coordinator) or (OPS Superintendent)
(Evacuation Coordinator upon departure of ERF staffs)

| **TSC Leader Position** | **OSC Leader Position** |
|---|---|
| Emergency Coordinators | OSC Coordinators |
| Operations Positions | Mnt Managers |
| TSC Engr Positions | IAE Engineers |
| TSC RP Positions | OSC RP Positions |
| TSC Communicators | OSC CHM Positions |
| Data Coordinators | EHS Positions |
| TSC Logkeepers | OSC Logkeepers |

**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

**Duty TSC Personnel Assembling at the EOF**

**NOTE:**
1. This enclosure is guidance for the OSC and TSC ERO staff positions during security events when assembly off site is directed.
2. The pages of this enclosure are dedicated to the ERO member's actions at a specific facility.

**CAUTION:** Do not communicate information to personnel outside the CNS ERO about your location, the status of the event, nor the purpose for being at the assembly site over a phone or a radio or in person.

1. Sign in on the attendance sheet (pages 5-17 of this enclosure) for your ERO position.
2. Review and augment the functions of the EOF per the diagram at the bottom of this page.
3. Maintain an awareness of event status and intended actions of the assembled ERO by attending status update briefings given in the EOF.
4. Prepare to relocate to CNS by ensuring you have the required road block pass and site access credentials:
   a. Yellow mirror hang tag (road block pass)
   b. Duke picture ID (badge)
   c. State Drivers License
5. **WHEN** directed by the Assistant Emergency Coordinator, depart the EOF and relocate to the identified CNS TSC/OSC facility (normal or alternate).

| TSC Position | Function Performed in the EOF |
|---|---|
| Emergency Coordinator | Support Assistant EOF Director |
| Asst. Emergency Coordinator, TSC Emergency Planner and TSC Logkeeper | Follow guidance on page 4 of 19 of this enclosure. Utilize NRC Staff Room. |
| TSC Security Manager | Support EOF Director. Utilize for Drill Controller Room for sensitive communications. |
| Operations and Engineering Personnel | Support Accident Assessment as directed by the Accident Assessment Manager. |
| RP Personnel | Support Radiation Assessment as directed by the Radiation Assessment Manager. |
| TSC Communicators (Offsite Agency and NRC) | Support EOF Offsite Communication as directed by the lead EOF Offsite Communicator. |
| NRC Residents | Utilize NRC Region 2 areas in EOF Director's area, as needed. |

**Enclosure 4.20**

**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

**Assistant Emergency Coordinator and TSC Emergency Planner and TSC Logkeeper Assembling at the EOF**

**NOTE:**
1. This enclosure is guidance for the OSC and TSC ERO staff positions during security events when assembly off site is directed.
2. The pages of this enclosure are dedicated to the ERO member's actions at a specific facility.

**CAUTION:** Do not communicate information to personnel outside the CNS ERO about your location, the status of the event, nor the purpose for being at the assembly site over a phone or a radio or in person.

1. Utilize the NRC Staff Room off the Director's area to establish communications with the assembly sites (Plant Allen and Newport) and make preparations for accessing CNS and staffing the OSC/TSC.
2. The TSC Emergency Planner will set up a bridge line call (701-4011, 6 line bridge) with the Evacuation Coordinators to obtain information on personnel accountability at the assembly sites (using pages 5-17) and to establish duty rotations (using pages 18-19) for the ERO positions in the OSC and TSC:
   - Plant Allen - (704) 829-2350 (Switchboard operator)
   - York - (803) 628-3293, 3294, 3295 (Warehouse area)
3. The Assistant Emergency Coordinator will develop an event status briefing and notify the Assembly Site Commanders of event status by phone utilizing the CNS bridge line (803) 701-4011.
4. The TSC Logkeeper will logon to WebEOC (refer to EP FAM section 3.15, attachment 3.15.3.2) and initiate the CNS TSC/EOF log. Log entries should include the following events:
   - Transmission of event status briefings to the assembly sites
   - Accountability of the ERO at all three sites (Plant Allen, York and EOF)
   - ERO position staffing for shift rotations
   - Decision to access the site and staff the OSC/TSC
   - Decision determining which site facilities to staff (normal or alternate OSC/TSC).
5. **WHEN** the decision is made to staff the CNS OSC/TSC, the Assistant Emergency Coordinator will direct the Assembly Site Commanders to notify the assembled ERO to:
   - Relocate to CNS and staff the OSC/TSC (normal or alternate) for the scheduled first shift personnel, and
   - Release the other ERO personnel to their home or designated location to await their assigned shift rotation.

**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

# OSC

| CHEMISTRY MANAGER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| DRC SUPERVISOR/SUPPORT | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| ENVIRONMENT, HEALTH & SAFETY MANAGER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| EQUIPMENT ENGINEER | | | (1) R-75 |
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| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

## RP TECHNICIANS

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL |
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**Enclosure 4.20**

**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

## RP TECHNICIANS

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL |
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## LOG/STATUS KEEPER

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| MAINTENANCE MANAGER | | | (1) R-75 |
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| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| NUCLEAR SUPPLY CHAIN MANAGER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| OSC COORDINATOR | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| RP MANAGER | | | (2) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| MECHANICAL MAINTENANCE TECHNICIAN | | (1) R-75 |
|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL |
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| IAE TECHNICIAN | | (2) R-75 |
|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL |
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| RAD WASTE OPERATOR | | (1) R-75 |
|---|---|---|
| NAME (Print)) | SIGNATURE | TIME OF ARRIVAL |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

# TSC

## CONTROL ROOM/TSC COMMUNICATOR

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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## DATA COORDINATOR

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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## DOSE ASSESSMENT

(1) R-45

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**

**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| EMERGENCY COORDINATOR/ASSISTANT | | | (1) R-75<br>(1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| EMERGENCY PLANNER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| ENERGYQUEST (as per Public Affairs Plan) | | | |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| ENGINEERING MANAGER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| EVACUATION COORDINATOR | | | (1) D-75 |
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| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| LOGKEEPER | | | (1) D-75 |
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| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**

**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| NRC | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| TSC/NRC COMMUNICATOR | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| OFF-SITE AGENCY COMMUNICATOR | | | (2) R-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| OPERATIONS ENGINEER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

| ASSISTANT OPERATIONS ENGINEER | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| OPERATIONS SUPERINTENDENT | | | (1) D-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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| REACTOR ENGINEER | | | (1) R-75 |
|---|---|---|---|
| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
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**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

## RP SUPPORT

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
|---|---|---|---|
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## SECURITY MANAGER

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
|---|---|---|---|
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## SYSTEMS SUPPORT ENGINEER

(1) D-75

| NAME (Print) | SIGNATURE | TIME OF ARRIVAL | DUTY PERSON Y/N |
|---|---|---|---|
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

**OSC 24-Hour Essential Staffing**

| JOB FUNCTION | Duty Person (1st SHIFT) | 24 HR Relief (2nd SHIFT) |
|---|---|---|
| OSC Chemistry Manager | | |
| OSC Coordinator | | |
| OSC DRC Supervisor | | |
| OSC DRC Support | | |
| OSC DRC Support | | |
| OSC EH&S Manager | | |
| OSC Equipment Engineer | | |
| OSC IAE Tech | | |
| OSC Logkeeper | | |
| OSC Maintenance Manager | | |
| OSC Mech Maint Tech | | |
| OSC NSC Manager | | |
| OSC RP Manager | | |
| OSC RP Supervisor | | |
| OSC RP Tech - FMT "A" | | |
| OSC RP Tech - FMT "A" | | |
| OSC RP Tech - FMT "B" | | |
| OSC RP Tech - FMT "B" | | |
| OSC RP Tech - Survey (Inside) | | |
| OSC RP Tech - Survey (Inside) | | |
| OSC RP Tech - Survey (Out) | | |
| OSC RP Tech - Survey (Out) | | |
| OSC RP Tech - Job Support | | |
| OSC RP Tech - Job Support | | |
| OSC RP Tech - Job Support | | |
| OSC RP Tech - Job Support | | |
| OSC RP Tech - Job Support | | |
| OSC RP Tech - Job Support | | |
| Radwaste Operator | | |
| | | |
| Other OSC Essential Personnel | **Duty Person (1st SHIFT)** | **24 HR Relief (2nd SHIFT)** |
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**Enclosure 4.20**



**Actions for the OSC and TSC Staffs Assembled at the Offsite Assembly Areas during Security Events {4}**

**TSC 24-Hour Essential Staffing**

| JOB FUNCTION | Duty Person (1st SHIFT) | 24 HR Relief (2nd SHIFT) |
|---|---|---|
| Control Room/TSC Communicator | | |
| TSC Data Coordinator | | |
| TSC Dose Assessor | | |
| TSC Emergency Coordinator | | |
| TSC Assistant Emergency Coordinator | | |
| TSC Emergency Planner | | |
| TSC Engineering Manager | | |
| TSC Engineer - Reactor Engineer | | |
| TSC Engineer - Systems Support Engineer | | |
| TSC Evacuation Coordinator | | |
| TSC Logkeeper | | |
| TSC NRC Communicator | | |
| TSC NRC Resident Inspector | | |
| TSC Offsite Agency Communicator | | |
| TSC Offsite Agency Communicator | | |
| TSC OPS Superintendent | | |
| TSC OPS Engineer | | |
| TSC OPS Assistant Engineer | | |
| TSC RP Support | | |
| TSC Security Manager | | |
| | | |
| Other TSC Essential Personnel | **Duty Person (1st SHIFT)** | **24 HR Relief (2nd SHIFT)** |
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**Enclosure 4.21**



**Commitments for RP/0/A/5000/020**

{1} PIP 2-C96-0273

{2} PIP C-03-03112

{3} PIP C-04-02668

{4} NRC Bulletin 2005-02, Emergency Preparedness and Response Actions for Security Based Events, July 18, 2005.

{5} PIP C-06-00833

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 2 to RAI 13.03-055**

**RP/0/A/5000/024, "OSC Activation Procedure"**

| Duke Energy<br>Catawba Nuclear Station<br>**OSC Activation Procedure**<br><br>**Reference Use** | Procedure No.<br>**RP/0/A/5000/024**<br>Revision No.<br>**020**<br>Electronic Reference No.<br>**CN005GO2** |
|---|---|
| **PERFORMANCE** | |
| * * * * * * * * * * UNCONTROLLED FOR PRINT * * * * * * * * * *<br>**(ISSUED) - PDF Format** | |

## 1. Symptoms

1.1 Conditions exist where events resulted in the activation of the Emergency Response Organization (ERO).

## 2. Immediate Actions

**NOTE:**

1. The OSC must be "ACTIVATED" within 75 minutes of the emergency declaration time. The TSC Emergency Coordinator will declare the TSC and the OSC "ACTIVATED" together.
2. This procedure is not required to be followed in step-by-step sequence. Sections of the procedure are to be implemented, as the applicable action becomes necessary:
3. Specific telephone numbers are not provided in this procedure. Telephone numbers are located in the Emergency Response Telephone Directory. A hard copy of the Emergency Response Telephone Directory is located in the OSC storage cabinet. An electronic version of the Emergency Response Telephone Directory is also available on the Catawba Nuclear Site Emergency Planning Web Page.

2.1 Upon notification to activate, ERO members assigned to the OSC shall report to the OSC.

2.2 The OPS OSC Supervisor will assume the role of OSC Coordinator until relieved by a qualified OSC Coordinator.

## 3. Subsequent Actions

3.1 Each represented group is responsible for ensuring their appropriate Enclosure is completed.

3.2 Contact the TSC Data Coordinator for resolution of any computer hardware/software problems, **OR** the OSC Nuclear Supply Chain Manager for resolution of other equipment problems.

3.3 The TSC Emergency Coordinator must approve the participation of personnel with training deficiencies; e.g. respiratory fit test, BBA, allowed exposure limit, specific ERO training, etc. as an ERO member.

3.4 Assessment and Repair Team activities shall be conducted in accordance with NSD 704, "Technical Procedure Use and Adherence."

3.5 Definitions:

3.5.1 Alternate OSC - Should the OSC become uninhabitable OSC members will relocate to the Alternate OSC, which is located in TSC. The Alternate OSC layout is provided in the Emergency Response Telephone Directory.

3.5.2 Critical Task – A task that must be completed as soon as possible and normally becomes the number one priority task. The Assessment and Repair Team is dispatched immediately. The OSC team dispatch paperwork is completed as soon as possible after the dispatch of the team. Examples include: SSF Startup, Fire Response, MERT or as determined by the TSC or OSC staff.

3.5.3 Essential Personnel - Any personnel required to assist in the performance of assigned emergency response tasks. These personnel would not evacuate in the event of Site Evacuation.

3.6 The following SDS Group Displays have been established for emergency response use. To access these group displays enter; GD (space) Group Display Name, in the white box at the upper right portion of the screen.

| Group Display Name | Group Display Description |
|---|---|
| ERDS1 | ERDS Group 1 |
| ERDS2 | ERDS Group 2 |
| EROCONT | Selected values associated with Containment |
| EROCORE1 | Incore temperature values |
| EROCORE2 | Additional Incore temperature values |
| EROCORE3 | Additional Incore temperature values |
| EROEMF | Selected EMF instantaneous values |
| EROEMF15 | Selected EMF 15 minute average values |
| EROENV | Selected Meteorological values |
| EROINJCT | Selected Letdown/Charging values |
| EROPLEAK | Selected Primary to Containment Leakage Values |
| EROPRIM | Selected Primary system values |
| ERORD5 | Raddose 5 input values |
| ERORXG | Reactor Engineer Data |
| EROSAMG | Severe Accident Management Guideline (SAMG) Parameters |
| EROSECND | Selected Secondary system values |
| EROSLEAK | Selected Primary to Secondary Leakage Values |

To access the above list in SDS, select Trends from the pulldown menu, then Group List (scroll down to ERO Listing).

3.7 The following process shall be used when calling in additional support personnel.

3.7.1 **IF** personnel being called in are already on site, GO TO step 3.7.5.

3.7.2 STATE: "There is a drill/emergency at Catawba Nuclear Site."

3.7.3 ASK: "Have you consumed alcohol within the past five hours?"

3.7.4 **IF** "NO," skip to Step 3.7.5.

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| **NOTE:** | Employees who acknowledge consumption of alcohol within five hours must be evaluated by supervision upon reporting to work. |

**IF** "YES," ask the following questions, and use judgment to determine whether the person is fit for duty.

A. What did you consume?
B. How much did you consume?
C. Can you perform your duties unimpaired?
D. Can you drive safely?

3.7.5 Provide the person called with the following information:

A. Where they should respond - TSC or OSC as applicable
B. Emergency Conditions/Plant Status
C. Areas of plant to avoid while in route to TSC/OSC
D. Dosimeter requirements for access (TLD, Electronic Dosimeter, RWP 33, etc.)
E. Provide the person called to the TSC/OSC with the name of their job sponsor. The job sponsor is responsible for providing them with all the information required in this step.
F. Ensure this person is tracked on an OSC Team Sheet, if and when applicable.

3.7.6 Inform Security of additional personnel that will be arriving from off-site.

## 4. Enclosures

4.1 OSC Coordinator
4.2 RP Manager
4.3 RP Supervisor
4.4 DRC Supervisor
4.5 Chemistry Manager
4.6 OSC Operations Supervisor
4.7 Equipment Engineer
4.8 Maintenance Manager
4.9 Environment, Health & Safety Manager
4.10 Nuclear Supply Chain Manager
4.11 OSC Log/Status Keeper
4.12 Control of Assessment and Repair Teams

**Enclosure 4.1**

**OSC Coordinator**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Contact OSC Operations Supervisor and request turnover of command and control for the OSC:
OPS Supervisor (name) _____
OSC Coordinator (name) _____
Time of Turnover _____

_____ Ensure the OSC is habitable through discussions with the RP Manager.

| **NOTE:** | The Alternate OSC is located in the TSC. |
|---|---|

_____ **IF** the OSC is not habitable or becomes not habitable, relocate to the Alternate OSC. Consider the following when relocating to the Alternate OSC:

- Safety of OSC personnel is always the first priority.
- The Alternate OSC layout is provided in the Emergency Response Telephone Directory.
- Inform OSC Managers:
  A. When to relocate the Alternate OSC
  B. The route to be taken to the Alternate OSC
  C. Any hazards which may be encountered while moving to the Alternate OSC
  D. Where to re-assemble for accountability
  E. Take OSC position notebooks with them to the Alternate OSC
  F. Verify accountability of OSC personnel after relocation to the Alternate OSC
- Inform the Emergency Coordinator when the OSC relocation is completed.

_____ Verify the OSC Log/Status Keeper position is staffed. **IF** the OSC Log/Status Keeper position is not staffed, assign someone the responsibility of performing Enclosure 4.11 until OSC Log/Status Keeper position is staffed.

_____ Make an announcement that the following groups have required positions and should submit completed minimum staffing level forms to the OSC Log/Status Keeper.

- Operations
- Radiation Protection

Initial

- Maintenance
- Engineering
- Chemistry

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| **NOTE:** | Upon completion of all minimum staffing level forms, the OSC may be declared **"OPERATIONAL."** |

_____ Establish communications with the TSC Emergency Coordinator. Using the polycom phone to the left of the OSC Coordinator position, call the Emergency Coordinator at 2905. (You may want to leave this phone on speaker with it muted).

_____ Inform the Emergency Coordinator that the OSC is **"OPERATIONAL."**
Emergency Coordinator_____
OSC Operational at _____

_____ Evaluate the completed OSC Team Work Sheets collected by the OSC Log/Status Keeper to determine if any in-progress work should be discontinued. This evaluation should include the following as a minimum:
- Cause of the event
- Discussion with the TSC
- Discussion with RP Manager

_____ Give all OSC Team Work Sheets that were approved for work to continue to the OSC Log/Status Keeper for assignment of OSC Assessment and Repair Team number.

_____ Verify that the appropriate OSC manager has stopped all work identified on OSC Team Work Sheets that were not approved for work to continue.

_____ IF the RP Manager issues a Blanket Dose Extension for the event, inform the TSC Emergency Coordinator.

_____ Inform the TSC Emergency Coordinator of encountered plant conditions and status of emergency actions in progress.

_____ **IF** non-essential personnel are to be evacuated from the site, announce the following to the OSC Managers:
- No "declared" pregnant females are to remain on site.
- Account for all site-essential personnel remaining on site.
- All site-essential personnel not assembled in the TSC, OSC or Control Room will be assigned an OSC R&R Team number using an OSC Team Work Sheet.
- RP Manager/Supervisor shall ensure that all areas outside of OSC/TSC/CR where site-essential personnel are located are radiologically habitable.

_____ Inform the OSC Log/Status Keeper of any items that should be documented in the OSC Log.

Initial

_____ Perform assessments approximately every hour as necessary.

- Monitor the Emergency Coordinator "round table discussions." Ensure the Emergency Coordinator presses "update" button to activate all microphones on the TSC Manager's table.
- Ensure team activities are prioritized and in agreement with TSC established priorities.
- Conduct a briefing of the OSC Managers to assess emergency conditions, radiological conditions, team status, equipment/plant conditions and available human resources.

_____ Provide updates to OSC personnel via the OSC PA system approximately every thirty minutes. These updates provide OSC personnel with information that is in addition to the Emergency Coordinator updates. Examples are:

- OSC priorities based on the event priorities established by the Emergency Coordinator
- Personnel situations
- Radiological conditions
- Plant conditions
- Expected actions
- Any classification changes when they occur

_____ Perform the following as necessary throughout the event:

- Call out additional OSC support personnel as needed. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

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| **NOTE:** | During Critical Tasks, Assessment and Repair Teams should be dispatched immediately. The "OSC Team Work Sheet" will be completed as soon as possible after dispatch. |

- Ensure Assessment and Repair Teams are:
  - Formed (appropriate expertise for the task)
  - Briefed
  - Dispatched
  - Status monitored
  - Debriefed
- Prior to approving work on plant equipment or systems, ensure the responsible group for that equipment or system is informed.
- Ensure OSC remains habitable.

Initial

| | |
|---|---|
| **NOTE:** | The OSC Log/Status Keeper will maintain 24 Hr. Staffing/Essential Personnel documentation for the OSC Coordinator Position. |

_____ Verify that the OSC Log/Status Keeper has obtained a completed 24-hour staffing/essential personnel form from each OSC Manager.

| | |
|---|---|
| **NOTE:** | Deactivation of the OSC will be implemented when the Emergency Coordinator or EOF Director terminates emergency conditions. |

_____ Upon termination of the emergency condition, announce the following over the OSC PA System:

- A critique will be conducted in the TSC. All OSC positions are to be represented at the critique.
- Provide all completed paperwork to the OSC Log/Status Keeper.
- Ensure OSC staff informs all Assessment and Repair Teams in the field that the emergency condition has been terminated.
- Return your work area to a state of readiness.

**Enclosure 4.2**

**RP Manager**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Obtain your position cell phone/headset from the OSC supply cabinet if RP bridge line use is desired.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

**NOTE:**
1. During ERO drills, radiological monitoring and controls of the OSC will be configured to have minimum impact on the day-to-day operations of the WCC. Non-drill participants are exempted from the designated restrictions of the drill and may enter the WCC area as needed.
2. During ERO drills, all personnel are allowed to access OSC/WCC area bathrooms.
3. The RP Manager (Supervisor) will coordinate the establishment of appropriate access points and/or barriers of the OSC/WCC area for both drills and events. Additional RP support may be used to accomplish these tasks.
4. Signs for the OSC/WCC area are located in the RP Manager's position notebook.

_____ Place the swing gate and sign at the Portal Monitor on the Unit 1 side to facilitate use of the Portal Monitor by all personnel entering the OSC/WCC area.

_____ Set up the Tensa barrier on the Unit 2 entrance to the WCC.

_____ Place a sign on Unit 2 side indicating that personnel must enter the OSC/WCC from the Unit 1 side only.

**NOTE:** The OSC RP positions are considered Operational after submittal of the completed "Minimum Staffing Levels for Required OSC RP Personnel" form to the OSC Log/Status Keeper.

_____ Verify that RP Supervisor has completed and provided the following forms to the OSC Log/Status Keeper.
- Minimum Staffing Levels for Required OSC RP Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams") for teams already posted/working in the field prior to OSC activation.

_____ Establish an RP Manager position log that captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Obtain preliminary radiological information from computer programs (e.g., OAC, DRMS) or the Control Room, as necessary.
- Place emphasis upon determining those areas of the plant that may have increasing radiation levels.
- Control the Radiation Control Area (RCA) access.
- Request the TSC Emergency Coordinator to have Operations conduct a Site Assembly, if current radiological conditions warrant, per RP/0/A/5000/010 (Conducting a Site Assembly or Preparing the Site for an Evacuation).

_____ Perform the following as requested by the TSC Security Manager for Security officers remaining on post(s) and as necessary throughout the event:
- Evaluate potential dose exposure.
- Recommend any needed protective actions for officers remaining on post.
- Request DRC personnel to complete OSC Dose Record form for officers remaining on post as identified by the Security Manager.
- Request DRC to issue secondary monitoring devices for officers remaining on post as identified by the TSC Security Manager.

| | |
|---|---|
| **NOTE:** | Consider wind direction to determine affected site assembly points; (e.g., staging locations which should be opposite of the plume radioactive gaseous release path), as monitored by Field Monitor Team's (FMTs) and TSC. |

_____ Recommend on-site protective action(s) for assembled personnel (e.g., relocated affected personnel assembly points in the downwind plume path).

_____ Provide protective actions for those personnel with work duties in radiological areas.

_____ Coordinate in-plant monitoring to support Control Room, TSC and OSC.
- Initiate contamination control requirements, as necessary.
- Initiate "no eating or drinking" contamination control requirements, as necessary.
- Ensure that personnel monitoring equipment is available in OSC, TSC and Control Room; (e.g., hand held frisking equipment).

_____ Initiate emergency procedures, as necessary.
- HP/0/B/1009/007, "In-Plant Particulate and Iodine Monitoring Under Accident Conditions"
- SH/0/B/2005/003, "Distribution of Potassium Iodine Tablets in the Event of A Radioiodine Release"

Initial

_____ Coordinate OSC and TSC groups to ensure adequate preplanning to limit radiation exposures.

- Manage planned emergency exposures using CNS Emergency Plan and System Radiation Protection Manual (e.g., personnel exposure above normal administrative Maximum Allowable Exposure [MAE] limits requires upper Duke management pre-approval).

_____ Provide updated information to OSC Coordinator, TSC staff and EOF staff concerning plant radiological conditions, as necessary.

- Direct trending and recording of available information to support RP OSC response.

_____ Ensure appropriate radiological R&R Team debriefing information is provided to the OSC Coordinator.

_____ Coordinate RP shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ **IF** Site Evacuation is required:

- Validate the Evacuation-Relocation Site selected by the TSC Emergency Coordinator based on RP/0/A/5000/010, "Conducting a Site Assembly or Preparing the Site for an Evacuation."
- Give first consideration to "declared" pregnant workers. Assembly point for pregnant workers is based upon updated radiological assessment of plume and/or other radiological conditions reported by the TSC and Field Teams.
- Ensure all Required RP positions remain staffed during and following Site Evacuation.
- Approve all assembly points outside of OSC/TSC/Control Room for radiological habitability where site essential personnel are located (e.g., warehouses, toolroom, etc.)
- Direct non-essential RP personnel to a staging area, considering directional movement of a plume based on information provided by TSC Dose Assessor and Field Monitor Teams.

_____ Communicate with TSC Dose Assessor or EOF Field Monitoring Coordinator as appropriate.

- **IF** an on site survey team is dispatched from OSC, (e.g., Foxtrot Team), notify TSC RP Support or EOF Field Monitor Coordinator, as appropriate.
- Notify TSC RP Support or EOF Field Monitor Coordinator, as necessary, when survey results are from radiological surveys taken inside Protected Area Fence.

_____ Assist OSC Coordinator as necessary in forming re-entry and recovery plans.

Initial

Complete the following after drill or actual emergency termination:

_____ • Assure swing gate and sign at Portal Monitor have been removed.

_____ • Assure Tensa barrier on the Unit 2 side of the WCC has been taken down.

_____ • Assure Tensa barrier signs have been removed and properly stored at the appropriate location.

_____ • Ensure all survey sheets, logs, and Team Personnel List forms are completed and signed.

_____ • Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ • Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

_____ • Attend the drill or emergency debrief/critique in TSC or designated location.

**Enclosure 4.3**

**RP Supervisor**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

| | |
|---|---|
| **NOTE:** | The OSC RP positions are considered Operational after submittal of the completed "Minimum Staffing Levels for Required OSC RP Personnel" form to the OSC Log/Status Keeper. |

_____ Complete the following forms (assign RP Technician to assist if preferred):
- Minimum Staffing Levels for Required OSC RP Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams"):
  - **IF** no Tasks are in progress for your work group write "No Tasks in progress" in Block 1.
  - **IF** Tasks are in progress fill out form with relative information and obtain necessary signatures.

_____ Provide the following to the OSC Log/Status Keeper:
- Completed Minimum Staffing Levels for Required OSC RP Personnel (Enclosure 4.3, pages 5 & 6) within EP allotted time to activate the OSC
- Completed "OSC Team Work Sheet" form(s)
- Completed "Radiation Protection 24 Hour Staffing/Site Essential Personnel" (Enclosure 4.3, page 7)

_____ Ensure MG readers are operational in SPA area.

_____ When requested by the TSC, activate Field Monitoring Teams (FMTs):
- Conduct a pre-job brief that includes the following:
  - Status of the plant/affected unit
  - Whether a release is in progress or expected
  - Wind direction/expected path of potential or actual plume
  - Whether teams are needed to change normal travel path to the Emergency Kit Room
  - Whether teams are needed to monitor dose during transit to Emergency Kit Room

Initial

- Notify TSC RP support that FMTs have been dispatched to Emergency Kit Room

_____ Direct FMTs to go to SPA Electronic Dose Capture station and sign in under RWP 98.

- FMTs should wear own ED, **OR if necessary**, obtain ED from Emergency Kits
- FMTs remain under RWP 33 until that time.

_____ Establish an RP Supervisor position log which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups
- OSC Habitability Surveys

_____ Ensure the following OSC RP items are brought to the OSC by RP personnel:
- Respiratory Printout
- OSC Locked High Radiation Area Master Keys
- RP Survey Instruments

| | |
|---|---|
| **CAUTION:** | Give due consideration to the fact that plant conditions may be unstable and radiological conditions unknown. |

_____ Continuously monitor plant radiological status.
- Report plant radiological status to RP Manager, OSC Coordinator or Emergency Coordinator, as necessary.

_____ Provide immediate support and RP job coverage as necessary, for the following:
- Fire Brigade
- Contaminated Medical Injury Response
- Emergency Rescue
- Emergency Team - damage control
- RP job coverage for chemistry sampling, operations and/or maintenance activities.
- Other Emergency Response Teams, as necessary.

_____ Coordinate dispatch of Field Monitor Teams with TSC RP Support or EOF Field Monitor Coordinator, as appropriate.

_____ Provide RP personnel for radiation survey teams inside the security protected area boundary fence, upon request from TSC or EOF.

| | |
|---|---|
| **NOTE:** | On-Site Teams report information back to OSC RP Supervisor and report survey results and radioactive release information to TSC or EOF as directed by OSC RP Supervisor. |

Initial

_____ Coordinate RP activities for assessment and repair teams, as necessary.
- Ensure completion of OSC Team Work Sheet.
- Establish travel route to and from job to be performed.
- Establish dose limits and/or dose rate considerations for high exposure jobs.
- Post Plant Radiation Levels in the OSC for Job Planning as necessary.
- Direct assignment of additional dosimetry, as needed.
- Direct the use of protective clothing for teams to prevent the spread of contamination.
- Direct RP technicians to monitor and report radiological conditions periodically while in the field and upon return to OSC.

_____ Coordinate the set up and source check of radiological monitoring equipment in OSC, TSC and Control Room, as necessary; (e.g., portal monitor, hand and foot monitor, friskers and air samplers).

_____ Monitor dose rate in OSC.
- Establish control over OSC personnel radiation exposure.
- Limit personnel exposure to blanket dose extension levels.

_____ Initiate discussion with RPM on the need to evacuate the OSC if General Area dose rate approaches 5 mrem/hr and is expected to continue.
- Relocate Personnel Monitoring Teams to Low dose areas (< 5 mrem/hr), appropriate to site radiological conditions; (e.g., plume directional movement).

_____ Direct contamination survey of OSC, as appropriate to radiological conditions.
- Evaluate contamination potential in the OSC
- Initiate use of personnel monitoring equipment, as necessary; (e.g., portal monitor and friskers).
- Initiate decontamination of equipment or personnel, as appropriate.

_____ Identify RP personnel and personnel monitoring teams as they become available, for the following locations:
- On-site assembly areas identified in Nuclear Policy Manual NSD 114, "Site Assembly/Site Evacuation"
- Other assembly points for surveys as directed by RP Manager
- PAP Area
- Evacuation Facility

_____ **IF** Site Evacuation is activated, initiate HP/0/B/1009/005, "Personnel/Vehicle Monitoring for Emergency Conditions," as necessary.

_____ Obtain additional emergency kit items and supplies to support OSC, if needed.

_____ Assign personnel to verify respiratory qualifications of OSC personnel, as necessary.

_____ Coordinate radiological monitoring of food items supplied to OSC with Nuclear Supply Chain and Emergency Planning representatives, as necessary.

_____ Restore equipment to a ready state condition after a drill or event is terminated.

_____ **IF** opened during OSC/TSC activation, ensure RP OSC and TSC Emergency Kits are inventoried and sealed.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

_____ Provide critique or debrief issues to RPM after a drill or event is terminated.

**Minimum Staffing Levels for Required OSC RP Personnel**

Date/Time Event Declared: _____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME / ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **ON SHIFT RESPONDERS - REQUIRED** | | |
| Dose Assessment | (1)_____ | N/A |
| Access Control, Coverage Personnel, Monitoring and Dosimetry, Countroom | (1)_____<br>(2)_____ | N/A<br>N/A |
| **45 MINUTE RESPONSE TIME - REQUIRED** | | |
| Out of Plant Surveys | (1)_____ | (1)_____ |
| In-Plant Surveys | (1)_____ | (1)_____ |
| **75 MINUTE RESPONSE TIME - REQUIRED** | | |
| Off-Site Surveys (FMT) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____ | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____ |
| On-Site (Out of Plant) | (1)_____ | (1)_____ |
| In-Plant Surveys | (1)_____ | (1)_____ |

**CONTINUED ON NEXT PAGE**

**Enclosure 4.3**

**RP Supervisor**



**Minimum Staffing Levels for Required OSC RP Personnel (Continued)**

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **75 MINUTE RESPONSE TIME - REQUIRED - CONTINUED** | | |
| Access Control, Coverage Personnel, Monitoring and Dosimetry | (1)_____ | (1)_____ |
| | (2)_____ | (2)_____ |
| | (3)_____ | (3)_____ |
| | (4)_____ | (4)_____ |
| | (5)_____ | (5)_____ |
| | (6)_____ | (6)_____ |

All above positions Have / Have Not been filled within the allotted time frame to activate the OSC

_____ RP Manager/Supervisor
Signature Title

- Submit completed form to OSC Log/Status Keeper

**Enclosure 4.3**

**RP Supervisor**



**Radiation Protection 24 Hour Staffing / Essential Personnel**

Date: _____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **75 MINUTE DESIRED OSC RP PERSONNEL** | | | |
| (1) RP Manager<br>(2) RP Supv. | (1)_____<br>(2)_____ | (1) RP Manager<br>(2) RP Supv. | (1)_____<br>(2)_____ |
| (1) DRC Supv./ Support | (1)_____ | (1) DRC Supv. | (1)_____ |
| **OTHER ESSENTIAL RP PERSONNEL** | | | |
| Other Essential RP Personnel<br>(As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) | Other Essential RP Personnel<br>(As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) |

- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.4**

**DRC Supervisor**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Assemble the following supporting materials:
- Two copies of the Daily Dose Report (1 copy TSC, 1 copy OSC)
- Unassigned TLDs
- Applicable procedures

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Establish a DRC Supervisor position log which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups.

_____ Perform the following actions as required throughout the event:
- Notify team members without a TLD and SRD of dosimetry requirements.
- Communicate pertinent information to Radiation Protection Manager (RPM) for logging.

_____ Post OSC Dosimetry Requirements.

_____ Obtain OSC Dose Record forms (Enclosure 4.4 Page 5 of 6) from the Emergency Kit.
- Distribute to OSC personnel.
- Request personnel take the following actions:
  - Complete Section I
  - Return completed form to DRC area.

_____ Ensure DRC equipment is operable.
- DRC Computer
- DRC telephone
- FAX machine

Initial

_____ Initiate Blanket Dose Extension. (Enclosure 4.4 Page 6 of 6)

- Submit to RPM for approval.
- Perform the following actions after Blanket Dose Extension is approved.
  - Advise log keeper of new limits.
  - Assist log keeper with posting limits as needed.
  - Ensure new limits are posted.
  - Route a copy to the TSC.

_____ Complete Section II of the OSC Dose Record Forms.

- Obtain information using the RM&C system or Daily Dose Report.
- Alphabetize forms by personnel last name.

**WARNING:** Teams responding to Critical Tasks (e.g., fire brigade, medical emergency, SSF operation, etc.) should not be prevented from immediate response.

_____ Perform the following actions prior to dispatching a team from the OSC:

- **IF** team was dispatched for an emergency situation **OR** dispatched from outside the OSC, complete the following as soon as practical using available information.
- Determine team member's name.
  - ♦ Ensure an OSC Dose Record form has been submitted for each team member.
- Obtain an OSC Team Work Sheet for each team.
  - ♦ Ensure all team members being dispatched are listed.

**Enclosure 4.4**

**DRC Supervisor**



Initial

| | |
|---|---|
| **NOTE:** | OSC Dose Record and OSC Team Work Sheet should have identical Task # and Time Out. |

- Obtain next sequential Task #.
- Complete OSC Dose Record.
  - Task #
  - Time Out
  - Dosimeter Reading Out
- Complete OSC Team Work Sheet
  - Date
  - Time Out
  - Task #
- Distribute OSC Team Work Sheet as specified by the form.

_____ File OSC Dose Records in Task # order.

_____ Perform the following actions when a team returns to the OSC:
- Obtain the following forms:
  - OSC Team Work Sheet copy from the team (white sheet).
  - OSC Dose Records for returning team members (pink sheet).
- Obtain dose information from available team members.
- Complete OSC Dose Record
  - Time In
  - Dosimeter Reading In
  - Year To Date TEDE = (dosimeter reading in + previous YTD TEDE entry)

| | |
|---|---|
| **NOTE:** | OSC Dose Record and OSC Team Work Sheet should have identical Time In. |

- Complete OSC Team Work Sheet of Reference 2.16.
  - Time In

_____ Forward OSC Team Work Sheet to log keeper.

_____ File OSC Dose Record alphabetically.

**Enclosure 4.4**

**DRC Supervisor**



Initial

_____ Perform the following actions to deactivate Blanket Dose Extension limits:
- Submit original Blanket Dose Extension (Enclosure 4.4 Page 6 of 6) to RPM for approval of deactivation, Section III.

_____ Perform the following actions after deactivation is approved:
- Advise log keeper of new limits.
- Ensure new limits are posted.
- Assist log keeper with posting limits as needed.
- Route a copy to the TSC.

_____ Enter team member doses not captured by the electronic database, as necessary.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Restore equipment to a ready state condition after a drill or event is terminated.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.4**

**DRC Supervisor**



**TO BE COMPLETED BY DRC PERSONNEL**
**TEAM #** _____ _____ _____ _____ _____ _____ _____ _____

**NOTE:** Workers who believe they are pregnant may declare pregnancy at this time by notifying OSC RP Management.

**SECTION I**

Date: _____

Name: _____ RP Badge # _____
(last) (first) (middle initial)

Employee ID # _____

Work Group: _____

**SECTION II** **TO BE COMPLETED BY DRC PERSONNEL**

Exposure Class: _____ MAE: _____
mrem

**SECTION III**

| Time | | Dosimeter Reading (mrem) | | Year To Date TEDE |
|---|---|---|---|---|
| OUT | IN | OUT | IN | ( ) mrem |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

# BLANKET DOSE EXTENSION

**To: TSC Emergency Coordinator/OSC Coordinator:**

- Section I - Extended exposure limits of your work group personnel.
- Section II - Blanket Dose Extension Approval
- Section III - Deactivation of Blanket Dose Extension Approval
- Section IV - Deactivation of Blanket Dose Extension Information

**Section I**

**Exposure Limits have been extended to:**

| | |
|---|---|
| Exposure Class 1- | 2000 mrem/year |
| Exposure Class 2 - | 50 mrem/month; 450 mrem/gestation period; no extension |
| Exposure Class 3&9 - | 4500 mrem/year |
| Exposure Class 7 - | Fixed limit/worker specific dose limit |

**NOTE:** Declared pregnant workers shall leave the site upon site evacuation.

**Section II**

Activated By: _____ Date: _____ Time: _____
(RPM or designee)

OSC Coordinator or designee
Notified By: _____ Date: _____ Time: _____

Emergency Coordinator or designee
Notified By: _____ Date: _____ Time: _____

**Section III**

Deactivated By: _____ Date: _____ Time: _____
(RPM or designee)

OSC Coordinator or designee
Notified By: _____ Date: _____ Time: _____

Emergency Coordinator or designee
Notified By: _____ Date: _____ Time: _____

**Section IV**

Maximum Allowable Exposure (MAE) limits are reset to normal pre-emergency limits. Workers who received emergency response exposure that exceeds pre-emergency MAE limits must see RP prior to resuming work.

**Enclosure 4.5**

**Chemistry Manager**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Obtain your position cell phone and headset from the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

| | |
|---|---|
| **NOTE:** | The OSC Chemistry positions are considered Operational after submittal of the completed "Minimum Staffing Levels for Required OSC Chemistry Personnel" form to the OSC Log/Status Keeper. |

_____ Complete the following forms:
- Minimum Staffing Levels for Required OSC Chemistry Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams"):
  - **IF** no Tasks are in progress for your work group write "No Tasks in progress" in Block 1.
  - **IF** Tasks are in progress fill out form with relative information and obtain necessary signatures.

_____ Provide the following completed forms to the OSC Log/Status Keeper.
- Minimum Staffing Levels for Required OSC Chemistry Personnel
- "OSC Team Work Sheet" form.

_____ Establish a Chemistry Manager position log, which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of Chemistry Manager equipment:
- Chemistry computer
- Chemistry telephone

Initial

_____ Perform the following as necessary throughout the event:

- Provide Chemistry technical content in Assessment and Repair Team briefings.
- Ensure Chemistry teams dispatched to obtain samples (primary, secondary, etc.), operate radwaste equipment, etc., are properly dispatched using "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- Provide the necessary Chemistry information needed for emergency Assessment and Repair Teams.
- Provide Chemistry teams in the field with available information on changing plant conditions.
- Ensure R&R Team Debriefing information is immediately provided to the OSC Coordinator.

**NOTE:**
1. The Operations Bridge Line phone number is contained in the Emergency Response Telephone Directory.
2. The Chemistry Manager telephone headset shall be muted when not in use.

- Dial into the Operations Bridge Line to monitor communications on the Operations Communication Loop.
- Establish communications with the Corporate Office Chemistry Section.
- Coordinate Chemistry shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Provide a completed "Chemistry 24 Hour Staffing/Site Essential Personnel" (Enclosure 4.5, Page 4) form to the OSC Log/Status Keeper.

**NOTE:** Required Chemistry positions must remain staffed following a site evacuation.

_____ Inform the OSC RP Manager of any locations outside the OSC where Chemistry personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.5**

**Chemistry Manager**



**Minimum Staffing Levels for Required OSC Chemistry Personnel**

Date/Time Event Declared: _____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **ON SHIFT RESPONDERS - REQUIRED** | | |
| Chemistry Technician | (1)_____ | N/A |
| **75 MINUTE RESPONSE TIME - REQUIRED** | | |
| Radwaste Chemistry Operator | (1)_____ | (1)_____ |

All above positions Have / Have Not been filled within the allotted time frame to activate the OSC.

_____ Signature

Chemistry Manager
Title

- Submit completed form to OSC Log/Status Keeper

**Enclosure 4.5**

**Chemistry Manager**

**Chemistry 24 Hour Staffing / Site Essential Personnel**

Date: _____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **(75 MINUTE) DESIRED OSC CHEMISTRY PERSONNEL** | | | |
| CHEMISTRY MANAGER | (1)_____ | CHEMISTRY MANAGER | (1)_____ |
| **OTHER ESSENTIAL CHEMISTRY PERSONNEL** | | | |
| CHEMISTRY TECHNICIANS (As Needed) | (1)_____ | CHEMISTRY TECHNICIANS (As Needed) | (1)_____ |
| | (2)_____ | | (2)_____ |
| | (3)_____ | | (3)_____ |
| | (4)_____ | | (4)_____ |
| | (5)_____ | | (5)_____ |
| | (6)_____ | | (6)_____ |
| | (7)_____ | | (7)_____ |
| | (8)_____ | | (8)_____ |
| | (9)_____ | | (9)_____ |
| | (10)_____ | | (10)_____ |

- 24 hour staffing for **Required** Chemistry Positions must be maintained until termination of event.
- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.6**

**OSC Operations Supervisor**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Obtain your position cell phone and headset from the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Assume the OSC Coordinator position until properly relieved by a qualified OSC Coordinator.
- Refer to Enclosure 4.1.

| | |
|---|---|
| **NOTE:** | The OSC Operations positions are considered Operational after submittal of the completed "Minimum Staffing Levels for Required OSC Operations Personnel" form to the OSC Log/Status Keeper. |

_____ Complete the following forms:
- Minimum Staffing Levels for Required OSC Operations Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams":
  - **IF** no Tasks are in progress for your work group write "No Tasks in progress" in Block 1.
  - **IF** Tasks are in progress fill out form with relative information and obtain necessary signatures.

_____ Provide the following completed forms to the OSC Log/Status Keeper.
- Minimum Staffing Levels for Required OSC Operations Personnel
- "OSC Team Work Sheet" form.

_____ Establish an OSC Operations Supervisor position log, which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of Operations equipment.
- Operations computer
- Operations telephone equipment
- Operations radio equipment

Initial

| | |
|---|---|
| **NOTE:** | 1. The Operations Bridge Line phone number is contained in the Emergency Response Telephone Directory.<br><br>2. Instructions for the Ericsson phone and Operations Bridge Line are provided at the phone location and in the Emergency Response Telephone Directory. |

_____ Call the Control Room/Simulator and instruct the Control Room/TSC Communicator to dial into the Operations Bridge Line.

_____ Establish communications with Control Room/Simulator, TSC and EOF with the Ericsson phone/headset via the Operations Bridge Line.

_____ Perform the following as necessary throughout the event:

| | |
|---|---|
| **NOTE:** | Assessment and Repair Teams should be dispatched immediately for Critical Tasks (Fire Brigade, MERT, SSF Startup, etc.). The "OSC Task Work Sheet" will be completed as soon as possible after team dispatch. |

- Establish Fire Brigade radio communications with Control Room/Simulator using the OSC Operations Fire Brigade radio base station (communication established to Simulator during drills only).
- Assist OSC Coordinator in making recommendations for OSC Assessment and Repair Team task priorities.
- Ensure OSC Coordinator/staff is kept current on status of plant equipment and is immediately notified of changes affecting the plant or plant personnel.
- Ensure OSC Coordinator/staff is kept current on the status of any Fire Brigade and HazMat team activities.
- Ensure Operations teams are properly dispatched using "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- **IF** EHS Manager representative is not present, evaluate OSC Team task safety concerns and sign OSC Team Work Sheet Line 4, "Safety Approval".
- Provide the necessary Operations information needed for emergency Assessment and Repair Teams.
- Provide Operations teams in the field with available information on changing plant conditions.
- Ensure R&R Team Debriefing information is immediately provided to the OSC Coordinator.
- Coordinate Operations shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Provide a completed "Operations 24 Hour Staffing/Site Essential Personnel" form to the OSC Log/Status Keeper.

Initial

| | |
|---|---|
| **NOTE:** | Required Operations positions must remain staffed following a site evacuation. |

_____ Inform the OSC RP Manager of any locations outside the OSC where Operations personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

_____ Notify SSA in the Work Control Center if EPs or APs are used.

**Enclosure 4.6**



**OSC Operations Supervisor**

**Minimum Staffing Levels for Required OSC Operations Personnel**

Date/Time Event Declared: _____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **ON SHIFT RESPONDERS - REQUIRED** | | |
| Auxiliary Operators - NLO | (1)_____<br>(2)_____ | N/A |
| OPS OSC Supervisor (Nuclear Shift Supervisor) | (1)_____ | N/A |
| Fire Brigade Team<br>(Fire Fighting) | (1)_____ (FIRE BRIGADE LEADER)<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____ | N/A |

All above positions Have / Have Not been filled within the allotted time frame to activate the OSC

_____ Signature

OSC OPS Supervisor
Title

Submit completed form to OSC Log/Status Keeper

**Enclosure 4.6**

**OSC Operations Supervisor**



**Operations 24 Hour Staffing / Essential Personnel**

Date: _____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **OTHER ESSENTIAL OPERATIONS PERSONNEL** | | | |
| Essential Operations Personnel (As Needed) | (1)_____ | Essential Operations Personnel (As Needed) | (1)_____ |
| | (2)_____ | | (2)_____ |
| | (3)_____ | | (3)_____ |
| | (4)_____ | | (4)_____ |
| | (5)_____ | | (5)_____ |
| | (6)_____ | | (6)_____ |
| | (7)_____ | | (7)_____ |

- 24 hour staffing for **Required** Operations Positions must be maintained until termination of event.
- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.7**

**Equipment Engineer**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Complete the following forms:
- Minimum Staffing Levels for Required OSC Engineering Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams"):
  - **IF** no Tasks are in progress for your work group write "No Tasks in progress" in Block 1.
  - **IF** Tasks are in progress fill out form with relative information and obtain necessary signatures.

_____ Provide the following completed forms to the OSC Log/Status Keeper.
- Minimum Staffing Levels for Required OSC Engineering Personnel
- "OSC Team Work Sheet" form.

_____ Establish an Equipment Engineer position log, which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of Equipment Engineer equipment.
- Equipment Engineer computer
- Equipment Engineer telephone

Initial

_____ Perform the following as necessary throughout the event:

- Ensure any Engineering team dispatched from the OSC is properly briefed on the task to be performed and communications are established.
- Ensure OSC Coordinator/staff is kept current on status of plant equipment and is immediately notified of changes affecting the plant or plant personnel.
- Ensure Engineering teams (appropriate expertise for the task) are properly dispatched from the "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- Provide Engineering teams in the field with available information on changing plant conditions.
- Ensure R&R Team Debriefing information is immediately provided to the OSC Coordinator.
- Coordinate Equipment Engineer shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Provide a completed "Equipment Engineer 24 Hour Staffing/Site Essential Personnel" form to the OSC Log/Status Keeper.

_____ Inform the OSC RP Manager of any locations outside the OSC or TSC where Engineering personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.7**

**Equipment Engineer**



**Minimum Staffing Levels for Required OSC Engineering Personnel**

Date/Time Event Declared: _____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **75 MINUTE RESPONSE TIME - REQUIRED** | | |
| Equipment Engineer | (1)_____ | (1)_____ |

All above positions Have / Have Not been filled within the allotted time frame to activate the OSC

_____ OSC Equipment Engineer
Signature Title

Submit completed form to OSC Log/Status Keeper

**Enclosure 4.7**

**Equipment Engineer**



**Equipment Engineer 24 Hour Staffing / Essential Personnel**

Date: ____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **OTHER ESSENTIAL EQUIPMENT ENGINEERING PERSONNEL** | | | |
| ESSENTIAL EQUIPMENT ENGINEERING PERSONNEL (As Needed) | (1)_____ | ESSENTIAL EQUIPMENT ENGINEERING PERSONNEL (As Needed) | (1)_____ |
| | (2)_____ | | (2)_____ |
| | (3)_____ | | (3)_____ |
| | (4)_____ | | (4)_____ |
| | (5)_____ | | (5)_____ |

- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.8**

**Maintenance Manager**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

| | |
|---|---|
| **NOTE:** | The OSC Maintenance positions are considered Operational after submittal of the completed "Minimum Staffing Levels for Required OSC Maintenance Personnel" form to the OSC Log/Status Keeper. |

_____ Complete the following forms:
- Minimum Staffing Levels for Required OSC Maintenance Personnel
- "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams"):
  - **IF** no Tasks are in progress for your work group write "No Tasks in progress" in Block 1.
  - **IF** Tasks are in progress fill out form with relative information and obtain necessary signatures.

_____ Provide the following completed forms to the OSC Log/Status Keeper.
- Minimum Staffing Levels for Required OSC Maintenance Personnel
- "OSC Team Work Sheet" form.

_____ Establish a Maintenance Manager position log, which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of Maintenance equipment.
- Maintenance computer
- Maintenance telephone

Initial

_____ Perform the following as necessary throughout the event:

- Ensure any Maintenance team dispatched from the OSC is properly briefed on the task to be performed and communications are established.
- Ensure OSC Coordinator/staff is kept current on status of plant equipment and is immediately notified of changes affecting the plant or plant personnel.
- Ensure Maintenance teams (appropriate expertise for the task) are properly dispatched from the OSC using "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- Provide Maintenance teams in the field with available information on changing plant conditions.
- Ensure R&R Team Debriefing information is immediately provided to the OSC Coordinator.
- Coordinate Maintenance shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Provide a completed "Maintenance 24 Hour Staffing/Site Essential Personnel" form to the OSC Log/Status Keeper.

| | |
|---|---|
| **NOTE:** | Required Maintenance positions must remain staffed following a site evacuation. |

_____ Inform the OSC RP Manager of any locations outside the OSC where Maintenance personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.8**



**Maintenance Manager**

**Minimum Staffing Levels for Required OSC Maintenance Personnel**

Date/Time Event Declared: _____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|
| **ON SHIFT RESPONDERS - REQUIRED** | | |
| Repair and Corrective Actions (Mech. Maint. Technician) | (1)_____ | (1)_____ |
| Repair and Corrective Actions (IAE Maint. Technician) | (1)_____<br>(2)_____ | (1)_____<br>(2)_____ |
| **75 MINUTE RESPONSE TIME - REQUIRED** | | |
| Repair and Corrective Actions (Mech. Maint. Technician) | (1)_____ | (1)_____ |
| Repair and Corrective Actions (IAE Maint. Technician) | (1)_____<br>(2)_____ | (1)_____<br>(2)_____ |
| Technical Support (Maintenance Manager) | (1)_____ | (1)_____ |

All above positions Have / Have Not been filled within the allotted time frame to activate the OSC

_____ Signature

OSC Maintenance Manager
Title

Submit completed form to OSC Log/Status Keeper

**Enclosure 4.8**



**Maintenance Manager**

**Mechanical Maintenance 24 Hour Staffing/ Essential Personnel**

Date: ____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **OTHER ESSENTIAL MAINTENANCE PERSONNEL** | | | |
| Essential Mechanical Maintenance Personnel (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) | Essential Mechanical Maintenance Personnel (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) |
| Essential IAE Maintenance Personnel (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) | Essential IAE Maintenance Personnel (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____<br>(6)_____<br>(7)_____<br>(8)_____<br>(9)_____<br>(10) |

- 24 hour staffing for **Required** Mechanical Maintenance/IAE Positions must be maintained until termination of event.
- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.9**



**Environment, Health & Safety Manager**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Establish an Environment, Health & Safety Manager (EHS) position log, which captures as a minimum:

- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of EHS Manager's telephone.

_____ Call back to EHS Office (Site Assembly location) and give them your telephone and fax number.

_____ Evaluate working conditions in the OSC by:

- Touring the OSC (obtain air monitor and flashlight if needed)
- Identification of unsafe working conditions or hazards
- Corrective action initiated for any unsafe working condition or hazard identified

| | |
|---|---|
| **NOTE:** | OSHA requires verbal notification within 8 hours of gaining knowledge of an incident involving a fatality or the hospitalization of 3 or more employees. |

_____ Evaluate recordable incidents using Catawba Safe Work Practice 1.1.

**Enclosure 4.9**

**Environment, Health & Safety Manager**



Initial

_____ Perform the following as necessary throughout the event:

- Immediately report any injury/illness or significant near miss to the OSC Coordinator.
- Inform the appropriate supervisor of any injury/illness or significant near miss to complete and submit an Incident Investigation Report.
- Incorporate significant safety information into the R&R Team briefings.
- Review and sign OSC Team Work Sheets.
- Ensure any EHS personnel dispatched from the OSC is properly briefed on the task to be performed and communications are established.
- Ensure OSC Coordinator/staff is kept current on safety issues even if there have been no changes.
- Ensure EHS personnel (appropriate expertise for the task) are properly dispatched from the OSC using the "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- Provide EHS personnel in the field with available information on changing plant conditions.
- Ensure safety hazard information obtained from R&R Team Debriefing information is immediately provided to the OSC Coordinator.

| | |
|---|---|
| **NOTE:** | An additional EHS professional is helpful to assist with R&R team dispatch from the OSC. This additional EHS professional should remain at or near the "staging area" to consult with teams being dispatched. |

- Coordinate EHS Manager shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Provide a completed "EHS Manager 24 Hour Staffing/Site Essential Personnel" form (Enclosure 4.9, Page 3 of 3) to the OSC Log/Status Keeper.

_____ Inform the OSC RP Manager of any locations outside the OSC where EHS personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.9**



**Environment, Health & Safety Manager**

**EHS Manager 24 Hour Staffing / Essential Personnel**

Date: ____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **75 MINUTE DESIRED OSC EHS MANAGER PERSONNEL** | | | |
| EHS MANAGER | (1)_____ | EHS MANAGER | (1)_____ |
| **OTHER ESSENTIAL EHS MANAGER PERSONNEL** | | | |
| OTHER ESSENTIAL EHS PERSONNEL (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____ | OTHER ESSENTIAL EHS PERSONNEL (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____<br>(5)_____ |

- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.10**

**Nuclear Supply Chain Manager**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Turn on the OSC PA system and give one of the wireless microphones to the OSC Coordinator.

_____ Establish a Nuclear Supply Chain Manager position log which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups

_____ Verify operability of Nuclear Supply Chain equipment.
- Nuclear Supply Chain computer
- Nuclear Supply Chain telephone

| | |
|---|---|
| **NOTE:** | The TSC Data Coordinator is responsible for the repair of OSC computer equipment. |

_____ Assist OSC responders in repair of OSC communications or other equipment.

Initial

_____ Perform the following as necessary throughout the event:

- Provide coordination between the warehouses and the OSC.
- Utilize computer programs to verify availability of needed material/parts and take action to obtain.
- Provide material as expeditiously as possible for emergency response activities.
- Contact appropriate work group to provide heavy equipment support.
- Contact Site Services duty person to make arrangements to provide food/meals for TSC/OSC/Control Room.
- Provide facility support to OSC and TSC as needed/requested.
- Ensure any Nuclear Supply Chain team dispatched from the OSC is properly briefed on the task to be performed and communications are established.
- Ensure OSC Coordinator/staff is kept current on status of material issues and is immediately notified of changes affecting the plant or plant personnel.
- Ensure Nuclear Supply Chain teams (appropriate expertise for the task) are properly dispatched from the OSC using the "OSC Team Work Sheet" form (Refer to Enclosure 4.12, "Control of Assessment and Repair Teams").
- Provide Nuclear Supply Chain teams in the field with available information on changing plant conditions.
- Coordinate Nuclear Supply Chain shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.
- Communicate with EOF Services Manager.

_____ Provide a completed "Nuclear Supply Chain 24 Hour Staffing/Site Essential Personnel" form (Enclosure 4.10, Page 3 of 3) to the OSC Log/Status Keeper.

_____ Inform the OSC RP Manager of any locations outside the OSC where Nuclear Supply Chain personnel are located following a site evacuation.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Assist Emergency Planning in assuring facility is placed back to a state of readiness.

_____ Perform the following upon deactivation of the OSC:

- Provide all paperwork to the OSC Log/Status Keeper.

| | |
|---|---|
| **NOTE:** | PT/0/B/4600/004 may be utilized as a reference for performing the OSC equipment inventory. (PT/0/B/4600/004 is located in procedure drawer). |

- Inventory OSC equipment and supplies following OSC activation.

**Enclosure 4.10**



**Nuclear Supply Chain Manager**

**Nuclear Supply Chain 24 Hour Staffing / Essential Personnel**

Date: ____/____/____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **75 MINUTE DESIRED NUCLEAR SUPPLY CHAIN PERSONNEL** | | | |
| NSC MANAGER | (1)_____ | NSC MANAGER | (1)_____ |
| **OTHER NUCLEAR SUPPLY CHAIN ESSENTIAL PERSONNEL** | | | |
| INSIDE WHSE | (1)_____<br>(2)_____ | INSIDE WHSE | (1)_____<br>(2)_____ |
| RECEIVING | (1)_____ | RECEIVING | (1)_____ |
| OUTSIDE WHSE | (1)_____ | OUTSIDE WHSE | (1)_____ |
| OTHER NSC PERSONNEL (As Needed) | (1)_____<br>(2)_____<br>(3)_____ | OTHER NSC PERSONNEL (As Needed) | (1)_____<br>(2)_____<br>(3)_____ |

- Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.11**

**OSC Log/Status Keeper**



Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Obtain the timer cube from the OSC supply cabinet (to assist the OSC Coordinator in scheduling facility briefings).

_____ Verify operability of OSC Log/Status Keeper equipment.
- OSC Log/Status Keeper computer
- OSC Log/Status Keeper telephone

_____ Refer to EP FAM Section 3.15, Attachment 3.15.3.1 for WebEOC Instructions.

| **NOTE:** | Handwritten logs will be utilized when the electronic log software is not available. |
|---|---|

_____ Establish an OSC log, which captures as a minimum:
- Time OSC declared Operational
- OSC R&R Team status
- OSC task priorities
- Any significant event requested by the OSC Coordinator

_____ Verify the staffing of the following required OSC manager positions:
- Equipment Engineer
- Maintenance Manager

**IF** these positions are not staffed, inform OSC Coordinator

_____ Collect completed minimum staffing level forms from the following:
- OSC Operations Supervisor (Enclosure 4.6, Page 4 of 5)
- Radiation Protection Supervisor (Enclosure 4.3, Pages 5 and 6 of 7)
- Maintenance Manager (Enclosure 4.8, page 3 of 4)
- Equipment Engineer (Enclosure 4.7, Page 3 of 4)
- Chemistry Manager (Enclosure 4.5, Page 3 of 4)

_____ **WHEN** all completed minimum staffing level forms have been collected:
- Inform the OSC Coordinator that all OSC required positions have been staffed.

**Enclosure 4.11**

**OSC Log/Status Keeper**



Initial

_____ Collect completed OSC Team Work Sheets from the following OSC positions:
- OSC Operations Supervisor
- Radiation Protection Supervisor
- Maintenance Manager
- Equipment Engineer
- Chemistry Manager

_____ As necessary, use the timer cube (or other method) to assist in reminding the OSC Coordinator when to perform scheduled facility briefings.

_____ Provide completed OSC Team Work Sheets to the following:
- OSC Coordinator
- TSC Security Manager for Site Assembly Accountability

_____ Ensure a OSC R&R Team number is assigned for all OSC Team Work Sheets approved by the OSC Coordinator for work to continue.

| | |
|---|---|
| **NOTE:** | Desired OSC positions are not required to be staffed to declare the OSC Operational. |

_____ Verify the staffing of the following desired OSC positions:
- OSC Operations Supervisor
- Radiation Protection Manager
- Radiation Protection Supervisor
- DRC Supervisor
- Chemistry Manager
- Nuclear Supply Chain Manager
- Environmental, Health & Safety Manager
- OSC Coordinator

_____ Inform the OSC Coordinator when all desired OSC positions are staffed.

_____ Perform the following as necessary throughout the event:
- Maintain OSC R&R Team Status Board to display team status and other pertinent information.
- Maintain the emergency classification posting current as emergency classifications change.
- Use "Control of Assessment and Repair Teams" sheets to log R&R Teams in and out of the OSC.
- Coordinate OSC Log/Status Keeper shift rotation and augmentation of personnel and equipment. Refer to Step 3.7 of the procedure for guidance when calling in additional personnel.

_____ Complete the "OSC Coordinator / OSC Log/Status Keeper 24 Hour Staffing/Site Essential Personnel" form (Enclosure 4.11, Page 4 of 4).

