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Serial: RA-21-0063

March 11, 2021

10 CFR 50.90

10 CFR 50.54(q)

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325, 50-324 / RENEWED LICENSE NOS. DPR-71 AND DPR-62

CATAWBA NUCLEAR STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-413, 50-414 / RENEWED LICENSE NOS. NPF-35 AND NPF-52

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261 / RENEWED LICENSE NO. DPR-23

MCGUIRE NUCLEAR STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-369, 50-370 / RENEWED LICENSE NOS. NPF-9 AND NPF-17

OCONEE NUCLEAR STATION, UNIT NOS. 1, 2 AND 3
DOCKET NOS. 50-269, 50-270, AND 50-287 / RENEWED LICENSE NOS. DPR-38, DPR-47,
AND DPR-55

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

**SUBJECT: Response to Request for Additional Information (RAI) Regarding License
Amendment Request for Common Emergency Plan**

REFERENCES:

1. Duke Energy letter, *License Amendment Request for Common Emergency Plan Consistent with NUREG-0654, Revision 2*, dated September 3, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20247J468)
2. NRC email, *Request for additional information - Duke Energy Fleet License Amendment Request to Revise Emergency Plan (EPID: L-2020-LLA-0198)*, dated February 4, 2021 (ADAMS Accession No. ML21049A263)

Ladies and Gentlemen:

In Reference 1, Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (collectively referred to as Duke Energy) requested approval of a new fleet common emergency plan with site-specific annexes for Catawba Nuclear Station Units 1 and 2 (CNS), McGuire Nuclear Station Units 1 and 2 (MNS), Oconee Nuclear Station Units 1, 2, and 3 (ONS), Brunswick

Steam Electric Plant Units 1 and 2 (BNP), Shearon Harris Nuclear Power Plant, Unit 1 (HNP) and H. B. Robinson Steam Electric Plant, Unit 2 (RNP). In Reference 2, the Nuclear Regulatory Commission (NRC) staff requested additional information regarding Reference 1.

Enclosure 1 provides Duke Energy's response to the Reference 2 RAIs. Enclosures 2 through 8 provide the revised emergency plan reflecting the RAI responses. The conclusions of the No Significant Hazards Consideration and Environmental Consideration in the original license amendment request are unaffected by this RAI response.

No new regulatory commitments have been made in this submittal.

Duke Energy is notifying the states of North Carolina and South Carolina by transmitting a copy of this letter to the designated state officials. If you have additional questions, please contact Mr. Art Zaremba, Manager – Regulatory Affairs, at 980-373-2062.

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

Executed on March 11, 2021.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Snider", written over a horizontal line.

Steve Snider

Vice President – Nuclear Engineering

Enclosures:

1. Response to Request for Additional Information
2. Duke Energy Common Emergency Plan (EP-ALL-EPLAN)
3. BNP Site Annex (EP-BNP-EPLAN)
4. CNS Site Annex (EP-CNS-EPLAN)
5. HNP Site Annex (EP-HNP-EPLAN)
6. MNS Site Annex (EP-MNS-EPLAN)
7. ONS Site Annex (EP-ONS-EPLAN)
8. RNP Site Annex (EP-RNP-EPLAN)

cc:

L. Dudes, Regional Administrator USNRC Region II
G. Smith, USNRC Senior Resident Inspector – BNP
J. D. Austin, USNRC Senior Resident Inspector – CNS
J. Zeiler, USNRC Senior Resident Inspector – HNP
G. A. Hutto, USNRC Senior Resident Inspector – MNS
J. Nadel, USNRC Senior Resident Inspector – ONS
M. Fannon, USNRC Senior Resident Inspector – RNP
A. Hon, NRR Project Manager – BNP
K. R. Cotton, NRR Project Manager – CNS
M. Mahoney, NRR Project Manager – HNP
J. Klos, NRR Project Manager – MNS

S. A. Williams, NRR Project Manager – ONS

T. E. Hood, NRR Project Manager – RNP

W. L. Cox, III, Section Chief, NC DHSR

L. Garner, Manager, Radioactive and Infectious Waste Management Section (SC)

A. Wilson, Attorney General (SC)

A. Nair, Director, Nuclear Response (SC)

Chair – North Carolina Utilities Commission

Enclosure 1
RA-21-0063

Enclosure 1
Response to Request for Additional Information

NRC RAI-1

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(BNP only) Item # 23 of Attachment 1B, "Common to Site Emergency Plan Comparison Review," provides that there are several organizations not identified in the proposed BNP site-specific annex as having Letters/Memorandums of Agreement that are identified in the current plan (as listed below).