Initial

| | |
|---|---|
| **NOTE:** | The TSC may request a copy of the 24 Hour Staffing/Site Essential Personnel forms. |

_____ Collect completed 24 Hour Staffing/Site Essential Personnel forms from the following OSC positions:

- OSC Operations Supervisor (Enclosure 4.6, Page 5 of 5)
- Radiation Protection Supervisor (Enclosure 4.3, Page 6 of 7)
- Maintenance Manager (Enclosure 4.8, Page 4 of 4)
- Chemistry Manager (Enclosure 4.5, Page 4 of 4)
- Nuclear Supply Chain Manager (Enclosure 4.10, Page 3 of 3)
- Environmental, Health & Safety Manager (Enclosure 4.9, Page 3 of 3)
- Equipment Engineer (Enclosure 4.7, Page 4 of 4)

_____ Collect all paperwork from the following OSC positions upon deactivation of the OSC.

- OSC Operations Supervisor
- Radiation Protection Supervisor
- Maintenance Manager
- Chemistry Manager
- Nuclear Supply Chain Manager
- Environment, Health & Safety Manager
- Equipment Engineer

_____ Verify that all "OSC Team Work Sheets" (Enclosure 4.12) have been completed and closed out properly.

_____ Submit collected paperwork to Emergency Planning.

**Enclosure 4.11**



**OSC Log/Status Keeper**

**OSC Coordinator / OSC Log/Status Keeper 24 Hour Staffing / Essential Personnel**

Date: _____/_____/_____

| JOB FUNCTION | INITIAL RESPONDER NAME ARRIVAL TIME | JOB FUNCTION | 24 HOUR STAFFING RELIEF NAME |
|---|---|---|---|
| **75 MINUTE DESIRED OSC ESSENTIAL PERSONNEL** | | | |
| OSC COORDINATOR | (1)_____ | OSC COORDINATOR | (1)_____ |
| OSC LOG/STATUS KEEPER | (1)_____ | OSC LOG/STATUS KEEPER | (1)_____ |
| **OTHER OSC ESSENTIAL PERSONNEL** | | | |
| OSC LOG/STATUS KEEPER(S) (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____ | OSC LOG/STATUS KEEPER(S) (As Needed) | (1)_____<br>(2)_____<br>(3)_____<br>(4)_____ |

Submit copy of completed form to OSC Log/Status Keeper.

**Enclosure 4.12**



**Control of Assessment and Repair Teams**



## 1. OSC Team Work Sheets will be used to:

**NOTE:**
1. Use the process described in NSD114, "Site Assembly/Site Evacuation," to account for personnel assembled in designated Site Assembly Areas.
2. Teams should be immediately dispatched for Critical Tasks (SSF Startup, MERT, Fire, Security, HazMat, or as determined by the OSC Coordinator) that occur either before or after a site assembly. An OSC Team Work Sheet must still be completed as quickly as possible after the team has been dispatched.

1.1 Track critical path work and account for personnel when the workers are instructed to remain on the job during site assembly.

1.2 Account for any personnel not assembled in a designated Site Assembly Area.

1.3 Track Assessment and Repair Teams dispatched from the OSC.

## 2. Process for Assessment and Repair Team Dispatch

2.1 Team Manager or designee completes OSC Team Work Sheet Block 1.

2.2 OSC Coordinator approves the task to be planned and performed in OSC Team Work Sheet Block 2.

2.3 Team Manager or designee performs the following:
- 2.3.1 Assembles team in staging area
- 2.3.2 Conducts pre-job briefing
- 2.3.3 Ensures RP and/or EHS Manager's involvement in pre-job briefing
- 2.3.4 Records pertinent information in Pre-Job Briefing Comments section of OSC Team Work Sheet Block 3
- 2.3.5 Complete OSC Team Work Sheet Block 3

2.4 Environmental, Health & Safety Manager (EHS) representative signs OSC Team Work Sheet Block 4. **IF** an EHS representative is not available, the OSC Operations Supervisor may sign this block.

2.5 Radiation Protection management signs OSC Team Work Sheet Block 5.

2.6 DRC Supervisor performs the following:
- 2.6.1 Complete OSC Team Work Sheet Block 6
- 2.6.2 Distribute copies of OSC Team Work Sheet as detailed in OSC Team Work Sheet Block 6

## 3. Process for Assessment and Repair Team Return to OSC

3.1 OSC Log/Status Keeper obtains OSC Team Work Sheet (Pink copy) from DRC.

3.2 OSC Log/Status Keeper logs team as "IN" on status board and OSC Log using the time entered on the team leader's OSC Team Work Sheet Block 6 by DRC.

3.3 Team Leader **OR** Team Manager completes OSC Team Work Sheet Block 7 on White copy of OSC Team Work Sheet

3.4 Team is debriefed by Team Manager.

3.5 "White" copy of OSC Team Work Sheet with completed Block 7 is routed to the OSC Log/Status Keeper.

**Enclosure 4.12**



**Control of Assessment and Repair Teams**

**OSC Team Work Sheet**

***SAMPLE ONLY!! USE PRE-PRINTED FORMS!!!***

1 *TEAM MANAGER* _____ *WORK GROUP* _____

☐ **TEAM IN FIELD PRIOR TO RESPONDING TO OSC**

☐ **TEAM BEING DISPATCHED FROM OSC**

**TASK DESCRIPTION:** _____

**TASK LOCATION:** _____ **UNIT** _____

**COMPONENT:** _____ **TRAIN** _____

2 *OSC COORDINATOR APPROVAL:* _____
Signature

3 *TEAM MANAGER*

| | Name | Work Grp. |
|---|---|---|
| **Team Leader:** | _____ / | _____ |
| **Team Members:** | _____ / | _____ |
| | _____ / | _____ |
| | _____ / | _____ |
| | _____ / | _____ |
| | _____ | |

**OSC Call Back Phone #** _____

**Call-back instructions:**
1. **Call OSC upon arrival at job location.**
2. **Call as necessary or as requested by Team Manager thereafter.**

**Pre-Job Briefing Comments:** *After task completion, notify Team Mgr. And report to debriefing area in the OSC.*

_____

_____

_____

4 *SAFETY APPROVAL:* _____
Signature

5 *RADIATION PROTECTION APPROVAL:* _____
Signature

6 *DRC SUPERVISOR* _____

**DATE:** _____ / _____ / _____ **TIME OUT:** _____ **TEAM #** _____
**TIME IN:** _____

**Distribute Copies:** **White - Team Manager** **Yellow - Logkeeper** **Pink - Team Leader**

7 *TEAM LEADER or TEAM MANAGER*

***Post-Job Briefing Conducted By:*** _____ **DATE/TIME:** _____

***Summary of work performed:*** _____

_____

_____

_____

*******AFTER TASK COMPLETION, RETURN COMPLETED ("white copy") OSC TEAM WORK SHEET TO OSC LOGKEEPER*******

For Information Only

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 3 to RAI 13.03-055**

**SR/0/B/2000/003, "Activation of the Emergency Operations Facility"**

| Duke Energy<br>Standard Procedure for CNS, MNS & ONS<br>**Activation of the Emergency Operations Facility**<br><br>**Reference Use** | Procedure No.<br>**SR/0/B/2000/003**<br>Revision No.<br>**018**<br>Electronic Reference No.<br>**MP0070O3** |
|---|---|
| **PERFORMANCE**<br>* * * * * * * * * * UNCONTROLLED FOR PRINT * * * * * * * * * *<br>**(ISSUED) - PDF Format** | |

# Activation of the Emergency Operations Facility

## 1. Symptoms

Conditions exist where events are in progress or have occurred which resulted in activation of the Emergency Operations Facility (EOF) Emergency Response Organization (ERO).

## 2. Immediate Actions

2.1 Upon notification to activate, ERO personnel assigned to the EOF shall report to that facility.

## 3. Subsequent Actions

| | |
|---|---|
| **NOTE:** | This procedure is not intended to be followed in a step-by-step sequence. Sections of the procedure are to be implemented, as the applicable action becomes necessary. |

3.1 The EOF must be operational using 75 minutes as a goal for the minimum staff to be in place following declaration of an Alert or higher classification.

3.2 Turnover should occur with the TSC at a time that will not decrease the effectiveness of communications with the offsite agencies.

3.3 EOF personnel should share critical information with appropriate EOF positions upon receipt of the information rather than waiting for a time out or roundtable discussion to share the information.

3.4 EOF personnel should interrupt time outs and roundtable discussions with critical or priority information as necessary. {37}

3.5 Each represented group is responsible for ensuring their appropriate checklist is completed.

3.6 **IF** additional positions are needed to support the emergency, or for 24-coverage, the following are available for telephone numbers.

- Catawba

  Home and office phone numbers are located in the ERO Member Contact Information notebook located on the director's area bookshelf in the EOF. The information is also available via the Emergency Response Organization (ERO) database. Contact the ERO Emergency Planner to access the ERO database. Office phone numbers are also available in the electronic Duke Power Telephone Directory.

- McGuire

| | |
|---|---|
| **NOTE:** | To access the McGuire Emergency Planning Home Page you must first select the Safety Assurance Home Page from the "Site Web Pages" menu on the McGuire Web Page. |

Home and work phone numbers are located in the McGuire Nuclear Site Data Verification & Facility Org. listing located on the McGuire Emergency Planning Home Page. Office phone numbers are also located in the electronic Duke Power telephone directory.

3.7 The following SDS Group Displays have been established for Catawba and McGuire emergency response use. To access these group displays, type GD (space)"Group Display Name" in the white box at the upper right portion of the screen.

**Catawba Specific**

| Group Display Name | Group Display Description |
|---|---|
| ERDS1 | ERDS Group 1 |
| ERDS2 | ERDS Group 2 |
| EROCONT | Selected values associated with containment. |
| EROCORE1 | Incore temperature values |
| EROCORE2 | Additional incore temperature values |
| EROCORE3 | Additional incore temperature values |
| EROINJCT | Selected letdown/charging values |
| EROPLEAK | Selected primary to containment leakage values |
| EROSLEAK | Selected primary to secondary leakage values |
| EROPRIM | Selected primary system values |
| ERORD5 | Selected Raddose V Assessment Points |
| ERORXG | Selected Value for Reactor Engineer |
| EROSAMG | Selected SAMG Values |
| EROSECND | Selected secondary system values |

**McGuire Specific**

| Group Display Name | Group Display Description |
|---|---|
| ERO-1 | Selected plant parameters |
| EROCONT | Emergency Response Containment |
| EROCORE | Emergency Response Incore |
| EROINJCT | Emergency Response Injection |
| EROPRIM | Emergency Response Primary |
| ERORD5 | Selected Raddose V Assessment Points |
| EROSECND | Emergency Response Secondary. |
| | {9} {10} |

3.8 The following SDS Display Screens have been established for Oconee emergency response use. To access these screens, type the applicable Turn On code in the white box at the upper right portion of the screen.

| **Oconee Specific** | |
|---|---|
| Turn On Code Name | Turn On Code Description |
| EROMENU | Menu Access for Oconee Data Screens |
| EROPRI | Selected Primary System values |
| EROSEC | Selected Secondary System values |
| EROCONT | Selected Containment Condition values |
| EROAUX | Selected Radiation Monitor values |
| EROAREA | Selected Area Radiation Monitor values |
| EROPROC | Selected Process Radiation Monitor values |
| EROENV | Selected values for Dose Assessment use |
| EROECCS | Selected ECCS values |
| ERDSMENU | Menu Access for Oconee ERDS Data |

3.9 The Emergency Plant Status application has also been established for Oconee emergency response use. This application is available from DAE.

3.9.1 To launch the Emergency Plant Status application, from DAE select *Search DAE* and type in *Emergency Plant Status*.

3.9.2 Select the *Emergency Plant Status - ONS* option.

3.9.3 Enter your password and verify domain as NAM.

3.10 To resolve equipment problems, contact the following:

- Computer problems - EOF Data Coordinator
- Other equipment problems - EOF Services Manager

3.11 Initial and follow-up messages must be made according to the following criteria:

**Initial Notifications {39}**

1. Initial notifications to the State(s) and counties must be made within 15 minutes of the event declaration time using the Emergency Notification form (ENF).

2. For an upgrade in classification prior to or while transmitting an initial message:
   -The notification for the lesser emergency classification must be made within 15 minutes of the lesser classification declaration time.
   -The agencies must be informed that an upgrade in classification will be coming.
   -The upgraded classification message must be transmitted within 15 minutes of the upgraded classification declaration time.

**Follow-up Notifications**

1. Follow-up notifications to the State(s) and Counties must be made according to the following schedule:

| Catawba | McGuire | Oconee |
|---|---|---|
| -For NOUE, ALERT, SAE, or GE, every hour until the emergency is terminated. | -For NOUE, every 4 hours until the emergency is terminated.<br>-For ALERT, SAE, or GE, every hour until the emergency is terminated. | -For NOUE, a follow-up is not required.<br>-For ALERT, SAE, or GE, every 60 minutes until the emergency is terminated. |

**OR**

| Catawba | McGuire | Oconee |
|---|---|---|
| -If there is any significant change to the situation (make notification as soon as possible). | -If there is any significant change to the situation (make notification as soon as possible). | -If there is any significant change to the situation (make notification as the change occurs). See NOTE* below for examples of changes. |

**OR**

| Catawba | McGuire | Oconee |
|---|---|---|
| -As agreed upon with an Emergency Management official from each individual agency. Documentation shall be maintained for any agreed upon schedule change.<br>-The interval shall not be greater than 4 hours to any agency. | -As agreed upon with an Emergency Management official from each individual agency. Documentation shall be maintained for any agreed upon schedule change.<br>-The interval shall not be greater than 2 hours to any agency. | -Required every 60 minutes from the notification time on Line 2 for ALERT, SAE, or GE.<br>-This frequency may be changed at the request of offsite agencies. |

*NOTE (Oconee) : Examples of significant plant changes include: evacuation/relocation of site personnel, fires onsite, MERT activation and/or injured personnel transported offsite, chemical spills, explosions, Condition "A" or "B" for Keowee Hydro Project Dams/Dikes, or any event that would cause or require offsite agency response.

2. If a follow-up is due and an upgrade to a higher classification is declared, there is no need to complete the follow-up ENF. In this case, the offsite agencies must be notified that the pending follow-up is being superseded by an upgrade to a higher classification and information will be provided.

3. Follow-up messages in the General Emergency classification that involve an upgrade in PARs must be communicated to the offsite agencies as soon as possible and within 15 minutes.

3.12 Definitions

3.12.1 The following definitions are applicable to the Emergency Notification Form, Line 8: {1} {7}

**Degrading**: Plant conditions involve at least one of the following:

- Plant parameters (ex. temperature, pressure, level, voltage, frequency) are trending unfavorably away from expected or desired values **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.

- Site conditions (ex. wind, ice/snow, ground tremors, hazardous/toxic/radioactive material leak, fire, security event) impacting plant operations or personnel safety are worsening **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.

**Improving**: Plant conditions involve at least one of the following:

- Plant parameters (ex. temperature, pressure, level, voltage, frequency) are trending favorably toward expected or desired values **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.

- Site conditions (ex. wind, ice/snow, ground tremors hazardous/toxic/radioactive material leak, fire, security event) have become less of a threat to plant operations or personnel safety **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.

**Stable**: Plant conditions are neither **degrading** nor **improving**.

| | |
|---|---|
| **NOTE:** | An Emergency Release is an unplanned, quantifiable radiological release to the environment during an emergency event. The release does not have to be related to the declared emergency. {34} |

3.12.2 The following definitions are applicable to the Emergency Notification Form Line 6:

**Catawba and McGuire**

- EMF 38, 39 or 40 (Cont Particulate/Gas/Iodine) readings indicate an increase **AND** containment pressure greater than 0.3 psig
- EMF 38, 39 or 40 (Cont Particulate/Gas/Iodine) readings indicate an increase **AND** a known leak path exists from containment
- EMF 35, 36 or 37 (Vent Particulate/Gas/Iodine) readings indicate an increase in activity
- EMF 33 (CSAE Exh) or other alternate means indicate Steam Generator tube leakage
- A known release path exists
- Alternate method of release determination
- Field Monitoring Team results.

**Oconee**

- RIA 40 (CSAE Exh) reading indicates an increase in activity (SG Tube Leak)
- RIA-45 or 46 (Vent Gas/Lo-Hi) show an increase in activity
- RIA-47, 48, or 49 (RB Particulate/Iodine/Gas) readings indicate an increase **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined
- 1, 3 RIA-57 or 1,2,3 RIA-58 (RB Monitor) reading >1.0 Rad/hr **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined
- 2 RIA-57 (RB Monitor) reading >1.6 Rad/hr **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined
- A known release path exists
- Alternate method of release determination
- Field Monitoring Team results.

3.12.3 OPERATIONAL - The Emergency Response Facility (e.g., Technical Support Center, Operations Support Center, Emergency Operations Facility) is staffed and ready to perform assigned emergency response functions.

3.12.4 ACTIVATED - The Emergency Operations Facility has accepted turnover and has direction and control of assigned emergency response functions.

## 4. Enclosures

4.1 EOF Director/Assistant EOF Director Checklist
4.2 Catawba Offsite Protective Actions
4.3 McGuire Offsite Protective Actions
4.4 Oconee Offsite Protective Actions
4.5 Emergency Classification Downgrade/Termination
4.6 Radiological Assessment Manager Checklist
4.7 EOF Dose Assessor Checklist
4.8 Field Monitoring Coordinator Checklist
4.9 Radio Operator Checklist
4.10 EOF Offsite Agency Communicator Checklist
4.11 Access Control Director Checklist
4.12 Accident Assessment Manager Checklist
4.13 Accident Assessment Interface Checklist
4.14 Operations Interface Checklist
4.15 Administrative Support Checklist
4.16 Reactor Physics Checklist
4.17 EOF Emergency Planner Checklist
4.18 EOF Log Recorder Checklist
4.19 EOF Data Coordinator Checklist
4.20 EOF Services Manager Checklist
4.21 Establishing Communications Links Between McGuire SAMG Evaluators {11}
4.22 Oconee Recovery Guidelines
4.23 Keowee Hydro Dam/Dikes - Condition A/B Descriptions
4.24 Commitments for SR/0/B/2000/003

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

| | |
|---|---|
| **NOTE:** | The EOF Log Recorder will maintain the official log for the EOF Director/Assistant EOF Director. The EOF Director/Assistant EOF Director may maintain an additional log if desired. |

_____ Establish a log of activities.

**NOTE:**

1. If the emergency situation prevents activating the TSC within 75 minutes of declaration, the Control Room will:
   - turn over responsibility for classification and state and county notification to the EOF.
   - maintain responsibility for NRC Event Notification until released by the NRC Communicator in the TSC.
   - maintain responsibility for continuous phone communications to the NRC until relieved by the NRC Communicator in the TSC.
2. If the TSC remains unavailable and the EOF cannot take responsibility for classification and state and county notification, the Control Room will maintain these responsibilities until one of the facilities is capable of turnover.

_____ Establish communications with the Emergency Coordinator or Assistant Emergency Coordinator in the affected site's TSC as follows:

- Use the affected site's EOF Director to Emergency Coordinator Ringdown phone (Catawba and McGuire only)

  **OR**
- Catawba TSC, dial 8-831-5870

  **OR**
- McGuire TSC, dial 8-875-4950

  **OR**
- Oconee TSC, dial 8-885-3921.

INITIALS _____ PRINTED NAME _____ (EOF Director)

INITIALS _____ PRINTED NAME _____ (Asst. EOF Director)

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



_____ Verify the following EOF positions, as a minimum, are filled, have checked out their assigned equipment/procedures and are prepared to assume their EOF duties prior to declaring the EOF operational:

_____ EOF Director
_____ Accident Assessment Manager
_____ Radiological Assessment Manager
_____ Access Control Director
_____ Off-Site Agency Communicator
_____ Off-Site Agency Communicator.

_____ Begin monitoring the EOF Director's area incoming fax machine. {13}

| | |
|---|---|
| **NOTE:** | For all drills, messages should be preceded with "This is a drill. This is a drill." |

_____ Announce over the EOF public address system the following:

"Anyone who is reporting to this facility outside of your normal work hours and has consumed alcohol within the past five (5) hours, notify either the EOF Director, Assistant EOF Director, or the appropriate lead in each functional area."

_____ Declare the EOF operational. EOF operational time: _____.

| | |
|---|---|
| **NOTE:** | For all drills, messages should be preceded with "This is a drill. This is a drill." |

_____ Announce the following over the EOF public address system:

"Attention all EOF personnel. This is _____ and as of _____ hours,
(EOF Director's Name)

the EOF is operational."

_____ Inform the Emergency Coordinator or Assistant Emergency Coordinator that the EOF is:

- Operational
- Gathering plant status information
- Ready to receive turnover at the Emergency Coordinator's convenience.

_____ Read the definitions for the following terms contained in Steps 3.14 in the body of this procedure:

- Stable
- Degrading
- Improving
- Emergency Release

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



**NOTE:** The following step may be accomplished by conducting a Time Out or by verifying the level of readiness with the individuals in the positions.

_____ Verify the following positions, at a minimum, are ready to activate (i.e., have received the necessary information from their TSC counterpart, etc.) and are positioned to perform the next offsite agency communication via the Emergency Notification Form (ENF).

_____ Accident Assessment Manager
_____ Radiological Assessment Manager
_____ Lead Off-Site Agency Communicator

**NOTE:**
1. The Emergency Coordinator or Assistant Emergency Coordinator will fax a copy of Emergency Coordinator Turnover Checklist to the EOF. A copy of the "Emergency Coordinator Turnover Checklist" form is provided on page 12 of this enclosure for use if needed.
2. The Assistant EOF Director should be attentive for any incoming faxes. {13}

**NOTE:** If a classification change is recognized during turnover, the turnover should not be completed until after the activated facility (TSC) declares and transmits the notification to the offsite agencies. {12}

_____ Receive turnover from Emergency Coordinator or Assistant Emergency Coordinator utilizing the "Emergency Coordinator Turnover Checklist".

**NOTE:** Plant parameter data sheets for each site are available in EP FAM 3.8 (Data Coordinators' Reference Manual) to be used as a job aid in preparing to brief NRC and other offsite agencies.

_____ Begin preparing, or delegate to the Assistant EOF Director, for briefing Offsite Agencies using the job aide on page 13 of 13. {8}

**NOTE:** The EOF Director is responsible for determining Emergency Classifications, approving Protective Action Recommendations, and approving Offsite Agency Emergency Notification Forms after the EOF is activated. These responsibilities remain with the EOF Director and shall not be delegated.

_____ Inform the Emergency Coordinator that the EOF is ready to activate.

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



| | |
|---|---|
| **NOTE:** | For all drills, messages should be preceded with "This is a drill. This is a drill." |

_____ Announce over the EOF public address system the following:

"Attention all EOF personnel. The EOF was activated at _____ hours. This is _____. I am the EOF Director and have taken responsibility for emergency management from the Emergency Coordinator in the Technical Support Center. At this time, the EOF has command and control for emergency classification, offsite notifications, protective action recommendations, field monitoring, and offsite agency interface. The current emergency classification is _____. The following is a summary of the plant status _____ _____. Additional information will be provided to you as conditions change. The next offsite agency notification shall be transmitted by _____ hours. The EOF staff shall prepare for a time-out and a roundtable discussion at _____ hours."

_____ Discuss current emergency classification with the EOF staff and verify that it meets the criteria of:

- Catawba RP/0/A/5000/001
  **OR**
- McGuire RP/0/A/5700/000
  **OR**
- Oconee RP/0/B/1000/001.

_____ Discuss with RAM, the specific time frames that dose assessment runs are expected to be available from the dose assessors to be included on emergency notification forms as desired. {31}

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



_____ Notify the Offsite Agency Communicator to make notifications to the offsite agencies according to the following criteria:

**Initial Notifications {39}**

1. Initial notifications to the State(s) and counties must be made within 15 minutes of the event declaration time using the Emergency Notification form (ENF).

2. For an upgrade in classification prior to or while transmitting an initial message:
   -The notification for the lesser emergency classification must be made within 15 minutes of the lesser classification declaration time.
   -The agencies must be informed that an upgrade in classification will be coming.
   -The upgraded classification message must be transmitted within 15 minutes of the upgraded classification declaration time.

**Follow-up Notifications**

1. Follow-up notifications to the State(s) and Counties must be made according to the following schedule:

| Catawba | McGuire | Oconee |
|---|---|---|
| -For NOUE, ALERT, SAE, or GE, every hour until the emergency is terminated. | -For NOUE, every 4 hours until the emergency is terminated.<br>-For ALERT, SAE, or GE, every hour until the emergency is terminated. | -For NOUE, a follow-up is not required.<br>-For ALERT, SAE, or GE, every 60 minutes until the emergency is terminated. |

**OR**

| Catawba | McGuire | Oconee |
|---|---|---|
| -If there is any significant change to the situation (make notification as soon as possible). | -If there is any significant change to the situation (make notification as soon as possible). | -If there is any significant change to the situation (make notification as the change occurs). See NOTE* below for examples of changes. |

**OR**

| Catawba | McGuire | Oconee |
|---|---|---|
| -As agreed upon with an Emergency Management official from each individual agency. Documentation shall be maintained for any agreed upon schedule change.<br>-The interval shall not be greater than 4 hours to any agency. | -As agreed upon with an Emergency Management official from each individual agency. Documentation shall be maintained for any agreed upon schedule change.<br>-The interval shall not be greater than 2 hours to any agency. | -Required every 60 minutes from the notification time on Line 2 for ALERT, SAE, or GE.<br>-This frequency may be changed at the request of offsite agencies. |

*NOTE (Oconee): Examples of significant plant changes include: evacuation/relocation of site personnel, fires onsite, MERT activation and/or injured personnel transported offsite, chemical spills, explosions, Condition "A" or "B" for Keowee Hydro Project Dams/Dikes, or any event that would cause or require offsite agency response.

2. If a follow-up is due and an upgrade to a higher classification is declared, there is no need to complete the follow-up ENF. In this case, the offsite agencies must be notified that the pending follow-up is being superseded by an upgrade to a higher classification and information will be provided.

3. Follow-up messages in the General Emergency classification that involve an upgrade in PARs must be communicated to the offsite agencies as soon as possible and within 15 minutes.

_____ Upon declaration of a Site Area Emergency, consult with the Accident Assessment Manager and the Radiological Assessment Manager to determine potential zones for protective action recommendations should the event progress to a General Emergency.

**NOTE:**
1. Catawba Offsite Protective Actions recommendations are defined in Enclosure 4.2.
2. McGuire Offsite Protective Actions recommendations are defined in Enclosure 4.3.
3. Oconee Offsite Protective Action recommendations are defined in Enclosure 4.4.

_____ Upon declaration of a General Emergency, the EOF Director shall IMMEDIATELY (within 15 minutes) make Protective Action Recommendations to offsite authorities via the Emergency Notification Form (ENF).

_____ **IF** changes to the initial Protective Action Recommendations are recommended to and approved by the EOF Director, these changes shall be transmitted to the offsite agencies within 15 minutes.

**CAUTION:** Once a zone has been accurately selected for evacuation, it should not be removed. {27} {30}

_____ Evaluate specific plant conditions, offsite dose projections, field monitoring team data, and assess need to update Protective Action Recommendations made to states and counties in the previous notification.

_____ Review dose projections with Radiological Assessment Manager to determine if Protective Action Recommendations are required beyond the 10-mile EPZ.

_____ **IF** Protective Action Recommendations are required beyond 10 miles, notify the states and counties and request they consider sheltering/evacuation of the general population located beyond the affected 10-mile EPZ.

**NOTE:** Descriptions of Keowee Hydro Dam/Dike Condition A and B are provided in Enclosure 4.23.

_____ **IF** Condition A, Dam Failure (Keowee or Jocassee) exists,

**THEN**, make the following Protective Action Recommendations to Oconee County and Pickens County for imminent/actual dam failure and include on the Emergency Notification Form on Line 5B (Evacuate) and Line 5E (Other):

Line 5B *Move residents living downstream of the Keowee Hydro Project dams to higher ground.*

Line 5E *Prohibit traffic flow across bridges identified on your inundation maps until the danger has passed.*

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



_____ Discuss, or delegate to the Assistant EOF Director the responsibility to discuss plant status with the County Directors of Emergency Preparedness (CDEP), the State Liaisons or the State Directors of Emergency Preparedness (SDEP) as necessary/requested using one of the following methods:

- The EOF State Liaisons will communicate information from the EOF Director to County/State representatives using the Decision Line.

**NOTE:** If using the EOF/Assistant EOF Director telephone, individual State and/or County numbers can be obtained from the appropriate site's Emergency Telephone Directory.

- Use the Decision Lines or the EOF/Assistant EOF Director telephone to contact the appropriate states/counties. Obtain the Decision Line Dial Codes or phone numbers from the appropriate Emergency Telephone Directory. {7}

**Catawba Site Specific**

_____ York CDEP _____

_____ Mecklenburg CDEP _____

_____ Gaston CDEP _____

_____ NC SDEP _____

_____ SC SDEP _____

**McGuire Site Specific**

_____ Mecklenburg CDEP _____

_____ Gaston CDEP _____

_____ Lincoln CDEP _____

_____ Iredell CDEP _____

_____ Catawba CDEP _____

_____ Cabarrus CDEP _____

_____ NC SDEP _____

**Oconee Site Specific**

_____ Oconee County CDEM _____

_____ Pickens County CDEM _____

_____ SC SDEM _____

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



_____ **IF** Protective Action Recommendations have been provided to the States and Counties, request SDEPs and CDEPs to inform the EOF Director of the decisions for actual Protective Actions for the plume exposure pathway populations. Record SDEPs' and CDEPs' protective action decisions below:

Zones Evacuated: _____

Zones Sheltered: _____

Information Received from: _____

_____ Inform Emergency Coordinator or Assistant Emergency Coordinator of SDEPs' and CDEPs' protective action decisions and other offsite conditions.

**NOTE:**

1. Wireless mikes are available for use during round tables/timeouts. {38}
2. Job aids (EOF Update Briefing Forms) are available for use by the EOF staff to prepare for time-outs, roundtable discussions, and announcements to be made over the public address system. These job aids are located in a ring binder in the book case beside the Emergency Planner's desk.

_____ Perform the following steps as needed throughout the event:

- Conduct a time-out and hold a roundtable discussion approximately every 30 minutes with the EOF staff to discuss:
  - Emergency Classification
  - Protective Action Recommendations
  - Emergency Notification Form status
  - Offsite dose projections
  - Mitigation strategies
  - Termination criteria as defined in Enclosure 4.5.
- Ensure roundtables/time-outs enable EOF members to know what is going on, what to anticipate, and understand focus and priorities.
- Announce to the EOF the emergency classification, plant status, and priorities via the EOF public address system following EOF time-outs.
- The Emergency Coordinator or Assistant Emergency Coordinator updates may be broadcast on the EOF public address system.
- Advise Emergency Coordinator or Assistant Emergency Coordinator of the following:
  - All aspects of the emergency situation, including alternate strategies outside of procedures as plant conditions dictate
  - Emergency Classification changes
  - Protective Action Recommendations changes
  - Mitigation strategies
  - Contingency plans.

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



**NOTE:**

1. Reasonable actions that depart from a license condition or technical specification may be performed in an emergency, per 10CFR50.54(x), when this action is immediately needed to protect the health and safety of the public and no action consistent with the license condition or technical specification that can provide adequate or equivalent protection is immediately apparent. Deviation from an Emergency Procedure constitutes a 10CFR50.54(x) action. Actions taken per 10CFR50.54(x) shall be:

   - Approved, as a minimum, by a Licensed Senior Reactor Operator prior to taking such action, and
   - Documented in the Reactor Operators Logbook, and
   - Documented in the TSC Logbook, and
   - Reported to the NRC within one hour using:
     Catawba RP/0/B/5000/013, "NRC Notification Requirements" or {3}
     McGuire RP/0/B/5000/010, "NRC Immediate Notification Requirements"
     Oconee OMP 1-14, "Notifications".

2. Examples of <u>potential</u> 10CFR50.54(x) action items include: {40}

   - Rerouting system piping to temporarily restore system flow.
   - Re-alignment of electrical power systems outside of procedural guidance.
   - Using mitigation strategies not established by the SAMG guidelines.

- Ensure that 10CFR50.54(x) actions are approved prior to performing the action.
- When restoring power in a LOOP event, have the risk significance of power restoration assessed for risk potential by Accident Assessment personnel. {42}
- Authorize emergency worker extensions if the radiation exposure doses are expected to exceed the blanket dose extension limits authorized by the Radiation Protection Manager using:

  - Catawba RP/0/A/5000/018
  - McGuire System Radiation Protection Manual Section VI-6
  - Oconee RP/0/B/1000/011.

- Approve personnel with training deficiencies prior to their participation as EOF staff members. This approval shall be documented in the EOF Log.
- Turn over EOF Director duties to the Assistant EOF Director prior to leaving the EOF Director's Area.
- Periodically review the staffing levels in the EOF to ensure adequate resources are in place to deal with response/recovery. {25}

_____ Verify that the EOF Emergency Planner completes the "EOF 24-Hour Staffing Log" located in Enclosure 4.17.

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



_____ Assist the TSC Emergency Coordinator or Assistant TSC Emergency Coordinator as a Decision Maker upon entry into Severe Accident Management Guidelines (SAMG) - applicable to Catawba and McGuire. {11}

_____ To downgrade or terminate an emergency event, refer to Enclosure 4.5 (Emergency Classification Downgrade/Termination Criteria) for guidance.

| | |
|---|---|
| **NOTE:** | The offsite Recovery Organization will stay at the EOF and work with the counties and states if radiological conditions exist beyond the site boundary. The On-Site Recovery Organization will be established by the Emergency Coordinator. |

_____ Establish Recovery Organization if needed using:

- Catawba RP/0/A/5000/025
- McGuire RP/0/A/5700/024
- Oconee RP/0/B/1000/027 and guidance in Enclosure 4.22.

_____ Conduct a critique following termination of a drill or actual event.

_____ Provide all completed paperwork to Emergency Planning following termination of a drill or actual event.

Terminate the emergency event in accordance with the applicable procedure:

_____ Notification of Unusual Event
Catawba - RP/0/A/5000/002
McGuire - RP/0/A/5700/001

_____ Alert
Catawba - RP/0/A/5000/003
McGuire - RP/0/A/5700/002

_____ Site Area Emergency
Catawba - RP/0/A/5000/004
McGuire - RP/0/A/5700/003

_____ General Emergency
Catawba - RP/0/A/5000/005
McGuire - RP/0/A/5700/004.

**Enclosure 4.1**



**EOF Director/Assistant EOF Director Checklist**



Close out an Oconee emergency event as listed below:

_____ **IF** an event meets the termination criteria for a General Emergency as identified in Enclosure 4.5, Emergency Classification Downgrade/Termination, discuss with the NRC Director of Site Operations (NRCDSO) and SDEM that the termination criteria has been met.

- Secure agreement from the two directors to terminate the event.
- Document names and time decision made below.

| | Name | Telephone Number | Time |
|---|---|---|---|
| SDEM | _____ | 1-803-737-8500 | _____ |
| NRCDSO | _____ | (In person in EOF) | _____ |

- Request lead Offsite Agency Communicator to complete a Termination Message form and transmit it in accordance with SR/0/B/2000/004 (Notification to State and Counties from the Emergency Operations Facility) and terminate the emergency.

_____ **IF** terminating from an Unusual Event, Alert, or Site Area Emergency,

- Request lead Offsite Agency Communicator to complete a Termination Message form and transmit it in accordance with SR/0/2000/004 (Notification to State and Counties from the Emergency Operations Facility) and terminate the emergency.
- Notify the following agencies:

| | Name | Telephone Number |
|---|---|---|
| SDEM | _____ | 1-803-737-8500 |

**OR**, the County Emergency Management Directors (CEMD) IF the SEOC has not been activated:

| | Name | Telephone Number |
|---|---|---|
| Oconee CDEM | _____ | 1-864-638-4200 |
| Pickens CDEM | _____ | 1-864-898-5943 |

_____ **IF** terminating from an emergency involving dam failure (Keowee or Jocassee),

- Discuss termination with Hydro Central (Refer to Section 6 of the Oconee Emergency Telephone Directory, Keowee Hydro Project Dam/Dike Notification).

_____ Request Oconee Emergency Planning to provide a copy of the Licensee Event Report (LER) to state and county agencies at the time it is sent to the NRC.

**Enclosure 4.1**

**Emergency Coordinator Turnover Checklist**

( )CATAWBA ( )MCGUIRE ( ) OCONEE

UNIT(S) AFFECTED: {8} ( ) Unit 1 ( ) Unit 2 ( ) Unit 3

**GENERAL**

| PRESSURE | POWER LEVEL | REACTOR COOLANT TEMPERATURE | REACTOR COOLANT |
|---|---|---|---|
| DATE:_____ | U-1_____ | _____ | _____ |
| TIME:_____ | U-2_____ | _____ | _____ |
| | U-3_____ | | |

**EMERGENCY CLASSIFICATION**

NOUE DECLARED AT: _____ TSC ACTIVATED AT: _____

ALERT DECLARED AT: _____ EOF ACTIVATED AT: _____

SAE DECLARED AT: _____

G.E. DECLARED AT: _____

REASON FOR EMER CLASS: _____

**SITE ASSEMBLY SITE EVACUATION**

| | YES | NO | TIME | LOCATION OR COMMENTS |
|---|---|---|---|---|
| SITE ASSEMBLY | | | | |
| SITE EVAC. (NON-ESSEN.) | | | | |
| SITE EVAC. (ESSENTIAL) | | | | |
| OTHER OFFSITE AGENCY INVOLVEMENT | | | | |
| MEDICAL | | | | |
| FIRE | | | | |
| POLICE/SHERIFF | | | | |

**RADIOLOGICAL**

| | NUMBER ASSEM. | NUMBER DEPLOYED |
|---|---|---|
| FIELD MON. TEAMS | | |

| | ZONES EVACUATED | ZONES SHELTERED | KI (General Public) |
|---|---|---|---|
| OFFSITE PARS | | | Yes ( ) No ( ) |

RELEASE IN PROGRESS YES ( ) NO ( )

RELEASE PATHWAY _____

CONTAINMENT PRESSURE _____ PSIG

WIND DIRECTION _____ WIND SPEED _____

**OFFSITE COMMUNICATIONS**

| | NUMBER | TIME |
|---|---|---|
| LAST MESSAGE SENT: | | |
| NEXT MESSAGE DUE: | | |

NOTE: EOF COMMUNICATION CHECKS SHOULD BE COMPLETED PRIOR TO ACTIVATING THE EOF.

OTHER NOTES RELATED TO THE ACCIDENT/EVENT/PLANT EQUIPMENT FAILED OR OUT OF SERVICE

_____

**Emergency Coordinator Turnover Checklist**

**Job Aid {8}**

| | CATAWBA/McGUIRE | OCONEE | AVAILABLE | NOT AVAILABLE | COMMENTS |
|---|---|---|---|---|---|
| SG HEAT REMOVAL | AFW (CA) TRAIN A | EFDW TRAIN A | | | |
| | AFW (CA) TRAIN B | EFDW TRAIN B | | | |
| | TD AFW TRAIN | TDEFDW | | | |
| ECCS | NV TRAIN A | HPI TRAIN A | | | |
| | NV TRAIN B | HPI TRAIN B | | | |
| | NI TRAIN A | | | | |
| | NI TRAIN B | | | | |
| | ND TRAIN A | LPIP TRAIN A | | | |
| | ND TRAIN B | LPIP TRAIN B | | | |
| | STANDBY MU WATER PMP | | | | |
| COOLING WATER | KC TRAIN A | UNIT 1 CC | | | |
| | KC TRAIN B | UNIT 2 CC | | | |
| | | UNIT 3 CC | | | |
| | RN TRAIN A | UNIT 1 & 2 LPSW | | | |
| | RN TRAIN B | UNIT 3 LPSW | | | |
| POWER SYSTEMS | BUSLINE A | MAIN FEEDER BUS | | | |
| | BUSLINE B | STANDBY BUS | | | |
| | DG A | KEOWEE 1 | | | |
| | DG B | KEOWEE 2 | | | |
| | SATA | CT4 | | | |
| | SATB | CT5 | | | |
| | TRAIN A DC POWER | DC POWER | | | |
| | TRAIN B DC POWER | | | | |
| | SSF DG | SSF DG | | | |
| CONTAINMENT | CONT. SPRAY TRAIN A | RBS TRAIN A | | | |
| | CONT. SPRAY TRAIN B | RBS TRAIN B | | | |
| | $H^2$ IGNITERS TRAIN A | | | | |
| | $H^2$ IGNITERS TRAIN B | | | | |
| | CONT. AIR RETURN FANS TRAIN A | A RBCU | | | |
| | CONT. AIR RETURN FANS TRAIN B | B RBCU | | | |
| | | C RBCU | | | |
| | CONT. ISOL. TRAIN A | ES 1&2 | | | |
| | CONT. ISOL. TRAIN B | ES 5&6 | | | |

Note: This form is not required for TSC/EOF Turnover. It is made available as a job aid only and can be used for other activities (e.g., Briefing the NRC).

**Enclosure 4.2**



**Catawba Offsite Protective Actions**



INITIAL {20}

**NOTE:** 1. Protective Action Recommendations (PARs) for the public apply during a General Emergency, and include sheltering, evacuation and consideration of KI use. PARs are based on plant conditions independent of projected dose, and can also be based on projected dose. Protective Action Guides (PAGs) are levels of radiation dose at which prompt protective actions should be initiated and are based on EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. The projected dose PARs specified in this enclosure are based on the PAGs listed below. The PAG for KI is taken from Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, FDA Guidance, November 2001 and Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, December 2002. {23}

PROTECTIVE ACTION GUIDES (PAGs)

Projected Dose

| Total Effective Dose Equivalent (TEDE) | Committed Dose Equivalent (CDE) Thyroid | Recommendation |
|---|---|---|
| < 1 rem | < 5 rem | No Protective Action is required based on projected dose. |
| ≥ 1 rem | ≥ 5 rem | Evacuate affected zones and shelter the remainder of the 10-mile EPZ not evacuated. |
| N/A | ≥5 rem | Consider the use of KI (potassium iodide) in accordance with State Plans and Policy. |

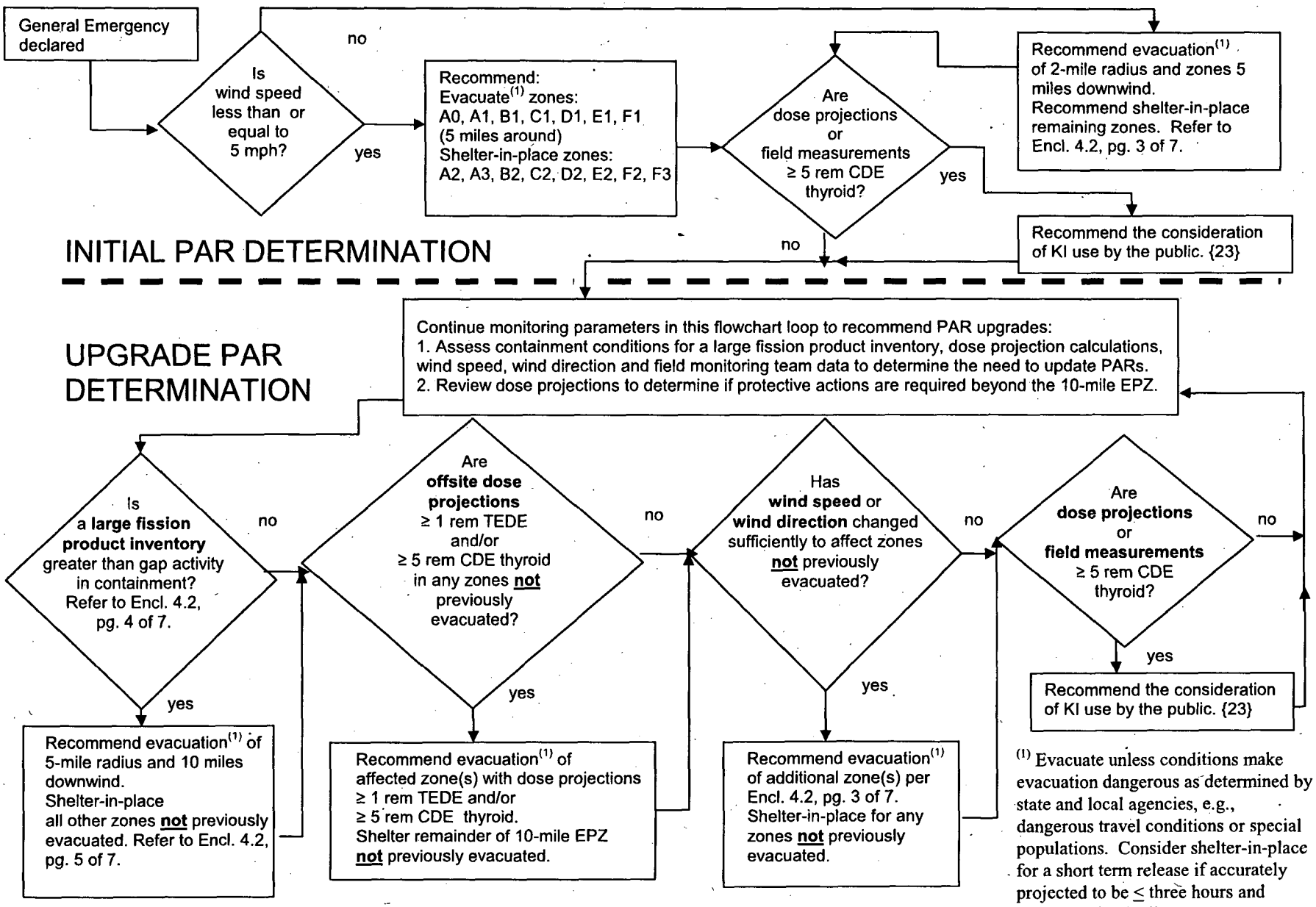
2. **IF** desired, you may refer to the flow chart on page 2 of this enclosure. {43}

INITIALS _____ PRINTED NAME _____

**Enclosure 4.2**

**Catawba Offsite Protective Actions Flowchart**






(1) Evacuate unless conditions make evacuation dangerous as determined by state and local agencies, e.g., dangerous travel conditions or special populations. Consider shelter-in-place for a short term release if accurately projected to be ≤ three hours and controlled by the licensee.

**Enclosure 4.2**



**Catawba Offsite Protective Actions**
**Immediate Protective Action Recommendations Steps**

**CAUTION:** A short term release is any release that can be projected to be 3 hours or less in duration. An example would be a "puff release". A controlled release is one that can be started and stopped at the licensee's discretion, such as the venting of Containment for pressure control. **IF** a release is short term and controlled, **THEN** sheltering in lieu of evacuation should be considered. {36}

**NOTE:** {5} If necessary, obtain needed data from one of the following sources in order of sequence:
A. Catawba SDS (Group Display **ERORD5**)
B. Duke Meteorologist (8-382-0139, or 8-373-7896)
C. National Weather Service in Greer, S.C. (864-879-1085 or 1-800-268-7785)

_____ Upon declaration of a General Emergency, make immediate PROTECTIVE ACTION RECOMMENDATIONS (PARs) within 15 minutes to be entered on Line 5 of the Emergency Notification Form (ENF). Determine the PARs based on the 15-minute average lower wind speed (OAC point C1P0253) and the 15-minute average upper wind direction (OAC point C1P0250) as below:

**WIND SPEED LESS THAN OR EQUAL TO 5 MPH**
Evacuate zones: A0, A1, B1, C1, D1, E1, F1 (5-Mile Radius)
**AND**
Shelter-in-place zones: A2, A3, B2, C2, D2, E2, F2, F3

**OR**

**WIND SPEED GREATER THAN 5 MPH**

| **Wind Direction** (Degrees from North) | **Evacuate*** 2-Mile Radius and 5 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 348.75 - 11.25 | A0, B1, C1, D1 | A1, A2, A3, B2, C2, D2, E1, E2, F1, F2, F3 |
| 11.26 - 33.75 | A0, C1, D1 | A1, A2, A3, B1, B2, C2, D2, E1, E2, F1, F2, F3 |
| 33.76 - 56.25 | A0, C1, D1, E1 | A1, A2, A3, B1, B2, C2, D2, E2, F1, F2, F3 |
| 56.26 - 78.75 | A0, C1, D1, E1, F1 | A1, A2, A3, B1, B2, C2, D2, E2, F2, F3 |
| 78.76 - 101.25 | A0, C1, D1, E1, F1 | A1, A2, A3, B1, B2, C2, D2, E2, F2, F3 |
| 101.26 - 123.75 | A0, D1, E1, F1 | A1, A2, A3, B1, B2, C1, C2, D2, E2, F2, F3 |
| 123.76 - 146.25 | A0, E1, F1 | A1, A2, A3, B1, B2, C1, C2, D1, D2, E2, F2, F3 |
| 146.26 - 168.75 | A0, A1, E1, F1 | A2, A3, B1, B2, C1, C2, D1, D2, E2, F2, F3 |
| 168.76 - 191.25 | A0, A1, E1, F1 | A2, A3, B1, B2, C1, C2, D1, D2, E2, F2, F3 |
| 191.26 - 213.75 | A0, A1, B1, E1, F1 | A2, A3, B2, C1, C2, D1, D2, E2, F2, F3 |
| 213.76 - 236.25 | A0, A1, B1, F1 | A2, A3, B2, C1, C2, D1, D2, E1, E2, F2, F3 |
| 236.26 - 258.75 | A0, A1, B1, F1 | A2, A3, B2, C1, C2, D1, D2, E1, E2, F2, F3 |
| 258.76 - 281.25 | A0, A1, B1, C1 | A2, A3, B2, C2, D1, D2, E1, E2, F1, F2, F3 |
| 281.26 - 303.75 | A0, A1, B1, C1 | A2, A3, B2, C2, D1, D2, E1, E2, F1, F2, F3 |
| 303.76 - 326.25 | A0, B1, C1 | A1, A2, A3, B2, C2, D1, D2, E1, E2, F1, F2, F3 |
| 326.26 - 348.74 | A0, B1, C1, D1 | A1, A2, A3, B2, C2, D2, E1, E2, F1, F2, F3 |

* See Caution above.

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

**Enclosure 4.2**



**Catawba Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

**NOTE:** 1. **IF** changes to the initial Protective Action Recommendations are recommended, these changes must be transmitted to the offsite agencies within 15 minutes.

2. **IF** the containment radiation level exceeds the levels in the EMF Containment Monitor Reading Table below, fission product inventory inside containment is greater than gap activity.

**CAUTION:** Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

_____ After the Initial PARs are transmitted to offsite agencies, check for large fission product inventory in Containment as follows:

**EMF Containment Monitor Reading Table**

| Time After Shutdown (Hours) | EMF Containment Monitor Reading (R/HR) EMF53A and/or 53B (100% gap activity release) |
|---|---|
| >0-2 | 864 |
| >2-4 | 624 |
| >4-8 | 450 |
| >8 | 265 |

Evaluate large fission product inventory in the containment as follows:

_____ **IF** SDS is available, enter Group Display **ERORD5** to determine containment radiation levels using EMF53A and/or 53B readings.

_____ **IF** SDS is unavailable, request the EOF Data Coordinator to call up the following computer points to determine containment radiation levels.

| Unit 1 OAC | Unit 2 OAC |
|---|---|
| C1A1308 -------- 1EMF53A | C2A1308 -------- 2EMF53A |
| C1A1314 -------- 1EMF53B | C2A1314 -------- 2EMF53B |

_____ **IF** SDS and the OAC are unavailable, get the EMF containment monitor readings from the control room.

**Enclosure 4.2**



**Catawba Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

**CAUTION:**
1. A short term release is any release that can be projected to be 3 hours or less in duration. An example would be a "puff release". A controlled release is one that can be started and stopped at the licensee's discretion, such as the venting of Containment for pressure control. **IF** a release is short term and controlled, **THEN** sheltering in lieu of evacuation should be considered. {36}
2. Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

**IF** containment radiation levels exceed the levels in the EMF Containment Monitor Reading Table, **THEN**:

_____ Evacuate the 5-mile radius **AND** 10 miles downwind as shown in the Protective Action Zones Determination Table below, using wind direction.

**AND**

_____ Shelter remaining zones as shown in the Protective Action Zones Determination Table, using wind direction.

## Protective Action Zones Determination Table

**For Containment Radiation Levels Exceeding GAP Activity**
**(For Any Wind Speed)**

| **Wind Direction** (Degrees from North) | **Evacuate*** 5-Mile Radius and 10 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 348.75 - 11.25 | A0, A1, B1, B2, C1, C2, D1, D2, E1, F1 | A2, A3, E2, F2, F3 |
| 11.26 - 33.75 | A0, A1, B1, C1, C2, D1, D2, E1, F1 | A2, A3, B2, E2, F2, F3 |
| 33.76 - 56.25 | A0, A1, B1, C1, C2, D1, D2, E1, E2, F1 | A2, A3, B2, F2, F3 |
| 56.26 - 78.75 | A0, A1, B1, C1, C2, D1, D2, E1, E2, F1, F2 | A2, A3, B2, F3 |
| 78.76 - 101.25 | A0, A1, B1, C1, D1, D2, E1, E2, F1, F2 | A2, A3, B2, C2, F3 |
| 101.26 - 123.75 | A0, A1, B1, C1, D1, D2, E1, E2, F1, F2, F3 | A2, A3, B2, C2 |
| 123.76 - 146.25 | A0, A1, B1, C1, D1, E1, E2, F1, F2, F3 | A2, A3, B2, C2, D2 |
| 146.26 - 168.75 | A0, A1, A2, B1, C1, D1, E1, E2, F1, F2, F3 | A3, B2, C2, D2 |
| 168.76 - 191.25 | A0, A1, A2, B1, C1, D1, E1, F1, F2, F3 | A3, B2, C2, D2, E2 |
| 191.26 - 213.75 | A0, A1, A2, A3, B1, B2, C1, D1, E1, F1, F2, F3 | C2, D2, E2 |
| 213.76 - 236.25 | A0, A1, A2, A3, B1, B2, C1, D1, E1, F1, F2, F3 | C2, D2, E2 |
| 236.26 - 258.75 | A0, A1, A2, A3, B1, B2, C1, D1, E1, F1, F3 | C2, D2, E2, F2 |
| 258.76 - 281.25 | A0, A1, A2, A3, B1, B2, C1, C2, D1, E1, F1 | D2, E2, F2, F3 |
| 281.26 - 303.75 | A0, A1, A2, A3, B1, B2, C1, C2, D1, E1, F1 | D2, E2, F2, F3 |
| 303.76 - 326.25 | A0, A1, A3, B1, B2, C1, C2, D1, E1, F1 | A2, D3, E2, F2, F3 |
| 326.26 - 348.74 | A0, A1, B1, B2, C1, C2, D1, D2, E1, F1 | A2, A3, E2 , F2, F3 |

* See Cautions above.

**Enclosure 4.2**



**Catawba Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

_____ On a continuing basis, evaluate specific plant conditions (including large fission product inventory in containment), offsite dose projections, wind speed and wind direction, field monitoring team data, and assess the need to update Protective Action Recommendations made to the states and counties in the previous notification.

_____ Review dose projections with the Radiological Assessment Manager to determine if Protective Action Recommendations are required beyond the 10-mile EPZ.

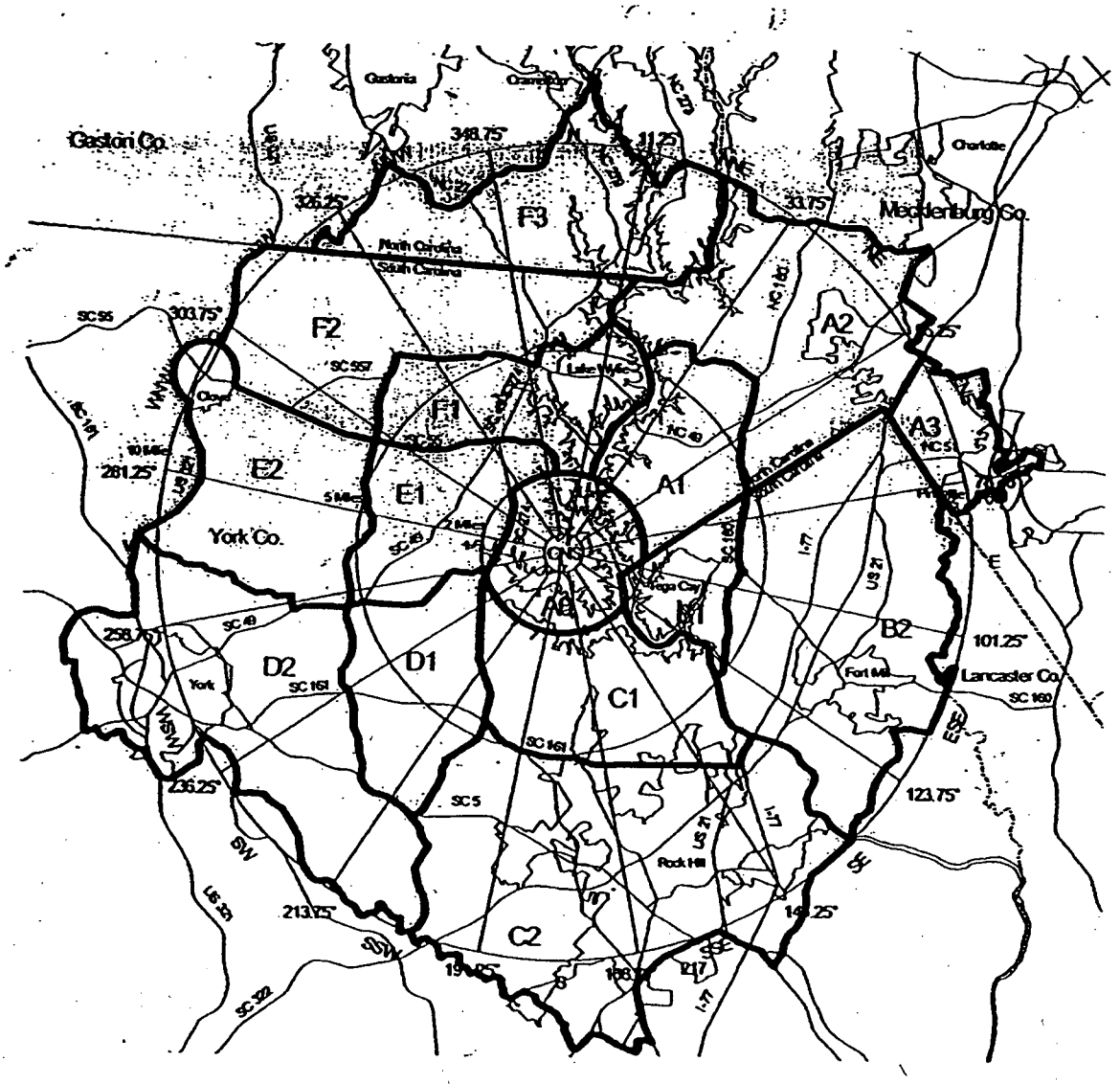
_____ **IF** Protective Action Recommendations are required beyond 10 miles, notify the states and counties and request that they consider sheltering/evacuating the general population located beyond the affected 10-mile EPZ.

**Enclosure 4.2**

**Catawba Offsite Protective Actions**



Catawba Protective Action Zones - 10-mile EPZ
(2 and 5-mile Radius, inner circles)



**Enclosure 4.3**



**McGuire Offsite Protective Actions**

INITIAL {20}

**NOTE:** 1. Protective Action Recommendations (PARs) for the public apply during a General Emergency, and include sheltering, evacuation and consideration of KI use. PARs are based on plant conditions independent of projected dose, and can also be based on projected dose. Protective Action Guides (PAGs) are levels of radiation dose at which prompt protective actions should be initiated and are based on EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. The projected dose PARs specified in this enclosure are based on the PAGs listed below. The PAG for KI is taken from Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, FDA Guidance, November 2001 and Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, December 2002. {23}

PROTECTIVE ACTION GUIDES (PAGs)

Projected Dose

| Total Effective Dose Equivalent (TEDE) | Committed Dose Equivalent (CDE) Thyroid | Recommendation |
|---|---|---|
| < 1 rem | < 5 rem | No Protective Action is required based on projected dose. |
| ≥ 1 rem | ≥ 5 rem | Evacuate affected zones and shelter the remainder of the 10-mile EPZ not evacuated. |
| N/A | ≥5 rem | Consider the use of KI (potassium iodide) in accordance with State Plans and Policy. |

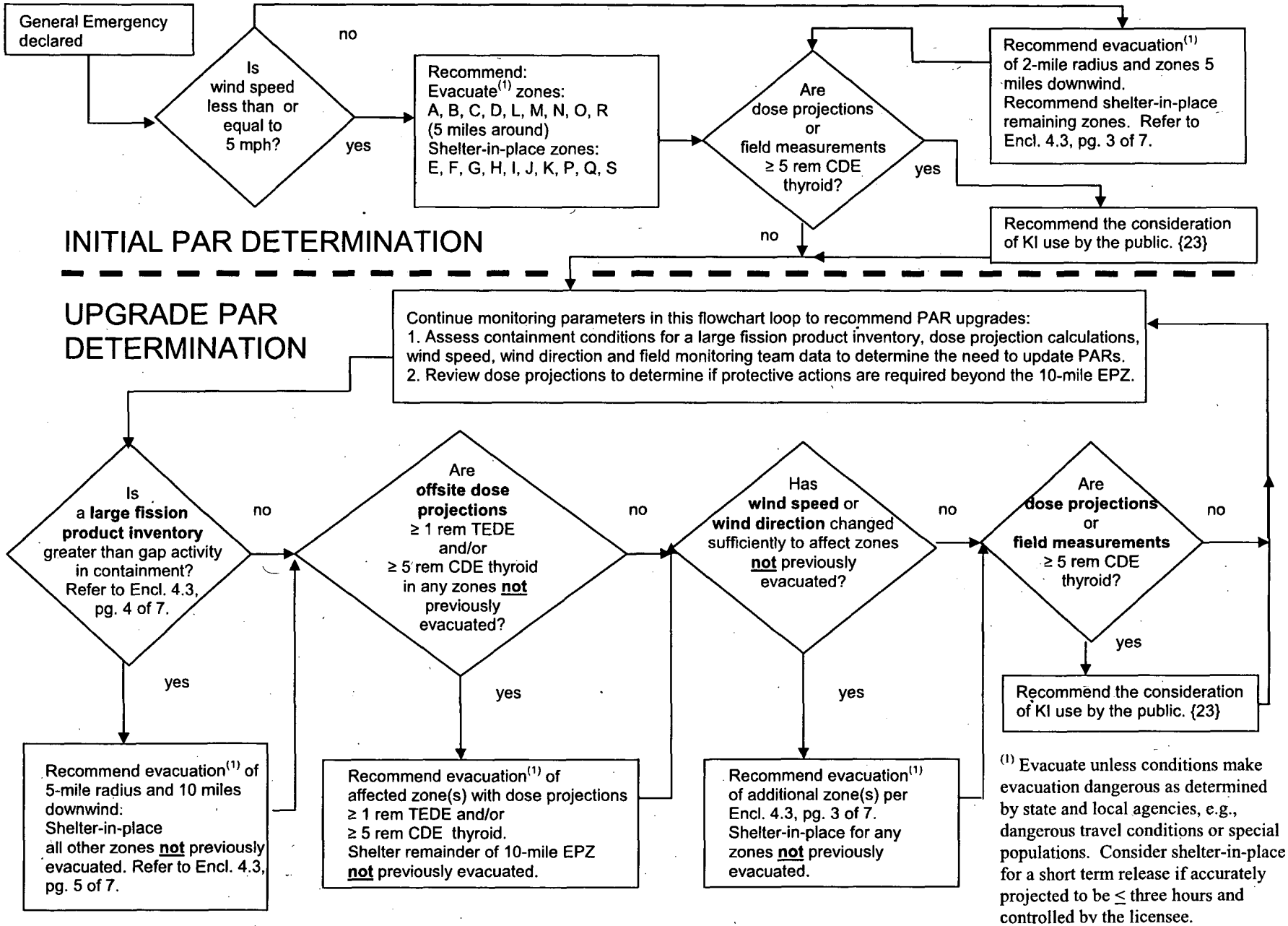
2. **IF** desired, you may refer to the flow chart on page 2 of this enclosure. {43}

INITIALS _____ PRINTED NAME _____

**Enclosure 4.3**

**McGuire Offsite Protective Actions Flowchart**






(1) Evacuate unless conditions make evacuation dangerous as determined by state and local agencies, e.g., dangerous travel conditions or special populations. Consider shelter-in-place for a short term release if accurately projected to be ≤ three hours and controlled by the licensee.