- Yaupon Beach Volunteer Fire Department
- Boiling Spring Lakes Volunteer Fire Department
- Oak Island Fire and Rescue Department
- Sunny Point Fire Department

The justification for the removal is "Administrative change -Reformatted information."

However, item # 44 of Attachment 1B further provides the following:

3.7.2.2 Fire Assistance

Agencies with fire protection resources in the vicinity of Brunswick are as follows:

- Southport Fire Department
- Boiling Spring Lakes Volunteer Fire Department
- Yaupon Beach Volunteer Fire Department
- Oak Island Fire and Rescue Department
- Sunny Point Fire Department

The Southport Fire Department is the primary fire protection response agency for the Brunswick Plant and will coordinate assistance activities, if required, of the other above agencies.

Request:

Please clarify whether this information will be applicable for the proposed BNP site-specific annex and should be identified in the annex.

Duke Energy Response to NRC RAI-1

Yaupon Beach Volunteer Fire Department, Sunny Point Fire Department, Boiling Spring Lakes Volunteer Fire Department, and Oak Island Fire and Rescue Department will not be identified in the BNP site-specific annex. Yaupon Beach Volunteer Fire Department no longer exists; therefore, no written agreement can be maintained. Furthermore, a Memorandum of Understanding (MOU) exists with Brunswick County, where BNP is located. This MOU with Brunswick County (listed in element A.4 of the BNP site-specific annex) includes providing support for fire suppression and other specialized services. Therefore, the letters of agreement specifically for Sunny Point Fire Department, Boiling Spring Lakes Volunteer Fire Department, and Oak Island Fire and Rescue Department are redundant to the overarching Brunswick County MOU. The Southport Fire Department will remain in the BNP site-specific annex as the primary responder for fire suppression.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-2

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(CNS only) Item # 13 of Attachment 2B, "Common to Site Emergency Plan Comparison Review," provides that there are two organizations not identified in the proposed CNS site-specific annex as having Letters/Memorandums of Agreement that are identified in the current plan (see below).

- Center for Emergency Medicine (Rock Hill, SC)
- York County Sheriff

The justification for the removal is "Administrative change – Removed LOAs for government agencies that have an Emergency Plan in place."

However, item # 162 of Attachment 2B further provides the following:

Medical Support -

- Local – Center for Emergency Medicine.

(Agreement #9 App. 5)

Request:

Please clarify whether the reference to the Center for Emergency Medicine will be applicable for the proposed CNS site-specific annex and should be identified in the annex. Further, please provide justification for the removal of York County Sheriff.

Duke Energy Response to NRC RAI-2

The Center for Emergency Medicine will not be identified in the proposed CNS site-specific annex. Piedmont Medical Center is the primary hospital for injured, contaminated personnel for York County, where CNS is located. The agreement with the Center for Emergency Medicine relates to providing medical treatment to injured, contaminated personnel from CNS at Piedmont Medical Center. Therefore, the agreement with the Center for Emergency Medicine is superseded by the agreement with Piedmont Medical Center (listed in element A.4 of the CNS site-specific annex).

York County Sheriff will be identified in the CNS site-specific annex. Element A.4 of Enclosure 4 reflects this change.

NRC RAI-3

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(HNP only) Item # 16 of Attachment 3B, "Common to Site Emergency Plan Comparison Review," provides that there are two organizations not identified in the proposed HNP site-specific annex as having Letters/Memorandums of Agreement that are identified in the current plan (see below).