**Enclosure 4.3**



**McGuire Offsite Protective Actions**
**Immediate Protective Action Recommendations Steps**

**CAUTION:** A short term release is any release that can be projected to be 3 hours or less in duration. An example would be a "puff release". A controlled release is one that can be started and stopped at the licensee's discretion, such as the venting of Containment for pressure control. **IF** a release is short term and controlled, **THEN** sheltering in lieu of evacuation should be considered. {36}

**NOTE:** {5} If necessary, obtain needed data from one of the following sources in order of sequence:

A. McGuire SDS (Group Display **ERORD5**)
B. Duke Meteorologist (8-382-0139, or 8-373-7896)
C. National Weather Service in Greer, S.C. (864-879-1085 or 1-800-268-7785)

—— Upon declaration of a General Emergency, make immediate PROTECTIVE ACTION RECOMMENDATIONS (PARs) within 15 minutes to be entered on Line 5 of the Emergency Notification Form (ENF). Determine the PARs based on the 15-minute average lower wind speed (OAC point M1P0848) and the 15-minute average upper wind direction (OAC point M1P0847) as below:

**WIND SPEED LESS THAN OR EQUAL TO 5 MPH**
Evacuate zones: A, B, C, D, L, M, N, O, R (5-Mile Radius)
**AND**
Shelter-in-place zones: E, F, G, H, I, J, K, P, Q, S

**OR**

**WIND SPEED GREATER THAN 5 MPH**

| **Wind Direction** (Degrees from North) | **Evacuate*** 2-Mile Radius and 5 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 0.1 - 22.5 | B,C,D,L,M,O,R | A,E,F,G,H,I,J,K,N,P,Q,S |
| 22.6 – 45.0 | B,C,D,L,M,O,R | A,E,F,G,H,I,J,K,N,P,Q,S |
| 45.1 – 67.5 | B,C,D,L,M,O,R | A,E,F,G,H,I,J,K,N,P,Q,S |
| 67.6 – 90.0 | B,C,D,L,M,N,O,R | A,E,F,G,H,I,J,K,P,Q,S |
| 90.1 – 112.5 | B,C,L,M,N,O,R | A,D,E,F,G,H,I,J,K,P,Q,S |
| 112.6 – 135.0 | A,B,C,L,M,N,O,R | D,E,F,G,H,I,J,K,P,Q,S |
| 135.1 – 157.5 | A,B,C,L,M,N,O | D,E,F,G,H,I,J,K,P,Q,R,S |
| 157.6 – 180.0 | A,B,C,L,M,N | D,E,F,G,H,I,J,K,O,P,Q,R,S |
| 180.1 – 202.5 | A,B,C,L,M,N | D,E,F,G,H,I,J,K,O,P,Q,R,S |
| 202.6 – 225.0 | A,B,C,D,L,M,N | E,F,G,H,I,J,K,O,P,Q,R,S |
| 225.1 – 247.5 | A,B,C,D,L,M | E,F,G,H,I,J,K,N,O,P,Q,R,S |
| 247.6 – 270.0 | A,B,C,D,L,M | E,F,G,H,I,J,K,N,O,P,Q,R,S |
| 270.1 – 292.5 | A,B,C,D,L,M | E,F,G,H,I,J,K,N,O,P,Q,R,S |
| 292.6 – 315.0 | A,B,C,D,L,M | E,F,G,H,I,J,K,N,O,P,Q,R,S |
| 315.1 – 337.5 | B,C,D,L,M,R | A,E,F,G,H,I,J,K,N,O,P,Q,S |
| 337.6 – 360.0 | B,C,D,L,M,R | A,E,F,G,H,I,J,K,N,O,P,Q,S |

* See Caution above.

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

**Enclosure 4.3**



**McGuire Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

**NOTE:** 1. **IF** changes to the initial Protective Action Recommendations are recommended, these changes must be transmitted to the offsite agencies within 15 minutes.

2. **IF** the containment radiation level exceeds the levels in the EMF Containment Monitor Reading Table below, fission product inventory inside containment is greater than gap activity.

**CAUTION:** Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

_____ After the Initial PARs are transmitted to offsite agencies, check for large fission product inventory in Containment as follows:

**EMF Containment Monitor Reading Table**

| Time After Shutdown (Hours) | EMF Containment Monitor Reading (R/HR) EMF51A and/or 51B (100% gap activity release) |
|---|---|
| >0-2 | 864 |
| >2-4 | 624 |
| >4-8 | 450 |
| >8 | 265 |

Evaluate large fission product inventory in the containment as follows:

_____ **IF** SDS is available, enter Group Display **ERORD5** to determine containment radiation levels using EMF51A and/or 51B readings.

_____ **IF** SDS is unavailable, request the EOF Data Coordinator to call up the following computer points to determine containment radiation levels.

| Unit 1 OAC | Unit 2 OAC |
|---|---|
| M1A0829 -------- 1EMF51A | M2A0829 -------- 2EMF51A |
| M1A0835 -------- 1EMF51B | M2A0835 -------- 2EMF51B |

_____ **IF** SDS and the OAC are unavailable, get the EMF containment monitor readings from the control room.

**Enclosure 4.3**



**McGuire Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

**CAUTION:**
1. A short term release is any release that can be projected to be 3 hours or less in duration. An example would be a "puff release". A controlled release is one that can be started and stopped at the licensee's discretion, such as the venting of Containment for pressure control. **IF** a release is short term and controlled, **THEN** sheltering in lieu of evacuation should be considered. {36}
2. Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

**IF** containment radiation levels exceed the levels in the EMF Containment Monitor Reading Table, **THEN**:

_____ Evacuate the 5-mile radius **AND** 10 miles downwind as shown in the Protective Action Zones Determination Table, using wind direction.

**AND**

_____ Shelter remaining zones as shown in the Protective Action Zones Determination Table, using wind direction.

## Protective Action Zones Determination Table

**For Containment Radiation Levels Exceeding GAP Activity**
**(For Any Wind Speed)**

| **Wind Direction** (Degrees from North) | **Evacuate*** 5-Mile Radius and 10 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 0.1 - 22.5 | A,B,C,D,E,F,L,M,N,O,R,S | G,H,I,J,K,P,Q |
| 22.6 – 45.0 | A,B,C,D,E,L,M,N,O,Q,R,S | F,G,H,I,J,K,P |
| 45.1 – 67.5 | A,B,C,D,E,L,M,N,O,Q,R,S | F,G,H,I,J,K,P |
| 67.6 – 90.0 | A,B,C,D,L,M,N,O,P,Q,R,S | E,F,G,H,I,J,K |
| 90.1 – 112.5 | A,B,C,D,K,L,M,N,O,P,Q,R,S | E,F,G,H,I,J |
| 112.6 – 135.0 | A,B,C,D,I,K,L,M,N,O,P,Q,R,S | E,F,G,H,J |
| 135.1 – 157.5 | A,B,C,D,I,K,L,M,N,O,P,Q,R | E,F,G,H,J,S |
| 157.6 – 180.0 | A,B,C,D,I,J,K,L,M,N,O,P,R | E,F,G,H,Q,S |
| 180.1 – 202.5 | A,B,C,D,G,H,I,J,K,L,M,N,O,P,R | E,F,Q,S |
| 202.6 – 225.0 | A,B,C,D,G,H,I,J,K,L,M,N,O,P,R | E,F,Q,S |
| 225.1 – 247.5 | A,B,C,D,F,G,H,I,J,L,M,N,O,R | E,K,P,Q,S |
| 247.6 – 270.0 | A,B,C,D,F,G,H,I,J,L,M,N,O,R | E,K,P,Q,S |
| 270.1 – 292.5 | A,B,C,D,E,F,G,H,J,L,M,N,O,R | I,K,P,Q,S |
| 292.6 – 315.0 | A,B,C,D,E,F,G,L,M,N,O,R | H,I,J,K,P,Q,S |
| 315.1 – 337.5 | A,B,C,D,E,F,G,L,M,N,O,R | H,I,J,K,P,Q,S |
| 337.6 – 360.0 | A,B,C,D,E,F,L,M,N,O,R,S | G,H,I,J,K,P,Q |

* See Cautions above.

**Enclosure 4.3**



**McGuire Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

_____ On a continuing basis, evaluate specific plant conditions (including large fission product inventory in containment), offsite dose projections, wind speed and wind direction, field monitoring team data, and assess the need to update Protective Action Recommendations made to the states and counties in the previous notification.

_____ Review dose projections with the Radiological Assessment Manager to determine if Protective Action Recommendations are required beyond the 10-mile EPZ.

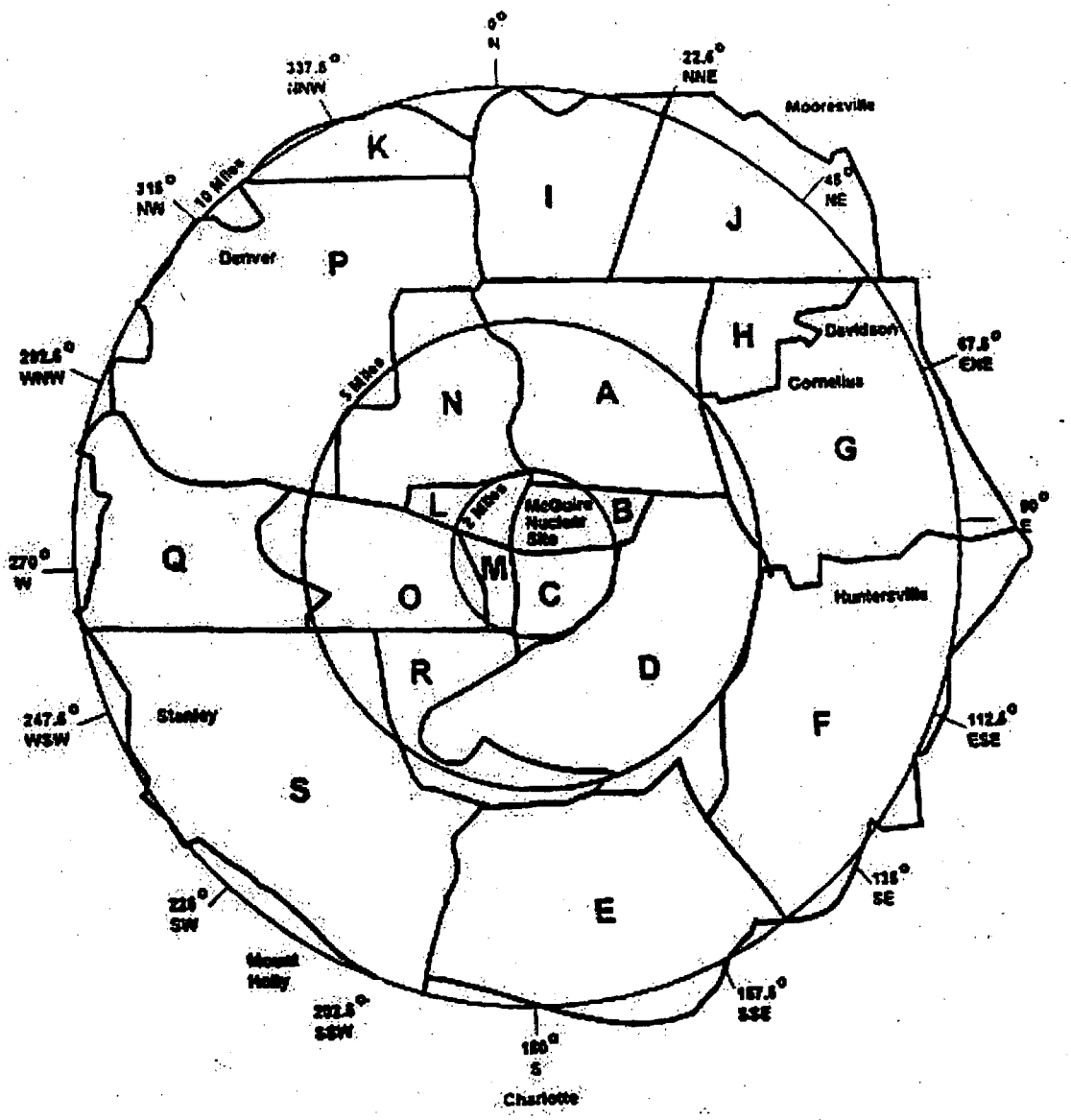
_____ **IF** Protective Action Recommendations are required beyond 10 miles, notify the states and counties and request that they consider sheltering/evacuating the general population located beyond the affected 10-mile EPZ.

**Enclosure 4.3**

**McGuire Offsite Protective Actions**



McGuire Protective Action Zones - 10-mile EPZ
(2 and 5-mile radius, inner circles)



**Enclosure 4.4**

**Oconee Offsite Protective Actions**



INITIAL {20}

**NOTE:** 1. Protective Action Recommendations (PARs) for the public apply during a General Emergency, and include sheltering, evacuation and consideration of KI use. PARs are based on plant conditions independent of projected dose, and can also be based on projected dose. Protective Action Guides (PAGs) are levels of radiation dose at which prompt protective actions should be initiated and are based on EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. The projected dose PARs specified in this enclosure are based on the PAGs listed below. The PAG for KI is taken from Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, FDA Guidance, November 2001 and Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, December 2002. {23}

PROTECTIVE ACTION GUIDES (PAGs)

Projected Dose

| Total Effective Dose Equivalent (TEDE) | Committed Dose Equivalent (CDE) Thyroid | Recommendation |
|---|---|---|
| < 1 rem | < 5 rem | No Protective Action is required based on projected dose. |
| ≥ 1 rem | ≥ 5 rem | Evacuate affected zones and shelter the remainder of the 10-mile EPZ not evacuated. |
| N/A | ≥5 rem | Consider the use of KI (potassium iodide) in accordance with State Plans and Policy. |

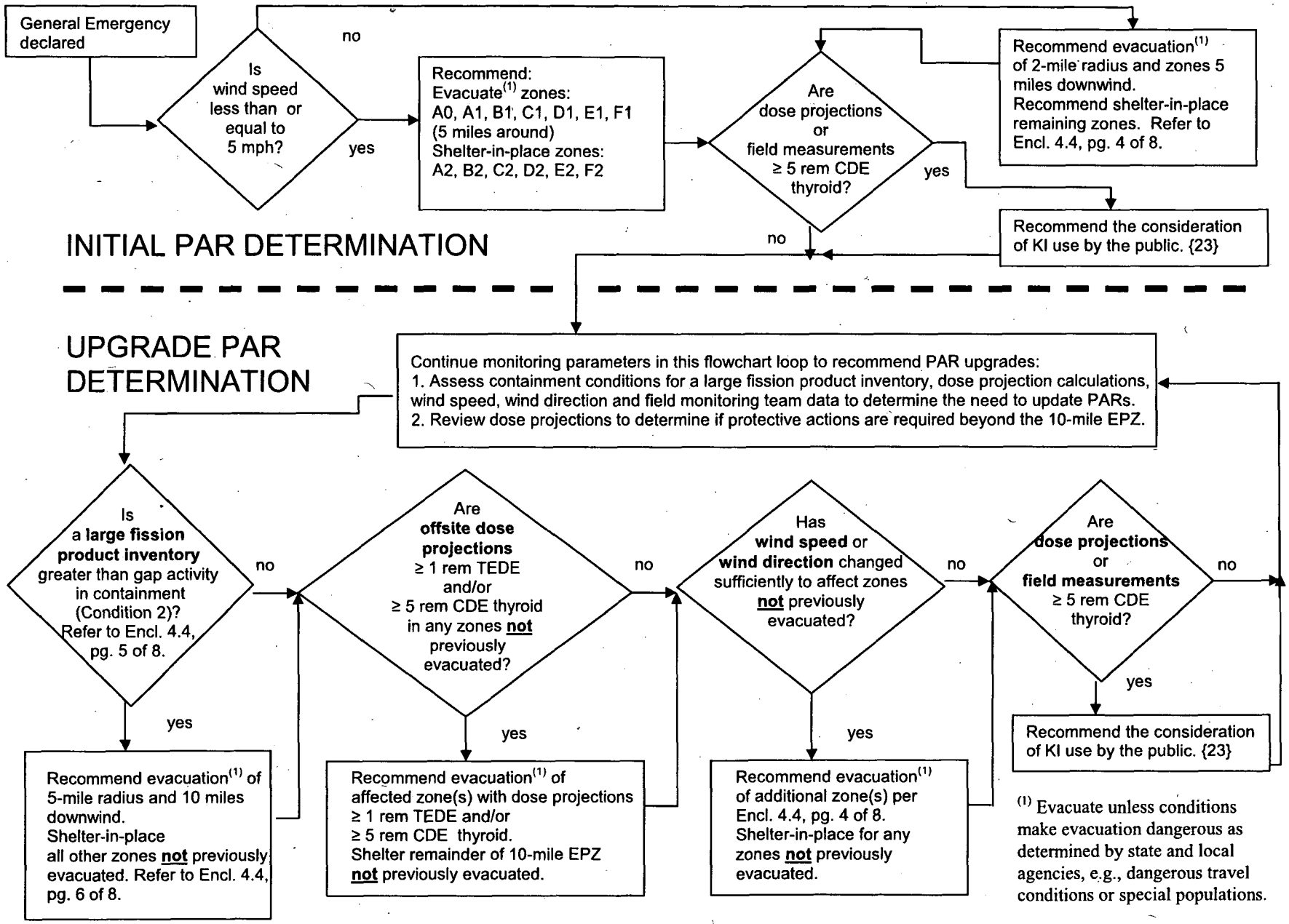
2. **IF** desired, you may refer to the flow chart on page 2 of this enclosure. {43}

INITIALS _____ PRINTED NAME _____

**Enclosure 4.4**

**Oconee Offsite Protective Actions Flowchart**






(1) Evacuate unless conditions make evacuation dangerous as determined by state and local agencies, e.g., dangerous travel conditions or special populations.

**Enclosure 4.4**



**Oconee Offsite Protective Actions**
**Immediate Protective Action Recommendations Steps**

**NOTE:** {5} If necessary, obtain needed data from one of the following sources in order of sequence:
A. Oconee SDS (Turn On Code **EROENV**)
B. Duke Meteorologist (8-382-0139 or 8-373-7896)
C. National Weather Service in Greer, S.C. (1-864-879-1085 or 1-800-268-7785)

___ Upon declaration of a General Emergency, make immediate PROTECTIVE ACTION RECOMMENDATIONS (PARs) within 15 minutes to be entered on Line 5 of the Emergency Notification Form (ENF). Determine the meteorological parameters to use based on the 15-minute average wind speed (SDS EROENV screen) and the 15-minute average wind direction (SDS EROENV screen) as determined from the following chart below:

| Time of Day Conditions | Met Parameter | First Priority | Second Priority | Third Priority | Fourth Priority |
|---|---|---|---|---|---|
| 1000 - 1600 | Wind Speed | 10M reading | River Tower | 60M reading times 0.5 | NWS* times 0.5 |
| | Wind Direction | 60M reading | 10M reading | River Tower | NWS |
| 1600 – 1000 and River Wind between 210° and 360° or 0° and 70° | Wind Speed | 10M reading | 60M reading times 0.5 | River Tower | NWS* times 0.5 |
| | Wind Direction | 60M reading | 10M reading | River Tower | NWS |
| 1600 – 1000 and River Wind between 70° and 210° | Wind Speed | River Tower | 10M reading times 0.5 | NWS* times 0.5 | |
| | Wind Direction | River Tower | 60M reading | NWS | |

* Conversion factors for NWS data:
Mph= 1.15 knots
°C = .555(°F – 32)

_____ Record Meteorological Parameters to be used to determine PARs:

Wind Speed _____

Wind Direction _____

**Enclosure 4.4**



**Oconee Offsite Protective Actions**
**Immediate Protective Action Recommendations Steps**

_____ Determine PARs based on the 15-minute average wind speed and 15-minute average wind direction as determined from the previous chart:

**WIND SPEED LESS THAN OR EQUAL TO 5 MPH**

Evacuate zones: A0, A1, B1, C1, D1, E1, F1 (5-Mile Radius)

**AND**

Shelter-in-place zones: A2, B2, C2, D2, E2, F2

**OR**

**WIND SPEED GREATER THAN 5 MPH**

| **Wind Direction** (Degrees from North) | **Evacuate** 2-Mile Radius and 5 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 14.1° - 27° | A0, C1,D1,E1 | A1, A2, B1,B2, C2, D2, E2, F1,F2 |
| 27.1° - 42° | A0, C1,D1,E1 | A1, A2, B1,B2, C2, D2, E2, F1,F2 |
| 42.1° - 66° | A0, D1, E1 | A1, A2, B1 B2, C1, C2, D2, E2, F1, F2 |
| 66.1° - 85° | A0, D1, E1 | A1, A2, B1 B2, C1, C2, D2, E2, F1, F2 |
| 85.1° - 104° | A0, D1, E1, F1 | A1, A2, B1, B2, C1, C2, D2, E2, F2 |
| 104.1° - 129° | A0, E1, F1 | A1, A2, B1, B2, C1, C2, D1, D2, E2, F2 |
| 129.1° - 156° | A0, A1, E1, F1 | A2, B1, B2, C1, C2. D1, D2, E2, F2 |
| 156.1° - 175° | A0, A1, E1, F1 | A2, B1, B2, C1, C2. D1, D2, E2, F2 |
| 175.1° - 181° | A0, A1, F1 | A2, B1, B2, C1, C2, D1, D2, E1, E2, F2 |
| 181.1° - 219° | A0, A1, B1, F1 | A2, B2, C1, C2, D1, D2, E1, E2, F2 |
| 219.1° - 255° | A0, A1, B1 | A2, B2, C1, C2, D1, D2. E1, E2, F1, F2 |
| 255.1° - 271° | A0, A1, B1, C1 | A2, B2, C2, D1, D2, E1, E2, F1, F2 |
| 271.1° - 297° | A0, B1, C1 | A1, A2, B2, C2, D1, D2. E1, E2, F1, F2 |
| 297.1° - 312° | A0, B1, C1 | A1, A2, B2, C2, D1, D2. E1, E2, F1, F2 |
| 312.1° - 345° | A0, B1, C1, D1 | A1,A2, B2, C2, D2, E1, E2, F1, F2 |
| 345.1° - 14° | A0, C1, D1 | A1, A2, B1, B2, C2, D2, E1, E2, F1, F2 |

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

**Enclosure 4.4**



**Oconee Offsite Protective Actions**
**Subsequent Protective Action Recommendations Steps**

**NOTE:**
1. **IF** changes to the initial Protective Action Recommendations are recommended, these changes must be transmitted to the offsite agencies within 15 minutes.
2. **IF** the containment radiation level exceeds the levels in the RIA Containment Monitor Reading Table below, fission product inventory inside containment is greater than gap activity.

**CAUTION:** Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

____ After the Initial PARs are transmitted to offsite agencies, check for large fission product inventory (Condition 2 Failed Fuel) in Containment as follows:

**RIA Containment Monitor Reading Table**

| Time After Shutdown (Hours) | RIA-57 Containment Monitor Reading (R/HR) (100% gap activity release) | RIA-58 Containment Monitor Reading (R/HR) (100% gap activity release) |
|---|---|---|
| >0-2 | 2000 | 969 |
| >2-4 | 1500 | 650 |
| >4-8 | 750 | 370 |
| >8 | 275 | 125 |

Evaluate large fission product inventory in the containment as follows:

____ **IF** SDS is available, enter Turn On Code **EROCONT** or **EROAREA** to determine containment radiation levels using RIA-57 and/or RIA-58 readings.

____ **IF** SDS is unavailable, request the EOF Data Coordinator to call up the following computer points to determine containment radiation levels.

| Unit 1 OAC | Unit 2 OAC | Unit 3 OAC |
|---|---|---|
| O1E3034 -------- 1RIA57 | O2E3054 -------- 2RIA57 | O3E3088 -------- 3RIA57 |
| O1E3035 -------- 1RIA58 | O2E3055 -------- 2RIA58 | O3E3089 -------- 3RIA58 |

____ **IF** SDS and the OAC are unavailable, get the RIA containment monitor readings from the control room.

**Oconee Offsite Protective Actions**
**Subsequent Protective Action Recommendation Steps**

**IF** containment radiation levels exceed the levels in the RIA Containment Monitor Reading Table, **THEN**:

_____ Evacuate the 5-mile radius **AND** 10 miles downwind as shown in the Protective Action Zones Determination Table, using wind direction.

**AND**

_____ Shelter remaining zones as shown in the Protective Action Zones Determination Table, using wind direction.

**CAUTION:** Once a zone has been accurately selected for evacuation, it should not be removed. {27}, {30}

## Protective Action Zones Determination Table

**For Containment Radiation Levels Exceeding GAP Activity (Condition 2 Failed Fuel) (For Any Wind Speed)**

| **Wind Direction** (Degrees from North) | **Evacuate*** 5-Mile Radius and 10 Miles Downwind | **Shelter** Remaining Sectors |
|---|---|---|
| 14.1° - 27° | A0, A1, B1, C1, C2, D1, D2, E1, E2, F1 | A2, B2, F2 |
| 27.1° - 42° | A0, A1, B1, C1, D1, D2, E1, E2, F1 | A2, B2, C2, F2 |
| 42.1° - 66° | A0, A1, B1, C1, D1, D2, E1, E2, F1 | A2, B2, C2, F2 |
| 66.1° - 85° | A0, A1, B1, C1, D1, D2, E1, E2, F1, F2 | A2, B2, C2 |
| 85.1° - 104° | A0, A1, B1, C1, D1, D2, E1, E2, F1, F2 | A2, B2, C2 |
| 104.1° - 129° | A0, A1, B1, C1, D1, E1, E2, F1, F2 | A2, B2, C2, D2 |
| 129.1° - 156° | A0, A1, A2, B1, C1, D1, E1, E2, F1, F2 | B2, C2, D2 |
| 156.1° - 175° | A0, A1, A2, B1, C1, D1, E1, F1, F2 | B2, C2, D2, E2 |
| 175.1° - 181° | A0, A1, A2, B1, C1, D1, E1, F1, F2 | B2, C2, D2, E2 |
| 181.1° - 219° | A0, A1, A2, B1, B2, C1, D1, E1, F1, F2 | C2, D2, E2 |
| 219.1° - 255° | A0, A1, A2, B1, B2, C1, D1, E1, F1 | C2, D2, E2, F2 |
| 255.1° - 271° | A0, A1, A2, B1, B2, C1, C2, D1, E1, F1 | D2, E2, F2 |
| 271.1° - 297° | A0, A1, B1, B2, C1, C2, D1, E1, F1 | A2, D2, E2, F2 |
| 297.1° - 312° | A0, A1, B1, B2, C1, C2, D1, D2, E1, F1 | A2, E2, F2 |
| 312.1° - 345° | A0, A1, B1, B2, C1, C2, D1, D2, E1, F1 | A2, E2, F2 |
| 345.1° - 14° | A0, A1, B1, C1, C2, D1, D2, E1, F1 | A2, B2, E2, F2 |

* See Caution above.

_____ **IF** dose projections indicate that CDE Thyroid dose will be ≥ 5 Rem, KI use by the General Public must be recommended in accordance with State Plans and Policy. {23}

**Enclosure 4.4**



**Oconee Offsite Protective Actions**
**Subsequent Protective Action Recommendation Steps**

_____ On a continuing basis, evaluate specific plant conditions (including large fission product inventory in containment), offsite dose projections, wind speed and wind direction, field monitoring team data, and assess the need to update Protective Action Recommendations made to the states and counties in the previous notification.

_____ Review dose projections with the Radiological Assessment Manager to determine if Protective Action Recommendations are required beyond the 10-mile EPZ.

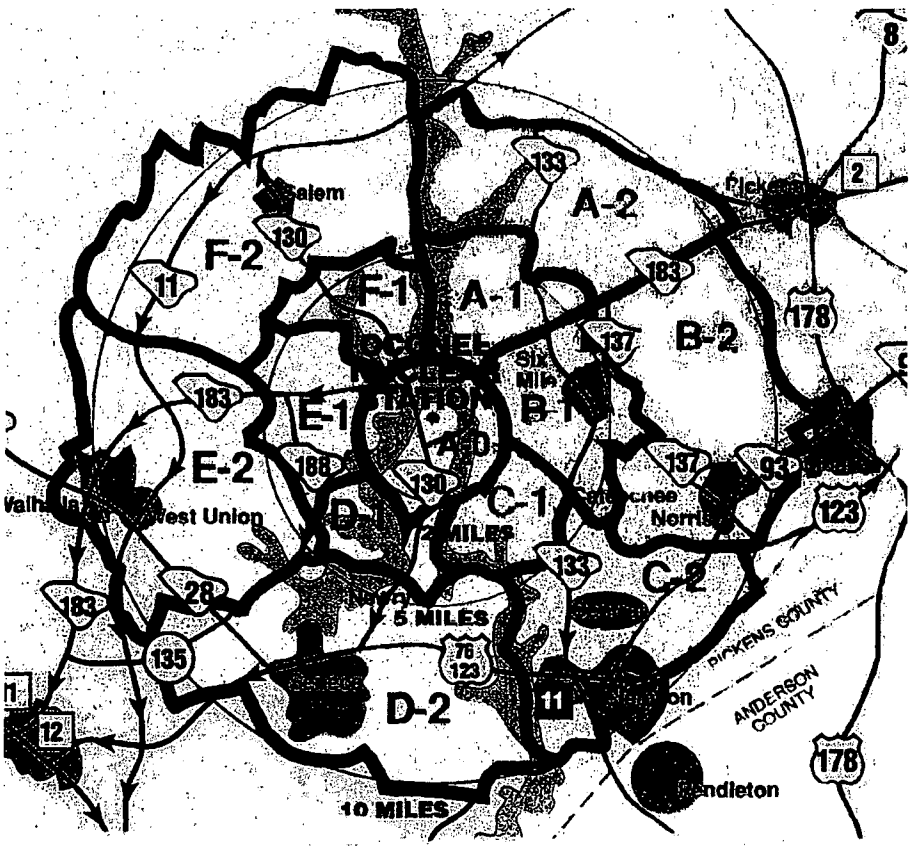
_____ **IF** Protective Action Recommendations are required beyond 10 miles, notify the states and counties and request that they consider sheltering/evacuating the general population located beyond the affected 10-mile EPZ.

**Enclosure 4.4**



**Oconee Offsite Protective Actions**

Oconee Protective Action Zones - 10-Mile EPZ
(2 and 5-mile radius, inner circles)



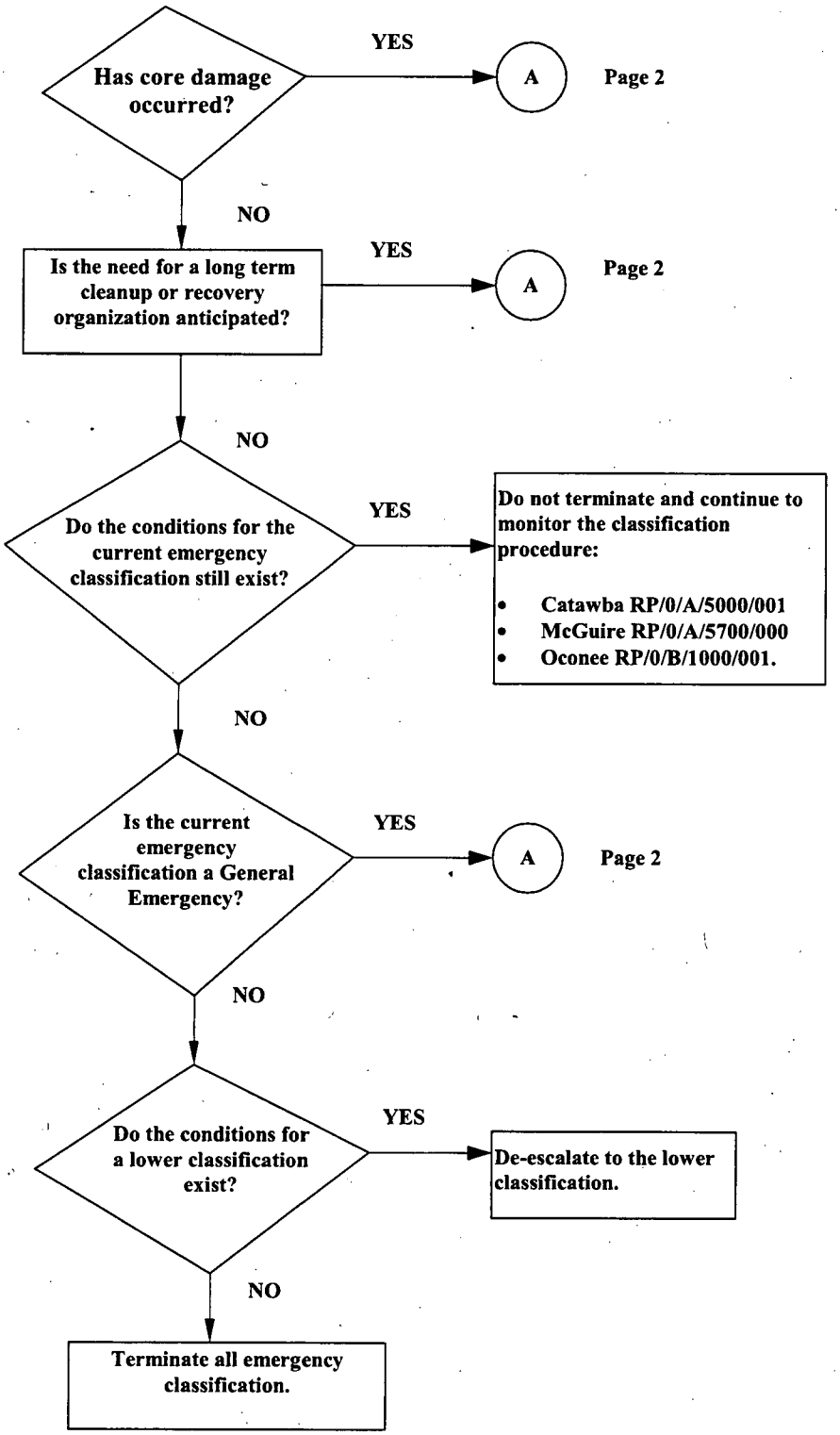

| Radius From Site (miles) | Pickens County Sectors | Oconee County Sectors |
|---|---|---|
| 0-2 | A0 | A0 |
| 2-5 | A-1, B-1, C-1 | D-1, E-1, F-1 |
| 5-10 | A-2, B-2, C-2 | D-2, E-2, F-2 |

**Enclosure 4.5**



**Emergency Classification Downgrade/Termination Criteria**

INITIAL




INITIALS _____ PRINTED NAME _____

**Enclosure 4.5**



**Emergency Classification Downgrade/Termination Criteria**

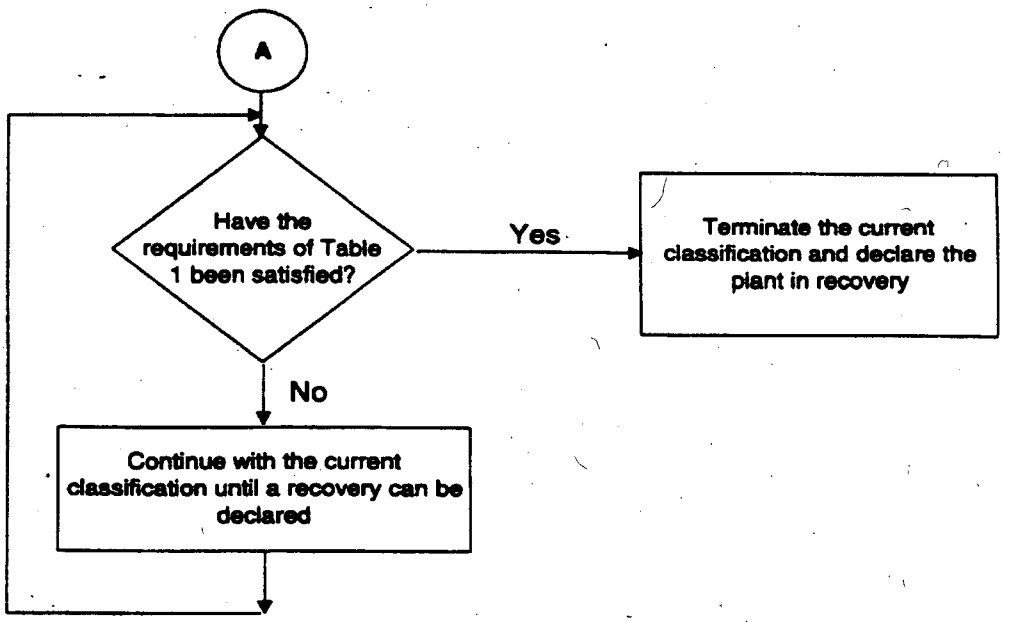



**Table 1**

_____Security threat has been contained.

_____No new evacuation or sheltering protective actions are anticipated.

_____Containment pressure is being maintained less than design pressure.

_____Containment hydrogen levels are less than 9% and stable or decreasing.

_____Decay heat rejection to the ultimate heat sink has been established and is stable. This is indicated by either of the following (circle one):

- Decay heat removal is considered stable if supported by redundancy or diversity

  - Examples of a satisfactory state include:

    - 2 trains of systems for sump recirculation.
    - 2 trains of Decay Heat Removal (DHR)
    - 1 train of DHR and the ability to cool with the steam generators.
    - steam generator cooling with 2 trains of feed capability.

**OR**

- Decay heat removal is considered stable if no additional fission product barrier challenges would be expected for at least 2 hours following interruption of core cooling.

(continued on next page)

**Enclosure 4.5**



**Emergency Classification Downgrade/Termination Criteria**

_____The risks from recriticality are acceptably low.

_____Radiation Protection is monitoring access to radiologically hazardous areas.

_____Offsite conditions do not limit plant access.

_____The Public Information Coordinator, NRC officials, and State representatives have been consulted to determine the effects of termination on their activities.

_____The recovery organization is ready to assume control of recovery operations:

- Catawba - RP/0B/5000/025
- McGuire - RP/0/A/5700/024
- Oconee - RP/0/B/1000/027

**Enclosure 4.6**



**Radiological Assessment Manager Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Ensure that the FMC has established communication with the Field Monitoring teams if the Field Monitoring teams have been dispatched. {18}

_____ Notify EOF Director that the Radiological Assessment Manager (RAM) position is operational.

_____ Ensure all Radiation Protection personnel reporting to the EOF also sign in on the staffing board.

_____ Ensure that the EOF Dose Assessors are kept informed of pertinent plant information including, but not limited to:

1) The time of TSC activation
2) The time of EOF activation
3) The time of reactor trip
4) Status of safety injection
5) Status of onsite radiological conditions
6) When the next emergency notification message is due. {15}

_____ Power up the Radiological Assessment Computer.

_____ Establish a log of activities.

_____ Discuss the following with the EOF Director:

1) Any release in progress, including dose rates (especially at the site boundary)
2) Field Team status/data
3) On-site radiological concerns
4) The specific time that periodic dose assessment runs are expected to be available for emergency notification forms. {31}

INITIALS _____ PRINTED NAME _____

**Enclosure 4.6**



**Radiological Assessment Manager Checklist**



_____ Review Criteria in "Classification of Emergency" procedure for emergency classification changes and discuss with Accident Assessment personnel plant conditions including power failures, valve closures, etc.

Catawba RP/0/A/5000/001
**OR**
McGuire RP/0/A/5700/000
**OR**
Oconee RP/0/B/1000/001.

**Catawba Specific**

Obtain HP/0/B/1009/009, "Guidelines for Accident and Emergency Response," and perform duties as described in the procedure.

Establish communications with the TSC via the RP Loop; communication established after beep.{4}

**NOTE:** Descriptions of Keowee Hydro Dam/Dike Condition A and B are provided in Enclosure 4.23.

_____ **IF** Condition A, Dam Failure (Keowee or Jocassee) exists,

**THEN**, make the following Protective Action Recommendations to Oconee County and Pickens County for imminent/actual dam failure and include on the Emergency Notification Form on Line 5B (Evacuate) and Line 5E (Other):

Line 5B *Move residents living downstream of the Keowee Hydro Project dams to higher ground.*

Line 5E *Prohibit traffic flow across bridges identified on your inundation maps until the danger has passed.*

| | |
|---|---|
| **NOTE:** | Enclosure 4.2 (for CNS), Enclosure 4.3 (for MNS), and Enclosure 4.4 (for ONS) provide guidance for PARS and KI protective action recommendations. |

_____ **IF** a General Emergency is declared, provide the following PAR information on Line 5 of the Emergency Notification Form.

| | |
|---|---|
| **CAUTION:** | Once a zone has been accurately selected for evacuation, it should not be removed. {27} {30} |

- Zones for Evacuation
- Zones for Sheltering
- Protective Action Recommendations for KI are required for the General Public. {23}
- Other PARS.

_____ With input from the Accident Assessment Manager (AAM), verify Protective Actions are correct utilizing SR/0/B/2000/003 Enclosure 4.2 (Catawba), or Enclosure 4.3 (McGuire), or Enclosure 4.4 (Oconee). {24}

_____ Review dose projections to determine if Protective Action Recommendations are required beyond the 10-mile EPZ.

_____ **IF** changes to the initial Protective Action Recommendations, including KI, are recommended to and approved by the EOF Director, these changes shall be transmitted to the offsite agencies within 15 minutes.

_____ Evaluate with the EOF Director recommendations for public protective actions.

| | |
|---|---|
| **NOTE:** | An Emergency Release is an unplanned, quantifiable radiological release to the environment during an emergency event. The release does not have to be related to the declared emergency. {34} |

_____ Evaluate **AND** provide the following Emergency Release Status on Line 6 of the ENF:

_____ **IF** any of the following exists, a Release Is Occurring **OR** a Release Has Occurred as appropriate. {26}

Catawba and McGuire

- EMF 38, 39 or 40 readings indicate an increase **AND** containment pressure greater than 0.3 psig
- EMF 38, 39 or 40 readings indicate an increase **AND** a known leak path existing from containment
- EMF 35, 36 or 37 readings indicate an increase in activity
- EMF 33 or other alternate means indicate Steam Generator tube leakage
- A known release path exists
- Alternate method of release determination
- Field Monitoring Team results.

Oconee

- RIA 40 reading indicate an increase in activity (Steam Generator Tube Leak)
- RIA-45 or 46 show an increase in activity
- RIA-47, 48 or 49 readings indicate an increase **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined.
- 1,3 RIA-57 or 1,2,3 RIA-58 reading >1.0 Rad/hr **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined
- 2 RIA-57 reading >1.6 Rad/hr **AND** greater than 1 pound pressure in containment building **OR** actual containment breach is determined
- A known release path exists
- Alternate method of release determination
- Field Monitoring Team results.

_____ **IF** none of the above is true, the Release Status is None.

**Enclosure 4.6**



**Radiological Assessment Manager Checklist**



_____ Evaluate **AND** provide the following Emergency Release Significance for ENF Line 7:

- **IF** no release in progress, Not Applicable.
- **IF** release significance is known, it is Within Normal Operating Limits **OR** Above Normal Operating Limits.
- **IF** release significance is unknown, it is Under Evaluation.

_____ Provide the following on ENF Line 9:

- Wind Direction
- Wind Speed
- Precipitation Type
- Stability Class.

| | |
|---|---|
| **NOTE:** | Radiological dose projection information is not required for Emergency Notification Forms that are sent as initial notification of an emergency classification or a follow up notification of a change in Protective Action Recommendations. |

_____ Provide the following on ENF Line 14:

- Release Characterization (For Type, check C (Ground) and for Units, check B (Ci/sec))
- Magnitude (Enter Ci/Sec Release rates from RADDOSE Report)
- Form **AND** start and/or stop time as appropriate.

_____ Provide the following Projection Parameters on ENF Line 15:

- Projection period (forecast period in hours) from Raddose Report.
- Estimated Release Duration is determined by adding the forecast period and the time elapsed since the release began.
- Date and time the projection was performed.

_____ Provide the following Projected Dose information on ENF Line 16, by entering "Forecast Data" from RADDOSE Report.

_____ Assist Public Affairs and/or Public Spokesperson with dose comparisons based on computer model or field data.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

**Enclosure 4.7**



**EOF Dose Assessor Checklist**

Initial EOF Activation Checklist

INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

| | |
|---|---|
| **NOTE:** | RADDOSE V information must be saved to the "ini" file. |

_____ Obtain a copy of SH/0/B/2005/001 (Emergency Response Offsite Dose Projections).

_____ Initiate a Log of Activities.

_____ Turn on dose assessment and data acquisition computers and acquire necessary information.

_____ **IF** data acquisition programs are unavailable, request from TSC information obtained from SDS or the Control Room (EMF and Met data).

| | |
|---|---|
| **NOTE:** | Be aware of the effects of loss of power on critical EMFs (Catawba and McGuire) or RIA's (Oconee). |

_____ Verify operability and validity of EMFs (Catawba and McGuire) or RIAs (Oconee) through the TSC.

_____ **IF** a Catawba or McGuire event is in progress, verify effluent discharge alignment with Shift Lab, RP Manager (TSC), or RP Dose Assessors (TSC) as necessary.

_____ **IF** an Oconee event is in progress, verify effluent discharge alignment with TSC Dose Assessment Liaison (gas tank), RP Manager in the OSC (gas tank or liquid releases), or Chemistry Manager in the OSC (liquid releases).

| | |
|---|---|
| **NOTE:** | • For Oconee, contact the Oconee TSC Dose Assessment Liaison at 8-885-4902.<br>• For Catawba/McGuire, access the Dose Assessment Bridge at 8-875-4980. |

_____ Establish communications with dose assessment personnel at the TSC. Compare information, projections and strategies with the TSC.

_____ Obtain turnover from the TSC.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.7**



**EOF Dose Assessor Checklist**



_____ Verify operability of the Health Physics Network (HPN) phone by placing a call to the NRC using the number listed on the HPN phone.

**NOTE:**

1. The NRC Regional Office will request activation of the HPN phone through Emergency Notification System (ENS) telephone if desired.

2. Information that may be requested over the HPN line could include, but is not limited to the following:

   - Is there any change to the classification of the event? If so, what is the reason?
   - Have toxic or radiological releases occurred or been projected (including changes in the release rate)?
   - If so, what are the actual or currently projected onsite and offsite releases, and what is the basis for this assessment?
   - What are the health effects or consequences to onsite and offsite people?
   - How many onsite or offsite people are being or will be affected and to what extent?
   - Is the event under control? When was control established, or what is the planned action to bring the event under control?
   - What mitigative actions are currently underway or planned?
   - What onsite protective measures have been taken or are planned?
   - What offsite protective actions are being considered or have been recommended to state and local officials?
   - What are the current meteorological conditions?
   - What are the dose and dose rate readings onsite and offsite? {16}

_____ **IF** requested during a drill or actual event, activate the HPN phone by placing a call to the NRC using the number listed on the HPN phone.

**NOTE:**

1. Perform offsite dose projections and determine protective action recommendations.

2. Dose projections shall be run at least every 30 minutes or as directed by the RAM.

_____ Analyze source-term data, formulate source-term mitigation strategies, and provide information to the Radiological Assessment Manager, members of the EOF and TSC Dose Assessors as required.

_____ Perform dose projections as appropriate to plant conditions.

_____ Interact with Field Monitoring Coordinator to compare off-site dose projections to actual field readings.

_____ Inform the RAM of the specific timing and frequency of planned dose assessment runs. {31}

**Enclosure 4.7**

**EOF Dose Assessor Checklist**



| | |
|---|---|
| **NOTE:** | Radiological dose projection information is not required for Emergency Notification Forms that are sent as initial notification of an emergency classification or a follow up notification of a change in Protective Action Recommendations. |

_____ Evaluate dose projections and provide protective action recommendations to the Radiological Assessment Manager and the EOF Director.

_____ **IF** SAMGs are implemented **AND** offsite releases approach or exceed 100mRem TEDE or 500mRem Thyroid CDE, notify the EOF SAMG Evaluator (located in the Accident Assessment Area). (Applicable to Catawba and McGuire). {22}

_____ **IF** SAMGs are implemented **AND** offsite releases approach or exceed 1Rem TEDE or 5 Rem Thyroid CDE, notify the EOF SAMG Evaluator (Located in the Accident Assessment Area). (Applicable to Catawba and McGuire). {14}

_____ Restore equipment to a "Ready Status" and notify appropriate personnel of conditions that would cause a less than operational status.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

**Enclosure 4.8**

**Field Monitoring Coordinator Checklist**



INITIAL

| | | |
|---|---|---|
| **NOTE:** | 1. | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |
| | 2. | Field Teams may be directed by the EOF Field Monitoring Coordinator (FMC) prior to activation of the EOF. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Obtain a copy of SH/0/B/2005/002 (Protocol for the Field Monitoring Coordinator During Emergency Conditions).

_____ Establish a log of activities.

| | | |
|---|---|---|
| **NOTE:** | 1. | For drill or exercise met data, choose the appropriate site simulator SDS resource. |
| | 2. | For real time met data at either site, choose the SDS resource for a specific site and either unit. |

_____ To access meteorological data via SDS for a Catawba or McGuire event, perform the following: {32}

- go to the DAE
- search DAE for SDS
- select the desired SDS resource [SDS (OAC) Catawba Simulator, Catawba Unit 1, Catawba Unit 2 **OR** SDS (OAC) McGuire Simulator, McGuire Unit 1, McGuire Unit 2]
- select Trends
- select Group Display
- scroll down the alphabetical list and select WEATHER for McGuire **OR** select MET for Catawba. {22}

INITIALS _____ PRINTED NAME _____

**Enclosure 4.8**



**Field Monitoring Coordinator Checklist**



_____ To access meteorological data via SDS for an Oconee event, perform the following:

- go to the DAE
- search DAE for SDS
- select the desired SDS resource [SDS(OAC) Oconee Simulator, Oconee Unit 1, Oconee Unit 2, Oconee Unit 3]
- EROENV in the white box in the upper right hand corner.

_____ **WHEN** the EOF Radio Operator has established communications with the field monitoring teams, notify the TSC Dose Assessors and begin providing direction to the field monitoring teams. {19}

**Catawba Specific**

Perform duties as described in the following:

- HP/0/B/1009/004, "Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of CNS"
- HP/0/B/1009/019, "Emergency Radio System Operation, Maintenance, & Communication".

_____ Restore equipment to a "Ready Status" and notify appropriate personnel of conditions that would cause a less than operational status.

_____ Provide all completed procedures and copies of logs to the EOF Emergency Planner upon deactivation of the EOF.

**Enclosure 4.9**

**Radio Operator Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ Obtain a copy of SH/0/B/2005/002 (Protocol for the Field Monitoring Coordinator During Emergency Conditions), Enclosure 5.3 (Field Monitoring Survey data Sheet) and Enclosure 5.4 (Meteorological Update for Field Monitoring Teams). {6}

_____ Establish contact with Field Teams.

_____ Relay instructions obtained from the Field Monitoring Coordinator to the Field Teams.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.10**



**EOF Offsite Agency Communicator Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities

_____ Perform the duties as described in procedure SR/0/B/2000/004 (Notification to States and Counties from the Emergency Operations Facility).

_____ Ensure emergency notification times are satisfied.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.11**

**Access Control Director Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the staffing board located in the EOF Director's area.

_____ Establish a log of activities.

_____ Conduct turnover with Corporate Security to enable them to return to their normal jobs.

_____ Process responders found on the Access List as follows:

- Request a photo ID from all personnel entering the EOF.
- Verify the identity of all personnel by comparing the photo ID to facial features.

**Catawba Specific**

**Drills**

- Set up Class Tracking program and scan Duke participant badges upon entry into the EOF (instructions at Access Control Point).
- Direct participants to sign the CNS EOF Performance Indicator Drill/Event Participation form for the appropriate position.

**Actual Events or Scanner Inoperable**

- Direct participants to sign the Exercise/Drill/Event/Attendance Sheet.
- Direct participants to sign the CNS EOF Performance Indicator Drill/Event Participation form for the appropriate position.

**McGuire Specific**

**Drills**

- Set up Class Tracking program and scan Duke participant badges upon entry into the EOF (instructions at Access Control Point).

**Actual Events or Scanner Inoperable**

- Direct participants to sign the Exercise/Drill/Event/Attendance Sheet.
- Direct all personnel to obtain the appropriate EOF position badge.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.11**

**Access Control Director Checklist**



_____ Process responders not found on the Access List as follows:

- Request EOF access from the appropriate EOF group primary, EOF Director, or Assistant EOF Director.
- Request approved credentials from all visitors, Federal, State and Offsite Agency officials desiring EOF access and direct them to sign the Drill/Event Participation List for visitors, Federal, State and Offsite Agencies (Enclosure 4.11, page 3).

_____ When drill is terminated, call Security at 2-1234 and request Security to unlock the EOF door (so people can go to the restrooms or leave/return during the critique).

_____ Notify Facility Services at 2-4948 to clean the EOF following deactivation of the EOF.

_____ Place new EOF Access List in appropriate box at EOF Access Control desk.

_____ Before leaving the EOF, call Security at 2-1234 and request that the EOF door be relocked.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

**Enclosure 4.11**

**Access Control Director Checklist**



# DRILL/EVENT PARTICIPATION LIST

| Name (Please Print) | Representing Agency |
|---|---|
| | |
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**Enclosure 4.12**

**Accident Assessment Manager Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ **IF** additional positions are needed to support the emergency, staff the Administrative Support and the Reactor Physics positions as appropriate.

- Catawba

  Home and office phone numbers are located in the ERO Member Contact Information notebook located on the director's area bookshelf in the EOF. The information is also available via the Emergency Response Organization (ERO) database. Contact the ERO Emergency Planner to access the ERO database. Office phone numbers are also available in the electronic Duke Power Telephone Directory.
- McGuire

| | |
|---|---|
| **NOTE:** | To access the McGuire Emergency Planning Home Page you must first select the Safety Assurance Home Page from the "Site Web Pages" menu on the McGuire Web Page. |

Home and work phone numbers are located in the McGuire Nuclear Site Data Verification & Facility Org. listing located on the McGuire Emergency Planning Home Page. Office phone numbers are also located in the electronic Duke Power telephone directory.

_____ Obtain a copy of the "Classification of Emergency" procedure for the affected station.

- Catawba: RP/0/A/5000/001
- McGuire: RP/0/A/5700/000
- Oconee: RP/0/B/1000/001

_____ Obtain a copy of the "Oconee Nuclear Site Emergency Action Level Description Guidelines" Manual.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.12**



**Accident Assessment Manager Checklist**



_____Ensure PC is on and displaying plant status.

_____Provide the following for ENF Line 4 information to the Offsite Agency Communicators:

- I/C Number (Catawba and McGuire)
- EAL Number (Oconee)
- I/C Description (Catawba and McGuire)
- EAL Description. (Oconee)

_____Provide the Event Prognosis for ENF Line 8 information to the Offsite Agency Communicators: {1} {7}

A (IMPROVING): Plant conditions involve at least one of the following:

- Plant parameters (ex. temperature, pressure, level, voltage frequency) are trending favorably toward expected or desired values **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.
- Site conditions (ex. wind, ice/snow, ground tremors, hazardous/toxic/radioactive material leak, fire, security event) have become less of a threat to plant operations or personnel safety **AND** plant conditions could result in a lower classification or emergency termination before the next follow-up notification.

B (STABLE): Plant conditions are neither DEGRADING nor IMPROVING.

C (DEGRADING): Plant conditions involve at least one of the following:

- Plant parameters (ex. temperature, pressure, level, voltage, frequency) are trending unfavorably away from expected or desired values **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.
- Site conditions (ex. wind, ice/snow, ground tremors, hazardous/toxic/radioactive material leak, fire, security event) impacting plant operations or personnel safety are worsening **AND** plant conditions could result in a higher classification or Protective Action Recommendation (PAR) before the next follow-up notification.

_____Provide appropriate information for ENF Line 10 to the Offsite Agency Communicator.

**Enclosure 4.12**

**Accident Assessment Manager Checklist**



_____ Provide the Affected Unit(s) for ENF Line 11 information to the Offsite Agency Communicators:

| |
|---|
| **NOTE:** The following step may not be all inclusive of all events that may affect all units. |

- Evaluate the following for classification for both units (CNS and MNS) or all three units (ONS). {28} {29}
  - Security event
  - Seismic event
  - Tornado on site
  - Hurricane force winds on site
  - Loss of both switch yards
  - Fire in SSF
  - Fire affecting shared safety related equipment
  - Condition A for Keowee Hydro Project Dam/Dike (ONS).

_____ • **IF** event at Catawba or McGuire affects both units equally, check all. {28} {29}

_____ • **IF** event at Oconee affects more than one unit equally, check all.

_____ • **IF** event only affects one (1) unit **OR** one unit escalates, check appropriate unit. {28} {29}

_____ Provide the Unit Status for ENF Line 12 information to the Offsite Agency Communicators.

_____ **IF** an upgrade in classification occurs, notify the Offsite Agency Communicator.

_____ Perform the following steps as needed.

_____ Coordinate the following functions:

- Accident Assessment Interface
- Operations Interface
- Reactor Physics (as needed)
- Administrative Support (as needed).

**Enclosure 4.12**

**Accident Assessment Manager Checklist**



_____ **IF** Protective Action Recommendations upgrades are recommended to and approved by the EOF Director, these changes shall be transmitted to the offsite agencies within 15 minutes.

_____ Work closely with the Radiological Assessment Manager and be prepared to discuss the following topics during the EOF staff time-outs or earlier as appropriate:

- Emergency classification recommendations utilizing the "Classification of Emergency" procedure for the affected station:
  - Catawba: RP/0/A/5000/001
  - McGuire: RP/0/A/5700/000
  - Oconee: RP/0/B/1000/001
- Protective action recommendations
- Current plant status
- Accident mitigation strategies with priorities
- Anticipated course of the event
- Possible solutions if procedural adequacy becomes a concern
- Prioritization of key issues.

_____ Assist TSC Emergency Coordinator as a decision maker upon entry into Severe Accident Management Guidelines (SAMGs) (as requested - Catawba and McGuire).

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

**Enclosure 4.13**

**Accident Assessment Interface Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ Ensure PC is on and displaying affected station and unit plant status.

**Catawba Specific**

_____ Establish bridge line for Operations Loop by dialing 8-831-3994. Communication is established after the beep.

**McGuire Specific**

_____ Establish bridge line for Operations Loop by dialing 8-875-4500. Communication is established after the beep.

_____ Establish communication link with System Engineering Manager in the TSC, as needed by dialing 8-875-4954.

**Oconee Specific**

_____ Establish bridge line for the Operations Loop by dialing 8-885-4908. Communication is established after the beep.

_____ Establish communications with the OPS TSC/EOF Liaison in the TSC as needed by dialing 8-885-3696. Use the speaker phone to maintain a constant line of communications

_____ Obtain a copy of the Classification of Emergency procedure for the affected station.

- Catawba: RP/0/A/5000/001
- McGuire: RP/0/A/5700/000
- Oconee: RP/0/B/1000/001.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.13**

**Accident Assessment Interface Checklist**



_____ Obtain a copy of the Core Damage Assessment procedure for the affected station from the procedure cabinet.

- Catawba: RP/0/A/5000/015
- McGuire: RP/0/A/5700/019
- Oconee: RP/0/B/1000/018.

_____ Obtain a copy of Accident Assessment Technical Manual.

_____ Gather plant status information using the Accident Assessment Initial Information Request Form found on page 4 or 5 of this enclosure.

_____ Upon declaration of a General Emergency **IMMEDIATELY RECOMMEND** to Accident Assessment Manager **AND** the RAM protective actions for the initial Emergency Notification Form using:

- Catawba: Enclosure 4.2
- McGuire: Enclosure 4.3
- Oconee: Enclosure 4.4.

_____ Perform the following steps as needed throughout the event:

_____ **IF** condition warrants, determine analysis of the reactor core and containment conditions in regard to:

- Core sub-cooling
- Decay heat generation
- Heat removal capabilities (core and containment)
- Fission product release potential (core and containment).

_____ **IF** condition warrants, provide:

- Estimates of core uncovery times
- Interpretations of reactor water level data.

_____ Follow status of the Emergency Operations Procedures (EOPs) and discuss with the Accident Assessment Manager.

_____ Maintain communication with the Radiological Assessment group in the EOF.

_____ Advise Operations Interface of the anticipated course of events.

_____ Provide information for status board in the Accident Assessment Group room and maintain the appropriate logs.

**Enclosure 4.13**



**Accident Assessment Interface Checklist**



_____ Advise Accident Assessment Manager on the following:

- Anticipated course of events
- Diagnosis of the accident and mitigation strategies
- Analysis of core and containment
- Core damage and fission product release potential
- Background information of system design
- Emergency classifications.

_____ Support Systems Engineering Manager in the TSC in accident and mitigation strategies.

_____ Assist the TSC as an evaluator upon entry into Severe Accident Management Guidelines (as requested).

_____ **REFER TO** Enclosure 4.21 of this procedure for guidance on establishing communications links between McGuire SAMG evaluators.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

**Enclosure 4.13**



**Accident Assessment Interface Checklist**



**Catawba or McGuire Initial Information Request**

| Initial Information Request | Results |
|---|---|
| | |
| **Emergency Classification Status** | |
| EAL Declaration Chronology | |
| Protective Actions Status | |
| **Reactor/Turbine Status** | |
| Power Level | |
| Time of Trip & On What Signal | |
| Any Abnormal Response | |
| NC Pump Status | |
| Core Cooling Status (subcooled margin/ RVLIS/natural circulation) | |
| Orange or Red CSFs Alarms Received | |
| **Safety Injection** | |
| When Actuated & on What Signal | |
| NV, NI, ND, Ice Condenser Status | |
| **Feedwater** | |
| CF and CA Status | |
| **Main Steam** | |
| Isolation Status | |
| SMSV, SM PORV, SB Status | |
| **Electric Power** | |
| 600V, 4160V, D/G Status | |
| **Containment** | |
| Isolation Status | |
| NS and VX Status | |
| **Security/Fire/Flooding/HAZMAT/Other Hazards** | |
| Plant Conditions Status | |
| **Off-site Releases** | |
| Status | |

**Enclosure 4.13**

**Accident Assessment Interface Checklist**



**Oconee Initial Information Request**

| Initial Information Request | Results |
|---|---|
| | |
| **Emergency Classification Status** | |
| EAL Declaration Chronology | |
| Protective Actions Status | |
| **Reactor/Turbine Status** | |
| Power Level | |
| Time of Trip & On What Signal | |
| Any Abnormal Response | |
| Reactor Coolant Pump Status | |
| Core Cooling Status (subcooled margin/ RVLIS/natural circulation) | |
| **Safety Injection** | |
| When Actuated & on What Signal | |
| HPI, LPI Status | |
| **Feedwater** | |
| Feedwater and Emergency Feedwater Status | |
| **Main Steam** | |
| Isolation Status | |
| MSSV Status | |
| **Electric Power** | |
| 600V, 4160V, Keowee, Lee Status | |
| **Containment** | |
| Isolation Status | |
| RBS, RBCU Status | |
| **Security/Fire/Flooding/HAZMAT/Other Hazards** | |
| Plant Conditions Status (Keowee Hydro Dam status) | |
| **Off-site Releases** | |
| Status | |

**Enclosure 4.14**

**Operations Interface Checklist**



INITIAL

**NOTE:** 1. This enclosure does not apply to Oconee.

2. You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours.

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

**Catawba Specific**

_____ Establish communications for Operations Loop by dialing 8-831-3994. Communication is established after the beep.

**McGuire Specific**

_____ Establish bridge line for Operations Loop by dialing 8-875-4500. Communication is established after the beep.

_____ Perform the following steps as needed throughout the event:

_____ Serve as the communications interface with the Accident Assessment Group and the TSC Operations Group.

_____ Advise Accident Assessment Group on the following:

- Emergency Operations Procedures (EOPs)
- Diagnosis of the accident and mitigation strategies
- Emergency classification.

_____ Advise TSC of the anticipated course of events.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.15**



**Administrative Support Checklist**

INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Obtain a copy of Accident Assessment Manual, Emergency Operating Procedures and affected plant PRA manual from Nuclear Engineering office area.

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Ensure PCs are on and functional.

_____ Establish a log of activities.

_____ Notify other positions of the Accident Assessment Group at the direction of the Accident Assessment Manager.

_____ Record recommendations of the Accident Assessment team and plant status as appropriate on the status board in the Accident Assessment group room.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.16**

**Reactor Physics Checklist**



INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ Obtain any applicable nuclear design calculations from the Nuclear Engineering office area.

_____ Establish communications with the TSC Reactor Engineer.

_____ **IF** conditions warrant, determine analysis of the reactor core and the fuel with respect to:

- Reactor Physics parameters
- Core subcriticality.

_____ Provide Accident Assessment Manager with information concerning any abnormal core conditions.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.17**



**Emergency Planner Checklist**

INITIAL

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ Power up and log on Emergency Planner computer.

_____ (For MNS and CNS only) Obtain the Emergency Planner headset from the Emergency Planner Desk area and dial into the EP bridge line using 8-831-4010 or another available bridge line.

_____ Contact the Enterprise Crisis Operations Center (ECOC) Director by pager at 8-777-1008 and provide your call back number. Have on hand all emergency notification forms (ENFs) transmitted to state and local agencies up to this time. Be prepared to answer questions concerning information on the ENFs as well as any other information requested by ECOC Director when called back. {21}

_____ Support EOF Director with the following:

- _____ Complete EOF Director Checklist items as requested.
- _____ Clarify Emergency Plan and Emergency Plan Implementing Procedure information.
- _____ Interface with the NRC.
- _____ Interface with federal, state and local agencies.

_____ Assist Off-Site Agency Communicators in preparation of emergency notifications as needed.

_____ **IF** a security event at MNS requires assembling the MNS TSC/OSC ERO at the EOF, complete "MNS Security Event, TSC/OSC Assembled at EOF Checklist." The MNS Checklist is contained in this enclosure.

_____ **IF** a security event at CNS requires assembling the duty CNS TSC ERO at the EOF, complete "CNS Security Event, TSC ERO Assembled at EOF Checklist." The CNS checklist is contained in this enclosure. {41}

_____ Compile a 24-Hour Staffing Log for each EOF position. The log is contained in this enclosure.

_____ Verify that EOF Public Affairs personnel have considered 24-hour staffing.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.17**



**Emergency Planner Checklist**

_____ Upon deactivation of the EOF, collect all completed paperwork and forward to the appropriate Emergency Planning Manager.

_____ Upon deactivation of the EOF, complete "EOF Post Event Checklist." The checklist is contained in this enclosure.

**Enclosure 4.17**

**Emergency Planner Checklist**



## EOF DIRECTOR AREA

## 24-HOUR POSITION EOF STAFFING LOG {33}

| | Primary | | Relief | |
|---|---|---|---|---|
| **Position** | **Name** | ***Shift Schedule** | **Name** | ***Shift Schedule** |
| EOF Director | | | | |
| Assistant EOF Director | | | | |
| EOF Log Recorder | | | | |
| EOF Emergency Planner | | | | |
| Radiological Assessment Manager | | | | |
| Accident Assessment Manager | | | | |
| | | | | |

* List hours of coverage: i.e., 0800-2000, or 8am -8pm.

**Enclosure 4.17**



**Emergency Planner Checklist**

**DOSE ASSESSMENT AREA**

**24-HOUR POSITION EOF STAFFING LOG**

| | Primary | | Relief | |
|---|---|---|---|---|
| **Position** | **Name** | ***Shift Schedule** | **Name** | ***Shift Schedule** |
| EOF Dose Assessor | | | | |
| EOF Dose Assessor | | | | |
| EOF Dose Assessor | | | | |
| EOF Dose Assessor (HPN) | | | | |
| Field Monitoring Coordinator | | | | |
| Radio Operator | | | | |
| | | | | |

* List hours of coverage: i.e., 0800-2000, or 8am -8pm.

**Enclosure 4.17**



**Emergency Planner Checklist**

**ACCIDENT ASSESSMENT AREA**

**24-HOUR POSITION EOF STAFFING LOG**

| | **Primary** | | **Relief** | |
|---|---|---|---|---|
| **Position** | **Name** | ***Shift Schedule** | **Name** | ***Shift Schedule** |
| EOF Data Coordinator | | | | |
| EOF Data Coordinator (As Needed) | | | | |
| Accident Assessment Interface | | | | |
| Accident Assessment Interface (As Needed) | | | | |
| Reactor Physics (As Needed) | | | | |
| Administrative Support (As Needed) | | | | |
| Operations Interface (For MNS and CNS only) | | | | |

* List hours of coverage: i.e., 0800-2000, or 8am -8pm.

**Enclosure 4.17**



**Emergency Planner Checklist**

## OFFSITE AGENCY COMMUNICATOR

## 24-HOUR POSITION EOF STAFFING LOG

| | Primary | | Relief | |
|---|---|---|---|---|
| **Position** | **Name** | ***Shift Schedule** | **Name** | ***Shift Schedule** |
| Lead EOF Off-Site Agency Communicator | | | | |
| EOF Off-Site Agency Communicator | | | | |
| EOF Off-Site Agency Communicator | | | | |
| | | | | |

* List hours of coverage: i.e., 0800-2000, or 8am -8pm.

## ACCESS CONTROL AREA

## 24-HOUR POSITION EOF STAFFING LOG

| | Primary | | Relief | |
|---|---|---|---|---|
| **Position** | **Name** | ***Shift Schedule** | **Name** | ***Shift Schedule** |
| EOF Access Control Director | | | | |
| EOF Services Manager | | | | |
| | | | | |

* List hours of coverage: i.e., 0800-2000, or 8am -8pm.

**Enclosure 4.17**



**Emergency Planner Checklist**

## EOF FACILITY POST EVENT CHECKLIST

_____ Obtain printed copy of TSC/EOF Log Printout.

Retrieve:

_____ Completed Procedures
_____ Notes.

**NOTE:** The Ericsson Cellular phones need to remain on to charge properly.

Turn off:

_____ Copiers (exception: do not turn off main copier located in Supply Room).
_____ Computers
_____ Video monitors
_____ Projectors.

Perform:

_____ Applicable sections of SR/0/B/4600/086 to replenish supply cabinet and procedure inventories
_____ Clean tables off
_____ Put all trash in containers
_____ Erase status boards
_____ Verify all Fax machines have paper supply replenished (5 Fax machines)
_____ Verify all copiers and printers have paper supply replenished (2 Copiers and 4 printers).

Replenish the following:

Position Specific Notebooks (1 copy of procedure body and minimum 3 copies of applicable enclosures, checklists and log sheets):

_____ EOF Director
_____ Radiological Assessment Manager (also include minimum 3 copies each of Enclosures 4.2, 4.3, and 4.4). {24}
_____ EOF Dose Assessor
_____ Field Monitoring Coordinator
_____ Radio Operator
_____ EOF Offsite Agency Communicator
_____ Access Control Director
_____ Accident Assessment Manager (also include minimum 3 copies each of Enclosures 4.2, 4.3, and 4.4). {24}
_____ Accident Assessment Interface
_____ EOF Operations Interface
_____ EOF Administrative Support
_____ Reactor Physics
_____ EOF Emergency Planner
_____ EOF Log Recorder
_____ EOF Data Coordinator
_____ EOF Services Manager
_____ EOF Access List in Access Control Director's area.

**Enclosure 4.17**



**Emergency Planner Checklist**

## MNS SECURITY EVENT, TSC/OSC ASSEMBLED AT EOF CHECKLIST

_____ Notify the Access Control Director that the TSC/OSC offsite responders are assembling at the EOF.

_____ Have the TSC/OSC responders assemble in the EOF break area.

_____ Coordinate the selection of the first response team that will activate the TSC/OSC when the Security Event is terminated.

_____ Send this first response team into the EOF work area to obtain plant status and recovery strategies.

_____ **IF** needed, the MNS procedure cabinet has copies of RP/0/A/5700/012, Activation of the Technical Support Center (TSC) and RP/0/A/5700/020, Activation of the Operations Support Center (OSC).

_____ Compile a 24-hour staffing for each TSC/OSC positions.

_____ **IF** the EOF break area is too crowded, consider sending the TSC/OSC relief members to the Electric Center Canteen.

_____ **WHEN** the Security Event is terminated and the onsite TSC/OSC is to be activated, ensure that the first response team to the TSC/OSC is briefed prior to dispatch to the site.

_____ Send relief TSC/OSC members home, if possible, with their assigned relief time.

## CNS SECURITY EVENT, TSC ERO ASSEMBLED AT EOF CHECKLIST

_____ Notify the Access Control Director that the CNS TSC duty responders are assembling at the EOF. The CNS TSC Access List can be printed from the ERO database.

_____ Have the CNS TSC responders assemble in the EOF break area.

_____ Obtain Enclosure 4.20 of RP/0/A/5000/020 from the CNS procedure cabinet and distribute to the assembled TSC ERO.

_____ **IF** the CNS TSC Emergency Planner does not respond within 75 minutes of declaration, assist the Assistant TSC Emergency Coordinator with assigned tasks on page 4 of 19.

_____ **WHEN** the decision is made to access Catawba and staff the TSC and OSC, ensure the choice of facility (normal or alternate) TSC and OSC is known prior to TSC staff departure. {41}

**Enclosure 4.18**



**EOF Log Recorder Checklist**

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

INITIAL

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

| | |
|---|---|
| **NOTE:** | The EOF Log Recorder PC controls the displays for the three main screens in the Director's Area. The screens are an extension of the Log Keeper's monitor. |

_____ Ensure PC is on.

_____ Ensure the Projectors are powered up and displaying the Log Keeper's Computer.

_____ Refer to EP FAM Section 3.15, Attachment 3.15.3.2 for WebEOC Logging instructions.

_____ Set up the Director's Area displays as follows:

- **Left Projector** - Facility Log (Remains on Comp 1)
- **Center Projector** - Swap projector to Comp 2 (Communicator's Notification Form)
- **Right Projector** - SDS (Remains on Comp 1)

**NOTE:**
1. Incorrect log entries may be corrected by making the needed correction for the specific entry and flagging it as a "corrected item".
2. The EOF Log Recorder should enter EOF specific information and other information as directed by the EOF Director or Assistant EOF Director.
3. Log activities must be detailed enough to "tell the story" if necessary to reconstruct events for the NRC and to have an effective turnover to EOF staff.

_____ Establish an official log of all significant EOF activities and EOF Director decisions using the WebEOC computer program.

_____ Log entries should include but are not limited to the following examples:

- EOF Director and any change in EOF Director (staffing)

- Time at which the EOF is activated.

- Present emergency classification, changes in classification, time of declaration

**Enclosure 4.18**



**EOF Log Recorder Checklist**

- Plant Conditions (Unit 1, 2, and 3):

  - Core Cooling information (i.e., Time To Boiling, etc.)
  - Safety Systems Degraded
  - Power Supply Status
  - Fission Product Barrier Degradation
  - Radiation Releases.

- Procedures in effect and any transition to another procedure.

- Actions taken that are not a part of an approved procedure.

- Any abnormal or unexpected plant response.

- Major equipment manipulations.

- Major mitigation actions taken.

- Site assembly, relocation, or evacuation of all or any part of the plant.

- Personnel Injuries.

- Recovery Action(s) in Progress.

- Expected time of next Time-Out.

-Any parameter that shows how the drill/event is managed (ex. releases, time, communication).

_____ **IF** the WebEOC computer program is not available, establish a manual log of all significant EOF activities and EOF Director decisions.

_____ **IF** requested by the EOF Director, prepare a sequence of events list and revise it as necessary.

_____ Maintain EOF Director's Area displays and status boards as directed or needed.

_____ Track established priorities on EOF status board as requested by EOF Director.

_____ Print a copy of the TSC/EOF Log Printout.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.19**



**EOF Data Coordinator Checklist**

| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

INITIAL

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Establish a log of activities.

_____ Verify EOF computer hardware, software, and data display equipment is operational per EOF Data Coordinator's Reference Manual.

_____ Provide the following computer support as required:

- Software and hardware applications support
- Data acquisition support
- Communication with TSC Data Coordinator.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

_____ **IF** another site declares an emergency requiring activation of the EOF for support, acquire two additional computers (laptop or PC) within one hour for use by the Accident Assessment Manager and the Radiological Assessment Manager.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.20**

**EOF Services Manager Checklist**



| | |
|---|---|
| **NOTE:** | You are only required to complete a Fitness for Duty Questionnaire, when reporting to the facility outside of your normal work hours. |

INITIAL

_____ Put on position badge.

_____ Sign in on the EOF staffing board.

_____ Unlock supply cabinet.

_____ Establish duty function contacts for the following EOF service areas and list on board in EOF service area:

- Administration/Commissary
- Communications
- Transportation Services
- Risk Management
- Procurement.

_____ Perform the duties as described in SR/0/B/2000/002.

_____ Establish a log of activities.

_____ Provide general administrative support, office supplies and ensure office equipment is functioning properly.

_____ Obtain Enclosures 13.4 and 13.5 from procedure SR/0/B/4600/086, Standard Procedure for Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory, and complete the checklists.

_____ Provide food and beverages to meet nutritional needs.

_____ Provide facilities to meet personal needs (dining facilities, toilets, trash receptacles and disposal) as required.

_____ Contact Communications to troubleshoot and repair telephone systems, mobile radios and pagers as required.

_____ Contact Transportation Services or others to arrange for necessary equipment for the movement of materials and personnel as required.

_____ Arrange for accommodations for personnel as required.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.20**



**EOF Services Manager Checklist**

_____ Contact Risk Management to serve as liaison between Duke and the insurance companies in gathering data and establishing claims offices to disburse emergency assistance funds to evacuees as required.

_____ Coordinate all activities related to the procurement of materials, equipment and services from outside suppliers including arranging for transportation and receiving as required.

_____ Contact additional personnel and arrange schedule for continuous support as required.

_____ Ensure that all trash and left over food products are properly contained and arrange for disposal.

_____ Provide all completed paperwork to Emergency Planning upon deactivation of the emergency facility.

_____ Contact Duty Functions contacts advising that the drill has been terminated.

**Enclosure 4.21**



**ESTABLISHING COMMUNICATIONS LINKS BETWEEN MCGUIRE SAMG EVALUATORS**

INITIAL

| | |
|---|---|
| **NOTE:** | OPS Procedure Support in the TSC will serve as the lead SAMG evaluator and will be assisted by Reactor Engineer and Systems Engineer in the TSC, as well as Accident Assessment Interface in the EOF. OPS Procedure Support is expected to **direct** the other evaluators in what they should be looking at strategically, plus ensure that SAEG-1 is completed appropriately as directed by the guidelines. |

_____ **ESTABLISH** communications links between the SAMG evaluators (TSC OPS Procedure Support, TSC Reactor Engineer, TSC System Engineering Manager, and EOF Accident Assessment Interface) by dialing on to the RP spare bridge at 704-875-4833. This is a 6-party bridge line.

_____ **EVALUATE** using an alternate bridge line listed below if for some reason the RP spare bridge is unavailable or if other communications links are desired or needed. Dial the number listed as desired to determine if that bridge is currently being used. If the desired bridge line is not being used, then the appropriate parties may dial in to use it.

EP Controller bridge (12 - party) 704-875-4575

| | |
|---|---|
| **NOTE:** | To connect to one of the 3000 series bridge numbers, dial 704-875-4000, **THEN** "1" followed by the 3000 series number. |

McGuire site bridge (6 - party) 3030
McGuire site bridge (6 - party) 3200

INITIALS _____ PRINTED NAME _____

**Enclosure 4.22**

**Oconee Recovery**



## 1. Recovery Guidelines

The Recovery Manager shall be responsible for the following:

☐ 1.1 Initiate RP/0/B/1000/027, Reentry Recovery Procedure.

☐ 1.2 Make a PA announcement as follows:

"Agreement has been reached between Duke, the State of South Carolina and the NRC that the General Emergency classification is terminated. Recovery Operations are being initiated at the site. Actions are underway to determine when people who have been evacuated from their homes can return. As this information is made available, it will be released to the public."

☐ 1.3 Establish a Recovery Organization to handle offsite consequences.

1.3.1 The offsite recovery organization will stay at the EOF and work with the counties and state if radiological Conditions exist beyond the ONS site boundary.

1.3.2 The onsite recovery organization will be established by the Emergency Coordinator.

☐ 1.4 Make the following assignments:

Recovery Manager _____

Radiological Assessment Manager _____

Field Monitoring Coordinator _____

Emergency Planning Manager _____

EOF Services Manager _____

☐ 1.5 Assure staffing for long-term operation.

| | |
|---|---|
| **NOTE:** | Once recovery has been determined, the emergency notification message forms are no longer used. |

☐ 1.6 Contact the SEMD (State Emergency Management Director) to discuss work in progress at the EOF and determine communication channels and notifications expected.

☐ 1.7 Discuss with each manager the activities they have in progress.

INITIALS _____ PRINTED NAME _____

**Enclosure 4.22**

**Oconee Recovery**



☐ 1.8 Radiological Assessment Responsibilities

1.8.1 Provide ingestion pathway dose assessments

1.8.2 Provide ongoing communications with DHEC Nuclear Emergency Planning

1.8.3 Evaluate environmental concentrations within the radiological footprint

1.8.4 Provide technical assistance to Joint Information Center

1.8.5 Help plan for reactor building purge as needed

☐ 1.9 Emergency Planning Responsibilities

1.9.1 Communications to the State and County Management Directors

1.9.2 Review information being released through the news medium

☐ 1.10 EOF Services Manager Responsibilities

1.10.1 Assure ANI (insurance) is set up for public inquiry

1.10.2 Provide services as required

☐ 1.11 Joint Information Center Responsibilities

1.11.1 Providing news releases

1.11.2 Work with media/public to reduce rumors

☐ 1.12 Keep the Emergency Operations Facility activated and staffed until consensus is reached by Duke and State of South Carolina there is no basis for continuous staffing.

☐ 1.12.1 Record time and date that Emergency Operations Facility/Joint Information Center were closed.

A. EOF/JIC Closed _____
Time/Date

**Enclosure 4.23**



**Keowee Hydro Project Dams/Dikes**
**Condition A/B Descriptions**

| | |
|---|---|
| **NOTE:** | • Duke Energy Hydro Group personnel are responsible for evaluation/inspection of Keowee Hydro Project Dams/Dikes **AND** determining if a Condition A or B exists.<br>• Duke Energy Hydro Group personnel will communicate the results of evaluations/inspections to the Keowee Hydro Operator. The Keowee Hydro Operator will notify the OSM. |

## 1. Condition A - Failure is Imminent or has occurred

A failure at the dam has occurred or is about to occur and minutes to days may be allowed to respond dependent upon the proximity to the dam. Response includes the immediate movement of downstream residents to higher ground. State and local governments will be notified. (Duke Hydro-Electric Plant EAP)

INITIALS _____ PRINTED NAME _____

## 2. Condition B - Potentially Hazardous Situation is Developing

A situation where failure may develop, but preplanned actions taken during certain events (such as major floods, earthquakes, evidence of piping) may prevent or mitigate failure. The potentially hazardous situation may allow days or weeks for response and time to take remedial action. (Duke Hydro-Electric Plant EAP)

The following situations will result in a Condition B determination/declaration:

- Reservoir elevation at Keowee Hydro Station is ≥815.5 ft msl with all spillway gates open and lake elevation continuing to rise.
- Situations involving earth dam or abutments as follows:
  - a) Large increase or decrease in seepage readings OR seepage water is carrying a significant amount of soil particles;
  - b) New area of seepage or wetness, with large amounts of seepage water observed on dam, dam toe, or the abutments;
  - c) A slide or other movement of the dam or abutments which could develop into a failure.
- Developing failure involving the powerhouse or appurtenance structures is highly irregular to the point where the operator feels safety of the structures is questionable.
- Developing failure involving the concrete spillway or bulkhead is unusual and the safety of the structure is questionable.
- Any other situation involving plant structures which shows the potential for a developing failure.

Commitments for SR/0/B/2000/003

{1} PIP 0-M97-4210 NRC-1

{2} PIP 0-M96-1645

{3} PIP 2-C96-0273

{4} PIP 0-C98-3123

{5} PIP 0-M98-3522

{6} PIP 0-M98-2065

{7} PIP 0-C00-3830

{8} PIP 0-M99-3800

{9} PIP M-99-2593

{10} PIP M-00-1107

{11} PIP G-02-00399(deleted Meteorologist Checklist, replaced with new enclosure)

{12} PIP M-01-3565

{13} PIP M-01-3711

{14} PIP M-99-5381

{15} PIP C-02-5851

{16} PIP G-02-00360

{17} N/A

{18} PIP M-02-2412, C.A.17

{19} PIP M-03-2174

{20} PIP M-02-3086, C.A. 32

{21} PIP M-03-2808, C.A. 1

{22} PIP M-03-3294, C.A. 10

{23} PIP G-03-606

{24} PIP M-04-2742, C.A. 10

{25} PIP C-04-1367, C.A. 9

{26} PIP-M-03-2538, C.A. 3

{27} PIP-M-03-3483, C.A. 1

{28} PIP-M-03-3294, C.A. 21

{29} PIP-C-04-2486, C.A. 2

{30} PIP-C-03-4471, C.A.1

{31} PIP-M-04-2742, C.A.11

{32} PIP-M-04-0735, C.A. 10

{33} PIP-M-04-0238, C.A.2

{34} FAM Sect. 3.7 rev. 7

{35} PIP-M-05-3631

{36} PIP-C-05-4854

{37} PIP-C-05-2064, C.A. 11

{38} PIP-C-06-3808, CA. 9

{39} PIP-G-07-0127

{40} PIP-C-04-2631, C.A.2

{41} PIP-C-06-6053, C.A.11

{42} PIP-C-06-8633, C.A.6

{43} PIP-M-06-5137, C.A.3

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 4 to RAI 13.03-055**

**Mark-ups of Lee Emergency Plan Section II.B.8**

1) COLA Part 5, Lee Emergency Plan, Section II.B.8, first paragraph, will be revised as follows:

***8. Support from Contractor and Private Organizations***

The principal ~~organizations in the~~ contractor and private sector organizations that are part of the overall response organization are:

- Draytonville-McKown Mountain-Wilkinsville Volunteer Fire Department
- Upstate Carolina Medical Center
- Piedmont Medical Center (Rock Hill, SC)
- Westinghouse Electric Company
- Designated engineering/technical services support firms

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 025**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP))**

**Reference NRC RAI Number(s): 13.03-061**

**NRC RAI:**
**SITE-8:** Emergency Facilities and Equipment
Basis: 10 CFR 50.47(b)(8); 10 CFR 50, Appendix E.IV.E.2; Appendix E.IV.E.3; Appendix E.IV.E.4; Appendix E.IV.E.8; Appendix E.IV.G; 10 CFR 52.79(a)(17), Three Mile Island Requirements; 10 CFR 50, Appendix E.VI Emergency Response Data System; Appendix E.VI. Maintaining Emergency Response Data System; Appendix E.VI Implementing the Emergency Response Data System Program; NUREG-0654/FEMA-REP-1; Evaluation Criterion H.1; Evaluation Criterion H.4; Evaluation Criterion H.5; Evaluation Criterion H.6; Evaluation Criterion H.8; Evaluation Criterion H.9; Evaluation Criterion H.10; Evaluation Criterion H.11
SRP ACCEPTANCE CRITERIA: Requirements A, B and E; Acceptance Criteria 1, 2, 4, 5, 12, 25, 26, 27, 28, 29

A. Section II.H.1, "(On-Site Emergency Response Facilities)" (page II-35), of the Lee Emergency Plan contains the statement: "in the event that all off-site AC power is unavailable, the TSC (Technical Support Center) could be evacuated and ...function transferred to a location unaffected..." A description of the procedure and locations to be considered is not provided. Section II.H.1 (page 35) also contains the statement: Implementing procedures make provisions for the relocation of the OSC (Operations Support Center) as needed..." The information supporting this statement is not provided. Provide detailed information regarding the relocation of the TSC and the OSC when off-site AC power is unavailable or they become uninhabitable.

B. Section II.H.10, "Emergency Equipment and Supplies" (page (II-39), of the Lee Emergency Plan states that Duke Energy performs inspections and operational test of emergency equipment once each calendar quarter. Procedures to review audit and update the emergency plan are covered in section II.P.4, "Plan Reviews and Updates" (II-67/68). The Lee Emergency Plan is to be reviewed and updated on an annual basis. Implementing procedures are discussed in Section II.P.7, "Implementing Procedures" (page II-69) and Appendix 5, "Implementing Procedures" (pages A5-1/2). Procedure for these processes are said to be provided in the implementing procedures but are not in the Lee Emergency Plan. Discuss the procedures used to inspect and test dedicated emergency equipment.

C. Lee Nuclear Station DCD Tier 2, Chapter 7, "Instrumentation and Controls", Section 7.7, "Control and Instrumentation Systems (pages 7.7-1/25), discusses most of the systems parameters. Meteorological data parameters transmitted are discussed in Chapter 2, "Site Characteristics", Section 2.3.3, "Onsite Meteorological Measurement Programs" (pages 2.3-26/32), of the FSAR and II.H.8, "Meteorological Instrumentation and Procedures" (page II-36), of the Lee Emergency Plan. Radiation Monitoring is discussed in the Lee Nuclear Station DCD, Tier 2, Chapter 11, "Radioactive Waste Management", Section 11.5, "Radiation Monitoring" (pages 11.5-1/29) and Section II.I.2, "Plant Monitoring Systems"

(page II-40) of the Lee Emergency Plan. Containment parameter monitoring is discussed in Section 7, of the DCD. Description of area radiation monitors and there locations can be found in Lee DCD Tier 1, Chapter 3, "Non-System Based Design Descriptions and ITAAC", Section 3.5, "Radiation Monitoring" (page 3.5-1/8). Provide additional information on the data points transmitted for selected plant conditions. Verify that data points can be transmitted for reactor core and coolant system conditions; reactor containment conditions; radioactivity release rates; and plant meteorological tower data. Verify that a separate data feed will be provided for each reactor unit. If the Emergency Response Data System (ERDS) is to communicate with a safety system, verify that appropriate isolation devices will exist at these interfaces.

D.1 The Lee Emergency Plan, FSAR, or AP 1000 DCD, did not contain information on the transmission time of the ERDS. Verify that the system is capable of transmitting ERDS parameters in not more than 60 seconds or no less than 15 seconds.

D.2 The Lee Emergency Plan, FSAR, or AP 1000 DCD, did not contain information on the compatibility of the data transmission system with the Nuclear Regulatory Commission (NRC) receiving system. Verify that the link control and data transmission is established in a compatible format with NRC receiving equipment.

D.3 The Lee Emergency Plan, FSAR, or AP 1000 DCD, did not contain information on maintaining the ERDS. 1. Verify that any hardware or software changes that affect the transmitted data points identified in the ERDS Data Point Library will be submitted to the NRC within 30 days after the changes are completed. 2. Verify that Hardware and software changes that could affect the transmission format and computer communication protocol to the ERDS will be provided to the NRC at least 30 days prior to the modification.

D.4 The Lee Emergency Plan, FSAR, or AP 1000 DCD, did not contain information on implementing the ERDS Program. Verify that an ERDS implementation program plan has or will be submitted to the NRC.

E. Section II.H.8, "Meteorological Instrumentation and Procedures" (page II-38), of the Lee Emergency Plan discusses the on-site meteorological data collection system and states that the dosimeters are posted and collected in accordance with Table 1 of Revision 1 of the Branch Technical Position included with Generic Letter 79-65, "Environmental Monitoring for Direct Radiation". Locations of dosimeter and air sampler postings are in the Off-site Dose Calculation Manual (ODCM). Provide additional information on monitoring systems and the locations of dosimeters and air samplers that is available in the ODCM.

E.1. Section II.H.8, "Meteorological Instrumentation and Procedures" (page II-38), of the Lee Emergency Plan states that meteorological data is acquired from an on-site meteorological tower. The tower measures wind speeds, ambient temperatures, atmospheric stability, dew point, and precipitation. The meteorological monitoring program and climatology are described in the Lee FSAR Section 2.3. All measured data from on-site meteorological tower is available to the plant and ERF display systems. Meteorological data can also be obtained from the Catawba Nuclear Station and the National Weather Service in Greer, SC. Discuss the representativeness of the meteorological data from Catawba Nuclear Station and the National Weather Service in Greer, SC to the proposed Lee site.

F. Section II.H.1, "On-site Emergency Response Facilities" (page II-34/35), of the Lee Emergency Plan states the OSC provides resources for communication with the Control Room (CR) and TSC. Its primary function is to dispatch assessment, corrective action, and rescue personnel to plant locations. As part of the aforementioned departure from the Lee Nuclear Station DCD (WLS DEP 18.8-1) listed in Part 7, "Departures and Exemptions Requests" of the William States Lee III Nuclear Station COL Application, the OSC is being moved to the control support area (CSA) initially for the TSC. Section II-H.1 (page II-35) contains the statement: "Implementing procedures make provisions for the relocation of the OSC as needed..." The information supporting this statement is not provided. Communication is covered in sections II.E, "Notification Methods and Procedures" (pages II-25/28) and II.F, "Emergency Communications" (pages II-29/31); however the detail is not sufficient to determine that adequate communications are available in the OSC. Clarify how the facilities meet guidance for NUREG-0696" and the clarification in NUREG-0737, Supplement 1.

G. Appendix 6, (pages A6-1/2), of the Lee Emergency Plan states that there will be emergency equipment, but does not provide details to determine the adequacy of the equipment, who is responsible for the equipment, or information related to inventory and maintenance of the equipment. Additional information is necessary to determine the adequacy of this provides a description of the emergency equipment and supplies to be provided. Kit inventory is described which seems to include every category but the kits are not listed by general category. Provide additional information on emergency kit contents.

H. WSL DEP18.8-1 states that the Operational Support Center (OSC) location will be described in the applicant's emergency plan. In section H.1, "On-site Emergency Response Facilities," of the Lee Emergency Plan it states that the OSCs are located in the space designated in the AP 1000 DCD for the TSC. Section 1.2.5, "Annex Building," of the AP1000 DCD refers to the Annex Building as being as described in Figures 1.2-17 through 1.2-20. However, these figures are blank in Revision 16. Provide figure/drawing(s) of the location of the OSC in the Annex Building(s). This figure/drawing, or a similar one, should also be included in the Lee Emergency Plan.

I. Section II.H., "Emergency Facilities and Equipment," of the Lee Emergency Plan states that the TSC was designed to meet the intent of the guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities." Provide a summary of the information in the Lee Emergency Plan to describe how it meets the intent of the guidance in NUREG-0696. For example, explain how the following items from NUREG-0696 related to the TSC are addressed in the Lee Emergency Plan: (a) Address training of TSC staff to follow procedures; (b) Address management plans, facility staffing and task assignments of TSC personnel; (c) Provide a detail staffing plan for the TSC to address the overall management of licensee resources and the continuous evaluation and coordination of licensee activities during and after an accident; (d) Provide the TSC staff assignments to address that TSC management of licensee onsite and offsite radiological monitoring, to perform radiological evaluations, and to interface with offsite officials. Address if the personnel assigned to the TSC varies according to the emergency class; (e) Address procedures for and training of personnel to use the data systems and instrumentation and include limitations of instrumentation; (f) Address how TSC staff maintain proficiency (participation in drills); and

(g) Address whether there are means for facsimile transmission capability between the EOF, TSC and NRC Operations Center.

J. In accordance with SRP Chapter 15.0.3, Section II D(3), the staff reviews whether the total calculated radiological consequences in the TSC for the postulated fission product releases fall within the exposure acceptance criteria specified in GDC 19 of 5 rem TEDE (0.05 Sv) for the duration of the design basis accidents (DBAs). Provide the radiological consequence analyses for the Lee TSC for the postulated DBAs. The DBAs are listed and evaluated in Chapter 15 of the certified AP1000 DCD, Revision 15 and in the AP1000 Design Certification Amendment Application (AP1000 DCD, Revision 16). The radiological analyses must include, but not limited to, the following parameters:

1. TSC ventilation air inlet and recirculation flow rates
2. HEPA filter and charcoal adsorber fission product removal efficiencies
3. TSC unfiltered air in-leakage rate
4. Atmospheric dispersion factors ($\chi/Q$ values) at TSC air intake
5. TSC occupancy factors
6. TSC free air volume
7. Occupant breathing rate
8. Description of the ventilation design

**Duke Energy Response:**

A. The procedures for relocating the Lee TSC and OSC will be similar to those currently in use for other Duke Energy nuclear plants. Consistent with the procedures used at the Catawba Nuclear Station, if AC power is unavailable or the facilities become uninhabitable, the TSC and/or OSC is relocated to its alternate location. Catawba Nuclear Station Procedures RP/0/A/5000/024, "OSC Activation Procedure," and RP/0/A/5000/020, "Technical Support Center (TSC) Activation Procedure," are provided for information as Attachments 1 and 2 to the response to RAI 13.3-055 (this letter).

Alternate locations for the TSC and OSC have not been determined. Regulatory requirements and functional capability will be considered in the decision. ITAAC addressing the adequacy of the TSC and OSC facilities is addressed in the COL application, Part 10, Table 3.8-1, "Proposed Licensed Conditions (including ITAAC)."

B. The procedure for verifying availability and readiness of Radiation Protection (RP) emergency response equipment will be similar to that in use at other Duke Energy nuclear plants. Catawba Nuclear Station's Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory," provides the process to verify availability and readiness of RP emergency response equipment. This procedure is provided for information as an attachment to this response (Attachment 1).

Additionally, the responsibilities to conduct a quarterly inventory and verify Emergency Operations Facility (EOF) equipment operation are described in a Duke Energy corporate procedure employed for Duke Energy's operating nuclear plants. This procedure, SR/0/B/4600/086, "Standard Procedure for Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory," ensures that equipment is operational and sufficient supplies are available to effectively manage an emergency

situation in the EOF. This procedure is provided for information as an attachment to this response (Attachment 2).

A license condition has been proposed in Part 10 of the COL application addressing the submittal schedule for operational programs, including emergency planning implementing procedures, which is consistent with 10 CFR Part 50, Appendix E, Section V and the allowances provided in SECY-05-0197.

C. Data points for reactor and core coolant system conditions; reactor containment conditions; radioactivity release rates; and plant meteorological tower data will be available for transmittal, and a separate data feed for each reactor unit is to be provided. If the emergency response data system (ERDS) is to communicate with a safety system, appropriate isolation devices will exist at these interfaces.

The process and hardware that will be used to transmit ERDS data from the Lee facility has not been identified. The data transmission design will include isolation devices as part of the Cyber Security Program being developed.

Details regarding this information are specific to the design features of the AP1000 and will be based on applicable regulatory guidance. The ERDS for Lee Nuclear Station will be developed on a schedule in compliance with the milestones provided in COL application, Part 10.

D. (D.1-D.4) This section of the RAI requested verification of information with regard to ERDS that included:

1. ERDS parameters can be transmitted in no more than 60 seconds or no less than 15 seconds.

2. Link control and data transmission in a compatible format with Nuclear Regulatory Commission (NRC) receiving equipment.

3a. Hardware or software changes that affect the transmitted data points identified in the ERDS Data Point Library will be submitted to the NRC within 30 days after the changes are completed.

3b. Hardware and software changes that could affect the transmission format and computer communication protocol to the ERDS will be provided to the NRC at least 30 days prior to the modification.

4. An ERDS implementation program plan will be submitted to the NRC.

Some of the details regarding this information are specific to the design features of the AP1000 and will be based on applicable regulatory guidance. Other details are applicable to the emergency planning program implementation. The ERDS and implementation procedures for the Lee Nuclear Station will be developed on a schedule in compliance with the milestones provided in COL application, Part 10, and Tier 1 ITAAC.

E. The ODCM is discussed in Section 6.2 of the Environmental Report, Part 3 of the Combined License Application. As stated in Section 11.5.7 of the Final Safety Analysis Report, Part 2 of the Combined License Application, the ODCM program description will be finalized with site-specific information prior to fuel load. Table 13.4-201 of the FSAR provides milestones

for implementation of operational programs required by NRC regulation which includes the ODCM.

Section 6.2 of the Environmental Report fully describes the radiological environmental monitoring program to be implemented at the Lee Nuclear Station based on the guidance in Revision 1 of the Branch Technical Position included with Generic Letter 79-65, "Radiological Environmental Monitoring Program Requirements."

A description of the Lee Nuclear Station monitoring and sampling locations utilized to monitor the exposure pathways, including sampling frequency and type of analysis, is provided in Table 6.2-2 of the Environmental Report. The locations are illustrated in Figures 6.2-1 and 6.2-2 of the Environmental Report.

A license condition addressing the submittal schedule for implementation of operational programs required by NRC regulation, including the Offsite Dose Calculation Manual and Radiological Environmental Monitoring Program, is addressed in COL application, Part 10, "Proposed Licensed Conditions (including ITAAC)" which is consistent with 10 CFR Part 50, Appendix E, Section V and the allowances provided in SECY-05-0197.

E.1 The procedure for obtaining data from an alternate source for Duke's operating nuclear plants is described in Section 4.3.3 of Duke Energy's corporate procedure SH/0/B/2005/001, "Emergency Response Offsite Dose Projections." The alternate source locations (Catawba and McGuire) and the National Weather Service (Greer, SC) are located within 50 miles of the Lee facility site. These alternate sites have been utilized as an alternative meterological data point by Duke for an extended period of time and the data has proven to be consistently similar and representative for the area of piedmont South Carolina where the Lee facility is located. For the operating nuclear plants, when site meteorology cannot be obtained from onsite meteorological tower systems, a Duke meteorologist is responsible for interpreting data received from an alternate location for applicability to the Lee site. The Duke meteorologist will also be responsible for determining representativeness of the meteorological data received from an alternate location. Procedure SH/0/B/2005/001 is provided as information as Attachment 1 to the response to RAI 13.03-062 (this letter).

F. The Lee Emergency Plan acknowledges the intent of meeting guidance for the design of the Control Rooms, OSCs, and TSCs provided in NUREG-0696, as applicable.

NUREG-0696 criteria 3.1 and 3.2 associated with functionality and habitability of the OSCs are described in Section II.H.1 of the Emergency Plan. This section of the Emergency Plan also mentions that the OSC provides the resources for communicating with the Control Room and TSC. Communications between the OSC and the TSC and Control Room are maintained via the wireless telephone system as discussed in the Lee Emergency Plan Section II.F. The telephone-page and PABX telephone communication systems are for general plant communications and serve as a backup to the wireless system.

Duke Energy has elected to locate the TSC in an alternative location. A design description addressing the criteria provided in Section 8.2.1 of Supplement 1 to NUREG-0737 is included as Appendix 10 of the COL application Emergency Plan. The design continues to satisfy the accepted criteria established in the AP1000 DCD with the exception of being within a 2-minute walk of the Control Room. As described in Emergency Plan II.H.1, the

OSCs (one for each unit) are located in the space originally designated for the TSC in each unit's Annex Building.

Guidance concerning the OSC is provided in section 8.3 of Supplement 1 to NUREG-0737. The FSER acknowledges that the AP1000 adequately addresses the criteria (8.3.1.a) that the OSCs will be on-site and separate from the Control Rooms. The separation criterion is reflected in Section II.H.1, which states that "The OSCs are located in the space designated in the AP1000 DCD for the TSC in each unit's Annex Building." Figure II-2 indicates the OSC Coordinator is responsible for coordinating and assigning personnel to tasks designated for the OSC. Criterion 8.3.1.b regarding the assembly function of the OSC is addressed in Section II.H.1. The need for reliable communications with the TSC and Main Control Room is also discussed in Section II.H.1 (criterion 8.3.1.c). Communications between the OSC and the TSC and Control Room are maintained via the wireless telephone system as discussed in Lee Emergency Plan Section II.F. The telephone-page and PABX telephone communication systems are for general plant communications and serve as a backup to the wireless system.

Siting the OSCs in the space originally designed for the TSC does not affect compliance with the criteria discussed above. Further, the adequacy of emergency facility communications is addressed in the ITAAC found in Tier 1, Table 3.1-1 and Part 10, Table 3.8.1 of the COL application. A license condition addressing the submittal schedule for implementation of operational programs required by NRC regulation, including emergency planning implementing procedures, is addressed in COL application, Part 10, "Proposed Licensed Conditions (including ITAAC)" which is consistent with 10 CFR Part 50, Appendix E, Section V and the allowances provided in SECY-05-0197.

Emergency Plan II.H.1 also discusses provisions for relocating the OSCs as needed, based on ongoing assessments of plant conditions and facility habitability, as the OSCs are not designed to remain habitable under all projected emergency conditions. This relocation refers to an alternate OSC, not the COL application's siting of the OSC in a location different than that described in the DCD. The response to Part A of this RAI addresses relocation of the OSC under these conditions.

G. Information regarding emergency kits will be similar to that in use at other Duke Energy nuclear stations. Catawba Nuclear Station's Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory," provides the process to verify availability and readiness of emergency response equipment. This Procedure is provided for information as an attachment to this response (Attachment 1). The procedure details quarterly inventory requirements, provides emergency kit storage locations, and provides a list of contents for the various emergency kits.

Duke Energy corporate procedure SR/0/B/4600/086, "Standard Procedure for Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory," employed for Duke Energy's operating nuclear plants provides a quarterly inventory and verification of EOF equipment operation. This procedure ensures that equipment is operational and that sufficient supplies exist to effectively manage an emergency situation in the Emergency Operations Facility. This Procedure is provided for information as an attachment to this response (Attachment 2).

A license condition addressing the submittal schedule for implementation of operational programs required by NRC regulation, including emergency planning implementing procedures, is addressed in COL application, Part 10, "Proposed Licensed Conditions (including ITAAC)" which is consistent with 10 CFR Part 50, Appendix E, Section V and the allowances provided in SECY-05-0197.

H. Duke does not include site layout drawings in its nuclear plant emergency plans or implementing procedures. This information will be included in training and orientation of OSC personnel.

The assertion that DCD Figures 1.2-17 through 1.2-20 are "blank" is not correct; rather, these figures are designated as Security-Related Information and properly withheld from public disclosure pursuant to NRC regulation and guidance. Figure 1.2-201 in the Lee application (which replaces DCD Figure 1.2-18) is similarly withheld and included in Part 9 of the application. This information is available to the reviewers through the processes and procedures established by the NRC for such material.

I. A design description addressing the criteria provided in Sections 2.1 through 2.10 of NUREG-0696 is included as Appendix 10 of the COL application Emergency Plan. The design satisfies the criteria established in the AP1000 DCD with the exception of being within a 2-minute walk of the Control Room.

a. Consistent with the guidance offered in NUREG-0696, Section 2.3, the TSC is staffed with technical, engineering, and senior plant management to provide ongoing support to the Control Room(s) during an emergency. Section II.O of the Emergency Plan discusses Duke's emergency response training program. As indicated in II.O.2, training of Duke emergency response personnel will be addressed in plant procedures. Training on adherence to procedures, is integral to the Non-Licensed Plant Staff Training Program and Reactor Operator Training Program. An implementation schedule for these Programs is provided in Table 13.4-201, "Operational Programs Required by NRC Regulations," included in Part 2 of the COL application.

Emergency Response Training and Qualification is further discussed in Subsection II.O.4 of the Emergency Plan, which specifically states, "Duke Energy implements a program to provide position-specific emergency response training for designated members of the emergency response organization." This program includes accident assessment personnel.

b. Details regarding management, staffing, and assignments of TSC personnel are addressed in Emergency Plan Implementing Procedures in place for Duke Energy's operating nuclear plants. Duke expects that assignments and staffing similar to that addressed in Catawba Nuclear Station Procedures RP/0/A/5000/020, "Technical Support Center Activation Procedure," (included as Attachment 1 to the response to RAI 13.3-055, this letter) will be used at the Lee Nuclear Station.

c. The responses to RAI 13.03-55 discuss the staffing process for the TSC, which includes the overall management of licensee resources and the continuous evaluation and coordination of licensee activities during and after an accident. As discussed in Lee Emergency Plan Section II.A.4, Duke maintains capability for continuous operations through training of multiple responders for key emergency response positions, these

multiple responders allow for multiple shifts as needed to provide for extended emergency response operations.

d. TSC staff assignments will be similar to that in use at other Duke Energy nuclear stations. Duke Energy's Catawba Nuclear Station Emergency Plan Implementing Procedure, RP/0/A/5000/020, "Technical Support Center (TSC) Activation Procedure," provides checklists detailing the responsibilities of TSC staff. In accordance with enclosure 4.14 of the procedure, RP personnel are responsible for activating field monitoring teams and dispatching those teams based on stability class, wind direction, wind speed, and time of release in order to assess offsite radiological conditions. In accordance with enclosure 4.3 of the procedure, TSC offsite agency communicators ensure that offsite agency communicators in the EOF are aware of information affecting offsite agencies. For informational purposes, RP/0/A/5000/020 is included as Attachment 1 to the response to RAI 13.3-055, this letter.

   TSC staffing levels are not varied based on the emergency classification. If conditions dictate, emergency procedures will contain provisions for designated emergency response organization managers to request additional management, technical and administrative support from internal and external organizations as needed to assess and mitigate the emergency condition.

e. As stated in response "a" to this RAI, Emergency Response Training and Qualification are discussed in Subsection II.O.4 of the Emergency Plan, which specifically states, "Duke Energy implements a program to provide position-specific emergency response training for designated members of the emergency response organization." This program includes accident assessment personnel. For Duke's operating nuclear plants, the training program requires TSC staff to receive an overview of the site Emergency Plan and training on facility operations, technical assessment function, and task-specifics consistent with assigned duties. This task-specific training includes, for example, use of data systems and instrumentation, including the limitation of instrumentation for assigned personnel. Duke expects to use a similar approach for the Lee Nuclear Station.

f. Section II.N of the Lee Emergency Plan provides considerable detail on the exercise and drill program. As indicated in this section, Duke implements this program, in part, to "maintain emergency response skills." In Subsection II.N.1.b, one of the purposes for the biennial exercise is to "Evaluate familiarity of emergency organization personnel with their duties." Subsection II.N.2 addresses maintaining adequate emergency response capabilities between biennial exercises by conducting drills, "including at least one drill involving a combination of some of the principal function areas of emergency response capabilities." These principal emergency response functions specifically include accident assessment. The primary objectives of these drills are explicitly identified in Subsection II.N.1.a of the COL Emergency Plan:

   - Test the adequacy of timing and content of implementing procedures and methods.
   - Test the emergency and communication networks
   - Test the public notification system

The exercises also test the familiarity of emergency organization personnel with their duties.

Additionally, Subsection II.N.2 addresses combination of some of the principal functional areas of on-site emergency response capabilities, including activities such as: management and coordination of emergency response; accident assessment; protective action decision-making; and plant system repair and corrective actions. TSC staff participates in these exercises and drills, which ultimately maintains their proficiency.

g. Consistent with Duke's experience at its operating sites, the functions served by facsimile transmission between the EOF, TSC, and NRC Operations Center will be supported at the Lee TSC. However, given that the TSC will not be operational for a number of years, Duke will consider that advancements in telecommunications technology in meeting these functions before incorporating any specific data/document transmission system into the TSC and EOF.

The principle topics of this question are addressed in the ITAAC found in Tier 1, Table 3.1-1, Part 10, Table 3.8.1 of the COL application; further, a license condition addressing the submittal schedule for implementation of operational programs required by NRC regulation, including emergency planning implementing procedures, is addressed in COL application, Part 10, "Proposed Licensed Conditions (including ITAAC)" which is consistent with 10 CFR Part 50, Appendix E, Section V and the allowances provided in SECY-05-0197.

J. Standard Review Plan 15.0.3 states that the radiation protection design of the Technical Support Center (TSC) is acceptable if the total calculated radiological consequences for the postulated fission product release fall within the 5 R TEDE exposure acceptance criteria specified for the control room for the duration of the accident.

The radiological consequence calculation for the Lee Units 1 and 2 TSC uses the methodology of Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors" (Ref. 1) and the RADTRAD (Radionuclide Transport and Removal and Dose Estimation) 3.03 Code (Ref. 2 through 4). RADTRAD 3.03 calculates fission product transport and removal along with the resulting radiation doses at selected receptors.

The limiting AP1000 offsite radiological consequences are associated with the postulated LOCA with core melt (Ref. 5, Table 15.6.5-3). Therefore a LOCA release from the containment shell is conservatively assumed in the TSC radiological analysis. The RADTRAD 3.03 input parameters used in the Lee TSC radiological analysis are discussed below.

*Core Source Terms and Releases*

For an assumed LOCA with core melt at an AP1000, the release of activity to the containment consists of two parts. The initial release is the activity contained in the reactor coolant system. This is followed by the release of core activity. The reactor coolant is assumed to have activity levels consistent with operation at the Technical Specification limits of 280 μCi/gm dose equivalent Xe-133 and 1.0 μCi/gm dose equivalent I-131 (Ref. 5). Based on Regulatory Guide 1.183 (Ref. 1), for a plant using leak-before-break methodology, the release of coolant into the containment can be assumed to last for ten minutes. The AP1000

is a leak-before-break plant (Ref. 5); however, for simplicity, the delay of 10 minutes before reactor coolant system blow down into the containment is conservatively neglected in this analysis.

The release of activity from the fuel takes place in two stages. First is the gap release which is assumed to occur at the end of the primary coolant release phase and to continue over a period of half an hour. The second stage is that of the in-vessel core melt in which the bulk of the activity releases associated with the accident occur. The in-vessel release phase lasts for 1.3 hours.

Core inventories of fission products are from ORIGEN calculations for the AP1000 at end of the fuel cycle at 102-percent power, 3468 MWt (Ref. 5). The source term model applied in the RADTRAD 3.03 calculation is based on Regulatory Guide 1.183 guidance.

The RADTRAD 3.03 nuclide inventory is limited to sixty isotopes with decay and daughter data. The default PWR 60-isotope, 9-element NUREG-1465 nuclide data file was used in this analysis. Data from the RADTRAD 3.03 TID14844 default data file for the Xe131m and Xe133m isotopes was added in place of the data for Co58 and Co60 in order to better represent the AP1000 inventory. A normalized core power was assumed and the AP1000 inventory for each nuclide (Ref. 5, Table 15A-3) was substituted for the default inventory.

The guidance in Regulatory Guide 1.183, suggests the following chemical forms for the released iodine:

**Species Distribution**

| Form | Fraction (%) |
|---|---|
| CsI as aerosol | 95 |
| Elemental | 4.85 |
| Organic | 0.15 |

Assumptions regarding release fractions applied are consistent with Regulatory Guide 1.183.

**PWR Core Inventory Fraction Released Into Containment**

| Group | Gap Release Phase | Early In-Vessel Phase | Total |
|---|---|---|---|
| Noble Gases | 0.05 | 0.95 | 1.0 |
| Halogens | 0.05 | 0.35 | 0.4 |
| Alkali Metals | 0.05 | 0.25 | 0.3 |
| Tellurium Metals | 0.00 | 0.05 | 0.05 |
| Ba, Sr | 0.00 | 0.02 | 0.02 |
| Noble Metals | 0.00 | 0.0025 | 0.0025 |
| Cerium Group | 0.00 | 0.0005 | 0.0005 |
| Lanthanides | 0.00 | 0.0002 | 0.0002 |

*Containment Sump Iodine Re-evolution*

If the pH is maintained above 7, very little (less than 1%) of the dissolved iodine will be converted to elemental iodine (Ref. 1). The AP1000 passive core cooling system provides sufficient tri-sodium phosphate to the post-LOCA cooling solution to maintain the solution pH at 7.0 or greater following a LOCA (Ref. 5). As such, this analysis did not consider any impact to the TSC due to iodine re-evolution from the containment sump.

*Dose Conversion Factors*

The effective dose conversion factors for the TEDE calculations are based on FGR 11 (Ref. 6) and FGR 12 (Ref. 7). In most cases, these DCFs are taken directly from FGR 11 and 12; however, in some cases, the DCFs applied include the DCFs of the isotope's decay products. This is consistent with the RADTRAD 3.03 code manual as noted in NUREG/CR-6604 Table 1.4.3.3-2 (Ref. 2 through 4).

*Atmospheric Dispersion Factors*

Atmospheric dispersion factors ($\chi/Q$) values are a required input to radiological evaluations. The site-specific TSC atmospheric dispersion values determined for William States Lee III Nuclear Station are given in Table 1 below.

**Table 1**
**TSC Atmospheric Dispersion ($\chi/Q$) Factors for Accident Dose Analysis ($s/m^3$)**

| Time Interval | Unit 1 Containment Shell Release | Unit 2 Containment Shell Release |
|---|---|---|
| 0 – 2 hours | 1.5E-04 | 1.3E-04 |
| 2 – 8 hours | 1.0E-04 | 1.1E-04 |
| 8 – 24 hours | 4.2E-05 | 4.5E-05 |
| 1 – 4 days | 2.9E-05 | 3.5E-05 |
| 4 – 30 days | 2.0E-05 | 2.3E-05 |

The most limiting atmospheric dispersion values determined for each time interval for an accident at Unit 1 or Unit 2 are used to determine bounding radiological consequences for the TSC.

*Breathing Rate and Occupancy Factors*

The breathing rates applied in the calculation of the inhalation dose were consistent with those reported for the control room in Section 4.2.6 of Regulatory Guide 1.183 (Ref. 1) and are given in the table below.

**Breathing Rates ($m^3/s$)**

| Time Period | Control Room |
|---|---|
| 0 to 8 hours | 3.47E-04 |
| 8 to 24 hours | 3.47E-04 |
| 1 to 30 days | 3.47E-04 |

The TSC occupancy factors are consistent with those reported for the control room in Section 4.2.6 of Regulatory Guide 1.183 and are tabulated below.

**Control Room Occupancy Factors**

| Time Period | Occupancy Factor |
|---|---|
| 0 to 24 hours | 1.0 |
| 1 to 4 days | 0.6 |
| 4 to 30 days | 0.4 |

*In-Containment Activity Removal Processes*

The AP1000 does not include active systems for the removal of activity from the containment atmosphere. The containment atmosphere is depleted of elemental iodine and of particulates as a result of natural processes within the containment. Appendix 15B of Reference 5, the AP1000 Design Control Document (DCD), provides a discussion of the models and assumptions used in calculating the AP1000 natural deposition removal coefficients[1]. An elemental iodine deposition removal coefficient of 1.7 is determined. The removal coefficient for particulates is a function of time. The aerosol removal coefficients in the AP1000 containment following a design basis LOCA with core melt are given in Table 15B-1 of Reference 5. Since there is a limit of ten time intervals in the RADTRAD 3.03 input for aerosol removal coefficients, Table 15B-1 was simplified as given in the table below. Removal coefficients were rounded to two decimal places and then conservatively small removal coefficients were selected for ten time intervals ending at 24 hours.

**Aerosol Removal Coefficients Following a Design Basis LOCA with Core Melt**

| Time Interval (hours) | Removal Coefficient ($hr^{-1}$) |
|---|---|
| 0 - 0.631 | 0.84 |
| 0.631 – 0.801 | 0.78 |
| 0.801 – 1.171 | 0.66 |
| 1.171 – 1.475 | 0.55 |
| 1.475 – 1.776 | 0.45 |
| 1.776 – 2.371 | 0.38 |
| 2.371 – 4.276 | 0.29 |
| 4.276 – 5.362 | 0.35 |
| 5.362 – 24.0 | 0.46 |
| 24 – 720 | 0.0 |

The AP1000 DCD identifies a maximum decontamination factor for elemental iodine of 200. An overall DF of 200 is achieved at 4.276 hours. Consequently, at 4.276 hours the value of the elemental spray removal coefficient, $\lambda_e$, was set to zero.

Credit was also assumed for aerosol removal from containment cracks representing assumed containment leakage paths. The aerosol removal efficiency due to this "impaction" removal process is given as 80% in Table 15.6.5-2 of Reference 5.

[1] This response is based on the content of the Lee COL application which incorporates by reference DCD Revision 16. See discussion at the conclusion of this response for information regarding the change in methodology presented in AP1000 DCD Revision 17.

*TSC HVAC System*

The preliminary design of the TSC and TSC ventilation system is described in the Technical Support Center Design Description Document (Ref. 8). The volume of the TSC is given as a maximum of 35,700 $ft^3$. The TSC heating, ventilation and air conditioning (HVAC) system is manually isolated from the normal outdoor air intake when a high gaseous radioactivity concentration is detected in the TSC supply air duct. A maximum normal outside airflow of 1925 cfm is assumed for 30 seconds prior to initiation of supplemental air filtration units. Two trains of filter units are provided in the TSC HVAC system for defense in depth. Only one train is needed during emergency conditions. Each train is designed to provide a total nominal flow (fresh air + recirculation) of 4,000 cfm to the TSC. Filtered fresh air is limited to 860 cfm. A positive pressure of at least 1/8 inch water gauge is maintained. It is assumed that 25 cfm is required to maintain this positive pressure. Unfiltered in-leakage to the TSC is given as 90 cfm; therefore the leakage from the TSC to the environment would be 925 cfm (860 cfm fresh air supply + 90 unfiltered in-leakage – 25 cfm pressurization). Each supplemental air filtration unit includes a high efficiency filter bank, an electric heating coil, a charcoal adsorber with upstream HEPA filter bank, a downstream post-filter bank and a fan. Consistent with the main control room HVAC design, each charcoal adsorber has an efficiency of 90% for elemental and organic iodine and 99% for particulates.

*Containment Release Pathways*

The AP1000 containment release pathways to the environment are the containment purge line and containment leakage. During the initial part of the accident, before the containment is isolated, it is assumed that containment purge is in operation and that activity is released through this pathway until the purge valves are closed. No credit is taken for the filters in the purge exhaust line. The containment purge flowrate is 8800 cfm. It requires 30 seconds for isolation of the purge subsequent to an accident. (Ref. 5)

The majority of the postulated AP1000 releases due to the LOCA are the result of containment leakage. The containment is assumed to leak at its design leak rate, 0.1 percent by volume per day, for the first 24 hours and at half that rate for the duration of the accident, 30 days. The volume of the containment is 2.06E+06 $ft^3$. (Ref. 5)

Consistent with the AP1000 DCD, it is assumed that core cooling is accomplished by the passive core cooling system, which does not pass coolant outside of containment. Therefore, no recirculation leakage path is modeled in the TSC radiological consequence analysis.

*Other Sources of Radiation*

The direct radiation and sky-shine doses reported for the control room in the AP1000 DCD, Table 15.6.5-3 (Ref. 5), are conservatively assumed to also be applicable to the TSC. This is a conservative assumption, given the proximity of the TSC to plant structures (i.e., below grade, in the basement of the Maintenance Support Building). (Ref. 8)

In addition, at the time the LOCA occurs, there is the potential for a coincident loss of spent fuel pool cooling with the result that the pool could reach boiling and a portion of the radioactive iodine in the spent fuel pool could be released to the environment. The control

room dose for this scenario given in the AP1000 DCD, Section 15.6.5.3.8.2 (Ref. 5) is conservatively included in the TSC dose consequences.