- Town of Holly Springs Dept. Of Public Safety, Division of Municipal Fire Services
- Apex Rescue Squad

The justification for the removal is "Agencies within same county are being consolidated into a single county MOUs."

However, item 165 of Attachment 3B provides the following:

4) Medical Transportation

The Apex Rescue Squad has agreed to respond to emergency calls from the plant, including transporting persons with injuries involving radioactive contamination. This service is available on a 24-hour-per-day basis. In cases not involving severe injury, one of the plant vehicles may be used to transport injured individuals. The Apex Rescue Squad is included in Annex A, "Agreements."

Additionally, Section L.4 of the HNP site-specific annex provides the following:

The Wake County EMS [Emergency Medical Service] is used to provide ambulance service for individuals transported from HNP.

Request:

Please clarify whether the information for the Apex Rescue Squad will be applicable for the proposed HNP site-specific annex and should be identified in the annex and whether the Wake County EMS has a Letter/Memorandum of Agreement. Also, as applicable, please provide justification for the removal of these organizations.

Duke Energy Response to NRC RAI-3

The Apex Rescue Squad and the Town of Holly Springs Dept. Of Public Safety, Division of Municipal Fire Services will not be identified in the HNP site-specific annex. The Apex Rescue Squad no longer exists; therefore, no written agreement can be maintained. Furthermore, a Memorandum of Understanding (MOU) exists with Wake County, where HNP is located. The MOU with Wake County (listed in element A.4 of the HNP site-specific annex) includes providing sufficient resources (including personnel) and equipment in the event of an emergency. Therefore, the letter of agreement specifically for the Town of Holly Springs Dept. Of Public Safety, Division of Municipal Fire Services is redundant to the overarching Wake County MOU.

Wake County Department of Emergency Medical Services (EMS) is responsible for providing emergency medical services within Wake County and is therefore inclusive of the Wake County MOU.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-4

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(MNS only) Item # 15 of Attachment 4B, "Common to Site Emergency Plan Comparison Review," provides that there is one organization not identified in the proposed MNS Site Specific Annex as having Letters/Memorandum of agreement that are identified in the current plan (see below).

- Cornelius Fire Department

The justification for the removal is "Administrative change – Removed LOAs for government agencies that have an Emergency Plan in place and organization no longer used."

Further, item # 7 of Attachment 4B provides,

- B.9.f Fire-Fighting
1. Cornelius Fire Department (Cornelius, NC)
 2. Huntersville Fire Department (Huntersville, NC)

Request:

Please clarify whether the information for the Cornelius Fire Department will be applicable for the proposed MNS site-specific annex and should be identified in the annex or provide justification for removal.

Duke Energy Response to NRC RAI-4

Cornelius Fire Department will not be identified in the MNS site-specific annex. A Memorandum of Understanding (MOU) exists with the Charlotte Mecklenburg Emergency Management Office (CMEMO), acting as the Emergency Management Agency for Mecklenburg County (where MNS is located). The MOU with CMEMO (listed in element A.4 of the MNS site-specific annex) includes providing support for fire suppression and other specialized services in the event of an emergency. Therefore, the letter of agreement with Cornelius Fire Department is redundant to the overarching CMEMO MOU. The Huntersville Fire Department will remain in the MNS site-specific annex as the primary responder for fire suppression.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-5

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(ONS only) Item # 15 of Attachment 5B, "Common to Site Emergency Plan Comparison Review," provides that there are several organizations not identified in the proposed ONS site-specific annex as having Letters/Memorandums of Agreement that are identified in the current plan (see below).

- Pickens County Sheriff's Department
- Greenville Health System
- Six-Mile Volunteer Fire Department
- Keowee-Ebenezer Volunteer Fire Department
- Corinth-Shiloh Volunteer Fire Department

The justification for the removal is "Administrative change – Removed LOAs for government agencies that have an Emergency Plan in place."

Further, item # 7 of Attachment 5B provides the following:

FIRE FIGHTING -
Oconee County Emergency Services Fire/Chemical Spill
Keowee-Ebenezer Fire Department
Corinth-Shiloh Fire Department Six-Mile Fire Department
Keowee Fire Department

Additionally, item # 162 of Attachment 5B provides the following:

Medical Support - (Agreements located in Appendix 5)
Local - Greenville Health System

Request:

Please clarify whether the information for these identified organizations will be applicable for the proposed ONS site-specific annex and should be identified in the annex. Please provide justification, if applicable, for the removal of the identified organizations.

Duke Energy Response to NRC RAI-5

Oconee County Emergency Services Fire/Chemical Spill, Keowee-Ebenezer Fire Department, and Corinth-Shiloh Fire Department will not be identified in the ONS site-specific annex. A Memorandum of Understanding (MOU) exists with Oconee County, where ONS is located. The MOU with Oconee County (listed in element A.4 of the ONS site-specific annex) includes providing support for fire suppression and other specialized services in the event of an emergency. Therefore, the letters of agreement with Oconee County Emergency Services Fire/Chemical Spill, Keowee-Ebenezer Fire Department, and Corinth-Shiloh Fire Department are redundant to the overarching Oconee County MOU. The Keowee Fire Department is now known as Keowee-Fire Tax District and will remain in the ONS site-specific annex as the primary responder for fire suppression.

The Pickens County Sheriff's Office and Six-Mile Fire Department (Pickens County) will not be identified in the ONS site-specific annex. These entities or any other entity supporting Pickens County would not be a direct responder to ONS, since ONS is in Oconee County. The Oconee County Sheriff's Office is maintained in the ONS site-specific annex and fire suppression services to ONS already exist through the MOU with Oconee County. Therefore, the letter of agreements with the Pickens County Sheriff's Office and Six-Mile Fire Department are not applicable.

The Medical Support Agreement with Greenville Health System has been revised due to Greenville Health System being purchased and renamed to Prisma Health - Upstate. The agreement letter between Oconee Nuclear Station and Prisma Health -Upstate (which owns and operates Oconee Memorial Hospital) remains in effect and is referred to as Oconee Memorial Hospital in the ONS site-specific annex.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-6

Requirement:

- 10 CFR 50.47(b)(1) requires that the primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones (EPZs) have been assigned and the emergency responsibilities of the various supporting organizations have been specifically established.
- Associated guidance in NUREG-0654, Section II.A, Evaluation Criterion A.4 states that written agreements with the support organizations having an emergency response role within the EPZs are referenced.

Issue:

(RNP only) Item # 17 of Attachment 6B, "Common to Site Emergency Plan Comparison Review," provides that there are several organizations not identified in the proposed RNP site-specific annex as having Letters/Memorandums of agreement that are identified in the current plan (see below).

- Darlington County Emergency Medical Service's
- Hartsville Rescue Squad
- Hartsville Fire Department
- Medshore Ambulance Service

The justification for the removal is "Agencies within same county are being consolidated into a single county MOUs."

Additionally, Section L.4 of the RNP site-specific annex provides the following:

The Darlington County Emergency Medical Service is used to provide ambulance service for individuals transported from RNP.

Request:

Please provide justification for the removal of the identified organizations and whether the Darlington County Emergency Medical Service has a Letter/Memorandum of Agreement.

Duke Energy Response to NRC RAI-6

The Hartsville Fire Department and Hartsville Rescue Squad will not be identified in the RNP site-specific annex. A Memorandum of Understanding (MOU) exists with Darlington County, where RNP is located. This MOU with Darlington County (listed in element A.4 of the RNP site-specific annex) includes providing support for fire suppression and other specialized services as well as ambulance medical services in the event of an emergency. Therefore, the letters of agreement specifically for Hartsville Fire Department and Hartsville Rescue Squad are redundant to the overarching Darlington County MOU.

Darlington County Emergency Medical Services is responsible for emergency medical services within Darlington County and is therefore inclusive of the Darlington County MOU.