*TSC Radiological Consequences*

The bounding technical support center (TSC) radiological consequences determined for a postulated LOCA with core melt at either Lee Nuclear Station Units 1 or 2 are given below. The TSC radiological consequences for the postulated accident fall within the GDC 19 exposure acceptance criteria; therefore, it can be concluded that the radiation protection design of the TSC is acceptable.

**TSC Radiological Consequences of a LOCA with Core Melt**

| TSC Dose Contributor | TEDE Dose (rem) |
|---|---|
| Airborne Activity Entering the TSC | 0.31 |
| Direct Radiation from Adjacent Structures | 0.15 |
| Sky-shine | 0.01 |
| Spent Fuel Pool Boiling | 0.01 |
| **Total** | 0.48 |

*Impact of AP1000 DCD Revision 17*

AP1000 DCD Revision 17 amends a portion of the methodology described in this response, i.e., by eliminating credit for aerosol impaction. Preliminary analyses indicate a resulting increase in doses at the TSC that nonetheless remains well below the dose criteria discussed above. These analyses will be completed and amended results will be provided when the Lee COL application is updated to reflect AP1000 DCD Revision 17.

**References:**

1. Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors", July 2000
2. NUREG/CR-6604, RADTRAD: A Simplified Model for Radionuclide Transport and Removal and Dose Estimation, April 1998
3. NUREG/CR-6604 Supplement 1, RADTRAD: A Simplified Model for Radionuclide Transport and Removal and Dose Estimation, June 8, 1999
4. NUREG/CR-6604 Supplement 2, RADTRAD: A Simplified Model for Radionuclide Transport and Removal and Dose Estimation, October 2002
5. "AP1000 Design Control Document", Westinghouse Electric Company, Revision 16.
6. Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion", Second Printing, 1989

7. Federal Guidance Report 12, "External Exposure to Radionuclides in Air, Water, and Soil", 1993
8. Lee Nuclear Station 1 & 2, COL Application, Part 5, Emergency Plan, Design Description Document, Technical Support Center, Draft

**Associated Revision to the Lee Nuclear Station Final Safety Analysis Report or Emergency Plan:**

None

**Attachments:**

1. Catawba Procedure HP/0/B/1000/006
2. Duke Procedure SR/0/B/4600/086

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-061**

**Catawba Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory"**

| Duke Energy<br>Catawba Nuclear Station<br>**Emergency Equipment Functional Check and Inventory**<br><br>**Multiple Use** | Procedure No.<br>**HP/0/B/1000/006**<br>Revision No.<br>**060**<br>Electronic Reference No.<br>**CN005CPJ** |
|---|---|
| **PERFORMANCE** | |
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**Emergency Equipment Functional Check and Inventory**

# Reference Use

## 1. Purpose

To verify availability and readiness of Radiation Protection (RP) emergency response equipment.

## 2. References

2.1 HP/0/B/1009/019 - Emergency Radio System Operation, Maintenance, and Communication

2.2 RA/0/1400/006 - In-Service Radiation Protection Instrument Source Check

2.3 RA/0/1600/001 - Controls for Respiratory Protection Equipment

2.4 Nuclear System Directive (NSD) 208 - Problem Investigation Process

2.5 Nuclear System Directive (NSD) 702 - Document Control

2.6 PIP C-02-00495 - Discrepancy found with HP/0/B/1003/072 after training drill

2.7 PIP C-02-01526 - OSC Emergency Kit List of Contents was inaccurate

2.8 PIP C-05-07088 - Incorrect response check stickers on portable instruments for Sample Van 1 and Sample Van 2 Emergency Kits

2.9 PIP-C-07-0140 - .Emergency drill critique item relating to Emergency Van cleanliness

## 3. Limits and Precautions

None

# 4. Procedure

## 4.1 Emergency Kit Inventory Requirements

**NOTE:**
- RP personnel using emergency kit items are responsible for completing a kit inventory and ensuring that items are replaced as necessary.
- RP personnel using off-site kit items are responsible for inventory and restocking as soon as practical after use; (e.g., Piedmont Medical Center medical response).
- RP personnel performing inventory of emergency kits may perform procedure steps in any sequence to successfully complete an inventory.

4.1.1 Perform an emergency kit inventory following use or if contents could have been compromised; (e.g., drills or Emergency Response Organization (ERO) activation):

- Replace used, mutilated or damaged procedure(s) or enclosure(s) with Control Copy(s).
- Ensure equipment is stored in operable condition; (e.g., survey meters and/or protective clothing is not returned to kit in a damaged condition).
- Verify battery operated equipment is turned off before placing item in storage.
- Verify items against kit enclosure list of contents using applicable Enclosure 5.4 (Recovery Kit List of Contents) through 5.13 (Miscellaneous Kit List of Contents).

4.1.2 Return or replace equipment removed from emergency kit(s) within twenty-four hours following termination of an event.

- **IF** items can not be replaced or restocked in a kit, complete Enclosure 5.16 (Emergency Equipment Deviation Form) per Section 4.4.

4.1.3 Document results using Enclosure 5.14 (Emergency Kit Inventory Record).

4.1.4 Replace kit tamper seal.

| | |
|---|---|
| **NOTE:** | Emergency response kits with a tamper seal remaining intact between quarterly inspections provide a satisfactory substitute for a complete inventory of all kit contents. |

**4.2 Emergency Kit Quarterly Inventory Requirements**

4.2.1 Perform quarterly inspections of emergency kits based on table in Enclosure 5.2 (Emergency Quarterly Kit Inspection Record).

4.2.2 Perform quarterly inventory of designated emergency kits using applicable Enclosure 5.4 (Recovery Kit List of Contents) through 5.12 (Technical Support Center Kit List of Contents).

- **IF** Miscellaneous Kit is required for fuel transfer event, transportation event or on-site (out of protected area) event, use Enclosure 5.13 (Miscellaneous Kit List of Contents) to assemble items for the kit.

4.2.3 Verify emergency kit procedures using Enclosure 5.3 (Emergency Kit Control Copy Procedure Record).

- Ensure current Control Copy(s) are in kits.
- Record procedure revision number and/or approval Date on Enclosure 5.3.
- Record any additional information as needed on Enclosure 5.3.

4.2.4 Ensure all electronic dosimeters meet calibration requirements.

- Verify that all electronic dosimeters are in "autonomous mode".
- Replace any EDs which are **NOT** in "autonomous mode".

4.2.5 Ensure portable survey instruments are available **AND** acceptable for use.

- Perform instrument source check in accordance with RA/0/1400/006 (In-Service Radiation Protection Instrument Source Check).
- Inspect instrument for physical damage which could affect operation.
- Verify instrument calibration sticker indicates instrument has been calibrated within past six months.

4.2.6 Ensure air samplers are available **AND** acceptable for use.

- Inspect sampler for physical damage which could affect operation.
- Verify air sampler operates when plugged into an electrical outlet.
- Verify calibration sticker indicates sampler has been calibrated within past six months.

4.2.7 Ensure emergency kit batteries are acceptable for use.

- Verify battery tester needle indicates "good" when batteries are tested.
- Inspect batteries for acceptable physical condition; (e.g., no dents or corrosion).

4.2.8 Ensure battery-operated equipment has no corrosion.

4.2.9 Ensure bulbs in battery-operated equipment illuminate properly.

4.2.10 Ensure Silver Zeolite or equivalent type cartridge packet is sealed **AND** undamaged.

- Remove damaged packets.
- Notify RP Staff Scientist.

4.2.11 Ensure protective clothing has **NOT** exceeded recommended limits of Enclosure 5.15 (Recommended Shelf-life for Protective Clothing).

| | |
|---|---|
| **NOTE:** | Potassium Iodide (KI) tablets are normally shipped in bottles with a label having a factory lot number and expiration Date. |

4.2.12 Ensure the following for supply of KI tablets:

- **IF** KI tablets are within three months of expiration Date, **THEN** order replacement tablets.
- Maintain a minimum of 1000 packs (14 tablets per pack) of KI on site.
- Store in a low humidity location and avoid direct exposure to liquids.
- Store in a location protected from exposure to light.

4.2.13 Upon receipt of a shipment of new KI tablets:

A. Open boxes to inspect contents.

B. Exchange existing supplies of KI tablets to ensure adequate supply of new KI tablets.

C. Discard KI tablets after they have exceeded the expiration Date.

# Information Use

| | |
|---|---|
| **NOTE:** | Duke General Office TLD Laboratory provides Thermoluminescent Dosimeters (TLDs) to Catawba Dosimetry Records Control (DRC) at least quarterly. Electronic dosimetry is provided by Duke EnRad Laboratory personnel. |

4.2.14 Replace TLDs in kits, including control TLDs issued by DRC.

4.2.15 Return TLDs removed from kits to DRC.

4.2.16 Replace electronic dosimeters (EDs) as required by calibration due Dates.

4.2.17 Return EDs removed from kits to DRC.

| | |
|---|---|
| **NOTE:** | ESP-2 check sources exceeding manufacturer expiration Date are analyzed using count room Multi-Channel Analyzer (MCA) equipment to verify (Ba-133) source decay. |

4.2.18 **IF** inspection of emergency check sources show any damage, **THEN** notify RP Staff Scientist for further investigation and/or analysis.

# Reference Use

| | |
|---|---|
| **NOTE:** | • Respiratory equipment is inspected and maintained by RIC group using RA/0/1600/001 (Controls for Respiratory Protection Equipment).<br>• Replacement or alteration of emergency kit respiratory equipment is per direction of Emergency Response RP Staff Scientist and RIC. |

**4.3 Emergency Kit Respirator Inspection**

4.3.1 Ensure minimum of twenty-two particulate masks are available in the Emergency Kit Storage Room.

4.3.2 Verify respiratory equipment in emergency kits is acceptable for use.

- Ensure no physical damage or deformation of respiratory masks.
- Ensure minimum of twenty-two P/100 canisters or equivalent, **NOT** exceeding expiration Date, are available in designated emergency kits.

4.3.3 **IF** expiration Date on P/100 canisters is within three months of Date, **THEN** order replacement canisters.

4.3.4 Ensure minimum of ten particulate masks and P/100 canisters or equivalent **NOT** exceeding expiration Date, are available in Operations Support Center Kit.

# Information Use

## 4.4 Emergency Kit Deviations

| | |
|---|---|
| **NOTE:** | An emergency kit deviation is considered to be equipment that does **NOT** meet inspection criteria, and/or items that **CANNOT** be restocked within twenty four hours, and/or any condition that degrades equipment reliability or compromises operable condition of a kit or its contents. |

4.4.1 Document emergency kit deviations on Enclosure 5.16.

4.4.2 Re-inventory emergency kits found with items missing and/or seals removed to ensure that all kit contents are restored to operable requirements.

4.4.3 Use Enclosure 5.16 to document corrective action(s) that remedy a deviation.

4.4.4 Initiate a PIP to document and trend kit deviations, per NSD 208 (Problem Investigation Process).

4.4.5 Retain completed Enclosure(s) 5.16 in Emergency Equipment Inventory Logbook.

# Reference Use

## 4.5 Field Monitor Team (FMT) Quarterly Radio Check

**NOTE:** Emergency Planning Group performs quarterly EOF/TSC base radio checks.

4.5.1 Perform quarterly check of Field Monitor Team (FMT) radios and Technical Support Center (TSC) base station radio in accordance with HP/0/B/1009/019 (Emergency Radio System Operation, Maintenance and Communication).

**NOTE:**
- A radio identifier call sign for high band radio frequency is automatically transmitted when keying a high band FMT radio.
- Onsite portable radio-to-radio check may be used to verify operability after repair of radio equipment (e.g., prior to returning FMT radios into service).

4.5.2 Perform inspection of Emergency Vans for cleanliness in conjunction with radio check.{C-07-0140}

- **IF** exterior or interior cleaning is required, contact EP representative for current location to have van(s) cleaned.

4.5.3 Check FMT sample van radios and portable radios at a distance approximately five to ten miles from the plant.

4.5.4 Verify each FMT radio transmits and receives a message.

- Communicate from TSC base station to each portable radio.
- Communicate from each portable radio to TSC base station.

4.5.5 Remove inoperable radios from service.

- **IF** replacement and/or repair of FMT radios is necessary, contact Catawba communications Single Point Of Contact (SPOC).

4.5.6 Record radio identifier engraved on hand-held portable radios in first column of Enclosure 5.17 (Quarterly Field Team / Radio Cellular Phone Check Record).

4.5.7 Record results of radio check in comments section of Enclosure 5.17 (Quarterly Field Team Radio / Cellular Phone Check Record).

## 4.6 Quarterly Operability Check of FMT Cellular Telephone

4.6.1 Verify telephones are acceptable for use by initiating a phone call.

- Test each telephone by receiving a call.

4.6.2 Charge cellular telephone batteries.

- Plug battery into the charger for at least twelve hours.
- Remove battery after charge.
- Store batteries and portable cellular telephones in Emergency Kit Room.

4.6.3 Remove inoperable cellular phones from service.

- **IF** replacement or repair of FMT cellular telephone equipment is necessary, contact Catawba Emergency Planning personnel.

4.6.4 Record results of cellular phone check in comments section of Enclosure 5.17 (Quarterly Field Team Radio / Cellular Phone Check Record).

## 4.7 Retention Requirements

- Retain Enclosure 5.14 (Emergency Kit Inventory Record) with each kit for at least one year.
- Retain Enclosures 5.2, 5.3, 5.16, and 5.17 in Emergency Equipment Inventory Logbook for at least one year.
- Forward emergency kit inspection records to Document Control for microfilming in accordance with NSD 702 (Document Control).

## 5. Enclosures

5.1 Emergency Kit Storage Location

5.2 Emergency Kit Quarterly Inspection Record

5.3 Emergency Kit Control Copy Procedure Record

5.4 Recovery Kit List of Contents

5.5 Emergency Sample Van Survey Kit List of Contents {PIP C-02-00495}

5.6 Emergency Survey Teams Vehicle Survey Kit List of Contents {PIP C-05-07088}

5.7 Personnel Survey Kit List of Contents (Security PAP Area)

5.8 Personnel Survey Kit List of Contents (Evacuation Facility)

5.9 Emergency Medical Kit List of Contents (First Aid Room)

5.10 Emergency Medical Kit List of Contents Piedmont Medical Center (PMC)

5.11 Operations Support Center Kit List of Contents (PIP C-02-01526)

5.12 Technical Support Center Kit List of Contents

5.13 Miscellaneous Kit List of Contents

5.14 Emergency Kit Inventory Record

5.15 Recommended Shelf-life for Protective Clothing

5.16 Emergency Equipment Deviation Form

5.17 Quarterly Field Team Radio / Cellular Phone Check Record

**Enclosure 5.1**



**Emergency Kit Storage Location**

# Information Use

| | | |
|---|---|---|
| **NOTE:** | 1. | Emergency Sample Van kits containing battery operated equipment are stored in the Emergency Kit Room in Administration Building Room 148. |
| | 2. | Recovery Kits for York Operations (OPS) Center (Evacuation Site) and Plant Allen (Evacuation Site) are stored in the Emergency Kit Room in Administration Building Room 148. |
| | 3. | **IF** required, assemble and inventory Miscellaneous Kit on an as needed basis. |

**Type** **Storage Location**

Emergency Sample Van & kit room trunk (NOTE 1.) (2 kits): ..... Admin. assigned parking space

Emergency Survey Team Vehicle Survey Kit (2 kits): ..... Admin. Building Rm. 148

Recovery Kit Evacuation Facility (York OPS Center) (NOTE 2.) (1 kit): ..... ..... Admin. Building Rm. 148

Recovery Kit Evacuation Facility (Plant Allen) (NOTE 2.) (1 kit): .....Admin. Building Rm. 148

Recovery Kit Security Pap Area (1 kit): ..... Admin. Building Rm. 148

Miscellaneous Kit (NOTE 3.) (1 kit): ..... Admin. Building Rm. 148

Personnel Survey Kit Security Pap Area (1 kit): ..... Admin. Building Rm. 148

Personnel Survey Kit Evacuation Facility (1 kit): ..... York OPS Center

Personnel Survey Kit Evacuation Facility (1 kit): ..... Plant Allen

Emergency Medical Kit (PMC) (1 kit): ..... Piedmont Medical Center

Emergency Medical Kit (CNS) (1 kit): ..... Auxiliary Building First Aid Room

Operations Support Center Kit (OSC) (1 kit): ..... Operations Support Center

Technical Support Center Kit (TSC) (1 kit): ..... Technical Support Center

**Enclosure 5.2**



**Emergency Kit Quarterly Inspection Record**

# Information Use

| LOCATION | 1st Quarter | | 2nd Quarter | | 3rd Quarter | | 4th Quarter | |
|---|---|---|---|---|---|---|---|---|
| | Complete Kit Inventory Yes/No | Date of Inventory | Complete Kit Inventory Yes/No | Date of Inventory | Complete Kit Inventory Yes/No | Date of Inventory | Complete Kit Inventory Yes/No | Date of Inventory |
| Sample Van 1 & (**Kit Rm.** Trunk) ESP-2 Ba133 MCA check 1st. Qtr. | | | Yes | | | | | |
| Sample Van 2 & (**Kit Rm.** Trunk) ESP-2 Ba133 MCA check 1st. Qtr. | | | Yes | | | | | |
| Emergency Vehicle Survey Team Kit – Alpha (**Kit Rm.**) | Yes | | | | | | | |
| Emergency Vehicle Survey Team Kit – Bravo (**Kit Rm.**) | Yes | | | | | | | |
| Recovery Kit – York OPS Center (**Kit Rm.**) | | | | | Yes | | | |
| Recovery Kit – Plant Allen (**Kit Rm.**) | | | | | Yes | | | |
| Recovery Kit – Security PAP Area (**Kit Rm.**) | | | | | Yes | | | |
| Personnel Survey Kit - **(Plant Allen)** | | | | | | | Yes | |
| Personnel Survey Kit - **(York OPS Center )** | | | | | | | Yes | |
| Personnel Survey Kit - Security PAP Area (**Kit Rm.**) | | | | | | | Yes | |
| Emergency Medical Kit - **(CNS First Aid Room)** | | | | | Yes | | | |
| Emergency Medical Kit - Piedmont Medical Center (PMC) | Yes | | | | | | | |
| Operation Support Center Kit - (OSC) | | | Yes | | | | | |
| Technical Support Center Kit - (TSC) | | | Yes | | | | | |
| Miscellaneous Kit - **(Kit Rm. )** | Yes | | | | | | | |
| SIGNATURE FOR INVENTORY PERFORMED BY:<br>INITIAL, DATE AND TIME REQUIRED FOR CONTROL COPY COMPARISONS | SIGNATURE:<br>THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.<br>Initial Date Time | | SIGNATURE:<br>THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.<br>Initial Date Time | | SIGNATURE:<br>THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.<br>Initial Date Time | | SIGNATURE:<br>THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.<br>Initial Date Time | |

**Enclosure 5.3**



**Emergency Kit Control Copy Procedure Record**

# Information Use

| **SAMPLE VANS** | HP/0/B/1000/006 | HP/0/B/1009/004 | SH/0/B/2005/003 | HP/0/B/1009/019 | HP/0/B/1003/072 | |
|---|---|---|---|---|---|---|
| Sample Van 1 | | | | | | |
| Sample Van 2 | | | | | | |
| **SURVEY TEAM KITS** | HP/0/B/1000/006 | HP/0/B/1009/004 | SH/0/B/2005/003 | HP/0/B/1009/019 | | |
| Alpha Vehicle | | | | | | |
| Bravo Vehicle | | | | | | |
| **RECOVERY KITS** | HP/0/B/1000/006 | HP/0/B/1009/005 | SH/0/B/2000/013 | SH/0/B/2005/003 | | |
| Plant Allen | | | | | | |
| York OPS Center | | | | | | |
| Security PAP | | | | | | |
| **PERSONNEL SURVEY KIT** | HP/0/B/1000/006 | HP/0/B/1009/005 | SH/0/B/2000/013 | SH/0/B/2001/003 | SH/0/B/2005/003 | HP/0/B/1009/008 |
| Plant Allen | | | | | | |
| York OPS Center | | | | | | |
| Security PAP | | | | | | |
| **MEDICAL KITS** | HP/0/B/1000/006 | HP/0/B/1009/008 | SH/0/B/2000/013 | SH/0/B/2001/003 | | |
| First Aid Room CNS | | | | | | |
| Piedmont Medical PMC | | | | | | |
| **SUPPORT KITS** | HP/0/B/1000/006 | HP/0/B/1009/019 | SH/0/B/2000/013 | SH/0/B/2001/003 | SH/0/B/2005/003 | |
| TSC | | | | | | |
| OSC | | | | | | |
| Miscellaneous Kit | | | | | | |

THIS COPY HAS BEEN COMPARED WITH
THE CONTROL COPY AND IS VERIFIED CORRECT.
Initial _____ Date _____ Time _____

**COMMENTS:** _____

**Enclosure 5.4**



**Recovery Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Eberline RO-20 | 1 |
| Electronic dosimeters | 6 |
| Dosecards | 10 |
| TLDs | 6 |
| Boundary Ribbon or Rope (50 yd. Roll) | 1 |
| Masking Tape (roll) | 1 |
| Rain Suits (set) | 2 |
| Full Face Respirator with P/100 canister (or equivalent) (NOTE 1) | 2 |
| Cotton Coveralls/OREX | 2 |
| Hoods | 2 |
| Gloves: Cotton (pair) | 2 |
| Rubber (pair) | 2 |
| Shoe Covers: Disposable (pair) | 2 |
| Rubber (pair) | 2 |
| Poly Bags (various sizes) | 6 |
| Caution Signs with Inserts | 2 |
| Legal Pad | 1 |
| Radioactive Material Tags | 5 |
| Batteries (C size) | 6 |
| Batteries (D size) | 6 |
| Pens | 2 |
| Grease Pencil and Refills | 1 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Instrument/Smear Survey Sheets | 10 |
| KI Tablets: | |
| York OPS Center | 275 packs |
| Security PAP | 150 packs |
| Plant Allen | 275 packs |
| KI Tablet Distribution Data Sheet | 100 |
| Smears (box) | 1 |
| NuCon Smears | 10 |
| Flashlight | 1 |
| Scissors | 1 |
| Medication Envelopes: | |
| York OPS Center | 100 |
| Security PAP | 60 |
| Plant Allen | 100 |
| Emergency Response Organization Directory (NOTE 2) | 1 |
| Road Block Passes (NOTE 2) | 100 |
| Emergency Planning Zone Maps (NOTE 2) | 3 |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/005 | 1 |
| SH/0/B/2000/013 | 1 |
| SH/0/B/2005/003 | 1 |

**NOTE:**
1. Respiratory equipment is stored in the Emergency Kit Room and P/100 canisters are stored in kits.
2. Items for Recovery Kits are used for Plant Allen and York OPS Center.

**Enclosure 5.5**



**Emergency Sample Van Survey Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT | ITEM | MINIMUM AMOUNT |
|---|---|---|---|
| Rain Suits (sets) | 2 | NuCon Smears | 10 |
| Cotton Coveralls / OREX | 4 | Instrument/Smear Survey Sheets | 10 |
| Disposable Sacksuits | 4 | Map of Ten Mile Zone Sectors | 1 |
| Hoods | 4 | Legal Pad | 1 |
| Gloves: Cotton (pair) | 8 | Pen | 2 |
| Rubber (pair) | 8 | Permanent Marker | 1 |
| Shoe Covers: Disposable (pair) | 4 | Dosecards | 10 |
| Rubber (pair) | 4 | Hand Spade | 1 |
| Sandwich Bags (box) | 1 | Grease Pencil and Refills | 1 |
| Poly Bags (various sizes) | 6 | Scissors | 1 |
| Masking Tape (roll) | 1 | Field Monitoring Data Sheet | 4 |
| Tweezers | 1 | KI Tablet Distribution Data Sheet | 1 |
| Limnological Sampler | 1 | Radio Operator Manual | 1 |
| Cubitainers | 4 | CPD1 Key | 1 |
| 1 Liter Wide Mouth Bottles | 4 | Road Block Passes | 4 |
| Stopwatch | 1 | Reflective Safety Vests | 2 |
| Silver Zeolite Filter Cartridges | 10 | Funnel | 1 |
| Particulate Filters | 10 | Tygon Tubing | ~ 4 ft |
| Filter Cartridges Labels & Bags | 20 | Fuses (Misc. Sizes) | box |
| Smears (box) | 1 | Extension Cord | 1 |
| Radeco H809V Air Sampler | 1 | Shears | 1 |
| | | RAS AVS-28A Air Sampler | 1 |

**Enclosure 5.5**



**Emergency Sample Van Survey Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT | ITEM | MINIMUM AMOUNT |
|---|---|---|---|
| Ludlum Model 3 Count Rate | 1 | Battery Operated Lantern (with 6 volt battery) | 1 |
| Eberline RO-20 | 1 | Batteries (C size) | 12 |
| Eberline ESP-2 with/NaI detector | 1 | Batteries (D size) | 6 |
| Ba-133 exempt source | 1 | Flashlight | 1 |
| Medication Envelopes (or small sample bottles) | 2 | Calculator | 1 |
| KI Tablets (packs) | 2 | Sample Van Keys | 1 |
| Electronic dosimeters | 4 | Portable radio and/or cellular telephone (NOTE 2) | 1 |
| TLDs | 6 | HP/0/B/1000/006 | 1 |
| Full Face Respirator with P/100 Canister (or equivalent) (NOTE 1) | 4 | HP/0/B/1003/072 | 1 |
| | | HP/0/B/1009/004 | 1 |
| | | SH/0/B/2005/003 | 1 |

**NOTE:**
1. Respiratory equipment is stored in Emergency Kit Room and P/100 canisters are stored in vans.
2. Portable radios and cellular telephones with antennas are stored in Emergency Kit Room.

**Enclosure 5.6**



**Emergency Survey Teams Vehicle Survey Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Ludlum Model 3 Count Rate | 1 |
| Eberline RO-20 | 1 |
| Field Monitoring Data Sheet | 4 |
| Flashlight | 1 |
| Electronic dosimeters | 2 |
| TLDs | 6 |
| Dosecards | 10 |
| Full Face Respirator with P/100 Canister (or equivalent ) (NOTE 1) | 2 |
| Cotton Coveralls / OREX | 2 |
| Disposable Sacksuits | 2 |
| Hoods | 2 |
| Gloves: Cotton (pair) | 4 |
| Rubber (pair) | 4 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Shoe Covers: Disposable (pair) | 2 |
| Rubber (pair) | 2 |
| KI Tablets (packs) | 2 |
| KI Tablet Distribution Data Sheet | 1 |
| Medication Envelopes (or small sample bottles) | 2 |
| Batteries (D size) | 6 |
| Batteries (C size) | 6 |
| Map of Ten Mile Zone Sectors | 1 |
| Legal Pad | 1 |
| Pens | 2 |
| Portable Radio and/or cellular telephone (NOTE 2) | 1 |
| Radio Operators Manual | 1 |
| Road Block Passes | 2 |
| Tape (roll) | 1 |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/004 | 1 |
| HP/0/B/1009/019 | 1 |
| SH/0/B/2005/003 | 1 |

**NOTE:**
1. Respiratory equipment is stored in Emergency Kit Room and P/100 canisters are stored in kits.
2. Portable radios and cellular telephones with antennas are stored in Emergency Kit Room.

**Enclosure 5.7**



**Personnel Survey Kit List of Contents (Security PAP Area)**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Ludlum Model 3 Count Rate | 2 |
| Radio Operator Manual | 1 |
| Electronic dosimeters | 2 |
| Dosecards | 10 |
| TLDs | 2 |
| KI Tablets (packs) | 2 |
| KI Tablet Distribution Data Sheet | 1 |
| Medication Envelopes (or small sample bottles) | 2 |
| Rain Suits | 2 |
| Cotton Coveralls / OREX | 2 |
| Hoods | 2 |
| Gloves: Cotton (pair) | 2 |
| Rubber (pair) | 2 |
| Shoe Covers: Disposable (pair) | 2 |
| Rubber (pair) | 2 |
| Boundary Ribbon or Rope (50 yd. Roll) | 1 |
| Caution Signs with Inserts | 4 |
| Masking Tape (roll) | 1 |
| Radioactive Material Tags | 5 |
| Roll of Radioactive Material Tape | 1 |
| Step Off Pads | 5 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Batteries (D size) | 6 |
| Full Face Respirator with P/100 or equivalent (see NOTE) | 2 |
| Poly Bags (various sizes) | 6 |
| Smears (box) | 1 |
| NuCon Smears | 10 |
| Instrument/Smear Survey Sheets | 10 |
| Pens | 2 |
| Grease Pencil and Refills | 1 |
| Legal Pad | 1 |
| Scissors | 1 |
| Decon Supplies | 1 |
| • Shop Cloths | |
| • Mild, Liquid Soap | |
| • Scrub Brush | |
| • Cotton Swabs | |
| • Fingernail Clippers | |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/005 | 1 |
| SH/0/B/2000/013 | 1 |
| SH/0/B/2001/003 | 1 |
| SH/0/B/2005/003 | 1 |

**NOTE:** Respiratory equipment is stored in Emergency Kit Room and P/100 canisters are stored in kits.

**Enclosure 5.8**



**Personnel Survey Kit List of Contents (Evacuation Facility)**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Ludlum Model 3 Count Rate | 2 |
| Electronic dosimeters | 4 |
| Dosecards | 10 |
| TLDs | 4 |
| KI Tablets (packs) | 2 |
| KI Tablet Distribution Data Sheet | 1 |
| Medication Envelopes (or small sample bottles) | 2 |
| Disposable Sacksuits | 10 |
| Gloves: Cotton (pair) | 4 |
| Gloves: Rubber (pair) | 4 |
| Shoe Covers: Disposable (pair) | 4 |
| Shoe Covers: Rubber (pair) | 4 |
| Boundary Ribbon or Rope (50 yd. roll) | 1 |
| Caution Signs with Inserts | 4 |
| Step Off Pads | 5 |
| Masking Tape (roll) | 1 |
| Poly Bags (various sizes) | 6 |
| Smears (box) | 1 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Radioactive Material Tags | 5 |
| Roll of Radioactive Material Tape | 1 |
| Flashlight | 1 |
| Batteries (D size) | 6 |
| Pens | 2 |
| Grease Pencil and Refills | 1 |
| Legal Pad | 1 |
| Decon Supplies | 1 |
| • Shop Cloths | |
| • Mild, Liquid Soap | |
| • Scrub Brush | |
| • Cotton Swabs | |
| • Fingernail Clippers | |
| Scissors | 1 |
| Instrument/Smear Survey Sheets | 10 |
| Evacuation Personnel Dose Record Forms | 50 |
| Catawba Nuclear Station Telephone Directory | 1 |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/005 | 1 |
| HP/0/B/1009/008 | 1 |
| SH/0/B/2000/013 | 1 |
| SH/0/B/2001/003 | 1 |
| SH/0/B/2005/003 | 1 |

**Enclosure 5.9**



**Emergency Medical Kit List of Contents (First Aid Room)**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Ludlum Model 3 Count Rate | 1 |
| Batteries (D size) | 6 |
| Poly Bags (various sizes) | 6 |
| Smears (box) | 1 |
| NuCon Smears | 10 |
| Rain Suits | 2 |
| Disposable Sacksuits | 2 |
| Hoods | 2 |
| Gloves: Cotton (pair) | 2 |
| Rubber (pair) | 2 |
| Shoe Covers: Disposable (pair) | 2 |
| Rubber (pair) | 2 |
| Tape, Radioactive Material | 1 |
| Tape, Masking 2" (roll) | 1 |
| Tape, Duct 2" (roll) | 1 |
| Instrument/Smear Survey Sheets | 10 |
| Pens | 2 |
| Legal Pad | 1 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Electronic dosimeters | 5 |
| Flashlight | 1 |
| Caution Signs with Inserts | 3 |
| Radioactive Material Tags | 5 |
| Scissors | 3 |
| TLDs | 3 |
| Dose Cards | 10 |
| Step Off Pads | 2 |
| Decon Supplies | 1 |
| • Shop Cloths | |
| • Mild, Liquid Soap | |
| • Scrub Brush | |
| • Cotton Swabs | |
| • Fingernail Clippers | |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/008 | 1 |
| SH/0/B/2000/013 | 1 |
| SH/0/B/2001/003 | 1 |

**Enclosure 5.10**



**Emergency Medical Kit List of Contents Piedmont Medical Center (PMC)**

# Continuous Use

| ITEM | MINIMUM AMOUNT | ITEM | MINIMUM AMOUNT |
|---|---|---|---|
| | | Personnel Decontamination Forms (SH/0/B/2001/003) | 5 |
| Eberline RO-20 | 1 | Batteries (C size) | 6 |
| Ludlum Model 3 Count Rate | 2 | Batteries (D size) | 6 |
| | | Grease Pencil and refills | 1 |
| Poly Bags (various sizes) | 12 | Gloves: surgeons, latex or vinyl | 20 |
| Smears (box) | 1 | | |
| NuCon Smears | 10 | HP/0/B/1000/006 | 1 |
| Tape, Radioactive Material | 1 | HP/0/B/1009/008 | 1 |
| Tape, Masking 2" (roll) | 2 | SH/0/B/2000/013 | 1 |
| Tape, Duct 2" (roll) | 2 | SH/0/B/2001/003 | 1 |
| Instrument/Smear Survey Sheets | 10 | (Items listed below are located in outside storage container) | |
| TLDs | 10 | Stanchions | 4 |
| Electronic dosimeters | 10 | Trash Receptacle | 2 |
| Dosecards | 20 | Step Off Pads | 5 |
| Radioactive Material Tags | 20 | Caution Signs with Inserts | 5 |
| Disposable Sacksuits | 5 | Roll of Rad Rope | 1 |
| Disposable Shoe Covers (pairs) | 10 | Floor Covering in trunk | 1 |
| Cubitainers | 4 | Scissors | 2 |
| Fingernail Clippers | 1 | | |

**Enclosure 5.11**



**Operations Support Center Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT |
|---|---|
| Eberline RO-20 | 1 |
| Ludlum Model 3 Count Rate | 1 |
| Radeco H809V Air Sampler | 3 |
| Rain Suits | 5 |
| Cotton Coveralls / OREX | 10 |
| Hoods | 10 |
| Gloves: Cotton (pair) | 20 |
| Rubber (pair) | 20 |
| Shoe Covers: Disposable (pair) | 20 |
| Rubber (pair) | 20 |
| Gym Shorts Misc. Sizes | 10 |
| Modesty Tops Misc. Sizes | 10 |
| Flashlights | 10 |
| Large Lantern (with 6 volt battery) | 4 |
| Batteries (D size) | 24 |
| Batteries (C size) | 6 |
| CNS Site Map | 1 |
| Masking Tape (roll) | 2 |
| Dosecards | 100 |
| Medication Envelopes (or small sample bottles) | 10 |
| KI Tablets (packs) | 20 |
| Manual dosimeter reader/computer | 1 |

| ITEM | MINIMUM AMOUNT |
|---|---|
| Full Face Respirators with P/100 Canister (or equivalent) | 10 |
| KI Tablet Distribution Data Sheets | 10 |
| Particulate Filters & Filter Cartridge Labels | 30 |
| Silver Zeolite Filter Cartridges | 30 |
| Poly Bags (various sizes) | 12 |
| Decon Supplies | 1 |
| • Shop Cloths | |
| • Mild, Liquid Soap | |
| • Scrub Brush | |
| • Cotton Swabs | |
| • Fingernail Clippers | |
| Instrument/Smear Survey Sheets | 10 |
| Pens (box) | 1 |
| Grease Pencil and Refills | 1 |
| Extension Cords | 3 |
| Stopwatch | 2 |
| Electric Shaver | 1 |
| Beard Trimmer | 1 |
| Smears (box) | 1 |
| Step Off Pads | 5 |
| OSC Personnel Dose Record Forms | 125 |
| HP/0/B/1000/006 | 1 |
| HP/0/B/1009/019 | 1 |
| SH/0/B/2000/013 | 1 |
| SH/0/B/2001/003 | 1 |
| SH/0/B/2005/003 | 1 |

**Enclosure 5.12**



**Technical Support Center Kit List of Contents**

# Continuous Use

| ITEM | MINIMUM AMOUNT | ITEM | MINIMUM AMOUNT |
|---|---|---|---|
| | | Pen | 2 |
| Eberline RO-20 | 1 | Legal Pad | 1 |
| Ludlum Model 3 Count Rate | 1 | Grease Pencil and Refills | 1 |
| | | Flashlights | 6 |
| Radeco H809V Air Sampler | 1 | Batteries (D size) | 12 |
| | | Batteries (C size) | 6 |
| Extension Cord | 1 | Small Sample Bottles or Medication Envelopes | 10 |
| Electronic dosimeters | 50 | Decon Supplies | 1 |
| Dosecards | 150 | • Shop Cloths | |
| Silver Zeolite Filter Cartridges | 10 | • Mild, Liquid Soap | |
| Particulate Filters | 10 | • Scrub Brush | |
| Filter Cartridge Labels | 10 | • Cotton Swabs | |
| KI Tablets (packs) | 25 | • Fingernail Clippers | |
| KI Tablet Distribution Data Sheet | 10 | Vinyl or latex type gloves | 10 |
| Boundary Ribbon or Rope (50 yd. roll) | 1 | Disposable Shoe Covers | 10 |
| Caution Signs with Inserts | 3 | Disposable Sacksuits | 5 |
| Roll of Rad Tape | 2 | Instrument/Smear Survey Sheets | 10 |
| Smears (box) | 1 | HP/0/B/1000/006 | 1 |
| Poly Bags (various sizes) | 6 | HP/0/B/1009/019 | 1 |
| Masking Tape (roll) | 1 | SH/0/B/2000/013 | 1 |
| Step Off Pads | 5 | SH/0/B/2001/003 | 1 |
| | | SH/0/B/2005/003 | 1 |

**Enclosure 5.13**



**Miscellaneous Kit List of Contents**

# Continuous Use

**THIS KIT IS ASSEMBLED ON AS NEEDED BASIS. KIT ITEMS ARE LOCATED IN EMERGENCY EQUIPMENT STORAGE ROOM (ADMIN. BUILDING Room 148)**

| ITEM | MINIMUM AMOUNT | ITEM | MINIMUM AMOUNT |
|---|---|---|---|
| Ludlum Model 3 Count Rate | 1 | 50 yd. Roll of Barricade Tape (Magenta & Yellow) | 4 |
| Eberline RO-20 | 1 | Step Off Pads | 5 |
| Radeco H809V Air Sampler | 1 | Poly Bags (various sizes) | 6 |
| Full Face Respirators with P/100 Canister (or equivalent) (NOTE 1) | 2 | Hand Gardening Spade | 1 |
| Rain Suit | 2 | Wide Mouth Sample Bottles | 4 |
| Cotton Coveralls / OREX | 5 | Smears (box) | 1 |
| Disposable Sacksuits | 5 | Kimwipes (box) | 2 |
| Hoods | 5 | NuCon Smears | 10 |
| Gloves: Cotton (pair) | 5 | Copy of NAC-1 Drawings (prints) | 1 |
| Surgeons, latex or vinyl | 10 | Copy of Loading and Unloading Instructions | 1 |
| Rubber (pair) | 5 | Duct Tape (roll) | 2 |
| Shoe Covers: Disposable (pair) | 5 | Tape, Masking 1" | 1 |
| Rubber (pair) | 5 | Tape, Masking 2" | 1 |
| Hard Hats | 2 | Contact Pyrometer with Probe | 2 |
| Silver Zeolite Cartridges | 10 | Safety Glasses | 5 |
| Particulate Filters | 10 | Binoculars | 1 |
| Bags and Labels for filter/cartridges | 10 | Tool Kit | 1 |
| KI Tablets (packs) | 30 | Batteries (D size) | 6 |
| Plastic Sample Bottles or Medication Envelopes | 10 | Batteries (C size) | 6 |
| KI Tablet Distribution Data Sheet | 1 | Flashlight | 1 |
| TLDs | 5 | Steno Pad | 1 |
| Electronic dosimeters | 5 | Mechanical Lead Pencil and refills | 2 |
| Dose Cards | 10 | Grease Pencil | 1 |
| Weather-Proof Caution Signs with Inserts | 4 | All Purpose Marker | 1 |
| Radioactive Waste Signs (4" x 6") | 10 | Scotch Tape Roll and Dispenser | 1 |
| Caution: Radiation/Radioactive Material Tags | 10 | Quarters | 4 |
| | | Instrument/Smear Survey Sheets | 10 |
| | | HP/0/B/1000/006 | 1 |
| | | SH/0/B/2005/003 | 1 |

**NOTE:** Respiratory equipment is stored in Emergency Kit Room and P/100 canisters are stored in kits.

**Enclosure 5.14**

HP/0/B/1000/006
Page 1 of 1

**Emergency Kit Inventory Record**

# Information Use

**Type and Location of Emergency Kit:** _____

| WAS KIT TAMPER SEAL INTACT? **YES / NO** | COMPLETE INVENTORY OF KIT CONTENTS? **YES / NO** | MINIMUM INVENTORY? (Drill / Quarterly Inventory) **YES / NO** | DEVIATION ENCLOSURE 5.16 REQUIRED? **YES / NO** | INVENTORY COMMENTS (e.g., Kit inventory following drill use or quarterly inventory) | KIT INVENTORY DATE | SIGNATURE FOR INVENTORY Initial, Date and Time is required for CONTROL COPY COMPARISON |
|---|---|---|---|---|---|---|
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |
| | | | | | | Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. Initial ____ Date ____ Time ____ |

**Enclosure 5.15**



**Recommended Shelf-Life for Protective Clothing**

# Information Use

- **IF** the Date recorded on protective clothing package exceeds the allowable shelf-life (below), remove and replace appropriate protective clothing in Emergency Kit.

| | |
|---|---|
| Rubber Shoe Covers | 2 yrs |
| Rubber Gloves | 2 yrs |
| Cotton PCs | 5 yrs |
| OREX | ** No Shelf Life |
| Cotton Liners | 5 yrs |
| Sacksuits | 5 yrs |
| Disposable Shoe Covers | 2 yrs |
| Vinyl / latex / surgeons gloves | 5 yrs |

** No shelf-life according to supplier, FRHAM Safety Products

**Enclosure 5.16**



**Emergency Equipment Deviation Form**

# Information Use

**EMERGENCY KIT** _____

**Description of kit deviation:**

_____
_____
_____
_____
_____
_____
_____
_____
_____

**Action taken to remedy deviation:**

_____
_____
_____
_____
_____
_____
_____
_____
_____

**PIP# C-**_____-_____

**Individual identifying deviation:** _____ Date:_____ Time: ____:_____
Signature

File Completed Form in Emergency Equipment Inventory Logbook

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.
Initial _____ Date _____ Time _____

**Enclosure 5.17**



**Quarterly Field Team Radio / Cellular Phone Check Record**

# Information Use

| RADIO / PHONE IDENTIFIER | COMMENTS | PERFORMED AT | | DATE OF RADIO or PHONE CHECK |
|---|---|---|---|---|
| | | 5-10 MILE | ONSITE | |
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Radio / Phone Check Performed By: _____ Date _____

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.
Initial _____ Date _____ Time _____

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 2 to RAI 13.03-061**

**Duke Procedure SR/0/B/4600/086, "Standard Procedure for Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory"**

| Duke Energy<br>Standard Procedure for CNS, MNS & ONS<br>**Standard Procedure for Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory**<br><br>**Reference Use** | Procedure No.<br>SR/0/B/4600/086<br>Revision No.<br>006<br>Electronic Reference No.<br>MP0070QC |
|---|---|
| **PERFORMANCE** | |
| * * * * * * * * * * UNCONTROLLED FOR PRINT * * * * * * * * * *<br>**(ISSUED) - PDF Format** | |

# Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory

## 1. Purpose

This procedure provides a quarterly inventory and verification of Emergency Operations Facility (EOF) equipment operation. This will ensure that equipment is operational and that sufficient supplies exist to effectively manage an emergency situation in the Emergency Operations Facility. This procedure also ensures EPIP's and SAMG's in the EOF procedure cabinets are current. This procedure will be used to satisfy requirements for Catawba, McGuire, and Oconee.

## 2. References

2.1 McGuire Nuclear Site Emergency Plan

2.2 Catawba Nuclear Site Emergency Plan

2.3 Oconee Nuclear Site Emergency Plan

2.4 NUREG-0654, Rev. 1

2.5 10 CFR 50, Appendix E, Section IV.E.9

2.6 Duke Power Company, Radio Operator Manual

## 3. Time Required

Eight (8) hours

## 4. Prerequisite Tests

None

## 5. Test Equipment

None

## 6. Precautions and Limitations

None

## 7. Required Site Status

N/A

## 8. Prerequisite System Conditions

None

## 9. Test Method

N/A

## 10. Data Required

None

## 11. Acceptance Criteria

Completion of checks and initiation of corrective actions as necessary.

## 12. Procedure

**NOTE:**

1. Use the current EPIP procedures index from McGuire EP, Catawba EP, and Oconee EP to verify that the EPIP procedures in the EOF are current.
2. Use the current SAMG Guidelines index from McGuire and from Catawba to verify that the SAMG Guidelines are current. {PIP M-03-1404}
3. Any problems with telephones:
   Contact the Enterprise Help Desk at 382-7762, Option 9.
4. G.O. Phone Verification: #*113 (Dial this number to identify individual phone number).

12.1 On a quarterly basis:

12.1.1 Verify the correct number of current Control Copy procedures are in the Catawba/McGuire/Oconee/Shared Procedures cabinets. Complete Enclosures 13.1, 13.2, and 13.3.

_____ 12.1.2 Verify equipment and supplies in the EOF. Complete Enclosures 13.4 through 13.13.

_____ 12.1.3 Test (1) telephone in each area of the EOF and the satellite phones to assure operability by initiating a call and receiving a return call. Complete Enclosures 13.4 through 13.13.

_____ 12.1.4 Conduct a telephone test to the Catawba and McGuire TSC's using the ringdown telephone system: (√) _____ Catawba TSC _____ McGuire TSC.

_____ 12.1.5 Conduct a telephone test of the Decision Line Systems.{PIP M-03-2231}.

| NETWORK | # | √ |
|---|---|---|
| SC EOC | 58 | |
| NC EOC | 35 | |
| NC WESTERN BRANCH OFFICE | 37 | |
| GASTON CO. EOC | 52 | |
| MECK. CO. EOC | 36 | |
| YORK CO. EOC | 55 | |
| LINCOLN COUNTY | 33 | |
| IREDELL COUNTY | 34 | |
| CATAWBA COUNTY | 32 | |
| UNION COUNTY (NC) | 56 | |
| CLEVELAND CO. (NC) | 57 | |
| CABARRUS CO. (NC) | 38 | |
| CHEROKEE CO. (SC) | 61 | |
| CHESTER CO. (SC) | 62 | |
| LANCASTER CO. (SC) | 64 | |
| UNION CO. (SC) | 65 | |
| NATIONAL WEATHER SERVICE | 15 | |
| SC EOC (ONS) | 41 | |
| PICKENS COUNTY EOC | 49 | |
| OCONEE COUNTY EOC | 46 | |

**NOTE:** The Selector Switch must be set to correspond to the site with which the user is testing.

_____ 12.1.6 Verify the Low Band (County) Radio in the Offsite Agency Communicators' Room will transmit and receive. Observe FCC Rules.

_____ 12.1.7 Verify the NC Emergency Response Radio will transmit and receive. Observe FCC Rules.

_____ 12.1.8 Verify the SC Emergency Response Radio will transmit and receive. Observe FCC Rules.

**NOTE:** Contact Site EP for the current revision number.

_____ 12.1.9 Verify Emergency Telephone Directories are current (CNS - 4 copies, MNS - 2 copies, ONS - 6 copies in procedure drawer, EOF - 6 copies).

CNS Rev. # _____ MNS Rev. # _____ ONS Rev. # _____ EOF Rev. # _____

_____ 12.1.10 Verify the phone numbers in the "Consolidated Emergency Phone Directory for the Emergency Operations Facility (EOF)" against the phone numbers in the three site Emergency Telephone Directories.

_____ 12.1.11 Verify all clocks are synchronized with the Satellite clock.

_____ 12.1.12 Notify Energy Center Security Console (382-1234) to change out battery in their ERO Pager. {PIP M-04-00123}

_____ 12.1.13 Record any deficiencies and corrective actions taken on Enclosure 13.14.

_____ 12.1.14 During the second quarter of the year, test EOF GETS cards.

12.2 Periodic test performed: _____/_____
(name) (date)

## 13. Enclosures

13.1 EPIP, Miscellaneous Documents, and SAMG Guidelines Verification McGuire

13.2 EPIP, Miscellaneous Documents, and SAMG Guidelines Verification Catawba

13.3 EPIP and Miscellaneous Document Verification Oconee

13.4 Emergency Operations Facility Equipment and Supply Inventory - EOF Services and Break Room

13.5 Emergency Operations Facility Equipment and Supply Inventory - Copier Room

13.6 Emergency Operations Facility Equipment and Supply Inventory - Directors Area

13.7 Emergency Operations Facility Equipment and Supply Inventory - Off-Site Agency Communications Room

13.8 Emergency Operations Facility Equipment and Supply Inventory - Accident Assessment

13.9 Emergency Operations Facility Equipment and Supply Inventory - Drill Coordinators Room

13.10 Emergency Operations Facility Equipment and Supply Inventory - Radiological Assessment Room and Offsite Monitoring Room

13.11 Emergency Operations Facility Equipment and Supply Inventory - Access Control Director

13.12 Emergency Operations Facility Equipment and Supply Inventory - NRC Area

13.13 Emergency Operations Facility Equipment and Supply Inventory - Data Coordinators and Public Affairs Room

13.14 Deficiencies and Corrective Actions

**Enclosure 13.1**



**EPIP, Miscellaneous Documents, and SAMG Guidelines Verification**
**McGuire**

**NOTE:** A (√) in the appropriate column shall indicate the correct amount of copies and that they are current.

| **Documents** | **Types: EPIP-(E), Misc-(M), SAMG-(S)** | **Doc Type** | **Rev #** | **Control Copies*** | **(√)** |
|---|---|---|---|---|---|
| RP/0/A/5700/000 | Classification of Emergency | E | | 7 | |
| RP/0/A/5700/001 | Notification of Unusual Event | E | | 5 | |
| RP/0/A/5700/002 | Alert | E | | 5 | |
| RP/0/A/5700/003 | Site Area Emergency | E | | 5 | |
| RP/0/A/5700/004 | General Emergency | E | | 5 | |
| RP/0/A/5700/012 | Activation of the Technical Support Center | E | | 5 | |
| RP/0/A/5700/014 | Emergency Telephone Directory | M | | 5 | |
| RP/0/A/5700/019 | Core Damage Assessment | E | | 2 | |
| RP/0/A/5700/020 | Activation of the Operations Support Center | E | | 5 | |
| RP/0/A/5700/024 | Recovery and Reentry Procedure | E | | 2 | |
| HP/0/B/1009/010 | Releases of Radioactive Effluents Exceeding Selected Licensee Commitments | E | | 2 | |
| HP/0/B/1009/021 | Procedure for Estimating Food Chain Dose Under Post Accident Conditions | E | | 2 | |
| HP/0/B/1009/023 | Environmental Monitoring for Emergency Conditions McGuire Nuclear Station | E | | 2 | |
| | | | | | |
| | Emergency Planning Group Manual Section 1.1 | E | | 2 | |

* Control copies exclude one Control Copy kept in binder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.1**



**EPIP, Miscellaneous Documents, and SAMG Guidelines Verification**
**McGuire**

**NOTE:** A (√) in the appropriate column shall indicate the correct amount of copies and that they are current.

| **Documents** | **Types: EPIP-(E), Misc-(M), SAMG-(S)** | **Doc Type** | **Rev #** | **Control Copies*** | **(√)** |
|---|---|---|---|---|---|
| EG/1/A/MSAM/SACRG1 | Severe Accident Control Room Guideline Initial Response | S | | 2 | |
| EG/1/A/MSAM/SACRG2 | Severe Accident Control Room Guideline for Transients after TSC is Functional | S | | 2 | |
| EG/2/A/MSAM/SACRG1 | Severe Accident Control Room Guideline Initial Response | S | | 2 | |
| EG/2/A/MSAM/SACRG2 | Severe Accident Control Room Guideline for Transients after TSC is Functional | S | | 2 | |
| EG/0/A/MSAM/DFC | TSC Diagnostic Flow Chart | S | | 5 | |
| EG/0/A/MSAM/SAG-1 | Inject into the Steam Generators | S | | 5 | |
| EG/0/A/MSAM/SAG-2 | Depressurize the NC System | S | | 5 | |
| EG/0/A/MSAM/SAG-3 | Inject into the NC System | S | | 5 | |
| EG/0/A/MSAM/SAG-4 | Inject into Containment | S | | 5 | |
| EG/0/A/MSAM/SAG-5 | Reduce Fission Product Releases | S | | 5 | |
| EG/0/A/MSAM/SAG-6 | Control Containment Conditions | S | | 5 | |
| EG/0/A/MSAM/SAG-7 | Reduce Containment Hydrogen | S | | 5 | |
| EG/0/A/MSAM/SCST | Severe Challenge Status Tree | S | | 5 | |
| EG/0/A/MSAM/SCG-1 | Mitigate Fission Product Releases | S | | 5 | |
| EG/0/A/MSAM/SCG-2 | Depressurize Containment | S | | 5 | |
| EG/0/A/MSAM/SCG-3 | Control Hydrogen Flammability | S | | 5 | |
| EG/0/A/MSAM/SCG-4 | Control Containment Vacuum | S | | 5 | |
| EG/0/A/MSAM/SAEG-1 | TSC Long Term Monitoring | S | | 5 | |
| EG/0/A/MSAM/SAEG-2 | SAMG Termination | S | | 5 | |
| SAAG File No. 428 - CA-1 through CA-7 | | S | | 5 | |

* Control copies exclude one Control Copy kept in binder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.2**



**EPIP, Miscellaneous Documents, and SAMG Guidelines Verification**
**Catawba**

**NOTE:** Ensure that procedures are current with Implementing Procedures Manuals. A "√ " in the appropriate column shall indicate the correct amount of copies and that they are current.

| **Documents** | **Types: EPIP-(E), Misc-(M), SAMG-(S)** | **Doc Type** | **Rev #** | **Control Copies*** | **(√)** |
|---|---|---|---|---|---|
| RP/0/A/5000/001 | Classification of Emergency | E | | 7 | |
| RP/0/A/5000/002 | Notification of Unusual Event | E | | 5 | |
| RP/0/A/5000/003 | Alert | E | | 5 | |
| RP/0/A/5000/004 | Site Area Emergency | E | | 5 | |
| RP/0/A/5000/005 | General Emergency | E | | 5 | |
| RP/0/A/5000/015 | Core Damage Assessment | E | | 2 | |
| RP/0/B/5000/018 | Emergency Worker Dose Extension | E | | 2 | |
| RP/0/A/5000/025 | Recovery and Reentry Procedure | E | | 2 | |
| HP/0/B/1009/001 | Radiation Protection Recovery Plan | E | | 2 | |
| HP/0/B/1009/004 | Environmental Monitoring for Emergency Conditions Within the Ten-Mile Radius of Catawba Nuclear Station | E | | 2 | |
| HP/0/B/1009/009 | Guidelines for Accident and Emergency Response | E | | 3 | |
| HP/0/B/1009/014 | Radiation Protection Actions Following an Uncontrolled Release of Radioactive Material | E | | 2 | |
| HP/0/B/1009/019 | Emergency Radio System Operations, Maintenance and Communications | E | | 2 | |
| HP/0/B/1009/024 | Implementing Procedure for Estimating Food Chain Doses Under Post-Accident Conditions | E | | 2 | |
| | | | | | |
| RP/0/A/5000/020 | Technical Support Center Activation (Notebook Control Copy Only) | E | | | |
| | Pages 3 and 4 of Encl. 4.20 | M | | 50 | |
| | Pages 18 and 19 of Encl. 4.20 | M | | 5 | |
| | Pages 5 through 19 of Encl. 4.20 | M | | 2 | |

* Control copies exclude one Control Copy kept in folder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.2**



**EPIP, Miscellaneous Documents, and SAMG Guidelines Verification**
**Catawba**

| **Documents** | **Types: EPIP-(E), Misc-(M), SAMG-(S)** | **Doc Type** | **Rev #** | **Control Copies*** | **(√)** |
|---|---|---|---|---|---|
| EG/1/A/CSAM/SACRG1 | Severe Accident Control Room Guideline Initial Response | S | | 2 | |
| EG/1/A/CSAM/SACRG2 | Severe Accident Control Room Guideline for Transients after TSC is Functional | S | | 2 | |
| EG/2/A/CSAM/SACRG1 | Severe Accident Control Room Guideline Initial Response | S | | 2 | |
| EG/2/A/CSAM/SACRG2 | Severe Accident Control Room Guideline for Transients after TSC is Functional | S | | 2 | |
| EG/0/A/CSAM/DFC | TSC Diagnostic Flow Chart | S | | 5 | |
| EG/0/A/CSAM/SAG-1 | Inject into the Steam Generators | S | | 5 | |
| EG/0/A/CSAM/SAG-2 | Depressurize the NC System | S | | 5 | |
| EG/0/A/CSAM/SAG-3 | Inject into the NC System | S | | 5 | |
| EG/0/A/CSAM/SAG-4 | Inject into Containment | S | | 5 | |
| EG/0/A/CSAM/SAG-5 | Reduce Fission Product Releases | S | | 5 | |
| EG/0/A/CSAM/SAG-6 | Control Containment Conditions | S | | 5 | |
| EG/0/A/CSAM/SAG-7 | Reduce Containment Hydrogen | S | | 5 | |
| EG/0/A/CSAM/SCST | Severe Challenge Status Tree | S | | 5 | |
| EG/0/A/CSAM/SCG-1 | Mitigate Fission Product Releases | S | | 5 | |
| EG/0/A/CSAM/SCG-2 | Depressurize Containment | S | | 5 | |
| EG/0/A/CSAM/SCG-3 | Control Hydrogen Flammability | S | | 5 | |
| EG/0/A/CSAM/SCG-4 | Control Containment Vacuum | S | | 5 | |
| EG/0/A/CSAM/SAEG-1 | TSC Long Term Monitoring | S | | 5 | |
| EG/0/A/CSAM/SAEG-2 | SAMG Termination | S | | 5 | |
| SAAG File No: 428 - CA-1 through CA-7 | | S | | 5 | |
| Catawba Nuclear Station Severe Accident Strategies for Loss of Major Plant Functions due to Fire or Explosion | | M | | 1 | |

* Control copies exclude one Control Copy kept in binder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.3**



**EPIP and Miscellaneous Documents Verification**
**Oconee and Shared Procedures**

**NOTE:** A (√) in the appropriate column shall indicate the correct amount of copies and that they are current.

| **Documents** | **Types: EPIP-(E), Misc-(M)** | **Doc Type** | **Rev #** | **Control Copies*** | **(√)** |
|---|---|---|---|---|---|
| HP/0/B/1009/018 | Off-Site Dose Projections | E | | 5 | |
| HP/0/B/1009/020 | Estimating Food Chain Doses Under Post-Accident Conditions | E | | 2 | |
| HP/0/B/1009/021 | Source Term Assessment of a Gaseous Release From Non-Routine Release Points | E | | 2 | |
| RP/0/B/1000/001 | Emergency Classification | E | | 7 | |
| RP/0/B/1000/002 | Control Room Emergency Coordinator Procedure | E | | 2 | |
| RP/0/B/1000/007 | Security Event | E | | 2 | |
| RP/0/B/1000/018 | Core Damage Assessment | E | | 2 | |
| RP/0/B/1000/019 | Technical Support Center Emergency Coordinator Procedures | E | | 2 | |
| RP/0/B/1000/022 | Procedure For Major Site Damage Assessment And Repair | E | | 5 | |
| | | | | | |
| RP Man. Sect. 11.3 | Off-Site Dose Assessment and Data Evaluation | E | | 2 | |
| RP Man. Sect. 11.7 | Environmental Monitoring Program | E | | 2 | |
| Emergency Phone Directory | | M | | 6 | |

* Control copies exclude one Control Copy kept in binder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.3**



**EPIP and Miscellaneous Documents Verification**
**Oconee and Shared Procedures**

| Documents | Types: EPIP-(E), Misc-(M) | Doc Type | Rev # | Control Copies* | (√) |
|---|---|---|---|---|---|
| SH/0/B/2005/001 | Emergency Response Offsite Dose Projections | E | | 5 | |
| SH/0/B/2005/002 | Protocol for Field Monitoring Coordinator During Emergency Conditions | E | | 5 | |
| SH/0/B/2005/003 | Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release {PIP M-04-00123} | E | | 2 | |
| SR/0/B/2000/002 | Standard Procedure for EOF Services | E | | 2 | |
| SR/0/B/2000/003 | Activation of the Emergency Operations Facility | E | | 2 | |
| SR/0/B/2000/004 | Notifications to the States and Counties from the Emergency Operations Facility | E | | 5 | |
| SR/0/B/4600/086 | Standard Procedure for Periodic Verification of EOF Communications Equipment Operations and Equipment/Supply Inventory | M | | 5 | |
| SR/0/B/4600/094 | Standard Procedure for Periodic Test of the EOF Selective Signaling, ENS and ETS | M | | 5 | |

* Control Copies exclude one Control Copy kept in binder to be used for copies only.

_____ (Signature/Date)

**Enclosure 13.4**



**Emergency Operations Facility Equipment and Supply Inventory**
**EOF Services and Break Room**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke phones (3)

Area Equipment Operational: Yes _____ No _____ N/A _____

Discrepancies: _____

## EQUIPMENT AND SUPPLIES

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | EOF Services Reference Guide (In Position notebook) | ( ) | Flashlight |
| ( ) | Area computers (2) | ( ) | Charlotte Telephone Directory |
| | | ( ) | Channel Locks (1) |
| | | ( ) | First Aid Kit (Replenish supplies as needed. Replace outdated items as necessary.) |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____ / _____

**Enclosure 13.5**



**Emergency Operations Facility Equipment and Supply Inventory**
**Copier Room**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √ )

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke phones (1)

Area Equipment Operational: Yes _____ No _____ N/A _____

Discrepancies: _____

## EQUIPMENT AND SUPPLIES {PIP M-03-3294}

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | Stapler (standard & heavy duty) | ( ) | Staples (standard & heavy duty) |
| ( ) | Staple Remover | ( ) | Scissors |
| ( ) | Black Pens | ( ) | Batteries (9V, D, AAA,AA) |
| ( ) | Steno Notebook | ( ) | 8½ x 11 Ruled Pads |
| ( ) | Dry Erase Markers | ( ) | Marker Board Erasers |
| ( ) | Binder Clips | ( ) | 3 1/2" Diskettes |
| ( ) | Copier | ( ) | Highliters |
| ( ) | Tape & tape dispenser | ( ) | Paper Clips |
| ( ) | Copier Paper 8½ x 11 | ( ) | EOF Tool Kit |
| ( ) | Post-It Pads | ( ) | EOF Screwdriver Kit |
| ( ) | Extension Cords | ( ) | Power Strips |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.6**



**Emergency Operations Facility Equipment and Supply Inventory Directors Area**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

**NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers.

| | | | | |
|---|---|---|---|---|
| | | ( ) York County | ( ) NRC Table (3) | ( ) Offsite Agency Comm. |
| ( ) EOF Director | ( ) Assistant EOF Director | ( ) NRC Director of Site Operations | ( ) Rad Assess. Mgr | ( ) Acc. Assess. Mgr |
| ( ) NRC State Liaison | ( ) NC State Liaison<br>( ) SC State Liaison | ( ) State Table Modem Lines | ( ) News Group Table<br>(3) Duke phones<br>(2) Ericsson phones | ( ) Log Recorder |
| ( ) Emergency Plnr | ( ) Ringdown to CNS TSC | ( ) Ringdown to MNS TSC | ( ) SC Decision Line Phone<br>( ) NC Decision Line Phone | ( ) Director's Area Faxes (2)<br>( ) ONS Decision Line (2)<br>( ) CNS/MNS Decision Line |

**Area Equipment Operational:** Yes _____ No _____ N/A _____

Discrepancies: _____

_____

_____

## EQUIPMENT AND SUPPLIES

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | McGuire Emergency Plan | ( ) | Catawba Implementing Procedures (2 vols) |
| ( ) | Catawba Emergency Plan | ( ) | Catawba Emergency Telephone Directory |
| ( ) | SC Operational Radiological Emergency Response Plan (SCOREP) | ( ) | NC Emergency Response Plan for CNS and MNS |
| ( ) | McGuire 10 Mile EPZ Wall Map | ( ) | INPO Emergency Resources Manual |
| ( ) | Catawba 10 Mile EPZ Wall Map | ( ) | McGuire Emergency Telephone Directory |
| ( ) | Oconee 10 Mile EPZ Wall Map | | |
| ( ) | Area Computers (6) | ( ) | Protective Action Zone Maps/Magnets |
| ( ) | Rad Assess. Mgr.'s Ericsson Phone & Headset | ( ) | Classification Name Boards / Message Light & Remote |
| ( ) | Public Address System Operational | ( ) | CNS/MNS SAMG Manuals (2 each) |
| ( ) | 50 Mile EPZ Maps CNS and MNS | ( ) | Projection Equipment (3) |
| ( ) | CNS/MNS EAL Reference Manual (2 copies) | ( ) | EOF Data Display Operational |
| ( ) | McGuire Implementing Procedures (2 vols) | ( ) | Wall Mounted Camera |
| ( ) | DVD player / recorder | ( ) | VCR |

**Enclosure 13.6**



**Emergency Operations Facility Equipment and Supply Inventory Directors Area**

| | | | |
|---|---|---|---|
| ( ) | Oconee Emergency Plan Vol. A | ( ) | Oconee Implementing Procedures Vol. B and C |
| ( ) | Oconee Emergency Phone Directory | ( ) | Oconee Emergency Action Level Description Guidelines (2) |
| ( ) | Oconee Airlifted Resources Manual | ( ) | Oconee Severe Accident Guidelines |
| ( ) | Framatome Technologies Generic Severe Accident Guideline Technical Basis Document | ( ) | McGuire Evaluations by Station Management in the TSC Volumes 1 and 2 |

Other (additional supplies, equipment needs, critique items, etc.): _____

_____

_____

_____

Completed by / Date: _____/_____

**Enclosure 13.7**



**Emergency Operations Facility Equipment and Supply Inventory**
**Off-Site Agency Communications Room**

**TELECOMMUNICATIONS**

**Area Phones Operational:** (Check √)

**NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers.

| | |
|---|---|
| ( ) Off-site Comm.'s FAX Preprogrammed numbers verified | ( ) Duke Phones (2) |

**Area Equipment Operational:** Yes _____ No _____ N/A _____

Discrepancies: _____

**Posted information verified correct:** (Check √) _____

**EQUIPMENT AND SUPPLIES** (Check √)

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | McGuire and Catawba Emergency Telephone Directories | ( ) | Ericsson Freeset Phone & headsets (2) |
| ( ) | CNS/MNS EAL Reference Manual | ( ) | Copy Machine |
| ( ) | FAX Machine | ( ) | SC Emergency Response Radio |
| ( ) | NC Emergency Response Radio | ( ) | Selective Signaling Phone<br>Selective Signaling Headset |
| ( ) | Satellite Phone | ( ) | Satellite Phone Operational |
| ( ) | NC County Emergency Response Radio | ( ) | Battery Charger and 4 Extra Batteries |
| ( ) | Authentication Code List from FAM 3.14 | ( ) | Pre-printed Copy of Each IC for Each of Three Sites (5) |
| ( ) | Communicator Computer | ( ) | Printer |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.8**



**Emergency Operations Facility Equipment and Supply Inventory Accident Assessment**

**TELECOMMUNICATIONS**

**Area Phones Operational:** (Check √ )

**NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers.

( ) Duke phones (6)

**Area Equipment Operational:** Yes _____ No _____ N/A _____

**Data Display:** (Check √ )

( ) EOF Data Display

Discrepancies: _____

**EQUIPMENT AND SUPPLIES** (Check √)

**Equipment and Supplies in place**: (Check √ )

| | | | |
|---|---|---|---|
| ( ) | Data Monitor | ( ) | Area Computers (2) |
| ( ) | TV | ( ) | SAMG Status Board |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.9**



**Emergency Operations Facility Equipment and Supply Inventory**
**Drill Coordinators Room**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke phones (2)

**Area Equipment Operational:** Yes _____ No _____ N/A _____

Discrepancies: _____

## EQUIPMENT AND SUPPLIES

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | Area Computer | ( ) | Ericsson Phone w/headset (1) |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.10**



**Emergency Operations Facility Equipment and Supply Inventory**
**Radiological Assessment Room and Offsite Monitoring Room**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

**Radiological Assessment:** (Check √)

| | | | |
|---|---|---|---|
| ( ) Duke phones (6) | ( ) Rad Assess. FAX | ( ) NRC phones (3) | ( ) NC State phones (2) |
| ( ) FAX Pre-programmed numbers verified | ( ) Area Computers (4) | ( ) Ericsson phone w/headset (1) | ( ) SC State phones (2) |

**Off-Site Monitoring:** (Check √)

| | |
|---|---|
| ( ) Duke phones (2) | ( ) Off-site Monitoring FAX |
| ( ) NC Satellite Phone | ( ) NC phone (1) |
| ( ) NC Satellite Phone Operational | ( ) SC phone (1) |
| ( ) Area Computer | ( ) SC radio |
| ( ) Ericsson phone w/headset (1) | ( ) NRC phones (2) |
| ( ) FMT radio - CNS/MNS Operational | |
| ( ) FMT radio - ONS Operational | |

**Area Equipment Operational:** Yes _____ No _____ N/A _____

**Data Display:** (Check √)

| |
|---|
| ( ) EOF Data Display Operational |

Discrepancies: _____
_____
_____
_____

**Enclosure 13.10**



**Emergency Operations Facility Equipment and Supply Inventory**
**Radiological Assessment Room and Offsite Monitoring Room**

**EQUIPMENT AND SUPPLIES**

**Supplies in place:** (Check √)

| | |
|---|---|
| ( ) Reg. Guide 1.4 - Release Factors | ( ) RADDOSE V Operator's Manual |
| ( ) McGuire Folding Map<br>( ) Catawba Folding Map | ( ) HP-15 Calculator |
| ( ) Radiological Health Handbook | ( ) TI-68 Calculator (qty. 2) |
| | |
| | |

Other (additional supplies, equipment needs, critique items, etc.): _____

_____

_____

_____

Completed by / Date: _____/_____

**Enclosure 13.11**



**Emergency Operations Facility Equipment and Supply Inventory**
**Access Control Director**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke Phone (1)

Area Equipment Operational: Yes_____ No_____ N/A_____

Discrepancies:_____

## EQUIPMENT AND SUPPLIES

**Equipment And Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | Current EOF Access List for Catawba | ( ) | Position Tags |
| ( ) | Current EOF Access List for McGuire | | |
| ( ) | Current EOF Access List for Oconee | | |
| ( ) | Area Computer (1) | | |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.12**



**Emergency Operations Facility Equipment and Supply Inventory**
**NRC Area**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke phones (4)

**Area Equipment Operational:** Yes _____ No _____ N/A _____

**Data Display:** (Check √)

( ) EOF Data Display Operational

Discrepancies: _____

## EQUIPMENT AND SUPPLIES

**Equipment and Supplies in place:** (Check √)

| | |
|---|---|
| ( ) Posted information correct (Phone number list Revision Current) | ( ) Area Computer |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____/_____

**Enclosure 13.13**



**Emergency Operations Facility Equipment and Supply Inventory**
**Data Coordinators and Public Affairs Room**

## TELECOMMUNICATIONS

**Area Phones Operational:** (Check √)

| |
|---|
| **NOTE:** Refer to Emergency Telephone Directory as needed for specific EOF numbers. |

( ) Duke phones (2)

**Area Equipment Operational:** Yes _____ No _____ N/A _____

Discrepancies: _____

## EQUIPMENT AND SUPPLIES

**Equipment and Supplies in place:** (Check √)

| | | | |
|---|---|---|---|
| ( ) | Area Computer | ( ) | Ericsson Phone |
| ( ) | Public Affairs Printer | ( ) | JIC Reference Manual |

Other (additional supplies, equipment needs, critique items, etc.): _____

Completed by / Date: _____ / _____

**Enclosure 13.14**

**Deficiencies and Corrective Actions**



13.12.1 Document any deficiencies from previous enclosures: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

13.12.2 Document any corrective actions taken to resolve items documented in Section 13.12.1.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Signature/Date

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 025**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP)**

**Reference NRC RAI Number(s): 13.03-62**
**NRC RAI:**

**SITE-9:** Plant Systems and Instrumentation

Basis: 10 CFR 50.47(b)(9); NUREG-0654/FEMA-REP-1; Evaluation Criterion I.1; Evaluation Criterion I.2; Evaluation Criterion I.3; Evaluation Criterion I.4; Evaluation Criterion I.5; Evaluation Criterion I.6; Evaluation Criterion I.7; Evaluation Criterion I.8; Evaluation Criterion I.10; Supplement 1 to NUREG-0737, Section 6.1.b. - Control Room; Post-accident sampling capability

SRP ACCEPTANCE CRITERIA: Requirements A, B and E; Acceptance Criteria 1, 3, 4, 5, 12, 25, 26, 27, 28, 29

A. The Lee Emergency Plan does not specifically call out Type A, B, etc. variables or reference Regulatory Guide 1.97. Discuss the Emergency Preparedness (EP)-related instrumentation found in the Control Room that is available for use in emergency classification and dose assessment.

B. Section II.H.8, "Meteorological Instrumentation and Procedures" (page II-38), of the Lee Emergency Plan and Chapter 2, "Site Characteristics", Section 2.3.3, "Onsite Meteorological Measurement Programs" (pages 2.3-26/32), of the Lee FSAR provides information on meteorological monitoring. The Lee Emergency Plan does not describe the operational distribution of meteorological data from the onsite data collection system. Provide a description of the meteorological data available in the Control Room.

C. Section II.H.8, "Meteorological Instrumentation and Procedures" (page II-38), of the Lee Emergency Plan states that meteorological data are also available from Catawba Nuclear Station and the National Weather Service (NWS) in Greer, SC. There is no discussion of the procedure for obtaining data from the NWS, the type of data to request, and interpretation of the data to make them appropriate for the Lee site and dose assessment methodologies. Describe the procedures involved in obtaining and using meteorological data from Catawba Nuclear Station and the National Weather Service.

D. Section II.I.3, "Determination of Source Term and Radiological Conditions" (page II-40), of the Lee Emergency Plan refers to Appendix 2, "Radiological Assessment and Monitoring" (pages A2-1/8), of the Lee Emergency Plan for descriptions of the means for relating various measured parameters, including containment radiation monitor reading, to the source term available for release within plant systems and effluent monitor readings to the magnitude of the release of radioactive materials. Appendix 2 describes the method of estimating source terms in very general terms using a combination of user input and monitoring data and the Raddose-V computer code. Describe the process used to estimate source terms which should include: 1) A list of procedures that cover the estimation of accident source terms (radionuclides and activities) and describe the contents of each procedure; 2) Identify who is

responsible for making source term estimates at various stages of the event; 3) What assumptions are made related to the pathway from the reactor to the environment; 4) Discuss whether or not the assumptions include reduction of the source term to account for filters, sprays, or other safety; 5) Whether the source term estimates will be modified during the course of the event to account for changes in the release pathway; 6) How long it takes to obtain source term estimates; 7) How are source term estimates obtained in the event that the computer-based methods are not available.

E. Section II.I.4, "Relationship Between Effluent Monitor Reading and Exposure and Contamination Levels" (page II-40), of the Lee Emergency Plan introduces the dose assessment capability. Appendix 2, Section 3.0, "Conceptual Design Description: Atmospheric Transport and Diffusion Assessment" (pages A2-4/6), describe the dose assessment programs. Appendix 2, Sections 3.3, "Data Acquisition" (pages A2-4/5), 3.4, "Modeling" (pages A2-5/7), and 3.5 "Data Output" (pages A2-7/8), of the Lee Emergency Plan describe the method of estimating offsite exposures and contamination from monitoring readings and meteorological data using the Raddose-V computer code. It does not list specific procedures or describe backup methods. It is not clear that the method provides estimates of onsite exposures and contamination or that it is appropriate for making those estimates. Discuss the exposure and contamination level levels which should include: 1) A list [of] procedures that cover the estimation [of] onsite exposures and contamination and describe the contents of each procedure; 2) Identify who is responsible for making estimates of onsite exposures and contamination; 3) A List of procedures that cover the estimation [of] offsite exposures and contamination and summarize the contents of each procedure; 4) Identify who is responsible for making estimates of offsite exposures and contamination; 5) Identify how exposure and contamination estimates would be made in the event that the computer method is unavailable; 6) Describe how exposure and contamination estimated would be adjusted in the event that onsite meteorological data are not available.

F. Section II.H.6.a, "Access to Data from Monitoring Systems" (page II-37), Section II.H.8, "Meteorological Instrumentation and Procedures" (pages 38) and Appendix 2, "Radiological Assessment and Monitoring" (pages A2-1/6), of the Lee Emergency Plan briefly discusses meteorological data acquisition and evaluation. Chapter 2, "Site Characteristics", Section 2.3.3, "Onsite Meteorological Measurement Programs" (pages 2.3-26/32), of the Lee Nuclear Station provides a more detailed discussion. However, there is no description of the distribution of meteorological data to the emergency response facilities, the Nuclear Regulatory Commission (NRC) and to the States. In addition, there is no discussion of an on-site backup meteorological data system to provide wind speed and direction when data are not available from the primary system. Finally, there are no details of how the National Weather Services is to be contacted, what data are to be requested, and how the data should be interpreted to get information that is representative of the Lee site. Discuss the acquisition and distribution of meteorological information representative of the Lee site to emergency response facilities, the NRC, and the states. Discuss provisions for obtaining and evaluating meteorological information in the event data from the primary meteorological data system are not available.

G. Section II.I.6, "Determination of Release Rates and Projected Doses When Installed Instruments are Inoperable or Off-Scale" (page II-41), of the Lee Emergency Plan states that

plant implementing procedures establish processes for estimating release rates and doses when instrumentation used for assessments is not available. It mentions two considerations, field monitoring data and surrogate instrumentation and methods for estimating fuel damage. Describe the applicable implementing procedures to include the following information: 1) Methods for determining release rates and doses when instrumentation used for assessments in inoperable or readings are off scale, and summarize the contents of each procedure; 2) Identify who makes the decision to use alternative methods for estimating release rates and doses; 3) Identify who estimates release rates in these cases; 4) What compensatory measures are taken in the assessment; 5) Describe how are release rates estimated from field monitoring data; 6) What assumptions are made in the process; 7) What is the sensitivity of the release rate estimates to the assumptions.

H. Section II.I.10, "Relating Measured Parameters to Dose Rates" (page II-42), of the Lee Emergency Plan states that details of the capability are set forth in Appendix 2, "Radiological Assessment and Monitoring" (pages A2-1/8), and involve use of the dose assessment models and procedures generally described in that appendix. However, no specific procedures are listed or described. Provide a list of procedures used to related measured parameters to dose rates for key isotopes and for comparing integrated dose estimates with Environmental Protection Agency (EPA) protective action guides.

**Duke Energy Response:**

A. Section 7.5 of Tier 2 of the AP1000 DCD discusses the selection of monitored variables based on guidance provided in Regulatory Guide 1.97. This information is not addressed in the Emergency Plan but rather is incorporated by reference in the Lee FSAR. The variables and instrument design criteria selected for the AP1000 are described in subsections 7.5.2 and 7.5.3 of the DCD. Subsection 7.5.4 discusses the equipment that processes the safety-related display information and makes it available to the operator.

With regard to emergency preparedness-related instrumentation, Appendix 1 of the Emergency Plan provides details related to Control Room instrumentation used for emergency classification. This instrumentation is summarized below:

| | |
|---|---|
| Plant Vent Radiation Monitor | VFS-RICA-103 |
| Plant Vent Radiation (Mid Range Gas) | VFS-RIA-104A |
| Plant Vent Radiation (High Range Gas) | VFS-RIA-104B |
| Turbine Island Vent Radiation Monitor | TDS-JE-RE001 |
| Gaseous Radwaste Discharge Radiation | WGS-RICA-017 |
| Liquid Radwaste Discharge Radiation | WLS-RIA-229 |
| Wastewater Discharge Radiation | WWS-JE-RE021 |
| Steam Generator Blowdown Radiation | BDS-RE-010 & BDS-RE-011 |
| Main Steam Line Radiation Monitor | SGS-RIA-026, RIA-027 |
| Service Water Blowdown Radiation | SWS-RIA-008 |
| Containment Air Filtration Exhaust Radiation | VFS-MA-02A, MA-02B |
| Fuel Handling Area Exhaust Radiation Monitor | VAS-RE 001 |
| Containment High Range Radiation Monitor | PXS-JE-RE-160, 161, 162, 163 |
| Spent Fuel Pool Level Low-Low Alarm | SFS-LICA-19A/B/C |

| | |
|---|---|
| Main Control Room Area Monitor | RMS-JE-RE010 |
| Technical Support Center Area Monitor | RMS-JE-RE016 |
| Central Alarm Station Area Monitor | RMS-JE-RE009 |
| Containment Sump Level | WLS-LICR-034, 035, 036 |
| RCS Temperature | RCS-TI-135A, 135B |
| Pressurizer Level | RCS-LT-200 |
| RPV Level (RCS Hot Leg Level) | RCS-LT-160A, 160B |
| Containment Pressure | PCS-PI-012, 013, 014 |
| Containment Hydrogen | VLS-AE-001, 002, 003 |
| Containment Pressure Hi/Hi Alarm | PCS-PI-005, 006, 007 |
| PIP Busses | ECS-ES-1, 2 |
| 1E DC Busses | IDSA-EA-1, EA-2; IDSB-EA-1, EA-2, EA-3; IDSC-EA-1, EA-2, EA-3; IDSD-EA-1, EA-2 |
| Liquid Sample Radiation Monitor | PSS-RICA-050 |

Appendix 2 of the Emergency Plan provides information regarding atmospheric transport and diffusion assessment. Plant Vent and Turbine Island Vent effluent monitors are used to measure the magnitude of monitored releases from the plant during normal and accident conditions. Data from these monitors are used in dose assessment software. Further details regarding these instruments are discussed in Revision 16 of the AP1000 Design Control Document, Section 11.5.3.

B. The Emergency Plan indicates that information necessary for protective action decision making and dose assessment is available in those Duke Emergency Response Facilities where this information is required. As provided in the Lee Emergency Plan, Subsection II.H.8, the following meteorological information is available in the Control Rooms, TSC, and EOF:

- Wind speed (at 10 m and 60 m)
- Wind direction (at 10 m and 60 m)
- Ambient air temperature (at 10 m and 60 m)
- Dewpoint ($^{o}$C)
- Precipitation (inches)

C. As indicated in Subsection II.H.8 of the Lee Emergency Plan, Duke acquires meteorological data from the Catawba Nuclear Station and the National Weather Service (NWS) when the primary system is unavailable. As indicated in Duke Corporate procedure SH/0/B/2005/001, "Emergency Response Offsite Dose Projections," Duke contacts the NWS by commercial telephone to obtain these data for its existing nuclear plants. The EOF Meteorologist is responsible for interpreting data received from the NWS for applicability to the Lee site.

Duke Corporate procedure SH/0/B/2005/001, "Emergency Response Offsite Dose Projections," has not been updated yet to include the Lee Station. However, that procedure provides contact information for Catawba Station and the National Weather Service. Additionally, it provides the information in section 4.3 to direct the acquisition of specific metrological data from Catawba. Similar information would be requested from the National Weather Service if that contact became necessary. A copy of the Catawba procedure

SH/0/B/2005/001, "Emergency Response Offsite Dose Projections," is provided for information as Attachment 1.

D. Appendix 2, "Radiological Assessment and Monitoring" of the Lee Emergency Plan as stated in the introduction "describes... atmospheric transport and diffusion assessment capability..." which includes a discussion of Raddose-V, the computer code currently used for offsite dose analyses at operating Duke facilities. Raddose-V is dose assessment model with a proven track record of providing results that are compatible and consistent with NRC dose assessment models evaluated during successful emergency plan exercises conducted for Duke facilities. Raddose-V code is maintained current with respect to the applicable facility's physical and operational characteristics and the assumptions and criteria used in the dose consequence analysis performed as part of the regulatory required accident analyses described in Chapter 15 of the FSAR. Raddose-V does not currently include modeling for the Lee facility but it is anticipated that the code will be modified to include the applicable data for the Lee facility or more advanced assessment capabilities may be available based on technology available closer to the expected Lee facility date of operations.

The criteria and assumptions considered in the FSAR Chapter 15 dose consequence analysis will form the basis for the Raddose-V modeling done for the Lee facility with additional consideration given to the as-built characteristics and capabilities of the facility. These as built considerations provide for more realistic dose estimation results relative to the conservative results obtained with the FSAR Chapter 15 dose consequences results.

1. Duke Corporate Procedure SH/0/B/2005/001, "Emergency Response Offsite Dose Projections," provides instruction to the Emergency Response Organization (ERO) dose assessors for determining source term and calculating the projected offsite dose to the public using Raddose-V; and to provide dose assessment guidance for completion of Emergency Notification Forms.

2. Evaluation of source terms is a function of qualified ERO personnel assigned as Dose Assessors in the EOF after those facilities are staffed and activated. Continued evaluations at the EOF are performed by ERO Dose Assessors under the direction of the Radiological Assessment Manager. Dose assessment responsibilities remain at the EOF until the event is terminated. More detailed information and a procedural reference is contained in response E.3 below.

3. As provided in Tier 2, AP 1000 DCD, Chapter 15, Accident Analyses, Section 15.6, the following pathways are assumed from the reactor to the environment:

   1) A steam generator tube rupture where the pathways may involve the Unit Vent and Main Steam Isolation Valves.

   2) A loss of coolant accident inside containment where the pathway involves a loss of containment or design basis leakage with significant increase in reactor coolant activity (Unit Vent).

   3) A loss of coolant accident outside of containment (Unit Vent).

   4) A fuel handling accident (Unit Vent).

4. While Raddose-V has not yet been modified to reflect the Lee facility, the code used in Raddose-V includes provisions for features that provide for source term reduction specific to the as-built plant.
5. While Raddose-V has not yet been modified to reflect the Lee facility, the source term available for release is modified within the Raddose-V program to account for processes that reduce or increase the release based on the pathway(s) or release rates.
6. Up to 15 minutes may be needed to obtain source term estimates for the model currently used for the operating facilities, assuming use of the 15 minute averages of effluent and/or accident monitors.
7. Laptop computers are available for on-site evaluations in the event of a loss of the primary computer(s) used for dose assessment. In addition, Raddose-V is a common program with all Duke facilities modeled so other Duke Energy nuclear sites could be called upon to calculate source term should any single site, including the EOF, have limited computer based functions. Source term estimates can be obtained by inserting data provided by the affected site or using default values contained within the program code for the facility.

E. Information pertaining to on-site and off-site exposure and contamination levels follows:

1. As previously stated, the Lee Nuclear Station site-specific procedures have not yet been developed. However, on-site survey teams can be assembled and dispatched from the Operational Support Center to measure exposure and contamination levels. Representative information for how these teams may be dispatched and controlled are found in Enclosure 5.1, from HP/0/B/1009/009, "Guidelines for Accident and Emergency Response", as currently employed at the Catawba Nuclear Station. A copy of this procedure is provided as Attachment 2. A team may be dispatched to monitor the particulate and iodine levels present during an emergency. At Catawba Nuclear Station, that information is provided in HP/0/B/1009/007, "In-Plant Particulate and Iodine Monitoring Under Accident Conditions." A copy of this procedure is provided as Attachment 3. Similar procedures will be developed for the Lee Nuclear Station.
2. As discussed in response E.1 above, Lee Nuclear Station will have procedures developed that are similar in scope and structure to Catawba Nuclear Station. And as described in section 4.1 of HP/0/B/1009/009, "Guidelines for Accident and Emergency Response," the on-shift staff is responsible for initial emergency response actions. Section 2 of that procedure provides a list of supporting procedures.
3. As discussed in response E.1 above, Lee Nuclear Station does not yet have site-specific procedures, however; it is anticipated that the Lee Nuclear Station will use the same approach and guidance as the other operational Duke Energy nuclear facilities. In addition to the information provided in Item D above, the procedure contains guidance for utilizing the automatic mode for data input which uses a number of defaults to speed the initial dose assessment process. Dose assessment is performed by the ERO dose assessors stationed in the Emergency Offsite Facility (EOF). This group will update the Raddose-V data with any available actual plant data to replace default data and improve the dose estimates. It is anticipated that the Duke corporate procedure, SH/0/B/2005/001,

"Emergency Response Offsite Dose Projections," (Attachment 1) will be modified to incorporate the Lee site.

4. As described in response E.3 above, dose assessment will by EOF Dose Assessment personnel reporting to the EOF Director.
5. The response to Item D.7 provides the information associated with alternate dose assessment methods.
6. The response to Item C provides the information associated with meteorological data.

F. The response to Item B provides information associated with distribution of meteorological information to the Control Room, TSC, and EOF. The response to Item C above provides the information associated with the processes used in the event the primary meteorological data system is unavailable. The distribution of meteorological information to federal, state and local agencies is via the established emergency communications flow paths described in the Lee emergency plan.

G. The following is provided as response to questions pertaining to off-scale or inoperable instrumentation:

1. As previously stated, the Lee Nuclear Station site-specific procedures have not yet been developed. Release rates can be estimated by using default source term inventories or actual field monitoring data can be input and source terms back calculated based on the field data. Both features are provided in the Raddose-V model.
2. The Radiation Protection Manager in the TSC or the Radiological Assessment Manager in the EOF would make the decision to use alternative methods for estimation release rates and associated doses.
3. In all cases, the ERO Dose Assessors under guidance of the Radiological Assessment Manager will estimate the release rates, following activation of the emergency facilities.
4. Any necessary or appropriate compensatory measures not already considered in the existing dose assessment procedures and Raddose-V code that are specific to Lee facility operation will be addressed in the procedures implemented for or to include the Lee facility when developed.
5. Data provided by field teams can be directly entered into Raddose-V as the basis for a dose calculation. The dose rate measured and the location (distance and bearing degrees) are entered. Using the current meteorology, and the current accident assumptions, the code will back-calculate the source term that would be required to result in the measured dose at the field team location. That source term could then be used to generate a complete dose projection.
6. Assumptions beyond those specified in FSAR Chapter 15 specific to the Lee facility will be determined during the modifications made to Raddose-V or within the development of alternative software as determined by the technology available at the time.
7. As stated in Item G.1 discussing assumptions, the sensitivities of the release rates based on the assumptions will be determined and evaluated based on the Lee specific modification to the software determined appropriate for the Lee facility.

H. For Duke's operating nuclear plants, corporate procedure SR/0/B/2000/003, "Activation of the Emergency Operations Facility", provides instructions for preparing Protective Action Recommendations. The procedure discusses the necessary information to provide for prompt, accurate, public protective action recommendations to appropriate State authorities. The procedure includes Offsite Protective Action Flowcharts used by Duke at its operating nuclear plants. The flowcharts include radiological dose considerations. The dose assessment procedures used for the Lee site would be similar to that in use at other Duke Energy nuclear plants. SR/0/B/2000/003, "Activation of the Emergency Operations Facility" is included for information as an attachment to RAI 13.03-055 (this letter).

   Raddose-V includes information and provides output data, based on the measure parameters and source term data (key isotopes), that incorporates protective action recommendation data such as zones to be evacuated or sheltered and recommended us of potassium iodide (KI). This output is available to the Radiological Assessment Manager for evaluation with respect to guidance provided in the procedure.

Implementing procedures and programs will be modified to include the Lee Nuclear Station on a schedule that supports NRC inspection activities and execution of the emergency exercise required by Section IV.F.2 of 10 CFR 50, Appendix E.

**Associated Revision to the Lee Nuclear Station Final Safety Analysis Report or Emergency Plan:**

None

**Attachments:**

1. Duke Corporate Procedure SH/0/B/2005/001, Emergency Response Offsite Dose Projections
2. Catawba Procedure HP/0/B/1009/009, Guidelines for Accident and Emergency Response
3. Catawba Procedure HP/0/B/1009/007, In-Plant Particulate and Iodine Monitoring Under Accident Conditions

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-62**

**Duke Corporate Procedure SH/0/B/2005/001, Emergency Response Offsite Dose Projections**

| Duke Energy<br>Standard Procedure for CNS, MNS & ONS<br>**Emergency Response Offsite Dose Projections**<br><br>**Reference Use** | Procedure No.<br>**SH/0/B/2005/001**<br>Revision No.<br>**006**<br>Electronic Reference No.<br>**MP0070PF** |
|---|---|
| **PERFORMANCE** | |

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**(ISSUED) - PDF Format**

# Emergency Response Offsite Dose Projections

## 1. Purpose

To provide instruction to Emergency Response Organization (ERO) dose assessors for determining source term and calculating projected offsite dose to the public using Raddose-V (Earth Tech ™ Windows© based computer program); and to provide dose assessment guidance for completing the Emergency Notification Form.

| | |
|---|---|
| **NOTE:** | This procedure is an Emergency Plan Implementing Procedure (EPIP) to be used for Catawba, McGuire and Oconee Nuclear Stations. Emergency Planning must be notified of any changes to this procedure. |

## 2. References

2.1 SDQA-30050-NGO, "Dose Assessment Software (DAS): Programs for Emergency Preparedness". Includes Raddose-V Operator's Manual, Detailed Design Manual, System Design Specification, Verification and Validation Report.

2.2 NEI-99-01, (NUMARC/NESP-007), "Methodology for Development of Emergency Action Levels", Revision 4, page 5-F-14.

2.3 Letter from C. D. Ingram to R. E. Harris, June 30, 1989, "Guidance for Off-Site Protective Actions". Letter references DPC-1229.00-00-003, "Containment High Range Radiation Monitor Correlation", for Catawba and McGuire containment high range radiation monitor readings for various post-accident activity releases.

2.4 Letter from B. C. Carroll to R. E. Harris, August 1, 1991, "Guidance for Protective Actions". Letter references OSC-4244, "High Range Containment Monitor Correlation Factors for Digital Radiation Monitors RIA-57, -58" for Oconee containment high range radiation monitor readings for various post-accident activity releases.

2.5 SR/0/B/2000/003, "Activation of the Emergency Operations Facility".

2.6 NRC Information Notice No. 83-28, "Criteria for Protective Action Recommendations for General Emergencies", 5/4/83.

2.7 Procedures containing Emergency Action Levels (EALs) based on radiological conditions:

| | |
|---|---|
| CNS - RP/0/A/5000/001 | Classification of Emergency |
| MNS - RP/0/A/5700/000 | Classification of Emergency |
| ONS - RP/0/B/1000/001 | Emergency Classification |

2.8 Catawba/McGuire Only - Station specific procedures for alternate method of determining Reactor Building dose rate:

| | |
|---|---|
| CNS - HP/0/B/1009/006 | Alternative Method for Determining Dose Rate Within the Reactor Building |
| MNS - HP/0/B/1009/002 | Alternative Method for Determining Dose Rate Within the Reactor Building |

## 3. Limits and Precautions

3.1 Use this procedure during abnormal or emergency conditions (including exercises and drills).

3.2 This procedure may be performed in sections or parts, using steps in any sequential order, to evaluate and/or assess offsite radiological conditions.

## 4. Procedure

4.1 Use Raddose-V program (Reference 2.1) to calculate Total Effective Dose Equivalent (TEDE) exposure, Committed Dose Equivalent (CDE) Thyroid exposure, and Effective Dose Equivalent (EDE) exposure in ten-mile Emergency Planning Zone (EPZ).

- Provide information to ERO Management for offsite dose exposure and projected offsite dose rate results from any radioactive material(s) released offsite.

4.2 Access the Raddose-V software.

4.2.1 Click on the Raddose-V icon.

4.2.2 A dialog box should appear stating "Note: this workstation is configured as (EOF or TSC)". Click on "OK" to access the DAS (Dose Assessment Software) Desktop.

4.2.3 **IF** the dialog box above does **NOT** appear, change the DAS configuration as follows:

4.2.3.1 At the DAS Desktop, click on "FILE".

4.2.3.2 Click on "DAS Configuration".

4.2.3.3 Click on appropriate Work Station Type (EOF or TSC) and Mode (Production or Training).

4.2.3.4 Restart Raddose-V for changes to take effect.

4.2.4 Select the appropriate Station and Unit from the DAS Desktop.

**NOTE:** This procedure is for "Normal Mode" operation of Raddose-V only. The "Automatic Mode" contains limited choices and default assumptions. The "Automatic Mode" is used for on-shift dose assessment only.

4.2.5 Select "Normal Mode" at the Dialog Box.

4.2.6 Select "Accident Mode" or "Drill Mode" as appropriate.

4.2.7 Select "PI Server" or "Manual" as appropriate.

- Select "PI Server" for program query of fifteen-minute average data from Operator Aided Computer (OAC).
- Select "Manual" for keyboard entry of data.

4.2.8 **IF** this is the initial dose assessment calculation, select "Begin New Incident".

**NOTE:** The reactor trip time can be changed, if needed, by using the "Change Trip Time/Date" choice on the Raddose-V Main Menu.

4.2.8.1 Enter information (e.g., reactor trip status, reactor trip date, reactor trip time, release date and release time).

- Select "Yes" or "No" to "Has Reactor Trip Occurred?" as appropriate.
- **IF** the reactor has tripped, enter the reactor trip date and time.
- **IF** the reactor has not tripped, ensure the proper reactor trip date and time are entered once the reactor has tripped.

**CAUTION:** **IF** the automatic transfer of Raddose-V data to WebEOC is going to be used, per the "Save ENF Data To Ini File" function, it is important that the release time entered is the time of the actual release. This time is transferred to the Emergency Notification Form.

- Enter release date and time (estimated or known).
- Enter operator initials, and use the mouse to accept and/or cancel.

4.2.9 **IF** this is a continuation of a previous incident, **AND IF** previous TSC or EOF files are valid, select "Continue Previous Incident".

4.2.9.1 Select "Local Data" to continue previous dose assessment calculation that was performed on the current workstation.

4.2.9.2 Select "Network Data" to continue previous dose assessment calculation that was performed at another facility.

- Select "TSC" to retrieve previous dose calculation that was performed at the TSC.
- Select "EOF" to retrieve previous dose calculation that was performed at the EOF.

4.3 Select "Enter/Edit Meteorological Data" from program selection.

4.3.1 **IF** "Manual" was selected in Step 4.2.7, select "OK" to Raddose-V pop-up message: "No automatic meteorological data available. Enter data manually."

4.3.2 Input data for current meteorological conditions.

- Use actual site meteorology for assessment of a release until it is appropriate to use forecasted data provided by a meteorologist.

4.3.3 **IF** site meteorology cannot be obtained from meteorological tower systems, refer to Enclosure 5.1 (McGuire/Catawba Meteorology) **OR** Enclosure 5.2 (Oconee Meteorology) for alternate methods for obtaining meteorological data.

4.3.4 Enter meteorological data, or "Requery" for automatic meteorological input.

4.3.4.1 **IF** manual meteorological data entries are required, use Enclosure 5.1 (McGuire/Catawba Meteorology) **OR** Enclosure 5.2 (Oconee Meteorology) as necessary.

- Enter wind speed in miles per hour (mph).
- Enter wind direction; where wind direction is from North (N=0 degrees).
- Enter Delta temperature gradient ($\Delta T$) in degrees centigrade ($\Delta T$ = °C).
- Enter air temperature in degrees centigrade (Temperature in °C).

- Enter precipitation occurring (inches per fifteen-minute period).
- Mean mixing height (in meters) is computer selected from a table of seasonal afternoon mixing heights for each station.
- Oconee Only - Press F9 when meteorological data entry is complete.

4.3.5 Select the appropriate button for meteorological data acceptance.

4.3.5.1 **IF** all of the meteorological data entered or retrieved is correct, click on "Accept".

4.3.5.2 **IF** new automatic data retrieval is needed, click on "Requery".

4.3.5.3 **IF** a new time step is needed, click on "Add New Step".

4.3.5.4 **IF** the meteorological data input needs to be aborted, click on "Cancel" to return to the Main Menu.

4.4 Select "Enter/Edit Source Term Data".

4.4.1 **IF** "Manual" was selected in Step 4.2.7, select "OK" to pop-up message: "No automatic monitor data available. Enter data manually."

4.4.2 Select the appropriate Accident Type (e.g. LOCA, SGTR).

- Consult with ERO personnel (e.g., TSC Operations Engineering and/or EOF Accident Assessment) as necessary.

| | |
|---|---|
| **NOTE:** | For each release path (e.g., containment bypass, unit vent, main steam line) identified in a single fifteen-minute time step use a consistent energy spectrum (i.e., normal reactor coolant, gap release, core melt) for each Accident Type (e.g., LOCA/LOCO/SGTR or LOCAG/LOCOG/SGTRG). Change Accident Type only when reactor and/or plant status indicate conditions degrading to a different accident. |

- **IF** the Containment High Range Monitor reading is less than the values in the "Containment Activity Levels Indicative of GAP Release" table then the "normal coolant" accident types (LOCA, SGTR, and LOCO) should be considered.

- **IF** the Containment High Range Monitor reading indicates a gap release as defined in the table below, **AND** is less than the values in the "Containment Activity Levels Indicative of CORE MELT" table below then the "gap release" accident types (LOCAG, SGTRG, and LOCOG) should be considered.

| **Containment Activity Levels Indicative of GAP Release** | | | |
|---|---|---|---|
| | **McGuire / Catawba** | **Oconee** | |
| Time After Shutdown (Hours) | Containment High Range Monitor Reading (R/hr) EMF-51 A/B (MNS) or EMF-53 A/B (CNS) | Containment High Range Monitor Reading (R/hr) | |
| | | RIA-57 | RIA-58 |
| 0-2 | ≥ 43 | ≥ 100 | ≥ 48 |
| >2-4 | ≥ 31 | ≥ 75 | ≥ 32 |
| >4-8 | ≥ .22 | ≥ 37 | ≥ 18 |
| >8 | ≥ 13 | ≥ 13 | ≥ 6 |

Values based on 5% gap release (References 2.2, 2.3 and 2.4)

- **IF** the Containment High Range Monitor indicates core melt as defined in the table below then the "core melt" accident types (LOCAM, SGTRM, and LOCOM) should be considered.

| Containment Activity Levels Indicative of CORE MELT | | | |
|---|---|---|---|
| | **McGuire / Catawba** | **Oconee** | |
| Time After Shutdown (Hours) | Containment High Range Monitor Reading (R/hr) EMF-51 A/B (MNS) or EMF-53 A/B (CNS) | Containment High Range Monitor Reading (R/hr) | |
| | | RIA-57 | RIA-58 |
| 0-2 | ≥ 864 | ≥ 2000 | ≥ 969 |
| >2-4 | ≥ 624 | ≥ 1500 | ≥ 650 |
| >4-8 | ≥ 450 | ≥ 750 | ≥ 370 |
| >8 | ≥ 265 | ≥ 275 | ≥ 125 |

(References 2.3, 2.4 and 2.5)

- "LOCA" - Loss of coolant (normal coolant) - coolant leaks into containment that release fission products normally found in coolant.

- "LOCAG" - Loss of coolant gap release - coolant leaks into containment that release fission products from the fuel pin gap after fuel cladding has failed (e.g., core uncovery or fuel pin heat up and/or if mechanical fuel pin damage has occurred).

- "LOCAM" - Loss of coolant core melt - coolant leaks into containment that release fission products from a core that is partially melted after being uncovered for some period of time.

- "SGTR" - Steam generator tube rupture (normal coolant) - steam generator tube leaks that release fission products normally found in coolant.

- "SGTRG" - Steam generator tube rupture gap release - steam generator tube leaks that release fission products from the fuel pin gap after fuel cladding has failed (e.g., core uncovery or fuel pin heat up and/or after mechanical fuel pin damage has occurred).

- "SGTRM" - Steam generator tube rupture core melt - steam generator tube leaks that release fission products from a core that is partially melted after being uncovered for some period of time.

- "LOCO" - LOCA outside containment (normal coolant) - leaks released directly from containment to outside environment (e.g., Auxiliary Building) that release fission products normally found in coolant.

- "LOCOG" - LOCA outside containment gap release - leaks released directly from containment to outside environment (e.g., Auxiliary Building) that release fission products from the fuel pin gap after fuel cladding has failed (e.g., core uncovery or fuel pin heat up and/or after mechanical fuel pin damage has occurred).

- "LOCOM" - LOCA outside containment core melt - leaks released directly from containment to outside environment (e.g., Auxiliary Building) that release fission products from a core that is partially melted after being uncovered for some period of time.

- "FUEL" - Fuel handling gap release - fuel pin fission products released from fuel during refueling, or Spent Fuel Pool accident.

4.4.3 Choose the appropriate Noble Gas (NG) Method based on the release pathway:

4.4.3.1 **IF** a steam release is occurring or suspected, refer to Enclosure 5.3 (Steam Source Term Release) for NG Method selection.

4.4.3.2 **IF** a containment release is occurring or suspected, refer to Enclosure 5.4 (Containment Source Term Release) for NG Method selection.

4.4.3.3 **IF** a unit vent release is occurring or suspected, refer to Enclosure 5.5 (Unit Vent Source Term Release) for NG Method selection.

4.4.4 Select the appropriate button for the Source Term Data acceptance.

4.4.4.1 **IF** all of the Source Term Data entered or retrieved is correct, click on "Accept".

4.4.4.2 **IF** new automatic data retrieval is needed, click on "Requery".

4.4.4.3 **IF** a new time step is needed, click on "Add New Step".

4.4.4.4 **IF** the Source Term Data input needs to be aborted, click on "Cancel" to return to the Main Menu.

4.5 Select "Emergency Classification" from the Raddose-V main menu.

| | |
|---|---|
| **NOTE:** | This menu item is used to select the current Emergency Classification in a drill or accident. Do **NOT** select a classification based on radiological conditions only. |

4.5.1 Select the current Emergency Classification (Unusual Event, Alert, Site Area Emergency, General Emergency) from the menu.

4.6 Select "Perform Calculations" to calculate *real-time* mode dose rate results which are displayed on ten-mile map.

4.6.1 Select "Continue" from map display to go to the *Real-Time* Mode Output Menu.

4.6.2 Select applicable *real-time* mode output options:

4.6.2.1 **IF** forecasted doses and an Emergency Notification Form are needed at this time, select "Continue Calculations".

4.6.2.2 Other menu items may be selected as follows:

- "Display Grid Receptor Doses" is used to display the Grid Receptor doses.
- "Display Plume Arrival Times" is used to display *real-time* plume arrival times.
- "Display 2-Mile Map" is used to see *real-time* Plume EDE and Adult Thyroid dose rates within two miles of the site.
- "Display 10-Mile Map" is used to see *real-time* Plume EDE and Adult Thyroid dose rates within ten miles of the site.
- "Display 50-Mile Map" is used to see *real-time* Deposition rates within 50 miles of the site.
- "Review GenEmergency PAZ PARs" is used to display the Protective Action Zones (PAZs) that are recommended to be evacuated.

- "Display Point-of-Interest Doses" is used to see *real-time* dose rates at any point of interest. This choice may be used to display dose rates beyond the 10-mile radius of the site.
- "Display 50-Mile Deposition Data" is used to display the 50-mile deposition data.
- "Display Survey Point Receptors" is used to see *real-time* dose rates and accumulated doses for predetermined sample points.
- "Go To Report Menu" is used if output of *real-time* is desired. The *real-time* mode report menu choices are:
  - "View Reports" may be selected to view all of the *real-time* reports.
  - "View Protective Action Zones" may be selected to view the Wind Direction/Affected Zone table.
  - "Print Summary Form" may be selected to print the *real-time* summary report.

| | |
|---|---|
| **NOTE:** | The *real-time* mode RQ Report is available from the "Print Reports and Maps" selection. This report is used to display the "EPA RQ Fraction" released for each nuclide and a "Sum of the Ratios" for all of the nuclides released. |

  - "Print Reports and Maps" may be selected to print any combination of the available *real-time* mode reports.

| | |
|---|---|
| **NOTE:** | Per NRC Information Notice 83-28 (Reference 2.6) in a General Emergency if there is a "Large Fission Product Inventory in Containment (more than Gap)" then recommend evacuation of 5-mile radius and 10 miles downwind. |

4.7 Select "Perform Forecast" to calculate TEDE and CDE forecasted dose (mrem), for the release duration in *forecast* mode.

4.7.1 **IF** General Emergency was chosen in Step 4.5.1, the following screen prompt will appear:

- For McGuire/Catawba only - "General Emergency Classification is chosen. Is the Fission Product inventory inside containment greater than gap activity?"

- For Oconee only - "General Emergency Classification is chosen. Is the Fission Product inventory inside containment greater than gap activity (Condition 2)?"

- **IF** the Containment High Range Monitor indicates greater than gap activity release (i.e., >100% gap) as defined in the table below, answer the question "Yes".

| **Containment Activity Levels Indicative of Greater Than Gap Activity Release** | | | |
|---|---|---|---|
| | **McGuire / Catawba** | **Oconee** | |
| Time After Shutdown (Hours) | Containment High Range Monitor Reading (R/hr) EMF-51 A/B (MNS) or EMF-53 A/B (CNS) | Containment High Range Monitor Reading (R/hr) | |
| | | RIA-57 | RIA-58 |
| 0-2 | ≥ 864 | ≥ 2000 | ≥ 969 |
| >2-4 | ≥ 624 | ≥ 1500 | ≥ 650 |
| >4-8 | ≥ 450 | ≥ 750 | ≥ 370 |
| >8 | ≥ 265 | ≥ 275 | ≥ 125 |

(Reference 2.3, 2.4 and 2.5)

4.7.2 Select the appropriate Emergency Release Status (None, Is Occurring, Has Occurred), using the following logic:

4.7.2.1 "None" - no release of radioactivity generated by the event and no release expected.

4.7.2.2 "Is Occurring" - radioactivity generated during an event that is currently being released through any defined accident pathway, using **ANY** of the following indicators:

- **McGuire/Catawba**

  - EMF-38, 39, 40, containment monitor reading(s) indicate an increase **AND** containment pressure is greater than 0.3 psig

  - EMF-38, 39, 40, containment monitor reading(s) indicate an increase **AND** a known leak path exists from containment

  - EMF-36 unit vent monitor reading indicates an increase in activity

  - EMF-33 CSAE exhaust monitor reading or other alternate means indicates steam generator tube leakage

  - A known unmonitored release path exists **AND** radioactive material exists

  - Alternate method of release determination

  - Field Monitoring Team results.

- **Oconee**

  - RIA-47, 48, 49, 49A, 57 or 58 containment monitor reading(s) indicate an increase **AND** containment pressure is greater than 1 psig

  - RIA-47, 48, 49, 49A, 57 or 58 containment monitor reading(s) indicate an increase **AND** a known leak path exists from containment

  - RIA-45 or 46 unit vent monitor reading(s) indicate an increase in activity

  - RIA-40 CSAE exhaust monitor reading or other alternate means indicates steam generator tube leakage

  - A known unmonitored release path exists, **AND** radioactive material exists

  - Alternate method of release determination

  - Field Monitoring Team results.

4.7.2.3 "Has Occurred" - any radioactivity released to the environment during a declared emergency event, but has been stopped.

- **IF** the release has been stopped, enter the stopped date and time.

| | |
|---|---|
| **NOTE:** | 0.5 hours is the lower limit allowed as a forecast period, and the forecast period must be in increments of 0.5 hours. |

| | |
|---|---|
| **NOTE:** | A default representative value of 4 hours is used for the forecast period based on data from site evacuation studies if the expected release duration is not known. |

4.7.3 Determine expected length of release.

- Enter a Forecast Period (in hours).

4.7.4 **IF** all inputs are correct, select "OK".

4.7.5 Select "OK" to the screen prompt "Note: Forecast will use the meteorological and source term data from Step #. Continue?"

| | |
|---|---|
| **NOTE:** | *Forecast* Mode doses are calculated using the most current time step and are displayed on ten-mile EPZ map. |

4.7.6 **IF** General Emergency was selected in Step 4.5.1, **THEN** select "Both PARs" to display the General Emergency Protective Action Recommendations, and the Dose Protective Action Recommendations.

4.7.7 Select "Continue" from map display to go to the *Forecast* Mode Output Menu.

4.7.8 At the popup dialog box item "Do you want to save PAZs identified in *forecast* mode for evacuation?", select "Yes".

4.7.9 Select "Go To Report Menu" to go to the *Forecast* Mode Report Options Menu and access the Raddose-V ENF Report.

| | |
|---|---|
| **NOTE:** | Refer to Step 4.6.2.2 for a description of the other choices on this menu. However, it should be noted that all outputs will consist of *forecasted* data instead of *real-time* data. |

4.7.10 Select "Print ENF + Summary Form" to print the ENF Report and the Summary Report.

4.7.10.1 Review the dose assessment reports for accuracy.

4.7.10.2 **IF** the report is the result of hypothetical or postulated data, stamp or write on the report "Hypothetical Calculation".

4.7.10.3 **IF** the Raddose-V ENF Report indicates a change in Emergency Classification due to projected site boundary dose, **OR** a change in Recommended Protective Actions (e.g., additional zone evacuation, KI recommendation) then notify ERO Management in the TSC and/or the EOF RAM.

4.7.11 Select "Save ENF Data to Ini File" to transfer the Raddose-V data to the WebEOC Electronic Emergency Notification Form application, if available.

4.7.12 Other menu items may be selected as follows:

- "View ENF" is used to display the ENF report.
- "View Reports" is used to view all reports.
- "Print ENF" is used to print the ENF report.
- "Print Summary Form" is used to print the Summary Form report.
- "Print Reports and Maps" is used to select any combination of the available reports.

4.7.13 Select "Return to Output Menu" when done with *Forecast* Mode reports.

4.7.14 Select "Continue Calculations" to return to the main menu in *real-time* mode.

4.7.15 Select "OK" to the Raddose-V prompt: "You have just completed a forecast. Remember to check the meteorological and source term data for current information."

4.8 Evaluate the Emergency Action Levels (EALs) based on radiological conditions using the affected site's EAL procedure (Reference 2.7).

4.8.1 Provide EAL radiological assessment classifications to ERO Management in the TSC and/or EOF.

4.9 **IF** desired, obtain the Self Reading Dosimeter Correction Factor ($SRD_{CF}$) from the *Real-Time* Summary Report.

**NOTE:** Raddose-V calculates Effective Dose Equivalent (EDE) exposure and provides Self Reading Dosimeter (SRD) correction factor ($SRD_{CF}$).

$$SRD_{CF} = \frac{TEDE}{EDE}$$

$SRD_{CF}$ = SRD correction factor

TEDE = Total Effective Dose Equivalent

EDE = Effective Dose Equivalent

**NOTE:** The $SRD_{CF}$ value is based on accident specific source term nuclide(s) and is a calculation of TEDE to EDE ratio at site boundary.

- $SRD_{CF}$ is provided to offsite Emergency Workers during an accident, after a declared General Emergency, and when a release is occurring.
- $SRD_{CF}$ is used as a multiplier of Emergency Worker SRD readings for EPA 400, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", "Early Phase" Emergency Worker TEDE estimate.

- Provide the $SRD_{CF}$ to the Field Monitoring Coordinator and the OSC.

4.10 **IF** manual completion of the Emergency Notification Form is to be used, provide the Radiological Assessment Manager (RAM), lead TSC Dose Assessor, Radiation Protection Manager (RPM) and/or other ERO personnel the following information for each of the Emergency Notification Form line items:

4.10.1 Obtain "Raddose-V ENF Report" (example shown in Enclosure 5.6)

4.10.2 Line 5, PROTECTIVE ACTION RECOMMENDATIONS

4.10.2.1 The evacuation dose Protective Action Guidelines (PAGs) are as follows:

- Projected dose greater than 1 rem TEDE, or
- Projected dose greater than 5 rem Thyroid CDE

**NOTE:** A short term release is any release that can be accurately projected to be less than the affected PAZ's evacuation time. An example would be a "puff release".

A controlled release is one that can be started and stopped at the licensee's discretion. An example would be the venting of containment for pressure control to prevent a catastrophic failure of containment.

4.10.2.2 EVACUATE

- **IF** evacuation dose PAGs are projected to be exceeded for short term controlled releases in any PAZ(s) not already evacuated, **THEN** sheltering should be considered for the affected PAZ(s).

**NOTE:** The Raddose-V ENF Report Protective Action Recommendations (PARs) for PAZs should include PARs based on plant conditions independent of projected dose, and also on projected dose PAGs.

- List the PAZs to evacuate from the Recommend Protective Actions on the Raddose-V ENF Report.

4.10.2.3 SHELTER

- Consider sheltering for short term controlled releases per Step 4.10.2.2.
- List the PAZs to Shelter from the Recommended Protective Actions on the Raddose-V ENF Report.

4.10.2.4 CONSIDER THE USE OF KI IN ACCORDANCE WITH STATE PLANS AND POLICY

- **IF** the projected dose **OR** a field measurement at the site boundary is 5 rem (or greater) CDE thyroid, select "CONSIDER THE USE OF KI IN ACCORDANCE WITH STATE PLANS AND POLICY".

4.10.2.5 OTHER

- Use this line to add any additional Protective Action information.

4.10.3 Line 6, EMERGENCY RELEASE

4.10.3.1 Select "None", "Is Occurring", or "Has Occurred" as determined in Step 4.7.2.

4.10.4 Line 7, RELEASE SIGNIFICANCE

| |
|---|
| **NOTE:** The Site Boundary Normal Operating Limits in the Technical Specifications and SLCs are: EDE 5.70E-2 mRem/hr (500 mRem/yr), CDE Thyroid 1.71E-1 mRem/hr (1500 mrem/yr). Release significance is shown on the Raddose-V ENF Report. |

4.10.4.1 Select "Not Applicable" if there is no release in progress.

4.10.4.2 Select "Within normal operating limits" if the radioactivity released at any time during an event is **NOT** above site boundary normal operating limits.

4.10.4.3 Select "Above normal operating limits" if the radioactivity released during the event is above the site boundary normal operating limits.

4.10.4.4 Select "Under Evaluation" if the release significance is not known.

4.10.5 Line 9, METEOROLOGICAL DATA

4.10.5.1 Enter the meteorological data from the Raddose-V ENF Report.

4.10.6 Line 14, RELEASE CHARACTERIZATION

4.10.6.1 Select "TYPE: Ground".

4.10.6.2 Select "UNITS: Ci/sec".

4.10.6.3 Enter the Noble Gas, Iodine, and Particulate release rates (in Ci/sec) from the Raddose-V ENF Report.

4.10.6.4 Enter Airborne Release Start Time/Start Date and Release Stop Time/Stop Date, from the Raddose-V ENF Report, as appropriate.

4.10.6.5 Enter Liquid Release Start Time/Start Date and Release Stop Time/Stop Date, as appropriate.

4.10.7 Line 15, PROJECTION PARAMETERS

4.10.7.1 Enter the "Projection period" (forecast period, in hours) from the Raddose-V ENF Report.

4.10.7.2 Enter the "Estimated Release Duration" (in hours) from the Raddose-V ENF Report.

4.10.7.3 Enter the Time/Date the projection was performed from the Raddose-V ENF Report.

4.10.8 Line 16, PROJECTED DOSE

4.10.8.1 Enter the TEDE projection data using the Forecast column on the Raddose-V ENF Report.

4.10.8.2 Enter the Adult Thyroid CDE projection data using the Forecast column on the Raddose-V ENF Report.

4.11 Provide Raddose-V printouts and summary reports to Federal, State and County agencies supporting ERO activation, with approval by lead TSC Dose Assessor, Radiation Protection Manager (RPM) or EOF RAM.

4.12 Retain logs, computer printouts and computer generated dose assessment files, whenever ERO is activated.

- Exercise and Drill records are retained for Emergency Planning disposition.

## 5. Enclosures

5.1 McGuire / Catawba Meteorology

5.2 Oconee Meteorology

5.3 Steam Source Term Release

5.4 Containment Source Term Release

5.5 Unit Vent Source Term Release

5.6 Raddose-V ENF Report

**Enclosure 5.1**

**McGuire / Catawba Meteorology**



1. Meteorological Tower OAC data is normally provided as 15-minute average.
   - Use lower tower wind speed (WS) in miles per hour.
   - Use upper tower wind speed (WS) if lower tower wind speed is not available.
   - Use upper tower wind direction; in degrees from North (N) = 0°.
   - Use lower tower wind direction if upper tower wind direction is not available: in degrees from North (N) = 0°.
2. **IF** Meteorological Tower is not available, obtain meteorological information from:
   - Duke meteorologist at 704-382-0139 or 704-373-7896.
   - National Weather Service (NWS) in Greer, S.C. at 864-879-1085 or 800-268-7785.
3. **IF** meteorological tower temperature gradient (ΔT °C) is unknown, use the following default values:

| | CNS | | MNS | |
|---|---|---|---|---|
| | ΔT (°C) | Stability Class | ΔT (°C) | Stability Class |
| Between 1000-1600 hours: | -0.3 | D | -0.3 | D |
| Between 1600-1000 hours: | +1.3 | F | +1.3 | F |

4. Use the following tables to determine stability class when ΔT data is available:

| Stability Class | CNS (ΔT in °C) | MNS (ΔT in °C) |
|---|---|---|
| A - Extremely Unstable | $\Delta T \leq -0.97$ | $\Delta T \leq -0.95$ |
| B - Moderately Unstable | $-0.97 < \Delta T \leq -0.87$ | $-0.95 < \Delta T \leq -0.85$ |
| C - Slightly Unstable | $-0.87 < \Delta T \leq -0.76$ | $-0.85 < \Delta T \leq -0.75$ |
| D - Neutral | $-0.76 < \Delta T \leq -0.25$ | $-0.75 < \Delta T \leq -0.25$ |
| E - Slightly Stable | $-0.25 < \Delta T \leq +0.76$ | $-0.25 < \Delta T \leq +0.75$ |
| F - Moderately Stable | $+0.76 < \Delta T \leq +2.04$ | $+0.75 < \Delta T \leq +2.00$ |
| G - Extremely Stable | $\Delta T > +2.04$ | $\Delta T > +2.00$ |

**Enclosure 5.2**

**Oconee Meteorology**



1. Assess Meteorology as follows:

| |
|---|
| **NOTE:** Actual, 15-minute average meteorological data should be used unless it is more appropriate to use forecast data, as provided by a meteorologist. |

2. Using Section 3 hierarchy obtain the following information:

| |
|---|
| **NOTE:** The sources of data are listed in order of preference in the flowchart in Section 3. |

- Time meteorological data taken.
- Wind speed in miles per hour.
- Direction from which the wind is blowing in degrees from North (North = 0).
- Temperature gradient in degrees centigrade ($\Delta T°C$).
- Stability class based on $\Delta T$.

**Enclosure 5.2**

**Oconee Meteorology**



3. Select meteorology by using the chart (Reference 2.5) and other information shown below:

| | |
|---|---|
| **NOTE:** | If meteorological tower is not available, obtain needed data from one of the following sources in order of sequence:<br>A. DPC Meteorologist (704-382-0139 or 704-373-7896)<br>B. National Weather Service in Greer, S.C. (864-879-1085 or 800-268-7785) |

| Time of Day Conditions | Met Parameter | First Priority | Second Priority | Third Priority | Fourth Priority | Fifth Priority |
|---|---|---|---|---|---|---|
| 1000-1600 | Wind Speed | 10M reading | River Tower | 60M reading times 0.5 | DPC Meteorologist | NWS times 0.5 |
| | Wind Direction | 60M reading | 10M reading | River Tower | DPC Meteorologist | NWS |
| | ΔT°C | Tower | DPC Meteorologist | NWS | Assume -0.26°C | |
| 1600-1000 and River Wind between 210°-360° or 0°-70° | Wind Speed | 10M reading | 60M reading times 0.5 | River Tower | DPC Meteorologist | NWS times 0.5 |
| | Wind Direction | 60M reading | 10M reading | River Tower | DPC Meteorologist | NWS |
| | ΔT°C | Tower | DPC Meteorologist | NWS | Assume + 2.1°C | |
| 1600-1000 and River Wind between 70°-210° | Wind Speed | River Tower | 10M reading times 0.5 | DPC Meteorologist | NWS times 0.5 | |
| | Wind Direction | River Tower | 60M reading | DPC Meteorologist | NWS | |
| | ΔT°C | Tower | DPC Meteorologist | NWS | Assume + 2.1°C | |

* Conversion factors for NWS data:
Mph= 1.15 knots
°C = .555(°F – 32)

**Enclosure 5.2**

**Oconee Meteorology**



4. Use the following tables to determine stability class when ΔT data is available:

| Stability Class | ΔT (°C) |
|---|---|
| A - Extremely Unstable | $\Delta T < -0.95$ |
| B - Moderately Unstable | $-0.95 \leq \Delta T \leq -0.86$ |
| C - Slightly Unstable | $-0.85 \leq \Delta T \leq -0.76$ |
| D - Neutral | $-0.75 \leq \Delta T \leq -0.26$ |
| E - Slightly Stable | $-0.25 \leq \Delta T \leq +0.74$ |
| F - Moderately Stable | $+0.75 \leq \Delta T \leq +2.0$ |
| G - Extremely Stable | $\Delta T > +2.0$ |

5. **IF** the meteorological tower temperature gradient (ΔT °C) cannot be obtained from the meteorological tower or estimated by the DPC meteorologist or NWS then assume a "G" (extremely stable) stability class.