Medshore Ambulance Service will not be identified in the RNP site-specific Annex. Medshore Ambulance service supported Chesterfield County and is no longer contracted to Chesterfield County. Medshore Ambulance service or any other ambulance service supporting Chesterfield County would not be a direct responder to RNP, since RNP is in Darlington County. Ambulance medical service to RNP already exists through Darlington County and an MOU with Darlington County is in effect. Therefore, the letter of agreement with Medshore Ambulance Service is not applicable.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-7

Requirement:

- 10 CFR 50.47(b)(1) requires that each principal response organization has staff to respond and to augment its initial response on a continuous basis.
- 10 CFR 50.47(b)(2) requires that the on-shift facility licensee has adequate staffing to provide initial facility accident response in key functional areas is maintained at all times and timely augmentation of response capabilities is available.
- Associated guidance in NUREG-0654, Section II.B, Evaluation Criterion B.1.a states that the site-specific emergency response organization (ERO) is developed.
- NRC Document, "Technical Basis for the Proposed Guidance in NUREG-0654/FEMA-REP-1, Section II.B, 'Emergency Response Organization,'" dated August 24, 2017 (ADAMS Accession No. ML16117A427).

Issue:

NUREG-0654 guidance specifies augmentation from an Alert or higher for two (2) onsite Field Monitoring Team personnel at 60 minutes, two (2) offsite Field Monitoring Team personnel at 60 minutes and two (2) offsite Field Monitoring Team personnel at 90 minutes.

Five of the Duke Energy sites currently have the capability to perform either onsite/near site surveys or offsite surveys at 45 minutes from an Alert emergency declaration. Additionally, BNP has a third Radiation Protection (RP) Personnel on-shift that the NRC staff would consider available to perform onsite/near site surveys if needed.

Duke is proposing to extend the timing to performing onsite/near site surveys or offsite surveys to 75 minutes.

Duke Power Company (DPC) previously proposed to eliminate reference to the 45-minute responders from the emergency plans for McGuire Nuclear Station Units 1 and 2, Oconee Nuclear Station Units 1, 2, and 3, and Catawba Nuclear Station Units 1 and 2. In a letter dated November 12, 1996 (ADAMS Accession No. ML15238A321) for the CNS, MNS and ONS, the NRC staff stated:

Duke Power also proposes to relax the response time for one RP technician used for performing plume surveys inside the protected area but outside of the power block (out-of-plant onsite surveys).

The relaxation of the offsite survey response from 45 minutes to 75 minutes places greater importance on the need to perform early onsite external surveys. This proposal, therefore, is not acceptable.

The technical basis document for NUREG-0654 provides that onsite Field Monitoring Team should be staffed within 60-minutes of an Alert emergency classification level (ECL), or greater, in order to be ready to respond to a radiological release, or to detect radiation in the field thus confirming and quantifying the release. This supports the applicable protective action recommendation (PAR) decision-makers in developing effective PARs.

Request:

Provide additional justification for extending the capability to perform onsite/near site surveys or offsite surveys at 60 minutes from an Alert emergency declaration. This justification should not

rely on the two on-shift RP technicians who would be expected to have an increasing RP burden at 60 minutes which will be compounded by augmenting RP technicians not arriving until 75 minutes after the classification of an Alert ECL.

Duke Energy Response to NRC RAI-7

As shown in Enclosure 2, the proposed Duke Energy Common Emergency plan Table B-1 is revised to reflect one (1) onsite FMT Technician responding within 60 minutes of an Alert or higher ECL.

NRC RAI-8

Requirement:

- 10 CFR 50.47(b)(1) requires that each principal response organization has staff to respond and to augment its initial response on a continuous basis.
- 10 CFR 50.47(b)(2) requires that the on-shift facility licensee has adequate staffing to provide initial facility accident response in key functional areas is maintained at all times and timely augmentation of response capabilities is available.
- Associated guidance in NUREG-0654, Section II.B, Evaluation Criterion B.1.a states that the site-specific emergency response organization (ERO) is developed.
- NRC Document, "Technical Basis for the Proposed Guidance in NUREG-0654/FEMA-REP-1, Section II.B, 'Emergency Response Organization,'" dated August 24, 2017.