**Enclosure 5.3**

**Steam Source Term Release**



1. Determine type of accident, source term release path and EMF/RIA monitor method.

2. Select an Accident Type for an affected release pathway:

   - "SGTR" - steam generator tube rupture (normal coolant)
   - "SGTRG" - steam generator tube rupture gap release
   - "SGTRM" - steam generator tube rupture core melt

3. Select the appropriate steam line Noble Gas Method as follows:

| | |
|---|---|
| **NOTE:** | Using the EMF/RIA data is the preferred method. Other Noble Gas Methods may be used as conditions and data availability warrant. |

- **IF** steam line monitor EMF/RIA data is available, use the following guidance for Noble Gas Method selection:

  (a) Review the steam line monitor data.

  (b) Select appropriate steam line monitor: SG-A, SG-B (MNS/CNS/ONS) or SG-C, SG-D (MNS/CNS only).

  (c) Select "Partitioned" or "Not Partitioned" using the guidance below:

    (i) **IF** the steam generator tube leak/break is below the secondary side water level **AND** the steam generator is **NOT** overfilled, select "Partitioned".

    (ii) **IF** the steam generator leak/break is above the secondary side water level **OR** the steam generator is overfilled **OR** if uncertain of break location, select "Not Partitioned".

  (d) **IF** manual data entry was selected in Step 4.2.7, enter the monitor data (mR/hr) **AND** the steam release rate in pounds mass per 15 minutes (LBM/15min, MNS/CNS) or pounds mass per hour (LBM/hr, ONS).

  (e) Click on "OK".

**Enclosure 5.3**

**Steam Source Term Release**



- **IF** secondary side steam sample data is available, select GRABSL.
  - (a) Enter the secondary side steam sample data.
  - (b) When all data is entered, click on "OK".
  - (c) Enter the steam release rate in pounds mass per 15 minutes (LBM/15min, MNS/CNS) or pounds mass per hour (LBM/hr, ONS).
- **IF** field team data is available, select BACKSL.
  - (a) Enter the field team data.
  - (b) Click on "OK" for Raddose-V to calculate the source term in Ci/sec.

**NOTE:** Raddose-V calculates the steam source term release rate for the SG-A, SG-B, SG-C, and SG-D methods as follows:

- Ci/sec is distributed by isotope spectrum based on accident type and time after reactor shutdown.
- Raddose-V calculates the steam source term as follows:

RR = EMF/RIA x CF x AJ x LR x (0.41ft$^3$/lbm x 28320 ml/ft$^3$ x 1E-6 Ci/μCi x 1/3600 hr/sec)

Where:

RR = release rate activity in Ci/sec

CF = steam line radiation monitor Correlation Factor

EMF/RIA = radiation monitor reading in mR/hr (normally a 15 minute average reading)

AJ = Adjustment Factor (unit-less) based on accident types (SGTR, SGTRG, SGTRM)

LR = Steam release rate from safety valve in pounds mass of steam released through each valve during valve open period (lbm/hr), where;
default release rate = 2.094E5 lbm/hr (5.235E4 lbm/15 min on Raddose-V input screen) (McGuire/Catawba)
= 4.5E6 lbm/hr (Oconee)

**Enclosure 5.3**

**Steam Source Term Release**



**NOTE:** Raddose-V calculates steam source term for the GRABSL method as follows:

RR = $SL_g$ x LR x 0.41ft$^3$/lbm x 28320 ml/ft$^3$ x 1E-6 Ci/μCi x 1/3600 hr/sec

Where:

RR = release rate activity in Ci/sec

$SL_g$ = secondary grab sample (μCi/ml)

LR = Steam release rate from safety valve in pounds mass of steam released through each valve during valve open period (lbm/hr), where;
default release rate = 2.094E5 lbm/hr (5.235E4 lbm/15 min on Raddose-V input screen) (McGuire/Catawba)
= 4.5E6 lbm/hr (Oconee)

**NOTE:** Raddose-V calculates the steam source term for the BACKSL method as follows:

RR = Field Measurement Device Reading (mR/hr) x FM Device Correlation (μCi/cc)/(mR/hr)/$\chi$/Q (sec/m$^3$) x (1E-6 Ci/μCi x 1E+6 cc/m$^3$)

**Enclosure 5.4**

**Containment Source Term Release**



1. Determine type of accident source term release path and EMF/RIA monitor method.

2. Select an Accident Type for an affected release pathway:

   - "LOCA" - Loss of Coolant Accident (normal coolant)
   - "LOCAG" - Loss of Coolant Accident gap release
   - "LOCAM" - Loss of Coolant Accident core melt

3. Select containment Noble Gas Method as follows:

| | |
|---|---|
| **NOTE:** | Using the EMF/RIA data is the preferred method. Other Noble Gas Methods may be used as conditions and data availability warrant. |

- **IF** containment sample line is **NOT** isolated **AND** containment sample pump is **NOT** tripped, use the following guidance for Noble Gas Method selection:

  **MNS / CNS ONLY:**

  (a) **IF** EMF 39(L) ≤ 1E7 counts per minute (cpm), select "CONL".

  (b) **IF** EMF 39(L) > 1E7 cpm **AND** EMF 39(H) ≤ 1E6 cpm, select "CONH".

  (c) **IF** EMF 39(H) > 1E6 cpm, select "CONHH".

  **ONS ONLY:**

  (a) **IF** RIA49 ≤ 1E7 counts per minute (cpm) **AND** does not indicate 0 cpm, select "CONL".

  (b) **IF** RIA49 indicates 0 cpm **AND** RIA49A ≤ 1E7 cpm, select "CONH".

  (c) **IF** RIA49A > 1E7 cpm, select "CONHH".

- **IF** containment sample line is isolated **OR** containment sample pump is tripped, use the following guidance for Noble Gas Method selection:

  (a) **IF** containment sample results are available, select "GRABC".

(b) **IF** containment sample results are NOT available, select "CONHH".

**Enclosure 5.4**

**Containment Source Term Release**



4. **IF** CONL, **OR** CONH, **OR** CONHH was selected in Step 5.4.3, Raddose-V displays the Containment Bypass Release Pathway screen. Choose the appropriate selections for:

   (a) Containment Bypass Fraction (default is 0.07 for MNS/CNS and 0.5 for ONS).

   (b) Ice Condenser (MNS/CNS only): "No Recirculation", "Recirculation", or "No Ice".

   (c) Hold-Up Time: "<=24 Hours" or ">24 Hours".

   (d) Spray Status: "On" or "Off".

   (e) Containment Leak Rate Method: "Containment Pressure and Hole Size" or "Predefined/User Leak Rate".

   (f) Enter or verify the Containment Pressure (psig).

   (g) When all inputs on the Containment Bypass Release Pathway screen are correct, click on "OK".

| | |
|---|---|
| **NOTE:** | Containment source term can be calculated using containment EMF/RIA readings or containment samples. Reference 2.8 can be used if no other data is available (MNS/CNS only). |

   (h) **IF** "Manual" was selected in Step 4.2.7, enter the monitor reading.

**NOTE:** Raddose-V calculates the containment source term for the CONL, CONH, AND CONHH methods as follows:

RR = EMF/RIA x CF x AJ x BY x 1E-6 Ci/μCi x 1/3600 hr/sec x LR

Where:

RR = release rate activity in Ci/sec

EMF/RIA = The appropriate EMF/RIA reading, in cpm or R/hr, as applicable.

CF = Containment Noble Gas monitor Correlation Factor

AJ = Adjustment factors for Iodine and Particulates

BY = Containment Bypass Fraction - Fraction of containment leakage of gases from inside containment which bypasses the annulus (MNS/CNS) or penetration room (ONS) and auxiliary building and passes directly to the environment where, (default value = 0.07 for MNS/CNS and 0.5 for ONS).

LR = Leak Rate of containment air to the annulus (MNS/CNS) or penetration room (ONS) (ml/hr) based on one of the following methods:

(a) Based on containment pressure and hole size corresponding to:

1. Normal Leakage - 0.3% per day at design pressure (15 psig) (MNS/CNS)
   - 0.2% per day at design pressure (59 psig) (ONS)
2. Small Hole - 100% per day at design pressure (15 psig MNS/CNS, 59 psig ONS)

(b) Pre-defined Leak Rate corresponding to:

1. Normal Leakage - 0.3% per day (MNS/CNS), 0.2% per day (ONS)
2. Small Hole - 100% per day
3. Large Hole - 100% per hour

**NOTE:** Raddose-V calculates the containment source term for the GRABC method as follows:

RR = CONg x BY x LR x 1E-6 Ci/μCi x 1/3600 hr/sec

Where:

$CON_g$ = Containment grab sample (μCi/ml)

- All other parameters are the same as defined in the NOTE above.

**Enclosure 5.5**

**Unit Vent Source Term Release**



1. Determine type of accident, source term release pathway, and EMF/RIA monitor method.

2. Enter an accident type for affected release pathway.

   - "LOCA" - Loss of Coolant Accident (normal coolant)
   - "LOCAG" - Loss of Coolant Accident gap release
   - "LOCAM" - Loss of Coolant Accident core melt
   - "LOCO" - LOCA outside of containment (normal coolant)
   - "LOCOG" - LOCA outside of containment gap release
   - "LOCOM" - LOCA outside of containment core melt
   - "SGTR" - Steam Generator Tube Rupture (normal coolant) with Condenser Steam Air Ejector (CSAE) pathway to unit vent
   - "SGTRG" - Steam Generator Tube Rupture gap release with Condenser Steam Air Ejector (CSAE) pathway to unit vent
   - "SGTRM" - Steam Generator Tube Rupture core melt with Condenser Steam Air Ejector (CSAE) pathway to unit vent
   - "FUEL" - Fuel handling gas release

3. Select the appropriate unit vent EMF/RIA Noble Gas Method as follows:

| | |
|---|---|
| **NOTE:** | Using the EMF/RIA data is the preferred method. Other Noble Gas Methods may be used as conditions and data availability warrant. |

- **IF** Unit Vent EMF/RIA Data is available, **AND** unit vent sample pump is **NOT** tripped, use the following guidance for Noble Gas Method selection:

  (a) **MNS / CNS ONLY:**

  - **IF** EMF 36(L) $\leq$ 1E7 counts per minute (cpm), select "UV1L" or "UV2L" as appropriate.
  - **IF** EMF 36(L) > 1E7 cpm **AND** EMF 36(H) $\leq$ 1E6 cpm, select "UV1H" or "UV2H" as appropriate.

**IF** EMF 36(H) > 1E6 cpm, select "UV1HH" or "UV2HH" as appropriate.

(b) **ONS ONLY:**

- **IF** RIA 45 ≤ 1E7 counts per minute (cpm), select "UV1L", "UV2L" or "UV3L" as appropriate.
- **IF** RIA 45 > 1E7 cpm **AND** RIA46 ≤ 1E7 cpm, select "UV1H", "UV2H" or "UV3H" as appropriate.
- **IF** RIA 46 > 1E7 cpm, select "UV1HH", "UV2HH" or "UV3HH" as appropriate.

(c) Select the appropriate response for the Unit Vent Release Pathway Data screen as follows:

(i) Filter Status - "On" or "Off"

(ii) Ice Condenser (MNS/CNS Only): "No Recirculation", "Recirculation", or "No Ice"

(iii) Hold-Up Time: "< = 24 Hours" or "> 24 Hours"

(iv) Spray Status: "On" or "Off"

(v) When all inputs on the Unit Vent Release Pathway screen are correct, click on "OK"

(d) **IF** "Manual" was selected in Step 4.2.7, enter the unit vent monitor reading.

(e) Verify or enter the unit vent flow rate in cfm.

- **IF** Unit Vent EMF/RIA Data is **NOT** available, use one of the following choices for Noble Gas Method selection:

(a) **IF** Unit Vent Isotopic Sample data is available, select "GRABV1", "GRABV2", or "GRABV3" (ONS Only) as appropriate.

(i) Enter the grab sample data.

(ii) Click on "OK" for Raddose-V to calculate the source term in Ci/sec.

| |
|---|
| **NOTE:** BACKV1, BACKV2, or BACKV3 **CANNOT** be chosen on the first time step. |

(b) **IF** Field Team Data is available, select "BACKV1", "BACKV2", or "BACKV3" (ONS Only) as appropriate.

(i) Enter the field team data.

(ii) Click on "OK" for Raddose-V to calculate the source term in Ci/sec.

**Enclosure 5.5**

**Unit Vent Source Term Release**



(c) **IF** Total Source Term calculations are available, select "DRCT1", DRCT2", or "DRCT3" (ONS Only) as appropriate.

(i) Enter the Noble Gas, Iodine, and Particulate source term data.

(ii) Click on "OK" for Raddose-V to calculate the source term in Ci/sec.

- Check unaffected unit vent(s) monitor data.
- **IF** appropriate, repeat Section 3 of this enclosure to include source term assessment for unaffected unit(s).

**NOTE:** Raddose-V calculates the unit vent source term for the Unit Vent Monitor methods as follows:

- Ci/sec is distributed by isotope spectrum based on accident type and time after reactor shutdown.
- Raddose-V calculates unit vent source term as follows:

RR = EMF/RIA x CF x AJ x FR x 1E-6 Ci/μCi x 1/60 min/sec x 28320 ml/$ft^3$

Where:

RR = release rate activity in Ci/sec

EMF/RIA = The appropriate EMF/RIA reading, in cpm or R/hr, as applicable.

CF = Unit Vent radiation monitor Noble Gas Correlation Factor

AJ = Adjustment Factors for Iodines and Particulates for accident types

FR = Unit vent flow rate in $ft^3$ per minute, (No default rate); vent flow rate is a manual Raddose-V input if query data is unavailable.

**Enclosure 5.5**

**Unit Vent Source Term Release**



**NOTE:** Raddose-V calculates the unit vent source term for the GRABV1, GRABV2 and GRABV3 methods as follows:

RR = $UV_g$ x FR x 1E-6 Ci/µCi x 1/60 min/sec x 28320 ml/$ft^3$

Where:

RR = release rate activity in Ci/sec

$UV_g$ = unit vent grab sample (µCi/ml)

FR = Unit vent flow rate in $ft^3$ per minute; (No default rate); vent flow rate is a manual Raddose-V input if queried data is unavailable.

**NOTE:** Raddose-V calculates the source term for the BACKV1, BACKV2 and BACKV3 method as follows:

RR = Field Measurement Device Reading (mR/hr) x FM Device Correlation (µCi/cc)/(mR/hr)/X/Q(sec/$m^3$) x (1E-6 Ci/µCi x 1E+6 cc/$m^3$)

**Enclosure 5.6**

**Raddose-V ENF Report**



**Catawba Nuclear Station Unit No 1 Dose Assessment**
**RADDOSE-V Version 3.0g (Copyright 2007 Earth Tech)**

Current Date: 07/12/2007 Step #: 1
Current Time: 12:22 Step Date: 07/12/2007
Operator: CDI Step Time: 08:15

***** FORECAST FOR 4 HOURS *****

**ACCIDENT DESCRIPTION:** General Emergency has been declared

Accident Time: 07/12/2007 0800 hrs
Reactor Shutdown:07/12/2007 1222 hrs

Projection Performed: 07/12/2007 0815 hrs
Projection Period: 4.00 hrs
Estimated Release Duration: 4.25 hrs

**PATHWAY 1**

Accident Type: LOCA
Noble Gas Method UV1L (EMF36L)
VentCF = 1.69E-08

Flow Rate: 1.28E+05 ft^3/min
Monitor Reading: 6.96E+01 cpm (P)

**RELEASE RATES:**

Noble Gas Release Rate (Ci/sec): 7.09E-05 Ci/s
Iodine Release Rate (Ci/sec): 1.05E-07 Ci/s
Particulate Release Rate (Ci/sec): 8.05E-09 Ci/s

Within Normal Operating Limits

**MAX ACTUAL, MAX FORECAST AND MAX TOTAL DOSES:**

| Distance | TEDE (mrem) | | | Thyroid CDE (mrem) | | |
|---|---|---|---|---|---|---|
| (miles) | Actual | Forecast(ENF) | Total | Actual | Forecast(ENF) | Total |
| 0.50 | 7.57E-05 | 1.21E-03 | 1.29E-03 | 7.76E-04 | 1.24E-02 | 1.32E-02 |
| 1.00 | 3.46E-05 | 5.55E-04 | 5.90E-04 | 2.90E-04 | 4.66E-03 | 4.95E-03 |
| 2.00 | 0.00E+00 | 2.44E-04 | 2.44E-04 | 0.00E+00 | 1.70E-03 | 1.70E-03 |
| 5.00 | 0.00E+00 | 5.31E-05 | 5.31E-05 | 0.00E+00 | 3.27E-04 | 3.27E-04 |
| 10.00 | 0.00E+00 | 1.24E-05 | 1.24E-05 | 0.00E+00 | 6.71E-05 | 6.71E-05 |

**METEOROLOGICAL DATA:**

Wind Speed: 4.8 mph (P)
Wind Direction: From 11.81 deg To 191.81 deg (P)

Stability Class: D (P)

**RECOMMENDED PROTECTIVE ACTIONS** : Based on General Emergency and Radiological Conditions

Evacuate : A0,A1,B1,C1,D1,E1,F1
Shelter : A2,A3,B2,C2,D2,E2,F2,F3
Consider KI use by public : NO

**Catawba Nuclear Station Unit No 1 Dose Assessment**
**RADDOSE-V Version 3.0g (Copyright 2007 Earth Tech)**

Current Date: 07/12/2007 | Step #: 1
Current Time: 12:22 | Step Date: 07/12/2007
Operator: CDI | Step Time: 08:15

***** FORECAST FOR 4 HOURS *****

**TOTAL (Forecast + Integrated) DOSES FROM 07/12/2007 08:00 TO 12:15:**

| Distance (miles) | Current Dose Rates (mrem/hr) TEDE | Current Dose Rates (mrem/hr) Thyroid CDE | Dose (mrem) TEDE | Dose (mrem) Thyroid CDE | X/Q (sec/m3) |
|---|---|---|---|---|---|
| 0.50 | 3.03E-04 | 3.10E-03 | 1.29E-03 | 1.32E-02 | 7.07E-05 |
| 1.00 | 1.39E-04 | 1.17E-03 | 5.90E-04 | 4.95E-03 | 2.68E-05 |
| 2.00 | 6.11E-05 | 4.24E-04 | 2.44E-04 | 1.70E-03 | 9.67E-06 |
| 5.00 | 1.52E-05 | 9.37E-05 | 5.31E-05 | 3.27E-04 | 2.14E-06 |
| 10.00 | 4.93E-06 | 2.77E-05 | 1.24E-05 | 6.71E-05 | 6.31E-07 |

**DOSE CONVERSION FACTORS:**

| | mrem *m^3/Ci*hr |
|---|---|
| TEDE: | 2.15E+07 |
| PlumeEDE: | 8.65E+04 |
| Ground EDE: | 7.33E+06 |
| CDE Thyroid: | 4.18E+08 |
| Inhalation: | 1.41E+07 |

**EMERGENCY CLASS:**

| | Total Effective Dose Equivalent | Adult Thyroid |
|---|---|---|
| Site Area Emergency : | No < 100 mrem | No < 500 mrem |
| General Emergency : | No < 1000 mrem | No < 5000 mrem |
| PAG Dose Limits: | 1 rem | 5 rem |
| PAG Exceeded at Site Boundary? | No | No |
| PAG Distances (miles): | N/A | N/A |

**MONITOR CORRECTION FACTORS:**

| | Pathway 1 |
|---|---|
| Time Since Trip (Hrs) | 0.00 |
| Ice Condenser | No Recirc |
| Sprays | On |
| Hold-Up Time | <=24 hrs |
| Cont Leak Rate Method | ***** |
| Cont Leak Type | |
| Cont Pressure | |
| Cont Leak Rate | ***** |
| Cont Bypass Fraction | ***** |
| Filters | No |
| SG Partitioned | ***** |
| Pool Scrubbing | ***** |
| Field Measurement | ***** |
| Distance | ***** |
| Direction | ***** |
| Fuel Assembly Age (Days) | ***** |

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 2 to RAI 13.03-62**

**Catawba Procedure HP/0/B/1009/009, Guidelines for Accident and Emergency Response**

| Duke Energy<br>Catawba Nuclear Station<br>**Guidelines for Accident and Emergency Response**<br><br>**Reference Use** | Procedure No.<br>**HP/0/B/1009/009**<br>Revision No.<br>**043**<br>Electronic Reference No.<br>**CN005CVD** |
|---|---|
| **PERFORMANCE** | |
| * * * * * * * * * * UNCONTROLLED FOR PRINT * * * * * * * * * * | |
| **(ISSUED) - PDF Format** | |

# Guidelines for Accident and Emergency Response

## 1. Purpose

To provide guidance for notification/activation of Radiation Protection (RP) Emergency Response Organization (ERO) in the event of an emergency situation.

## 2. References

2.1 HP/0/B/1001/018 - RP Compliance Sampling

2.2 HP/0/B/1009/003 - Radiation Protection Response Following a Primary to Secondary Leak

2.3 HP/0/B/1009/004 - Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station

2.4 HP/0/B/1009/005 - Personnel/Vehicle Monitoring for Emergency Conditions

2.5 HP/0/B/1009/006 - Alternative Method for Determining Dose Rate Within the Reactor Building

2.6 HP/0/B/1009/007 - In-Plant Particulate and Iodine Monitoring Under Accident Conditions

2.7 HP/0/B/1009/008 - Contamination Control of Injured Individuals

2.8 HP/0/B/1009/011 - EMF Loss

2.9 HP/0/B/1009/014 - Radiation Protection Actions Following an Uncontrolled Release of Liquid Radioactive Material

2.10 HP/0/B/1009/026 - On-Shift Offsite Dose Projections

2.11 RP/0/A/5000/010 - Conducting a Site Assembly or Preparing the Site for an Evacuation

2.12 RP/0/A/5000/020 - Technical Support Center (TSC) Activation Procedure

2.13 RP/0/A/5000/024 - OSC Activation Procedure

2.14 SH/0/B/2005/003 - Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

2.15 Nuclear System Directive (NSD) 114 - Site Assembly/Site Evacuation

2.16 CNS Emergency Plan

## 3. Limits and Precautions

None

## 4. Procedure

☐ 4.1 RP Duty Shift is responsible for initial emergency response during backshifts, weekends and/or holidays until augmented by oncoming RP personnel.

☐ 4.2 **IF** a Site Assembly is announced, RP work group assembles in the OSC per NSD 114 (Site Assembly/Site Evacuation).

☐ 4.3 Activate RP ERO positions in the Operations Support Center (OSC) using RP/0/A/5000/024 (OSC Activation Procedure).

- Contract personnel sponsored by RP (e.g., vendor RP Technicians) report to OSC RP Supervision for assignment, as necessary.
- ERO personnel providing RP support (e.g., drivers for Field Monitor Teams) report to their assigned work group Site Assembly point per NSD 114 and then proceed to OSC for assignment and dispatch.

☐ 4.4 Activate RP ERO positions in the Technical Support Center (TSC) using RP/0/A/5000/020 (Technical Support Center (TSC) Activation Procedure).

☐ 4.5 Provide RP support to Operations Shift Supervisor/Emergency Coordinator as follows:

- Use Enclosure 5.1 (Radiation Protection Initial/Continuing Emergency Response) as a guide for RP ERO response.
- Use Enclosure 5.2 (Radiation Protection Assignment Log/ERO Phone List) as a guide for RP ERO assignments.
- **IF** necessary, provide turnover to oncoming RP personnel.

☐ 4.6 Ensure ERO facilities and RP emergency equipment is restored to a state of operational readiness after termination of response.

- **IF** RP Emergency Kits, equipment or ERO facilities **CANNOT** be restored or replaced to state of readiness within twenty four hours following termination of ERO activation, notify Emergency Planning and/or RP Supervision.

## 5. Enclosures

5.1 Radiation Protection Initial/Continuing Emergency Response

5.2 Radiation Protection Assignment Log/ERO Phone List

**Enclosure 5.1**

**Radiation Protection Initial/Continuing Emergency Response**



**NOTE:**
- Enclosure steps may be implemented in any sequential order to provide radiological protection functions, based on severity of emergency conditions.
- Multiple RP ERO team members may perform enclosure steps and the corresponding actions.
- RP Duty Shift is responsible for performing initial on-shift offsite dose projections per HP/0/B/1009/026 (On-Shift Offsite Dose Projections) prior to activation and availability of ERO Dose Assessors normally located in the TSC or Emergency Operation Facility (EOF).

## 1. Radiation Protection Initial/Continuing Emergency Response

☐ 1.1 **WHEN** directed by Operations Shift Manager (OSM) or On-Shift Emergency Coordinator, perform on-shift offsite dose projections.

☐ 1.2 Provide on-site protective action(s) for the following:

- Assembled personnel
- Personnel with work duties in radiological areas

☐ 1.3 Coordinate in-plant monitoring to support Control Room, Technical Support Center (TSC) and Operations Support Center (OSC).

☐ 1.4 Ensure the following items are available to OSC RP ERO personnel:

- Respiratory Printout or computer access to respiratory issue software
- Master keys for Locked High Radiation Areas
- Radiation survey instruments (e.g., Gamma Alarm, extendable Teletector/Telepole, Eberline RO-20 or equivalent type instruments)

☐ 1.5 Go to RP Site Assembly point in the OSC.

☐ 1.6 **WHEN** ERO is activated begin accounting for RP personnel on site.

- **IF** available, RP personnel on site report to Supervisor or lead person.
- **IF** necessary, RP Lead Person or work group supervisor notify RP Shift or OSC RP Supervisor for the work group accountability.

**Enclosure 5.1**

**Radiation Protection Initial/Continuing Emergency Response**



- **IF** computer method for personnel accountability is **NOT** available per NSD 114 (Site Assembly/Site Evacuation), notify Security (telephone numbers 831-3254, 5364 or 2393) within 30 minutes of ERO activation for all RP personnel on site.

☐ 1.7 Notify OSC Coordinator of any RP work teams assigned prior to OSC activation (e.g., Rescue and Repair Teams or Field Monitor Teams).

☐ 1.8 Use Enclosure 5.2 (Radiation Protection Assignment Log/ERO Phone List) as a guide for assigning RP ERO duties.

- List any RP personnel previously dispatched for ERO duties.

**WARNING:** Consider the possibility that reactor conditions may be unstable and radiological conditions may be unknown.

☐ 1.9 **IF** necessary, provide immediate RP support for any of the following activities:

- Fire Brigade
- Contaminated medical injury response
- Emergency Rescue and Repair teams
- RP job coverage for chemistry sampling, plant operations and/or maintenance activities
- Other actions or mitigation strategies prescribed by ERO management

☐ 1.10 **IF** required, initiate the following procedures as necessary:

- HP/0/B/1001/018 (RP Compliance Sampling)
- HP/0/B/1009/003 (Radiation Protection Response Following a Primary to Secondary Leak)
- HP/0/B/1009/008 (Contamination Control of Injured Individuals)
- HP/0/B/1009/011 (EMF Loss)
- HP/0/B/1009/014 (Radiation Protection Actions Following an Uncontrolled Release of Liquid Radioactive Material)

☐ 1.11 **WHEN** available, assist OSC RP Supervision to identify RP technicians for OSC duties.

- **IF** necessary, assist RP Supervision in completion of Minimum Staffing Levels for RP OSC Personnel from RP/0/A/5000/024 (OSC Activation Procedure).
- **IF** necessary, assign a person to verify respiratory qualifications of OSC personnel.
- **IF** necessary, assist in completion of OSC Team Work Sheet from RP/0/A/5000/024 (OSC Activation Procedure).
- **IF** necessary, assist RP Supervision with trending and recording of available radiological information to support RP OSC response.
- **IF** necessary, assist RP Supervision in interfacing with TSC and EOF.
- **IF** necessary, assist RP Supervision in coordination of RP shift rotation and augmentation of RP ERO personnel.

☐ 1.12 **IF** available, assist RP Supervision in coordination of RP activities for OSC teams.

- Establish travel route to and from job to be performed.
- Establish dose limits and/or dose rate limits during pre-job planning for high exposure jobs.
- Manage planned emergency exposures using station procedures and CNS Emergency Plan.
- Inform teams of known plant radiological conditions during RP pre-job brief.
- Prescribe protective clothing requirements to prevent the spread of contamination.

☐ 1.13 **IF** necessary, assist RP Supervision in coordinating and dispatching Field Monitor Teams (FMT) from available OSC personnel per HP/0/B/1009/004 (Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station).

**Enclosure 5.1**

**Radiation Protection Initial/Continuing Emergency Response**



**NOTE:**
- IF necessary, an onsite survey team (e.g., Foxtrot Team) may be dispatched from OSC to perform radiation surveys inside the security protected area fence in addition to offsite FMTs under direction of TSC or EOF.
- Onsite Survey Teams sent out from OSC report survey information back to OSC RP Supervision (e.g., on-site survey radiological results inside Protected Area Fence are to be reported to OSC ERO Management).
- Onsite survey results should be reported to TSC RP Support or Field Monitor Coordinator (FMC) as directed by OSC RP Supervision via telephone to supplement offsite FMT survey results.

☐ 1.14 IF necessary, assist RP Supervision implement contamination control requirements for the site.

☐ 1.15 IF necessary, assist RP Supervision in coordinating the set up and source check of radiological monitoring equipment in plant areas (e.g., portal monitor and/or portable frisking equipment).

- Ensure that personnel monitoring equipment is available in the OSC, TSC and Control Room.
- IF necessary, use page announcement to notify personnel of requirement for use of personnel monitoring equipment (e.g., portal monitors and frisker use).
- Ensure contamination control methods are used according to station procedures.

☐ 1.16 IF necessary assist RP Supervision in monitoring dose rates in the OSC.

- IF necessary, establish control methods for personnel radiation exposure.
- IF necessary, limit personnel exposure to blanket dose extension levels.
- IF necessary, initiate discussion with RPM on the need to evacuate the OSC if General Area dose rate approaches 5 mrem/hr and dose rate is expected to continue.
- IF necessary, relocate Personnel Monitoring Teams to low exposure waiting areas (LEWAs < 5 mrem/hr), appropriate to site radiological conditions (e.g., plume directional movement).

☐ 1.17 Evaluate radioactive contamination in the OSC.

- Direct contamination surveys appropriate to radiological conditions.
- **IF** necessary, initiate decontamination of equipment and/or personnel.

☐ 1.18 **IF** necessary, assist RP Supervision in requesting Nuclear Supply Chain support for additional protective clothing, dosimetry, or other necessary emergency response equipment.

- Use equipment and supplies available at normal issue points (e. g., ERO Emergency Kits).

☐ 1.19 **IF** necessary, assist RP Supervision in coordinating radiological monitoring of food items supplied to OSC with assistance from Nuclear Supply Chain and Emergency Planning (EP) representatives.

- **IF** necessary, initiate "No eating or drinking" contamination control requirements when food items are brought into emergency response facilities.
- Ensure contamination control methods are used according to station procedures.

☐ 1.20 **WHEN** necessary, assist RP Supervisor and/or Radiation Protection Manager (RPM) in establishing Count Room sample analysis priority based on need for isotopic results (e.g., FMT, OSC, TSC and/or Chemistry sample results).

☐ 1.21 **IF** necessary, assist RP Supervisor or RPM in determining alternate sample counting location as a result of adverse Auxiliary Building RP Count Room conditions.

**NOTE:** Site Assembly areas specified in NSD 114 (Site Assembly/Site Evacuation) may be changed based on updated radiological assessments of plume directional movement and/or other radiological conditions.

☐ 1.22 **IF** necessary, assist RP Supervision in movement of non-essential personnel per RP/0/A/5000/010 (Conducting a Site Assembly or preparing the Site for an Evacuation).

- Non-essential personnel should be sent to appropriate staging area (e.g., Administration Building) considering upwind directional movement of a plume, if such information is available from TSC Dose Assessors and/or Field Teams.
- **WHEN** moving non-essential personnel give consideration to declared pregnant women.

☐ 1.23 **IF** necessary, assist RP Supervision in initiation of the following emergency procedures.

- HP/0/B/1009/005 (Personnel/Vehicle Monitoring for Emergency Conditions)
- HP/0/B/1009/006 (Alternative Method for Determining Dose Rate Within the Reactor Building)
- HP/0/B/1009/007 (In-Plant Particulate and Iodine Monitoring Under Accident Conditions)
- SH/0/B/2005/003 (Distribution of Potassium Iodide Tablets in the Event of A Radioiodine Release)

☐ 1.24 **IF** required, identify RP personnel for personnel monitoring teams as they become available, for the following locations:

- On-site assembly areas identified in NSD 114 (Site Assembly/Site Evacuation).
- PAP Area
- Evacuation Facilities

☐ 1.25 Assist RP management restore equipment to a ready state condition after a drill or ERO activation event is terminated.

**Enclosure 5.2**



**Radiation Protection Assignment Log/ERO Phone List**

**NOTE:**
- Personnel that may have consumed alcohol within the last 5 hours must have approval from a member of Station Management prior to assignment of ERO duties.
- Personnel shall be "Fit for Duty" and clean shaven for OSC and FMT team assignments.

## 1. Radiation Protection Assignment Log/ERO Phone List

☐ 1.1 Assignment to the following positions is on an as needed basis with consideration of RP ERO qualifications and availability of RP personnel.

☐ 1.2 RP Technicians and drivers **NOT** assigned to Field Monitor Teams should remain available for ERO assignment and/or relief duties, as designated by RP Supervision (or RP Duty Shift).

| | |
|---|---|
| FMT Sample Van # 1 RP Technician | _____ |
| FMT Sample Van # 1 Driver | _____ |
| FMT Sample Van # 2 RP Technician | _____ |
| FMT Sample Van # 2 Driver | _____ |
| FMT ALPHA Vehicle RP Technician | _____ |
| FMT ALPHA Vehicle Driver | _____ |
| FMT BRAVO Vehicle RP Technician | _____ |
| FMT BRAVO Vehicle Driver | _____ |
| FMT CHARLIE Vehicle RP Technician | _____ |
| FMT CHARLIE Vehicle Driver | _____ |
| FMT DELTA Vehicle RP Technician | _____ |
| FMT DELTA Vehicle Driver | _____ |
| OSC/RP Technician # 1 | _____ |
| OSC/RP Technician # 2 | _____ |
| OSC/RP Technician # 3 | _____ |
| OSC/RP Technician # 4 | _____ |
| OSC/RP Technician # 5 | _____ |
| OSC/RP Technician # 6 | _____ |
| OSC/RP Technician # 7 | _____ |
| OSC/RP Technician # 8 | _____ |
| OSC/RP Technician # 9 | _____ |
| OSC/RP Technician # 10 | _____ |
| OSC On-Site Team FOXTROT | _____ |
| TSC RP Technician | _____ |

**Enclosure 5.2**



**Radiation Protection Assignment Log/ERO Phone List**

| Radiation Protection ERO Phone Numbers | |
|---|---|
| CNS Emergency Kit Room | 803-831-3000 x5634 |
| EOF Field Monitoring Coordinator | 704-382-0736 |
| EOF Offsite Dose Assessor | 704-382-0748 |
| EOF Radiation Assessment Manager (RAM) | 704-382-0763 |
| Evacuation Site (Plant Allen, NC) | 704-829-2350<br>704-829-2360 |
| Evacuation Site (York Operations Facility - York, SC) | 803-628-3293 - Whse Dock Area<br>803-628-3294 |
| FMT Vehicle Alpha | 803-372-9023 |
| FMT Vehicle Bravo | 803-372-9024 |
| FMT Sample Van # 1 | 803-372-9021 |
| FMT Sample Van # 2 | 803-372-9022 |
| OSC RP Manager | 803-831-3000 x4157 |
| OSC RP Supervisor | 803-831-3000 x4185 |
| OSC DRC Supervisor | 803-831-3000 x4154 |
| TSC Dose Assessor | 803-831-8042 x5881 |
| TSC RP Support | 803-831-8182 x5882 |

# Lee Nuclear Station Response to Request for Additional Information (RAI)

## Attachment 3 to RAI 13.03-62

## Catawba Procedure HP/0/B/1009/007, In-Plant Particulate and Iodine Monitoring Under Accident Conditions

| Duke Energy<br>Catawba Nuclear Station<br>**IN-PLANT PARTICULATE AND IODINE MONITORING UNDER ACCIDENT CONDITIONS**<br><br>**Information Use** | Procedure No.<br>**HP/0/B/1009/007**<br>Revision No.<br>**020**<br>Electronic Reference No.<br>**CN005CVB** |
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# In-Plant Particulate and Iodine Monitoring Under Accident Conditions

## 1. Purpose

This procedure provides a method of determining airborne radioiodine concentration in the presence of noble gas under accident or emergency conditions and provides alternative Count Room methods.

## 2. References

2.1 SH/0/B/2005/003 - Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

2.2 HP/0/B/1001/018 - RP Compliance Sampling

2.3 SH/0/B/2000/004 - Taking, Counting and Recording Surveys

2.4 CNS Emergency Plan - Section I.2

2.5 Catawba Nuclear Station - Technical Specifications

2.6 Catawba Nuclear Station - Selected Licensee Commitments

2.7 DPC-1229.00-00-0006, CNC-1229.00-00-0051 Estimated Sample Dose and CDAG Setpoint Calculations in Support of Pass Removal

## 3. Limits and Precautions

**CAUTION:**

- Collection of air samples may be required in hazardous locations with possibility of airborne contamination and high radiation levels.
- **IF** containment sampling is necessary, CNC-1229.00-00-0051 Estimated Sample Dose and CDAG Setpoint Calculations in Support of Pass Removal, may be used for determining As Low As Reasonably Achievable (ALARA) sample shielding requirements.

## 4. Procedure

| | |
|---|---|
| **NOTE:** | **IF** Emergency Response Organization (ERO) is activated, sampling instructions will be from RP Supervision located in the Operations Support Center (OSC). |

4.1 **WHEN** instructed by Radiation Protection Supervision, obtain air samples in potential high airborne contamination areas per SH/0/B/2000/004 (Taking, Counting and Recording Surveys).

| | |
|---|---|
| **NOTE:** | Emergency condition contingency samples may be for qualitative radioanalysis and are **NOT** intended to comply with requirements of Catawba Nuclear Station - Technical Specifications or Selected Licensee Commitments |

4.2 **WHEN** instructed by RP Supervision, obtain containment air samples per HP/0/B/1001/018 (RP Compliance Sampling) **OR** other sampling processes as directed by Supervision.

4.3 **WHEN** instructed by RP Supervision, ingest Potassium Iodide (KI) tablets per SH/0/B/2005/003 (Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release).

| | |
|---|---|
| **NOTE:** | Per CNS Emergency Plan - Section I.2, it may be necessary to arrange sample radioanalysis with other Duke radiological counting facilities. |

4.4 **IF** Count Room analysis is not possible, contact RP Supervision to determine alternate sample counting location(s).

- Determine transport methods for in-plant sample to alternate counting facility (e.g., deliver air samples to a Field Monitoring Team (FMT) Sample Van for radioiodine analysis).

4.5 Report sample results to RP Supervision.

- Retain results for RP Supervisory review.
- Retain sample(s) for additional Count Room analysis per RP Supervisory direction.

## 5. Enclosures

None

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 025**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP)**

**Reference NRC RAI Number(s): 13.03-63**

**NRC RAI:**

**SITE-10:** Evacuation Provisions and Actions

Basis: NUREG-0654/FEMA-REP-1; Evaluation Criterion J.1; Evaluation Criterion J.2; Evaluation Criterion J.3; Evaluation Criterion J.5; Evaluation Criterion J.6; Evaluation Criterion J.10.a

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. Section II.J.1, "On-Site Notification" (page II-43), of the Lee Emergency Plan indicates in high noise areas, measures other than the public address system may be used to notify people located within the protected area of an emergency. However these measures are not described. Individuals within the Protected Area are notified within 15 minutes of the declaration an emergency. The plan does not address the time necessary to warn people outside the Protected Area. Clarify the statement: in high noise areas, measures other than the public address system may be used to notify people located within the protected area of an emergency. Discuss the time it will take to notify personnel and visitors outside the protected area after identification of an emergency.

B. Section II.J.2, "Evacuation Routes and Transportation" (page II-43), of the Lee Emergency Plan states provisions for evacuation of on-site individuals include evacuation by private automobile (15-30 min. high traffic density not expected), but preplanned routes are not identified. Section J.2 also states that Security forces will arrange transportation for those without cars, but does not provide information on what type of transportation the Security Force will have available to transport people without cars. Section J.2 also states that designated relocation site will have decontamination and contamination control capability and equipment, but the locations of these facilities are not identified. Explain why prearranged routes, coordinated with the State and local governments were not identified in the Lee Emergency Plan. Discuss the type of transportation the Security Force will use to transport people without cars. Discuss where the relocation center will be established. Additionally, if the relocation center is not within the control of Duke Energy, provide information on when the letters of agreement be available.

C. Section II.J.3, "Personnel Monitoring and Decontamination" Appendix 6, "Emergency Equipment and Supplies" (page A6-2), is a general list of the types of equipment available, but there are no details on what type of equipment is actually available, where it is stored, how often it tested and when is it inventoried. Relocation sites will provide a location for personnel monitoring. According to Section J.2, the Emergency Coordinator directs contamination monitoring of personnel, vehicles, and personal property arriving at the relocation site. Describe the decontamination capabilities and equipment sufficient to assess adequacy and information on the criteria used for personnel and other monitoring.

D. Section J.6, "Protective Measures" (pages 45/46), of the Lee Emergency Plan states that measures are taken to minimize ingestion and or inhalation of radionuclides to minimize exposure below limits. However, the measures used are not identified. Section J.6 addresses that self contained breathing apparatus (SCBAs) are used in location where there is low oxygen or fires. Other respiratory protection is available and issued by Radiation Protection or Safety and Health. The Lee Emergency Plan does not address training for use of (SCBAs) or other respiratory protection equipment. In addition, Section J.6 does not address the number of respirators available or the maintenance of the equipment. The criteria for use of protective clothing (PCs) are given, however, the location of the equipment and inventory is not addressed to ensure that the PCs are available when needed. The use of radioprotective drugs (potassium iodide [KI]) is mentioned in the Lee Emergency Plan, but there are no criteria for issuance, how and where it is stored and inventoried, and who makes the decision on issuance. Describe the measures to be used so an assessment of the adequacy of the measures used to minimize exposure can be made. Describe the training in the use of respiratory equipment as well as the inventory and maintenance of the equipment and on storage and inventory of PCs. Describe the criteria for issuance of KI, how and where it is stored and inventoried, and who makes the decision on issuance.

E. Appendix 4, "Evacuation Time Estimate" (pages A4-1/12), of the Lee Emergency Plan includes maps of evacuation routes, evacuation areas, and general locations of shelter areas and relocation sites. Pre-selected radiological sampling and monitoring point locations are not identified. Provide the specific locations of the shelter areas and the relocation sites and the pre-identified monitoring locations or provide an Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) for when those locations would be identified.

**Duke Energy Response:**

A. Duke Energy has addressed the audibility problems encountered on evacuation of personnel from high-noise areas for its fleet units in previous responses to IE Bulletin No. 79-18. A consistent process will be utilized for the Lee facility. The plant alarm system will use the telephone page system amplifiers and speakers. The adequacy of the design, with respect to high-noise areas, will be assessed in the as-built plant to determine if additional administrative or equipment measures are required. If additional measures are warranted, the decision will be influenced by the technology available at the time.

The site alarm system and public address announcements provide notification of plant condition to all onsite personnel. If conditions require activation of the Emergency Plan, the current Duke emergency plan implementing procedures require a site assembly at an emergency classification of Alert or higher, to account for personnel within the protected area. This process has proven capable of accounting for personnel within the protected area or identifying missing personnel within 30 minutes at Duke's operating stations.

Duke Energy's Catawba Nuclear Station procedure RP/0/A/5000/010, "Conducting a Site Assembly or Preparing the Site for an Evacuation," is provided for information as an attachment to this response (Attachment 1).

Personnel and visitors outside the protected area, but within the owner controlled area, will be notified of an emergency through the use of the site alarm system and public address announcements. The site alarm and public address systems in use at the Duke operating

facilities have proven to be audible well outside of the protected area, therefore it is expected that the majority of individuals within the owner controlled area will be notified at the same time as the onsite personnel. In addition to the site alarms and public address announcements, security sweeps of the owner controlled area outside the protected are conducted. Based on experience at operating nuclear power plants, Duke expects that the necessary security sweeps can be completed within one hour of the decision to assemble and evacuate non-essential personnel from the site.

B. Affected individuals evacuate the site via personal vehicles. If an individual does not have access to personal transportation, either the affected individual or the Security Force makes arrangements for transportation (ride-share) with another evacuating individual.

Currently, there is one access/egress road at the Lee Nuclear Station site. The exit route intersects with McKowns Mountain Road approximately 1 mile south of the site. During an emergency requiring site evacuation, the appropriate evacuation route is determined based on a number of considerations including potential or existing radiological hazards, local weather conditions, traffic, etc. Upon determination of the appropriate evacuation route, the local authorities are notified of the designated route.

Duke has not yet determined a specific location for the relocation center. The relocation center will be located in a manner that reduces the exposure of evacuating individuals to radiological hazards arising from the emergency condition. Consideration will also be given to prevailing traffic patterns and the effect of the plant evacuation on public evacuation activities. The relocation center will be provided with adequate facilities and equipment to accommodate expected activities, including registering and sheltering relocated individuals, parking of vehicles, monitoring individuals and vehicles, and providing decontamination services, if needed. These details will be established considering Duke's experience operating three other nuclear plant sites and the proximity of available facilities. If the relocation centers are not under the control of Duke, a Letter of Agreement will be provided. Any Letters of Agreement that are received will be available and incorporated into the Lee Emergency Plan prior to initial fuel load at the site.

Details regarding the relocation center will be developed on a schedule that supports NRC inspection activities and execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

C. The procedure for personnel and vehicle monitoring at relocation sites will be consistent with that in use at other Duke Energy nuclear plants, such as Catawba Nuclear Station Procedure HP/0/B/1009/005, "Personnel/Vehicle Monitoring for Emergency Conditions," which is included as Attachment 2 to this response. This procedure provides guidance for personnel and vehicle monitoring during a site evacuation due to a radiological emergency. Provisions will be made for the decontamination of vehicles and personnel at a relocation center if necessary. If needed, Radiation Protection (RP) survey teams equipped with portable monitoring instruments will monitor personnel and vehicles for contamination at the relocation center. The relocation center will be stocked with decontamination and contamination control supplies and equipment in the event it is needed. RP monitoring teams dispatched to relocation center are responsible for ensuring arriving personnel are properly monitored.

The procedure for verifying availability and readiness of RP emergency response equipment would be similar to that in use at other Duke Energy nuclear plants. Catawba Nuclear Station's Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory," provides the process to verify availability and readiness of RP emergency response equipment. This procedure is provided for information as an attachment to RAI response 13.03-61 (this letter).

D. Consistent with practices at Duke's other operating nuclear power plants, Radiation Protection (RP) personnel will be responsible for monitoring to ensure the radiological safety of personnel as required during a Site Assembly or Site evacuation, monitoring personnel for contamination at site exits and providing radiation monitoring of work locations for essential personnel who remain on site after a site evacuation. Radiation dose rates, loose surface contamination levels, and airborne radioactivity concentrations will be monitored to determine the appropriate response and protective equipment requirements. Based on Duke's experience operating nuclear plants, routine radiation protection strategies will be employed to maintain emergency worker doses as low as reasonably achievable. Protective clothing will be prescribed for workers responding to actual or potential contaminated areas. Respiratory protection will be prescribed for workers who are properly trained, medically qualified, and fit tested in accordance with the respiratory protection program discussed in Chapter 12 of the FSAR. Specific details regarding these procedures for the Lee Nuclear Station are not available. These details will be developed on a schedule that supports execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

Duke has not yet determined the quantity or locations of SCBAs or other respiratory protection equipment to be used at the Lee Nuclear Station but expects these details to be similar to those provided at the Catawba Nuclear Station. At Catawba, SCBAs are used in areas that are deficient in oxygen or when fighting fires. Respiratory protective equipment will be issued by the Radiation Protection or Safety and Health Services. SCBAs will be available with other fire fighting equipment for use by the station fire brigade. These details will be established considering the design features of the AP1000 and based on Duke's experience operating three other nuclear plant sites. These details will be developed on a schedule that supports NRC inspection activities and execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2. The procedure for verifying availability and readiness of respiratory equipment is expected to be similar to that in use at other Duke Energy nuclear plants. Catawba Nuclear Station's Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory," provides verification that respiratory equipment in emergency kits is acceptable for use, and is included for information as an attachment to RAI response 13.3-061 (this letter).

Consistent with Duke's experience at its other operating nuclear power plants, protective clothing inventories are maintained in the Change Rooms inside the Radiation Control Area and inventories are conducted each quarter. Protective clothing will be issued when removable contamination levels exceed 1000 dpm/100 $cm^2$ beta-gamma and 20 dpm/100 $cm^2$ alpha. Special fire-fighting protective clothing and equipment is available in designated station supply storage areas for use by fire brigade personnel. For further information regarding emergency supplies and equipment, refer to the response to RAI 13.03-61.

Duke maintains corporate procedures regarding criteria for the issuance of Potassium Iodide (KI). Duke Energy corporate procedure SH/0/B/2005/003, "Distribution of Potassium Iodide

Tablets in the Event of a Radioiodine Release," provides information necessary to distribute Active Potassium Iodide (KI) tablets to Emergency Response Organization (ERO) personnel in the event of a release of radioiodine resulting from emergency conditions and outlines storage and supply information to assure sufficient quality and quantity of thyroid blocking agent. In accordance with current Duke corporate procedures, applicable to all Duke nuclear facilities, the Station Radiation Protection Manager shall evaluate the distribution of KI for personnel who are suspected of being in an affected area prior to the detection of a radioiodine release; personnel known to have been in an affected area; and personnel who have a need to enter an affected area.

SH/0/B/2005/003 states KI shall be distributed only to prevent a "significant uptake" of radioiodine. The procedure defines a significant uptake as that amount of radioiodine taken into the body that would result in a Committed Dose Equivalent (CDE) of 5 rem or more to the thyroid.

E. Duke has not yet determined the specific locations of the shelter areas or reception centers for the Lee Nuclear Station, only general areas where these facilities may be located. Shelter areas and reception centers will be located in a manner that reduces the exposure of evacuating individuals to radiological hazards arising from the emergency condition. Consideration will also be given to prevailing traffic patterns and the effect of the area evacuation on public access to the facilities. Shelter areas and reception centers will be provided with adequate facilities and equipment to accommodate expected activities, including registering and sheltering relocated individuals, parking of vehicles, monitoring individuals and vehicles, and providing decontamination services, if needed. These details will be established considering Duke's experience operating three other nuclear plant sites and the proximity of available facilities. If the shelter areas and reception centers are not under the control of Duke, a Letter of Agreement will be provided. Any Letters of Agreement that are received will be available and incorporated into the Lee Emergency Plan prior to receipt of nuclear fuel at the site. Details addressing locations of shelter areas and reception centers will be developed on a schedule that supports NRC inspection activities and execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2. An implementation schedule for these Programs is provided in Table 13.4-201, "Operational Programs Required by NRC Regulations," included in Part 2 of the COL application.

Preliminary, pre-identified radiological sampling and monitoring locations are identified on the attached map and are summarized on the attached table. The map and table are included as Attachment 3 to this response.

**Associated Revision to the Lee Nuclear Station Emergency Plan:**

None

**Attachments:**

1. RP/0/A/5000/010, "Conducting a Site Assembly or Preparing the Site for an Evacuation"
2. HP/0/B/1009/005, "Personnel/Vehicle Monitoring for Emergency Conditions"
3. Pre-identified Radiological Sampling Map
   Pre-identified Radiological Sampling Summary Table

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-63**

**RP/0/A/5000/010, "Conducting a Site Assembly or Preparing the Site for an Evacuation"**

| Duke Energy<br>Catawba Nuclear Station<br>**Conducting a Site Assembly or Preparing the Site for an Evacuation**<br><br>**Reference Use** | Procedure No.<br>**RP/0/A/5000/010**<br>Revision No.<br>**022**<br>Electronic Reference No.<br>**CN005GNW** |
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## 1. Symptoms

1.1 A site assembly is an occurrence that warrants the accountability of all personnel on site for reasons of personnel safety or for dissemination of information.

- Alert, Site Area Emergency or General Emergency has been declared.
- Other plant conditions that, in the opinion of the Operations Shift Manager/Emergency Coordinator, warrant an assembly.
- Radiation levels in unrestricted areas of the Auxiliary Building > 2 mr/hr (e.g., unlocked rooms, unposted areas, etc.).
- EMF-41 indicates Auxiliary Building Airborne Radiation Level (>1 x $10^6$ cpm).

1.2 Relocation is a process that moves personnel from one on-site location to another on-site location to ensure personal safety or non-involvement of the personnel due to a hazardous situation.

1.2.1 Plant conditions that in the opinion of the Operations Shift Manager/Emergency Coordinator warrants the movement of personnel on site to avoid a hazardous situation:

- Fire
- HazMat
- Weather
- Hostile Aircraft Threat

1.2.2 Security requires the clearing of an area during a security response or in preparation for a security response.

1.3 A site evacuation is an occurrence that necessitates the evacuation of non-essential personnel and declared pregnant workers for reasons of safety.

- Site Area Emergency, if plant conditions are rapidly degrading.
- General Emergency.
- Other plant conditions that, in the opinion of the Operations Shift Manager/Emergency Coordinator, warrant an evacuation.

## 2. Immediate Actions

2.1 Select the guidance sequence for the desired action:

_____ 2.1.1 To conduct a site assembly, perform step 2.2.

_____ 2.1.2 To conduct a relocation of personnel, perform step 2.3.

| | |
|---|---|
| **NOTE:** | All personnel within the Protected Area are to be accounted as having identified their locations per NSD 114 or as being identified as missing with a search initiated within 30 minutes of the first site assembly announcement. |

2.2 Conduct a site assembly.

| | |
|---|---|
| **NOTE:** | Security Procedure SP-1303C, part 4.6.3, initiates actions to patrol and evacuate the OCA in outlying areas such as the Catawba Park. |

_____ 2.2.1 Contact Security immediately at extension 5765 or 5766 to inform them that a site assembly is being initiated and direct them to implement OCA security measures and activate the emergency card readers.

| | |
|---|---|
| **NOTE:** | The Site Assembly/Evacuation siren is activated only two times to initiate a site assembly. |

2.2.2 The following step sequence (A then B) shall be performed by the Operations Shift Manager or his designee **twice**:

_____ A. Sound a 20 second blast of the Site Assembly/Evacuation alarm (pushbutton on MC-1).

- PRI-SITE ASSEM/EVAC

**OR**

- SEC-SITE ASSEM/EVAC

_____ B. Announce over the plant public address system:

*"This is the Operations Shift Manager. This is a site assembly. This is a site assembly.*
*There is/are* _____
*(What)*
*in/at* _____
*(Where)*
*All personnel and visitors go to a card reader location and swipe your badge, then go to your assigned assembly point. All personnel inside the protected area that do not have an assigned assembly point, report to the Service Building Railroad Bay or the canteen in the High Rise Office Building."*

_____ 2.2.3 Repeat Step 2.2.2 B (announcement only) at 5-minute intervals until notified that the site assembly has been completed.

2.2.4 **IF** the plant situation dictates that personnel remain at their assembly sites after the initial accountability is made, perform the following:

_____ A. Periodically assess the need to relocate assembled personnel on site or evacuate them.

_____ B. Periodically provide an update on the situation using the public address system.

_____ 2.2.5 **WHEN** the decision is made to secure from a site assembly, the Operations Shift Manager shall make the following announcement **twice**:

*"This is the Operations Shift Manager. Secure from site assembly. Secure from site assembly. Return to your normal work area."*

2.3 Conduct an on-site relocation of personnel.

_____ 2.3.1 Contact Security at 5765 or 5766 to discuss the relocation site for the affected personnel.

_____ 2.3.2 Make the following announcement over the plant public address system:

*"This is the Operations Shift Manager. A* _____
*(incident)*
*in the* _____ *requires the relocation of personnel in*
*(incident location)*
*that area to* _____. *Without delay, affected personnel*
*(relocation site description)*
*move to the* _____ *at this time."*
*(relocation site)*

_____ 2.3.3 Continue to assess the situation and relocate, assemble, or evacuate personnel as needed.

## 3. Subsequent Actions

| |
|---|
| **NOTE:** Site assembly shall precede site evacuation. |

3.1 **IF** the decision is made to conduct site evacuation, the Operations Shift Manager **OR** the TSC Emergency Coordinator shall perform the following depending on the status of TSC activation:

_____ 3.1.1 **IF** the TSC is **NOT** activated, the Operations Shift Manager shall perform the following:

_____ A. Notify RP Shift Technician on duty (ext. 5572 or plant pager 778-8394) for assistance in assessing the radiological hazard associated with the evacuation.

_____ B. Select a site evacuation location using Enclosure 4.1.

_____ C. Determine which personnel on site are to be considered "essential" in preparation for site evacuation of non-essential personnel.

_____ D. Notify the Evacuation Coordinator (weekly Duty List) of the decision to evacuate the site by providing the following information/direction:

_____ 1. Evacuation site selection (Allen or York).

_____ 2. Implement RP/0/A/5000/020 (Enclosure 4.17), Evacuation Coordinator's Checklist.

_____ 3. Report to the evacuation site.

| |
|---|
| **NOTE:** The Site Assembly/Evacuation siren is activated only two times to initiate a site evacuation. |

E. Perform the following step sequence (1, then 2) **twice**:

_____ 1. Sound a 20-second blast of the Site Assembly/Evacuation alarm (pushbutton on 1MC-1).

- PRI-SITE ASSEM/EVAC

**OR**

- SEC-SITE ASSEM/EVAC

_____ 2. Announce over the plant public address system:

*"This is the Operations Shift Manager. This is a site evacuation. This is a site evacuation. "All non-essential personnel and declared pregnant workers proceed to Site* _____."
(York - York Operations Center; Allen - Allen Steam Station)

_____ F. Repeat Step 3.1.1 E.2 at 5-minute intervals until notified that the site evacuation has been completed.

_____ G. Contact Security to help determine if the evacuation is complete by assessing the amount of traffic leaving the site.

_____ H. Notify the Evacuation Coordinator at the evacuation site when evacuated personnel can return to their work locations or can be released to go home.

- Site York (York Operations Center)

  803-628-3293 (Warehouse Dock Area)
  803-628-3294

- Site Allen (Allen Steam Station)

  704-829-2350 (Switchboard)
  704-829-2360 (Control Room - after hours)

3.1.2 **IF** the TSC is activated, the TSC Emergency Planner shall perform the following:

_____ A. Inform the RP Manager/Supervisor, TSC Dose Assessor and RP Support as appropriate for assistance in assessing the radiological hazard, wind speed and direction associated with the evacuation.

_____ B. Select a site evacuation location using Enclosure 4.1.

_____ C. Notify the Security Manager and the Evacuation Coordinator to determine the number of non-essential personnel that should evacuate:

( ) Total number of personnel in PA (security printout)

- ( ) Number of TSC/OSC essential personnel (TSC/OSC staffing sheets)

Total number of PA evacuees

+ ( ) Number of personnel assembled in OCA (security calls)

Total number of non-essential personnel to evacuate

_____ D. Direct the Evacuation Coordinator to prepare to evacuate non-essential personnel per RP/0/A/5000/020, Enclosure 4.17.

_____ E. **WHEN** evacuation preparations are complete, perform the following:

_____ 1. Dispatch the Evacuation Coordinator to the selected evacuation site.

_____ 2. Inform the TC Emergency Coordinator to notify the Control Room to perform steps 3.1.2.F. and G.

| | |
|---|---|
| **NOTE:** | The Site Assembly/Evacuation siren is activated only two times to initiate a site evacuation. |

F. Direct the Control Room to perform the following step sequence **twice**:

_____ 1. Sound a 20-second blast of the Site Assembly/Evacuation alarm (pushbutton on 1MC-1).

- PRI-SITE ASSEM/EVAC

**OR**

- SEC-SITE ASSEM/EVAC

_____ 2. Announce over the plant public address system:

*"This is the Operations Shift Manager. This is a site evacuation. This is a site evacuation. "All non-essential personnel and declared pregnant workers proceed to Site* _____."

(York - York Operations Center; Allen - Allen Steam Station)

_____ G. Direct the Control Room to continue to make the announcement in Step 3.1.2 F.2 at 5 minute intervals until notified that the site evacuation has been completed.

_____ H. Determine if the evacuation is complete by having Security assess the amount of traffic exiting the site.

_____ I. **WHEN** site evacuation is complete, inform the TSC Emergency Coordinator to notify the Control Room to announce "site evacuation is complete" and to stop making announcements.

_____ J. Notify the Evacuation Coordinator at the evacuation site when evacuated personnel can return to their work locations or can be released to go home.

- Site York (York Operations Center)

  803-628-3293 (Warehouse Dock Area)
  803-628-3294

- Site Allen (Allen Steam Station)

  704-829-2350 (Switchboard)
  704-829-2360 (Control Room - after hours)

## 4. Enclosure

4.1 Determination of Evacuation Site

**Enclosure 4.1**

**Determination of Evacuation Site**



1. Site York is located at the York Operations Center. This site is approximately 11.8 miles WSW of the plant.

2. Site Allen is located at the Allen Steam Station in Belmont, N.C. This site is approximately 10 miles NNE of the plant.

| | |
|---|---|
| **NOTE:** | Wind Direction indicator in control room has a scale of 0 to 540 degrees. Both 0 and 360 degrees indicate North. To convert wind direction indication greater than 360 degrees to the standard 360 degree map (as above) you must subtract 360 from the indication. |

3. Determine the evacuation site as follows:

**IF** wind speed < 5 mph select Site Allen.

**OR**

**IF** wind speed ≥ 5 mph, use the table below to determine the appropriate evacuation site:

| **Wind Direction** (Degrees from North) | **Evacuation Site** |
|---|---|
| 0 – 144.9 | ALLEN |
| 145 – 255 | YORK |
| 255.1 – 360 | ALLEN |

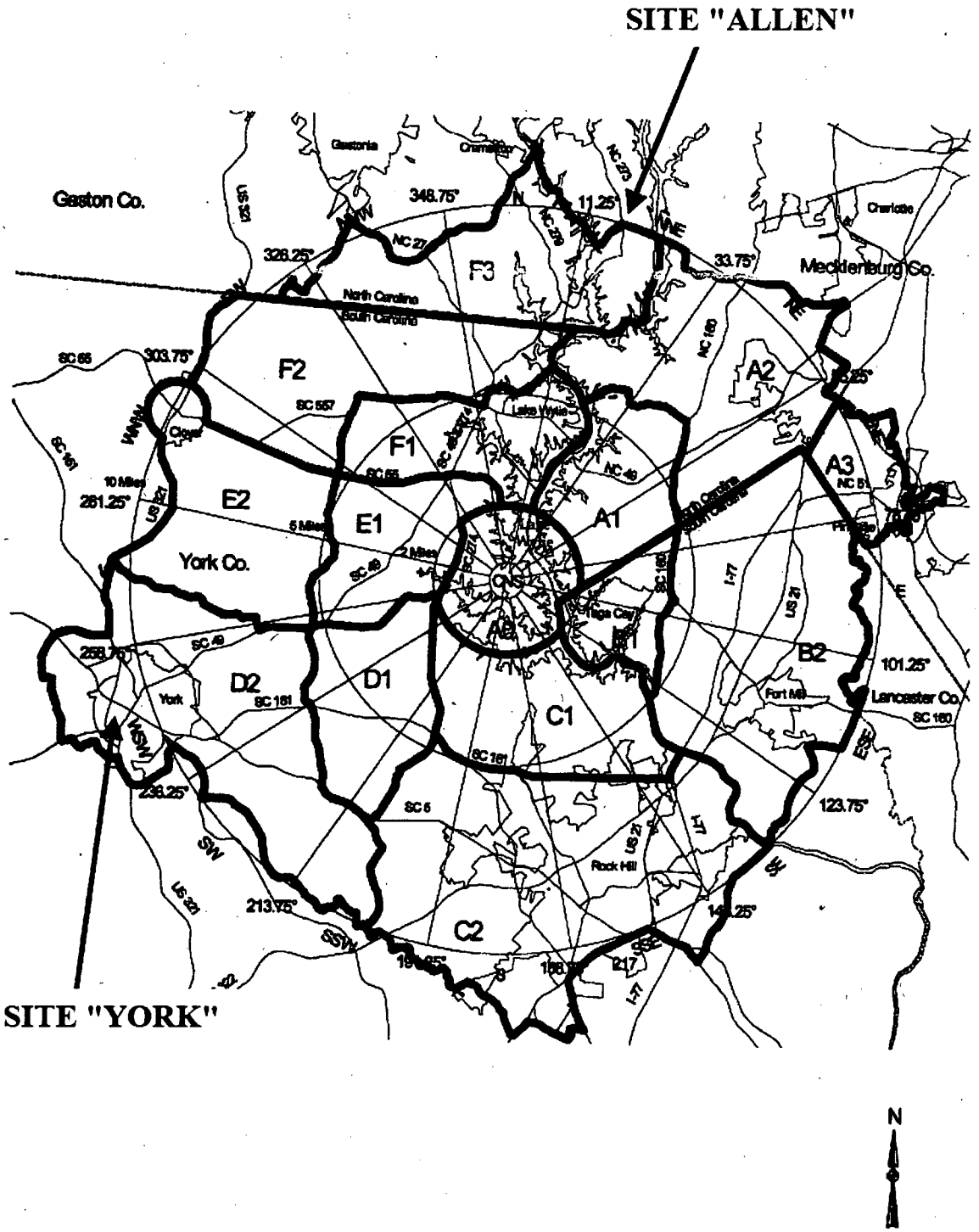
**OR**

The Emergency Coordinator may use judgement to select the evacuation site based on plant and/or meteorological conditions.

**Enclosure 4.1**

**Determination of Evacuation Site**

RP/0/A/5000/010
Page 2 of 2



**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 2 to RAI 13.03-63**

**HP/0/B/1009/005, "Personnel/Vehicle Monitoring for Emergency Conditions"**

| Duke Energy<br>Catawba Nuclear Station<br>**Personnel/Vehicle Monitoring for Emergency Conditions**<br><br>**Reference Use** | Procedure No.<br>**HP/0/B/1009/005**<br>Revision No.<br>**018**<br>Electronic Reference No.<br>**CN005CV9** |
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| **PERFORMANCE** | |
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| **(ISSUED) - PDF Format** | |

# Personnel/Vehicle Monitoring for Emergency Conditions

## 1. Purpose

This procedure provides guidance for personnel and vehicle monitoring during a site evacuation in a radiological emergency.

## 2. References

2.1 HP/0/B/1009/009 - Guidelines for Accident and Emergency Response.

2.2 SH/0/B/2000/006 - Control of Radioactive Material and Use of Radioactive Material Tags

2.3 SH/0/B/2000/013 - Removal of Items from RCA/RCZs

2.4 SH/0/B/2001/003 - Investigation of Skin and Clothing Contaminations

2.5 SH/0/B/2008/005 - Radiation Protection Support Equipment Issue and Return

2.6 Nuclear System Directive (NSD) 114 - Site Assembly/Site Evacuation

## 3. Limits and Precautions

None

## 4. Procedure

4.1 Radiation Protection Manager, RP Supervisor, or their designee may at their discretion, authorize operation outside scope and/or acceptance criteria stated in this procedure.

4.2 Radiation Protection (RP) personnel perform emergency response per HP/0/B/1009/009 (Guidelines for Accident and Emergency Response).

- Conduct RP surveys with respect to severity of radiological conditions resulting from an accident; (e.g., air samples, contamination, and radiation surveys).

4.3 Operations Support Center (OSC) RP Management activates RP monitoring teams for personnel and vehicle surveys upon notification of site evacuation.

4.3.1 Dispatch personnel monitoring teams to survey assembly locations, as necessary.

4.3.2 Dispatch personnel monitoring teams to Personnel Access Portal (PAP), as necessary.

4.3.3 Dispatch personnel monitoring team(s) to Evacuation Facility Site(s) Plant Allen and/or York Operations Center upon notification of site evacuation.

4.3.4 OSC RP Management ensures adequate support and secures RP monitoring teams, as necessary.

4.4 On-Site Assembly Area Monitoring Team(s)

4.4.1 Identify personnel assembly areas using NSD 114 (Site Assembly / Site Evacuation).

4.4.2 Monitor on-site assembly areas.

4.4.3 Notify OSC RP Supervisor of corrective actions taken during personnel monitoring.

- **IF** assembly area is > 2 mrem/hr, relocate personnel to an area with a lower dose rate.
- Relocate personnel in the direction of the PAP considering radiological conditions and potential for exposure to site radiation levels.

4.5 PAP Monitoring Team

| | |
|---|---|
| **NOTE:** | 1. RP survey instruments are available in Emergency Kits.<br>2. Additional instruments may be issued from instrument issue area per SH/0/B/2008/005 (Radiation Protection Support Equipment Issue and Return). |

4.5.1 Obtain Personnel Monitoring Kit from Emergency Equipment Storage Room.

A. Perform source check and battery check of monitoring equipment.

B. **IF** operable, ensure personnel exit through PAP portal monitors.

C. Monitor personnel with portable count rate survey meters as necessary, pending portal monitor operating status and radiological conditions.

D. **IF** personnel are found with net positive ccpm, dress personnel in appropriate protective clothing to prevent spreading contamination **AND** notify OSC Supervisor for further direction.

E. **IF** background radiation levels render portable count rate meters and/or portal monitors inoperable, contact OSC RP Supervisor.

F. **IF** additional support is necessary, notify OSC RP Supervisor.

4.5.2 Perform the following actions to re-locate a personnel monitoring area.

A. Notify OSC RP Supervisor before relocating to an area of lower background.

B. Continue personnel monitoring and contamination control per direction from OSC RP Supervisor.

C. Notify OSC RP Supervisor of corrective actions.

4.6 Evacuation Facility RP Monitoring Team(s)

4.6.1 **IF** site evacuation is imminent, OSC RP Management dispatches RP monitoring team(s) to designated Evacuation Facility.

4.6.2 Use Evacuation Facility Layout Drawings, Enclosure 5.1, as necessary for facility location(s) and driving directions.

4.6.3 RP Team should perform the following actions upon arrival at a facility:

A. Establish communications with OSC RP Supervisor using telephone or emergency radio network.

B. Locate Personnel Survey Kit in Evacuation Facility.

C. Perform source check and battery check of monitoring equipment.

D. Set up facility and prepare to monitor incoming personnel.

4.6.4 Ensure arriving personnel are properly monitored.

A. **IF** personnel are found with net positive ccpm, dress individual in appropriate protective clothing.

B. Notify OSC Supervisor for further direction.

4.6.5 Record the following information about personnel arriving at the evacuation facility using Enclosure 5.2 (Evacuation Personnel Accountability Record):

- Name
- RP Badge number

4.6.6 Provide OSC RP Supervision information about Evacuation Facility radiological conditions, as necessary.

4.7 Vehicle Monitoring Teams

4.7.1 Perform monitoring of employee vehicles as directed by OSC RP Supervisor.

- Random monitoring of vehicles may be most practical survey method based on direction and guidance from OSC RP Supervisor.

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| **NOTE:** Steps 4.7.2.A and 4.7.2.B do **NOT** apply to emergency vehicles. |

4.7.2 **IF** a vehicle is contaminated, perform the following:

A. Secure the area to prevent further movement.

B. Post vehicle as a contaminated area.

C. Document and record survey results.

D. Monitor all vehicles in the area for contamination.

E. As soon as practical, decontaminate the vehicle to limits of SH/0/B/2000/013 (Removal of Items from RCA/RCZs ).

F. Provide information from surveys to OSC RP Supervisor, as soon as practical.

4.7.3 **IF** emergency vehicle(s) are found to be contaminated and alternative vehicles are **NOT** available perform the following:

A. Survey vehicle and document results.

B. Release vehicle for emergency response.

C. Accompany a contaminated vehicle, as practical.

D. Decontaminate emergency vehicle at first opportunity.

4.7.4 Notify OSC RP Supervisor of radiological vehicle surveys, as practical.

4.7.5 Notify OSC RP Supervisor for relief and additional support, as necessary.

4.8 Forward Enclosure 5.2 to Dosimetry and Records Control (DRC).

- Dose may be assigned at a later date.

## 5. Enclosures

5.1 Evacuation Facility Layout Drawings

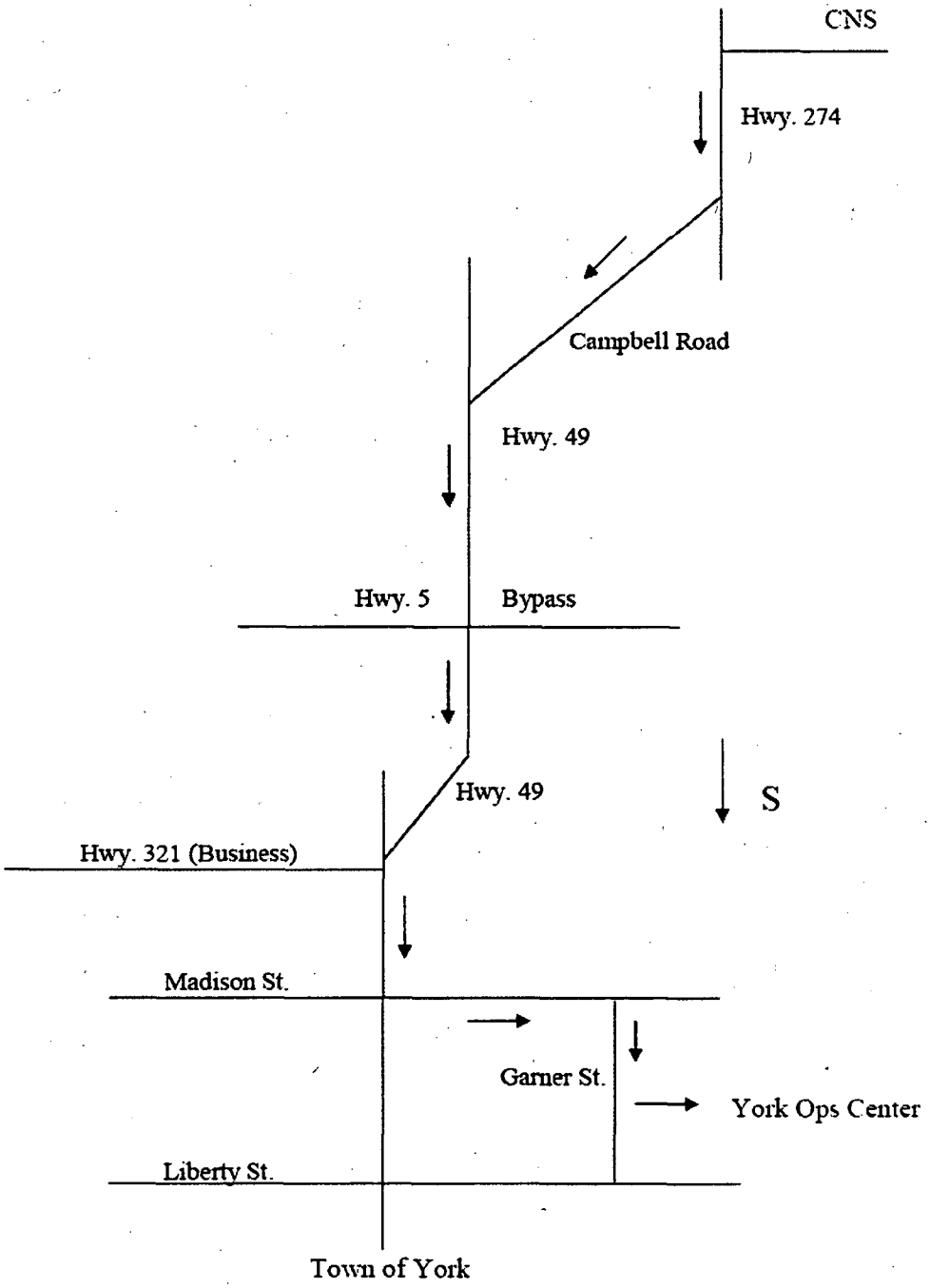
5.2 Evacuation Personnel Accountability Record

**Enclosure 5.1**

**Evacuation Facility Layout Drawings**

**To York Operations Center Evacuation Facility**

HP/0/B/1009/005
Page 1 of 2

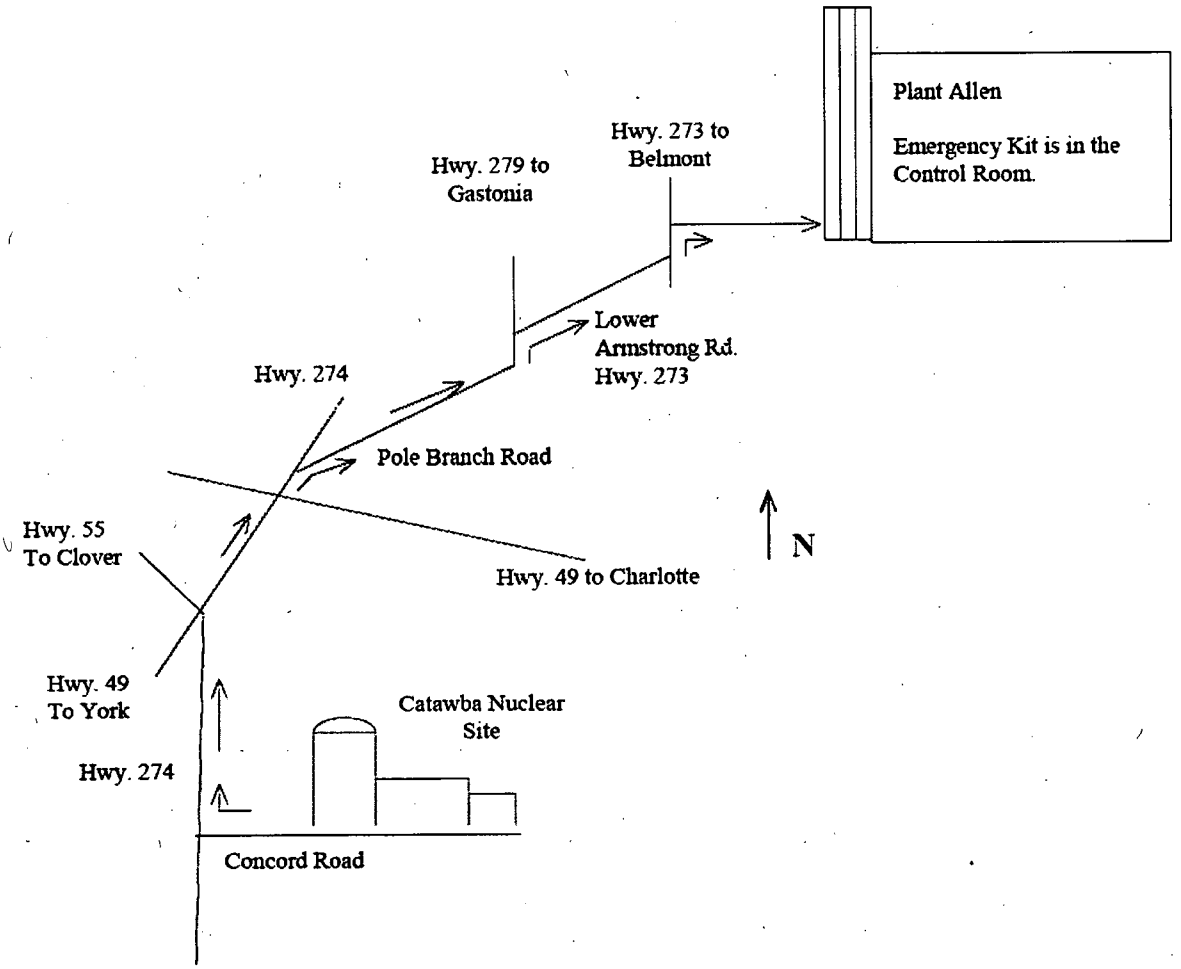


**Enclosure 5.1**

**Evacuation Facility Layout Drawings**

HP/0/B/1009/005
Page 2 of 2

**To Plant Allen Evacuation Facility**



**Enclosure 5.2**

HP/0/B/1009/005

**Evacuation Personnel Accountability Record**

Page 1 of 1

Page _____ of _____

**NAME OF EVACUATION FACILITY** _____ **DATE** _____

| NAME | RP BADGE NUMBER | NAME | RP BADGE NUMBER |
|---|---|---|---|
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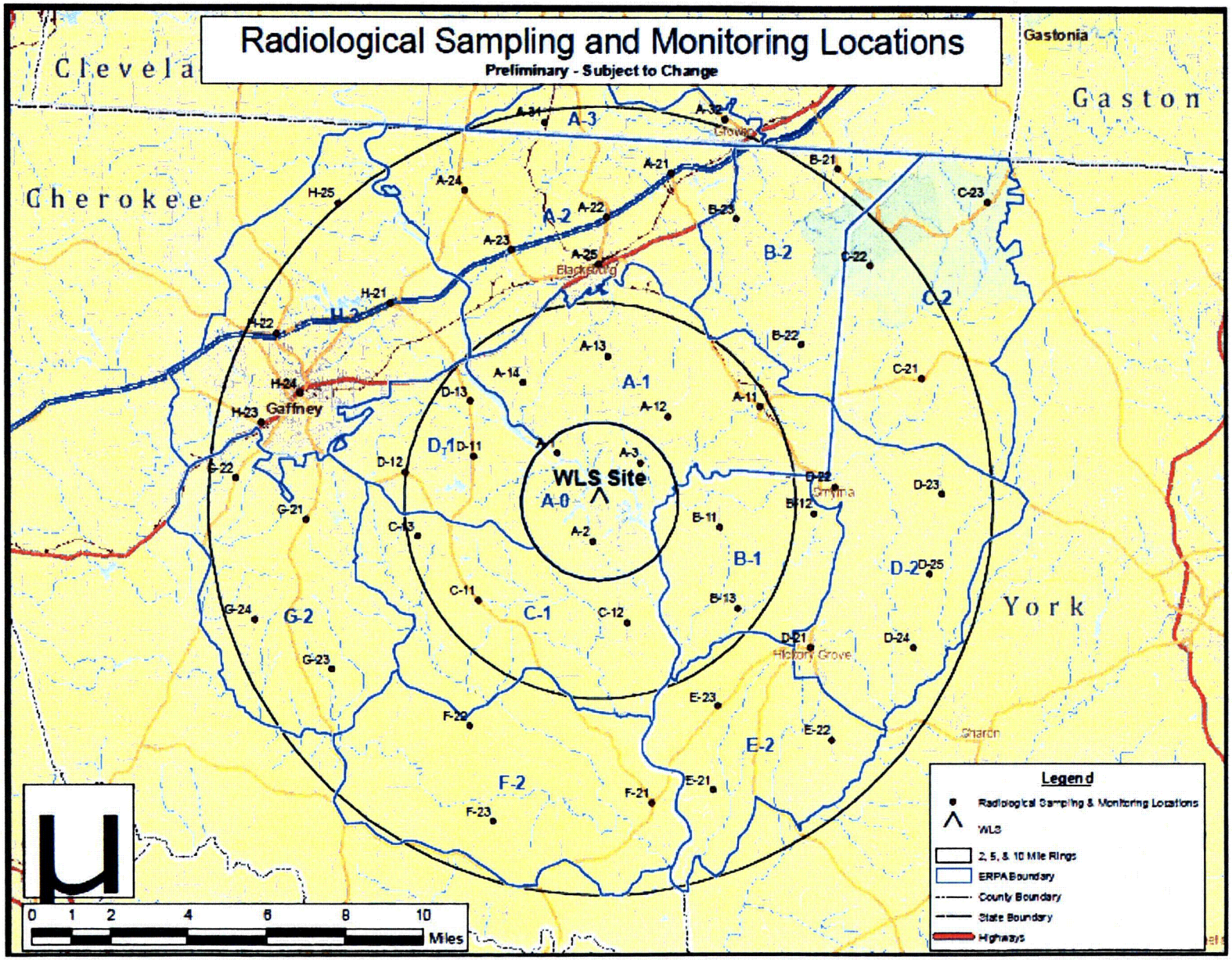
**Initial** _____ **Date** _____ **Time** _____

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 3 to RAI 13.03-63**

**Pre-identified Radiological Sampling Map**
**Pre-identified Radiological Sampling Summary Table**


Radiological Sampling and Monitoring Locations
Preliminary - Subject to Change
Cleveland
Cherokee
Gaston
York
Gastonia
Gaffney
Blacksburg
Grover
Ornina
Hickory Grove
Sharon
WLS Site
A-0
A-1
A-2
A-3
B-1
B-2
C-1
C-2
D-1
D-2
E-2
F-2
G-2
H-2
A-11
A-12
A-13
A-14
A-21
A-22
A-23
A-24
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A-31
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B-11
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E-23
F-21
F-22
F-23
G-21
G-22
G-23
G-24
H-21
H-22
H-23
H-24
H-25
0 1 2 4 6 8 10 Miles
Legend
Radiological Sampling & Monitoring Locations
WLS
2, 5, & 10 Mile Rings
ERPA Boundary
County Boundary
State Boundary
Highways

# Lee Nuclear Power Plant

Radiological Sampling and Monitoring Locations

| Sample Media | ID (Based on ERPA Section) | Longitude (N) | Latitude (W) | Distance from WLS (Miles) | Direction | Location |
|---|---|---|---|---|---|---|
| Radiological | A-1 | 35°3'17.23" | 81°31'52.05" | 1.62 | NW | End of Cobb |
| | A-2 | 35°3'19.614" | 81°30'52.52" | 1.02 | S | Intersection of Mckowns Mountain & Owenby |
| | A-3 | 35°3'5.686" | 81°29'35.377" | 1.45 | NE | Intersection of Ninety Nine Island & Mcgill |
| | A-11 | 35°4'19.416" | 81°26'21.812" | 4.76 | ENE | Intersection of York & 97 |
| | A-12 | 35°4'6.044" | 81°28'49.926" | 2.79 | NE | End of McDaniel |
| | A-13 | 35°5'23.701" | 81°30'28.67" | 3.67 | N | Intersection of Old Chester & Bluebird |
| | A-14 | 35°4'48.216" | 81°32'47.527" | 3.57 | NNW | intersection of Cherokee Falls & Cherokee Ford |
| | A-21 | 35°9'26.773" | 81°28'47.162" | 8.51 | NNE | I-85 & Tribal |
| | A-22 | 35°8'47.162" | 81°30'32.463" | 7.17 | N | I-85 & Mountain |
| | A-23 | 35°7'44.469" | 81°33'6.168" | 6.76 | NNW | I-85 & Blackburg |
| | A-24 | 35°9'2.473" | 81°34'32.506" | 8.59 | NNW | Intersection of Shelby & Blackburg |
| | A-25 | 35°7'23.64" | 81°30'42.971" | 6.00 | N | Intersection of Cherokee & Mountain |
| | A-31 | 35°10'32.273" | 81°32'13.52" | 9.73 | N | Intersection of Bettis & Laren |
| | A-32 | 35°10'39.673" | 81°27'21.147" | 10.24 | NNE | Intersection of Clevland & Hardin |
| | B-11 | 35°8'26.216" | 81°27'1.476" | 3.15 | ESE | Intersection of River & Cheyenne |
| | B-12 | 35°1'59.529" | 81°24'54.897" | 5.47 | E | End of Martins Gold Mine |
| | B-13 | 34°59'52.5" | 81°26'57.297" | 4.46 | SE | Intersection of Goose Hollow & Martin |
| | B-21 | 35°9'34.16" | 81°24'17.868" | 10.46 | NE | Intersection of Battleground & Antioch |
| | B-22 | 35°5'40.673" | 81°25'17.011" | 6.47 | NE | Intersection of Possum Trot & Caldwell |
| | B-23 | 35°8'26.274" | 81°27'0.897" | 7.99 | NE | Intersection of Possum Trot & Antioch |
| | C-11 | 35°0'1.243" | 81°33'58.499" | 3.98 | SW | Intersection of Wilkinsville & Brick House |
| | C-12 | 34°59'33.472" | 81°29'56.784" | 3.13 | SSE | Intersection of Smith Ford & Mckowns Mountain |
| | C-13 | 35°1'26.101" | 81°35'38.728" | 4.73 | W | Intersection of Pondfield & Childers |
| | C-21 | 35°4'56.959" | 81°22'1.852" | 8.78 | ENE | Intersection of 55 & Jenkins |
| | C-22 | 35°7'24.559" | 81°23'25.411" | 9.11 | NE | Intersection of Peidmont & Whitesnake |
| | C-23 | 35°8'48.902" | 81°20'16.153" | 12.45 | NE | Intersection of Camp Cherokee & Park |
| | D-11 | 35°3'12.558" | 81°34'7.242" | 3.40 | WNW | Intersection of Vistory Trail & Whites |

# Lee Nuclear Power Plant

Radiological Sampling and Monitoring Locations

| Sample Media | ID (Based on ERPA Section) | Longitude (N) | Latitude (W) | Distance from WLS (Miles) | Direction | Location |
|---|---|---|---|---|---|---|
| Radiological | D-12 | 35°2'51.472" | 81°35'57.3" | 5.02 | W | Intersection of Draytonville Church & Wilkinsville |
| | D-13 | 35°4'23.53" | 81°34'12.385" | 4.15 | NW | Intersection of Victory Trail & Ford |
| | D-21 | 34°59'1.071" | 81°25'0.554" | 6.53 | ESE | Intersection of Wylie & Smith Ford |
| | D-22 | 35°2'34.501" | 81°24'21.468" | 6.01 | E | Intersection of S Main & E Main |
| | D-23 | 35°2'25.758" | 81°21'27.125" | 8.74 | E | Intersection of Mogill & Hughes |
| | D-24 | 34°59'1.071" | 81°22'14.953" | 8.82 | ESE | Intersection of Mogill & Walnut |
| | D-25 | 35°0'39.3" | 81°21'47.182" | 8.60 | ESE | Intersection of Mogill & Fred Montgomery |
| | E-21 | 34°55'51.299" | 81°27'35.869" | 7.87 | SSE | Intersection of Scenic View & Wilson Chapel |
| | E-22 | 34°56'57.642" | 81°24'24.554" | 8.46 | SE | Intersection of Hickory Heights & Wilson Chapel |
| | E-23 | 34°57'42.385" | 81°27'29.698" | 5.99 | SSE | Intersection of Wilkerson & Irene Bridge |
| | F-21 | 34°55'33.299" | 81°29'14.612" | 7.75 | S | Intersection of Wilkinsville & Hickory Grove |
| | F-22 | 34°57'14.1" | 81°34'10.842" | 6.58 | SSW | Intersection of Corinth & Elbethel |
| | F-23 | 34°55'8.613" | 81°33'32.785" | 8.57 | SSW | Intersection of Covered Bridge & Billy Goat Bridge |
| | G-21 | 35°1'48.215" | 81°38'38.272" | 7.49 | W | Intersection of Union & Berry |
| | G-22 | 35°2'41.701" | 81°40'31.415" | 9.31 | W | Intersection of Pacolet & Limestone Springs |
| | G-23 | 34°58'29.7" | 81°37'55.071" | 8.05 | WSW | Intersection of Starr Ridge & Cats Creek |
| | G-24 | 34°59'34.5" | 81°40'1.072" | 9.29 | WSW | Intersection of Fortenberry & Burnt Gin |
| | H-21 | 35°6'31.587" | 81°36'23.528" | 7.32 | NW | Intersection of Shelby & Vistory Trail |
| | H-22 | 35°5'50.444" | 81°39'27.129" | 9.28 | WNW | Intersection of Providence & Wilcox |
| | H-23 | 35°3'54.73" | 81°39'51.3" | 8.85 | WNW | Intersection of Hyatt & Granard |
| | H-24 | 35°4'33.301" | 81°38'49.072" | 8.10 | WNW | Intersection of Fredrick & Limestone |
| | H-25 | 35°8'42.731" | 81°37'49.414" | 10.07 | NW | Intersection of Ross Hill & Pleasant School |

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**RAI Letter No. 025**

**NRC Technical Review Branch: Licensing and Inspection Branch (NSIR/DPR/LIB (EP))**

**Reference NRC RAI Number(s): 13.03-064**

**NRC RAI:**

**SITE-11:** Contamination Control and Dose Limits

Basis: NUREG-0654/FEMA-REP-1; Evaluation Criterion K.1.a; Evaluation Criterion K.2; Evaluation Criterion K.3.a; Evaluation Criterion K.3.b; Evaluation Criterion K.5.a; Evaluation Criterion K.5.b; Evaluation Criterion K.6; Evaluation Criterion K.6.b; Evaluation Criterion K.6.c; Evaluation Criterion K.7

SRP ACCEPTANCE CRITERIA: Requirement A; Acceptance Criterion 1

A. Section II.K.1, "On-Site Exposure Guidelines and Authorizations" (pages II-51/52), of the Lee Emergency Plan only reiterates material from NUREG-0654 and EPA 400-R-92-001 except for assigning responsibility for authorizing emergency exposures. Describe the procedure for requesting emergency exposures in excess of occupational dose limits.

B. Section II.K.2, "Radiation Protection Program" (page II-52), of the Lee Emergency Plan refers to Chapter 12, "Radiation Protection", of the Lee Nuclear Station Final Safety Analysis Report (FSAR) for a description of the Lee Nuclear Station radiation protection program (RPP), which is claimed to be consistent 10 CFR 20. Section II.K.1, "On-Site Exposure Guidelines and Authorizations" (pages II- 51/52), of the Lee Emergency Plan describes the provisions made for implementation of emergency exposure guidelines. No details of the RPP are provided. Describe the portions of the occupational radiation protection programs outlined in the FSAR, the Design Control Document (DCD), NEI 07-08, and NEI 07-03 and that are relevant to radiation protection during emergencies at Lee Nuclear Station. Describe Lee Nuclear Station exceptions, clarifications, and extensions to the RPP related to emergency conditions. List applicable procedures and summarized the contents of each procedure.

C. Section II.K.3, "Dosimetry and Dose Assessment" (pages II-52/53), of the Lee Emergency Plan states implementing procedures associated with the Lee Emergency Plan establishes requirements for distributing dosimeters to emergency responders, including individuals from off-site locations. However, no implementing procedures related to external and internal dosimetry are included. There is no mention of contingency arrangements. Provide a list of implementing procedures related to external and internal dosimetry and summarize the applicability and contents of each procedure. Describe the process by which responders, particularly those from off site, obtain dosimetry. Where do they report, etc? Describe contingency plans for providing dosimetry services in the event of loss of power, instrument failure, inadvertent contamination of counting areas, etc.

D. Section II.K.3, "Dosimetry and Dose Assessment" (pages II-52/53), of the Lee Emergency Plan states that "Station procedures establish guidance for wearers to periodically read their self-reading dosimeters...," and "....Duke Energy maintains individual dose records in

accordance with the requirements of 10 CFR 20 and the radiation protection program and its supporting procedures". Cursory review of Chapter 12 of the Lee FSAR (the RPP) fails to disclose any significant discussion of maintenance of dose records or supporting procedures in this area. The Lee Emergency Plan does not discuss contingency plans for accessing dose records should normal access be precluded by postaccident conditions. List all procedures related to reading dosimeters and summarize the contents of each. Describe guidance related to frequency of reading dosimeters during emergency conditions. List procedures related to maintenance of emergency worker dose records and discuss the contents of each. Identify and discuss contingency plans for accessing dose records should post-accident conditions preclude normal access.

E. Section II.K.5.a, "Decontamination Action Levels" (page II-53), of the Lee Emergency Plan states that Duke Energy implements procedures and has supplies. It does not state what the decontamination levels are, who decides how and when to decontaminate, etc. The Lee Emergency Plan does not reference the RPP in this area or describe any procedures related to decontamination. Provide a list of procedures related to decontamination and a description of the contents of each procedure. List decontamination levels for personnel, equipment, and areas. Provide criteria for returning personnel and items to normal use. Provide specific references to location where decontamination procedures are called out.

F. Section II.K.5, "Decontamination Action Levels" (page II-53), of the Lee Emergency Plan states that Duke Energy implements procedures for decontamination of on-site emergency personnel wounds, etc., and refers to the general list of decontamination supplies found in Appendix 6, "Emergency Equipment and Supplies" (page A6-1/2) of the Lee Emergency Plan. Section II.K.5 does not state what procedures are appropriate, who is responsible for decontamination, where the decontamination supplies are kept, who is responsible for maintaining decontamination supply inventories, etc. The Lee Emergency Plan does not address waste disposal other than including it in a list of items to be covered by implementing procedures. The Lee Emergency Plan does not reference the RPP in this area or describe any procedures related to decontamination of wounds, etc. Provide a list of procedures that address means available for decontamination of surfaces, equipment, and personnel. Describe the contents of each procedure. Describe plant facilities that provide the means for decontamination.

   Describe the means of handling wastes resulting from decontamination. Elaborate on the emergency equipment and supplies list. What are surface contamination control and survey supplies? What are contamination control and decontamination supplies? Where will the emergency equipment and supplies be stored? How does relocation of the Technical Support Center (TSC) and Operations Support Center (OSC) from the DCD location affect decontamination efforts?

G. Section II.K.6.a, "Contamination Control Measures" (page II-53), of the Lee Emergency Plan discusses access control in the event of an emergency by stating that requirement for site access control is established in the FSAR and Security Plan. State and local agencies will control access to the owner controlled area consistent with State and local plans. The Lee Emergency Plan also states that the Station Security Force will control entry to the protected area in the event of an emergency, but no implementing procedures are included. Provide a list of procedures related to access control.

H. Section II.K.6.b, "Contamination Control Measures" (page II-53/54), of the Lee Emergency Plan states that Nuclear Supply Chain personnel will make arrangements for transport of non-contaminated off-site supplies in event of contamination. However, no implementing procedures are included. Describe how uncontaminated water and food will be made available onsite should onsite water and food become contaminated. List any procedures to be followed in obtaining and distributing uncontaminated food and water supplies.

I. Section II.K.6.c, "Contamination Control Measures" (page II-54), of the Lee Emergency Plan states that areas and items are permitted to return to normal use following conduct of appropriate surveys and verification that the contamination levels meet criteria specified in the RPP or its supporting procedures. However, no implementing procedures are included. Define appropriate surveys and summarize the RPP criteria for decontamination. List procedures associated with decontamination and release of previously contaminated areas and items to normal use. Identify specific locations where details related to return of previously contaminated areas and items to normal use can be found.

J. Section II.K.7, "Decontamination of Relocated Lee Nuclear Station Personnel" (page II-54), of the Lee Emergency Plan states that Lee Nuclear Station makes provisions for protective clothing, contamination monitoring, at the designated relocation site. A general description of the equipment and supplies that are typically available is included in Appendix 6. However, no implementing procedures are included. Describe the facilities at the relocation site that would be used in decontamination of relocated personnel. List procedures related to the decontamination of relocated personnel.

**Duke Energy Response:**

A. The procedure currently used at Duke's operating nuclear plants allows an emergency worker dose extension only during actual declared emergencies. The selection of personnel is from Duke Energy Emergency Response Organization Members based on specific circumstances. All personnel should be volunteers; however, personnel whose exposure during an emergency event is expected to exceed 25 Rem TEDE must be volunteers. Personnel will be advised of the risks involved, including the numerical levels of dose at which acute effects of radiation may be incurred and numerical estimates of the risks of delayed effects. Approval for the exposures is shared between the RP Manager and Emergency Coordinator; however, the RP Manager approval is optional if he/she is not available. Radiation Protection personnel will assign the proper dosimetry for the anticipated exposure. Records are maintained with worker signatures that acknowledge the briefings and risks. The current procedure used at the Catawba Nuclear Station, RP/0/A/5000/018, "Emergency Worker Dose Extension," is provided as information in Attachment 1. A similar process will be established for the Lee facility via emergency plan implementing procedures that are to be developed on a schedule that supports NRC inspection activities and execution of the emergency exercise required by Section IV.F.2 of 10 CFR 50, Appendix E.

B. FSAR Appendix 12AA provides a summary of the Lee Radiation Protection Program. FSAR Table 13.4-201 addresses milestones associated with the development of the Radiation Protection Program. FSAR Section 13.5.2.2.1 provides a discussion of Radiation Protection procedures.

With regard to exceptions, clarifications, and extensions to the RPP related to emergency conditions, compliance with the site RPP is maintained, to the extent practical, under emergency conditions. Section II.K of the COL Emergency Plan describes processes for authorizing and implementing emergency dose constraints consistent with EPA guidance. Appendix 5 of the COL Emergency Plan indicates that one of the topical areas to be addressed by Emergency Plan Implementing Procedures is "Radiation Protection Under Emergency Conditions." The procedure or procedures in this topical area address radiation protection issues that are specific to emergency conditions, such as area entry and exit requirements in the absence of radiological work permits, special survey requirements, suspension of routine administrative dose control levels, and specific respiratory protection and protective clothing requirements. The response to Item A in this response discusses emergency response procedures. Other variations from routine Radiation Protection practices may be implemented on a case-by-case basis, consistent with ERO management direction and the provisions of 10 CFR 20.1001(b). FSAR Table 13.4-201 addresses milestones associated with emergency plan implementing procedures.

C. As committed in the Lee Emergency Plan, Lee Nuclear Station provides and distributes self-reading and cumulative type dosimeters to personnel involved in emergency on-site response regardless of their affiliation. Emergency Plan implementing procedures for operating Duke facilities provide the following guidelines: TSC staff are provided dosimetry at the TSC entrance (addressed in TSC activation procedures); OSC staff that are called out are given instructions concerning the dosimetry requirements for access (addressed in OSC activation procedures). Dosimetry is available at the single point access in the operating facilities. NRC personnel normally provide their own dosimetry, but Duke-issued dosimetry is available if needed.

Duke emergency responders (ERO) are trained for specific positions with designated locations to report to upon activation of the emergency plan. In situations where an alternate TSC or OSC location has been established, that information is provided upon notification of facility activation.

Radiation Protection personnel are assigned to locations where external radiation exposure may occur to provide assistance and support for radiological needs including dosimetry requirements (addressed in "Guidelines for Accident and Emergency Response"). Contingencies are addressed in the implementing procedures for Duke's operating plants and will also be addressed in the implementing procedures for the Lee facility based on the facility configuration, capabilities, and technologies available at the time.

Internal doses are typically estimated through the use of whole body counting and/or in-vitro sampling and analysis routines. The Radiation Protection Program establishes requirements for determining internal doses based on in-vivo or in-vitro analyses results or by assessment of individual exposures. Unaffected Duke facilities will be available to support the Lee Nuclear Station in an emergency event that requires in-vivo or in-vitro analyses of emergency workers which would include an incident where instrument failure or an inadvertent contamination event occurred. Duke currently maintains procedure SH/0/B/2001/001, "Internal Dose Assessment" which determines "dose received from internal exposures to radioactive material received while working at a Duke Energy facility"

as a shared procedure for its operating facilities. It is anticipated that this procedure will be modified at the appropriate time to include the Lee facility.

D. Duke's Catawba facility currently staffs a Dose Records Coordinator (DRC) Supervisor position in the OSC responsible for maintaining the emergency dose records. The responsibilities of this position are outlined in the OSC Activation Procedure; applicable portions are included as Attachment #2. It is anticipated that procedures similar to those currently in place at the Duke operating facilities will be developed for the Lee facility.

Under emergency conditions, immediate approximations of individual external radiation doses may be derived from readings of individual self-indicating dosimeters (e.g., pocket dosimeters, electronic dosimeters, or other devices as dictated by evolutions in dosimeter technology). Records of individual dosimeter readings related to emergency response activities may be maintained on available log sheets or other record forms pending termination of emergency conditions and restoration of routine personal dosimeter reading, bioassay, and recordkeeping activities. Individual dose records are typically maintained on plant computer systems and are likely to be available during emergency conditions. In the event that these records are not electronically available during an emergency, the OSC activation procedures requires that copies of the Daily Dose Report be gathered for the TSC and OSC upon activation.

With regard to procedures addressing reading of dosimeters and maintenance of emergency worker dose records, the FSAR addresses Radiation Protection procedures as discussed in the response to Item B of this RAI.

E. Procedures at Duke's operating nuclear plants establish contaminated areas as any area accessible to individuals where removable surface contamination is greater than or equal to 1000 disintegrations per minute (dpm)/100 square cm (beta, gamma), but less than 50,000 dpm/100 square cm or greater than or equal to 20 dpm/100 square cm (alpha), but less than 2000 dpm/100 square cm. Equipment/items that are to be removed from radiologically controlled areas are surveyed either with automated equipment or portable instrumentation. If radioactive material is detected on these items above the sensitivity of the survey equipment, the items must be decontaminated. Equipment/items may be returned to unrestricted use when removable contamination levels have been reduced to a point below the sensitivity of the survey equipment. Personnel may be monitored by portal monitors or manually with portable instrumentation. Duke Energy follows EPRI Guidelines for Industry Response to Personnel Contaminants. From a practical sense, personnel are considered to be contaminated if the instrumentation detects approximately 400 dpm or higher. Duke Energy expects that levels used at the Lee Nuclear Station would be consistent with those of the existing Duke nuclear stations. Decontamination methods are established in Radiation Protection procedures and are implemented under the direction of trained Radiation Protection personnel. With regard to procedures related to decontamination, the FSAR addresses the Radiation Protection program as discussed in the response to Part B of this RAI. Current Duke Energy Procedures that address personnel, areas, and equipment contamination and decontamination control are extensive. With regard to procedures addressing contamination control and decontamination levels, the FSAR addresses Radiation Protection procedures as discussed in the response to Item B of this RAI.

F. With regard to procedures related to decontamination, the FSAR addresses the Radiation Protection program as discussed in the response to Item B of this RAI.

AP1000 DCD Section 1.2 provides a description of plant facilities that provide the means for decontamination of both personnel and equipment and the means for handling of radioactive wastes. In Section 13.3.3.1 of NUREG-1793, NRC indicated that "information provided in the AP1000 DCD pertaining to the TSC, OSC, and decontamination room is consistent with the guidance identified in RG 1.101. Thus, the staff finds that the applicant's design meets the applicable requirements of 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.47(b)(8), 10 CFR 50.47(b)(11), and Subsections IV.E.3 and IV.E.8 to 10 CFR Part 50, Appendix E."

With regard to storage locations for emergency equipment and supplies, Duke expects that the bulk of the equipment and supplies will be stored in the established emergency response facilities – the Control Room, TSC, and OSC. Additional supplies may be stored at locations expected to be convenient for use by emergency response personnel, such as within or adjacent to RCA access and egress areas and decontamination areas. Initial storage locations will be determined based on an assessment of plant layout and Duke's operating plant experience; these locations may be changed based on assessments of plant emergency operations, drills, and exercises.

G. The Security force maintains control of access to the protected area in accordance with Security procedures pursuant to the security plans discussed in detail in Part 8 of the COL application. FSAR Table 13.4-201 addresses milestones associated with the implementation of the Security program.

Chapter 12 of the Lee Nuclear Station FSAR describes the radiation protection program, applicable to contamination control measures, consistent with the requirements of 10 CFR Part 20. FSAR Appendix 12AA provides a summary of the Lee Radiation Protection Program; FSAR Table 13.4-201 addresses milestones associated with the development of the Radiation Protection Program; and FSAR Section 13.5.2.2.1 provides a discussion of Radiation Protection procedures.

H. In accordance with Duke corporate procedure SR/0/B/2000/002, "Standard Procedure for EOF Services (CNS, MNS, ONS)," the procurement support located in the EOF bears responsibility for ensuring adequate supplies of food and water are available to the emergency response organization. Food and water would be made available on-site through acquisition of supplies under Duke commercial arrangements and subsequent transportation of supplies to the site, using either vendor or Duke-supplied transport. With regard to procedures for distribution of food and water under emergency conditions, Duke expects that these arrangements would be made on an ad-hoc basis. Therefore, the applicable procedures are likely to be limited to the existing Duke corporate procedure, assigning responsibility to the procurement support assigned to the EOF. SR/0/B/2000/002 will be modified to incorporate the Lee Nuclear Station on a schedule that supports execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

I. The response provided for Item E above discusses contamination levels and decontamination. Consistent with that response, Duke Energy follows the same radiological guidance at all of the existing Duke nuclear stations and intends to perform these functions at Lee in accordance with this same guidance. The following procedures address decontamination and

the release of previously contaminated areas and items to normal use at Duke's existing nuclear stations.

RA/0/1100/002, "Tool, Equipment and Area Decontamination" - Catawba
SH/0/B/2001/003, "Investigation of Skin and Clothing Contaminations"
HP/0/B/1005/005, "Personnel/Vehicle Monitoring for Emergency Conditions"
SH/0/B/2000/006, "Control of Radioactive Material and Use of Radioactive Material Tags"
SH/0/B/2000/013, "Removal of Items from RCA/RCZs"
SH/0/B/2000/004, "Taking, Counting and Recording Surveys"

Similar procedures are expected to be developed, or corporate procedures expanded to account for the Lee Nuclear Station on a schedule that supports execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

J. The procedure related to decontamination of relocated personnel would be similar to that in use at other Duke Energy nuclear plants. Consistent with the procedure used at the Catawba Nuclear Station, personnel and vehicle monitoring during a site evacuation will be conducted in accordance with HP/0/B/1009/005, "Personnel/Vehicle Monitoring for Emergency Conditions." This procedure includes provisions for dressing contaminated individuals in protective clothing.

Catawba Nuclear Station's Procedure HP/0/B/1000/006, "Emergency Equipment Functional Check and Inventory," provides the process to verify availability and readiness of RP emergency response equipment. A similar procedure is expected to be implemented for the Lee facility.

Duke Energy has not yet determined the location of relocation facilities, or finalized the facility design. These details will be established on a schedule that supports execution of the emergency exercise required by 10 CFR 50, Appendix E, Section IV.F.2.

Emergency plan implementing procedures will be developed on a schedule that supports NRC inspection activities and execution of the emergency exercise required by Section IV.F.2 of 10 CFR 50, Appendix E.

**Associated Revision to the Lee Nuclear Station Final Safety Analysis Report or Emergency Plan:**

None

**Attachments:**

1. HP/0/A/5000/018, "Emergency Worker Dose Extension"
2. Enclosure 4.4 of RP/0/A/5000/024, "OSC Activation Procedure"

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 1 to RAI 13.03-064**

**RP/0/A/5000/018, "Emergency Worker Dose Extension"**

| Duke Energy<br>Catawba Nuclear Station<br>**Emergency Worker Dose Extension**<br><br>**Reference Use** | Procedure No.<br>**RP/0/A/5000/018**<br>Revision No.<br>**002**<br>Electronic Reference No.<br>**CP0094HE** |
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| **PERFORMANCE** | |
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| **(ISSUED) - PDF Format** | |

# Emergency Worker Dose Extension

## 1. Symptoms

1.1 Workers performing emergency service during a declared emergency event may be expected to exceed Duke administrative occupational radiation exposure blanket dose extension limits authorized by the Radiation Protection Manager, and potentially even exceed normal NRC (10CFR20) occupational radiation exposure limits.

1.2 This procedure **shall not be** used for "Planned Special Exposures".

## 2. Immediate Actions

2.1 Select Personnel based on the following:

2.1.1 Personnel shall be Duke Power Emergency Response Organization Members or Off-site Agency Emergency Workers. All personnel should be volunteers; however, personnel whose exposure during an emergency event is expected to exceed 25 rem TEDE shall be volunteers.

2.1.2 Personnel shall be advised of the risks involved, including the numerical levels of dose at which acute effects of radiation may be incurred and numerical estimates of the risks of delayed effects per EPA 400, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." This information is summarized in Enclosure 4.1, "Health Risks Associated With Dose Extensions."

2.1.3 Performance of emergency services should be limited to non pregnant adults.

2.1.4 All factors being equal, older volunteers should be selected.

2.2 Document personnel information including Emergency Worker signature on Enclosure 4.2, "Authorization For Emergency Worker Dose Extensions."

2.3 Obtain Radiation Protection Manager (RPM) or designee signature or verbal acknowledgment of the need for extending Emergency Worker Dose Limits. Document this acknowledgment on Enclosure 4.2, "Authorization For Emergency Worker Dose Extensions."

**NOTE:** The Radiation Protection Manager or designee may not be readily available; therefore, this acknowledgment is optional.

2.4 Obtain Emergency Coordinator or EOF Director signature or verbal approval prior to extending the Emergency Worker Dose Limits. Document this approval on Enclosure 4.2, "Authorization For Emergency Worker Dose Extensions."

| | |
|---|---|
| **NOTE:** | After EOF activation the EOF Director should be made aware of any Emergency Worker dose extensions approved by the Emergency Coordinator. |

2.5 Ensure that proper dosimetry, specified by Radiation Protection, is used by workers performing the emergency service.

## 3. Subsequent Actions

3.1 Maintain exposure ALARA. Doses to all workers during emergencies should, to the extent practicable, be kept within occupational limits.

3.2 The Emergency Worker Dose Extension Limits provided in Enclosure 4.2, "Authorization For Emergency Worker Dose Extensions," apply to dose incurred during a declared emergency event.

3.3 Exposures above dose limits 5 rem TEDE or any limits from Enclosures 4.2 shall require a medical evaluation as to whether the individual may continue in radiological work.

3.3.1 Emergency Worker dose exposure should be limited to once in a lifetime dose.

3.4 Record all exposures in accordance with the "Radiation Protection Policy Manual I-03, Radiation Protection Records."

## 4. Enclosures

4.1 Health Effects and Risks Associated with Radiation Exposure

4.2 Authorization for Emergency Worker Dose Extensions

**Enclosure 4.1**



**Health Effects and Risks Associated with Radiation Exposure**

Health Effects Associated With Whole-Body Absorbed Doses

Received Within A Few Hours [a]

| Whole Body Absorbed Dose (rad) | Early Fatalities [b] (percent) | Whole Body Absorbed Dose (rad) | Prodromal Effects [c] (percent) |
|---|---|---|---|
| 140 | 5 | 50 | 2 |
| 200 | 15 | 100 | 15 |
| 300 | 50 | 150 | 50 |
| 400 | 85 | 200 | 85 |
| 460 | 95 | 250 | 98 |

[a] Risks will be lower for protracted exposure periods.

[b] Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

[c] Forewarning symptoms of more serious health effects associated with large doses of radiation.

**Enclosure 4.1**

**Health Effects and Risks Associated with Radiation Exposure**



Approximate Cancer Risk to Average Individuals From 25 Rem Effective

Dose Equivalent Delivered Promptly

| Age At Exposure (years) | Approximate Risk of Premature Death (death per 1,000 persons exposed) | Average Years Of Life Lost If Premature Death Occurs (years) |
|---|---|---|
| 20 to 30 | 9.1 | 24 |
| 30 to 40 | 7.2 | 19 |
| 40 to 50 | 5.3 | 15 |
| 50 to 60 | 3.5 | 11 |

**NOTE:** Information in this enclosure was taken from Tables 2-3 and 2-4 of EPA-400, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." More detailed information regarding the risks associated with radiation exposure can be found in EPA-400 Appendices B and C. With regard to the maximum limit, EPA 400 concluded that it was not possible to prejudge the acceptable risk for saving a life.

**Enclosure 4.2**

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Page 1 of 1

**Authorization for Emergency Worker Dose Extensions**

| | DOSE LIMITS | | |
|---|---|---|---|
| Activity | Total Effective Dose Equivalent (TEDE) | Lens of Eye | Other Organs (Includes skin and body extremities) |
| ALL | 5 rem | 15 rem | 50 rem |
| Protecting Valuable Property | 10 rem | 30 rem | 100 rem |
| Lifesaving or Protection of Large Populations | 25 rem | 75 rem | 250 rem |
| Lifesaving or Protection of Large Populations | >25 rem | >75 rem | >250 rem |

| RP BADGE NO. | NAME | AGE | EMPLOYER | SIGNATURE OF INDIVIDUAL * |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

* My signature indicates my acknowledgment that I have been informed that I may be exposed to the levels of radiation circled in the chart on the previous page. I have been fully briefed on the task to be accomplished and on the risks of this exposure.

I _____ acknowledge this planned Emergency Exposure. _____
(RPM or designee. signature or printed name if verbal acknowledgment. Date/Time
**if RPM or designee is not available this acknowledgment is optional)**

I _____ approve this planned Emergency Exposure. _____
(Emergency Coordinator or EOF Director. signature or printed name if verbal approval) Date/Time

Subsequent Radiation Protection Action:

Determine need for medical evaluation
Initiate Reporting Requirements per 10 CFR20
Copy to Individual's History Exposure File

**Lee Nuclear Station Response to Request for Additional Information (RAI)**

**Attachment 2 to RAI 13.03-064**

**Enclosure 4.4 of RP/0/A/5000/024, "OSC Activation Procedure"**

**Enclosure 4.4**

**DRC Supervisor**

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Page 1 of 6

Initial Date: ___/___/___

_____ Obtain self-reading dosimeter from the Single Point Access storage rack.

_____ Log into Electronic Dose System **OR** complete a dose card using RWP #33.

_____ Obtain your position procedure notebook located in the OSC supply cabinet.

_____ Put on position name badge sticker located in your position notebook.

_____ Initiate/maintain a log of events related to your position. Log should provide details sufficient for turnover if needed.

_____ Assemble the following supporting materials:
- Two copies of the Daily Dose Report (1 copy TSC, 1 copy OSC)
- Unassigned TLDs
- Applicable procedures

_____ Scan badge for attendance or sign in on OSC Training/Roster Sheet.

_____ Establish a DRC Supervisor position log which captures as a minimum:
- Evolutions impacting this position.
- Decisions made by this position.
- Communications to/from other work groups.

_____ Perform the following actions as required throughout the event:
- Notify team members without a TLD and SRD of dosimetry requirements.
- Communicate pertinent information to Radiation Protection Manager (RPM) for logging.

_____ Post OSC Dosimetry Requirements.

_____ Obtain OSC Dose Record forms (Enclosure 4.4 Page 5 of 6) from the Emergency Kit.
- Distribute to OSC personnel.
- Request personnel take the following actions:
  - Complete Section I
  - Return completed form to DRC area.

_____ Ensure DRC equipment is operable.
- DRC Computer
- DRC telephone
- FAX machine

Initial

_____ Initiate Blanket Dose Extension. (Enclosure 4.4 Page 6 of 6)
- Submit to RPM for approval.
- Perform the following actions after Blanket Dose Extension is approved.
  - Advise log keeper of new limits.
  - Assist log keeper with posting limits as needed.
  - Ensure new limits are posted.
  - Route a copy to the TSC.

_____ Complete Section II of the OSC Dose Record Forms.
- Obtain information using the RM&C system or Daily Dose Report.
- Alphabetize forms by personnel last name.

| |
|---|
| **WARNING:** Teams responding to Critical Tasks (e.g., fire brigade, medical emergency, SSF operation, etc.) should not be prevented from immediate response. |

_____ Perform the following actions prior to dispatching a team from the OSC:
- **IF** team was dispatched for an emergency situation **OR** dispatched from outside the OSC, complete the following as soon as practical using available information.
- Determine team member's name.
  - Ensure an OSC Dose Record form has been submitted for each team member.
- Obtain an OSC Team Work Sheet for each team.
  - Ensure all team members being dispatched are listed.

Initial

| | |
|---|---|
| **NOTE:** | OSC Dose Record and OSC Team Work Sheet should have identical Task # and Time Out. |

- Obtain next sequential Task #.
- Complete OSC Dose Record.
  - Task #
  - Time Out
  - Dosimeter Reading Out
- Complete OSC Team Work Sheet
  - Date
  - Time Out
  - Task #
- Distribute OSC Team Work Sheet as specified by the form.

_____ File OSC Dose Records in Task # order.

_____ Perform the following actions when a team returns to the OSC:
- Obtain the following forms:
  - OSC Team Work Sheet copy from the team (white sheet).
  - OSC Dose Records for returning team members (pink sheet).
- Obtain dose information from available team members.
- Complete OSC Dose Record
  - Time In
  - Dosimeter Reading In
  - Year To Date TEDE = (dosimeter reading in + previous YTD TEDE entry)

| | |
|---|---|
| **NOTE:** | OSC Dose Record and OSC Team Work Sheet should have identical Time In. |

- Complete OSC Team Work Sheet of Reference 2.16.
  - Time In

_____ Forward OSC Team Work Sheet to log keeper.

_____ File OSC Dose Record alphabetically.

**Enclosure 4.4**

**DRC Supervisor**



Initial

_____ Perform the following actions to deactivate Blanket Dose Extension limits:
- Submit original Blanket Dose Extension (Enclosure 4.4 Page 6 of 6) to RPM for approval of deactivation, Section III.

_____ Perform the following actions after deactivation is approved:
- Advise log keeper of new limits.
- Ensure new limits are posted.
- Assist log keeper with posting limits as needed.
- Route a copy to the TSC.

_____ Enter team member doses not captured by the electronic database, as necessary.

_____ Ensure all "OSC Team Work Sheets" (Enclosure 4.12) initiated by your respective position or work group are completed and closed out properly. Provide all completed sheets to the OSC Log/Status Keeper.

_____ Restore equipment to a ready state condition after a drill or event is terminated.

_____ Provide all paperwork to the OSC Log/Status Keeper upon deactivation of the OSC.

**Enclosure 4.4**
**DRC Supervisor**

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**TO BE COMPLETED BY DRC PERSONNEL**
**TEAM #** _____ _____ _____ _____ _____ _____ _____ _____

**NOTE:** Workers who believe they are pregnant may declare pregnancy at this time by notifying OSC RP Management.

**SECTION I**
Date: _____

Name: _____ RP Badge # _____
(last) (first) (middle initial)

Employee ID # _____

Work Group: _____

**SECTION II** **TO BE COMPLETED BY DRC PERSONNEL**
Exposure Class: _____ MAE: _____
mrem

**SECTION III**

| Time | | Dosimeter Reading (mrem) | | Year To Date TEDE |
|---|---|---|---|---|
| OUT | IN | OUT | IN | ( ) mrem |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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**Enclosure 4.4**
**DRC Supervisor**



## BLANKET DOSE EXTENSION

**To: TSC Emergency Coordinator/OSC Coordinator:**

- Section I - Extended exposure limits of your work group personnel.
- Section II - Blanket Dose Extension Approval
- Section III - Deactivation of Blanket Dose Extension Approval
- Section IV - Deactivation of Blanket Dose Extension Information

**Section I**

**Exposure Limits have been extended to:**

| | |
|---|---|
| Exposure Class 1 - | 2000 mrem/year |
| Exposure Class 2 - | 50 mrem/month; 450 mrem/gestation period; no extension |
| Exposure Class 3&9 - | 4500 mrem/year |
| Exposure Class 7 - | Fixed limit/worker specific dose limit |

**NOTE:** Declared pregnant workers shall leave the site upon site evacuation.

**Section II**

Activated By: _____ Date: _____ Time: _____
(RPM or designee)

OSC Coordinator or designee
Notified By: _____ Date: _____ Time: _____

Emergency Coordinator or designee
Notified By: _____ Date: _____ Time: _____

**Section III**

Deactivated By: _____ Date: _____ Time: _____
(RPM or designee)

OSC Coordinator or designee
Notified By: _____ Date: _____ Time: _____

Emergency Coordinator or designee
Notified By: _____ Date: _____ Time: _____

**Section IV**

Maximum Allowable Exposure (MAE) limits are reset to normal pre-emergency limits. Workers who received emergency response exposure that exceeds pre-emergency MAE limits must see RP prior to resuming work.