Issue:

The site-specific Enclosures of the Duke Energy LAR provided an evaluation of proposed reduction in effectiveness 9 (RIE 9) that states in part:

For the purposes of Table B-1, RP Qualified Individuals are task qualified to fulfill the Radiation Protection functions.

RIE 9 further provided that in 2011, the NRC approved this change for Catawba, McGuire, and Oconee Nuclear Stations (CNS, MNS, and ONS). Although a similar change was approved for CNS, MNS, and ONS, the safety evaluation for that change in wording specifically provided the following:

Based on the maintenance of the level of training for the RP Qualified Personnel to the standards of training and qualifications to the RP Technicians, the NRC staff finds the change in RP staffing during emergency response events from RP Technicians to RP qualified individuals to be acceptable.

It was not clear to the NRC staff that the use of task qualified, as used in the proposed Duke Energy Common Emergency Plan, was equivalent to a level of training and qualifications of a RP technician. Considering that the eight RP personnel identified on Table B-1 of NUREG-0654 are performing RP functions which includes providing qualified radiation protection coverage for responders accessing potentially unknown radiological environments during emergency conditions, those individuals performing this function are expected to meet the standards of training and qualifications of RP Technicians.

Request:

Provide additional details regarding the level of training for RP qualified individuals, such that it is clear to the NRC staff that RP qualified individuals will have the appropriate training to perform the tasks at an equivalent level of RP Technicians.

Duke Energy Response to NRC RAI-8

RP Qualified Individuals can include RP supervisors, RP ALARA, RP staff, and Chemistry personnel who are qualified in RP programs, policies, and procedures. RP Qualified Individuals are task qualified to Duke Energy RP technician qualifications, which are consistent with RP Technician skills contained in Plant Access Data System (PADS). These tasks have initial and

continuing training requirements as defined by the systematic approach to training (SAT) process. Included in the RP Qualified Individual task qualification will be the High Risk Radiological Job Coverage Task. As a prerequisite to this task, individuals must meet ANSI Requirements as defined in Regulatory Guide 1.8, Qualification and Training of Personnel for Nuclear Power Plants. Duke Energy nuclear plants are committed to various revisions of Regulatory Guide 1.8. RP Qualified Individuals will maintain the task qualifications necessary to perform the RP function described in the proposed Duke Energy Common Emergency Plan and are included in the continuing RP training program to maintain the level of knowledge required to perform the tasks and responsibilities of the RP function.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-9

Requirement:

- 10 CFR 50.47(b)(1) requires that each principal response organization has staff to respond and to augment its initial response on a continuous basis.
- 10 CFR 50.47(b)(2) requires that the on-shift facility licensee has adequate staffing to provide initial facility accident response in key functional areas is maintained at all times and timely augmentation of response capabilities is available.
- Associated guidance in NUREG-0654, Section II.B, Evaluation Criterion B.1.a states that the site-specific emergency response organization (ERO) is developed.
- NRC Document, "Technical Basis for the Proposed Guidance in NUREG-0654/FEMA-REP-1, Section II.B, 'Emergency Response Organization,'" dated August 24, 2017.

Issue:

Section 3.4.1.3, "Key Function: Radiation Protection," of each site-specific Enclosure of the Duke Energy LAR provided, in part:

In addition, the proposed 75-minute augmentation time for the maintenance staff described in Item 9 of this section (Repair Team function) eliminates the need for RP coverage of the repair team prior to 75 minutes.

Section 3.4.1.9, "Repair Team Activities," of each site-specific Enclosure of the Duke Energy LAR provided, in part:

The Diverse and Flexible Coping Strategies (FLEX) Program provides additional equipment and guidelines that can be used by qualified on-shift personnel for mitigating emergency conditions.

Duke Energy has provided that the Duke sites have the equipment, procedures, and training to implement FLEX strategies. However, it was not clear to the NRC staff that proposed RP staffing would support the implementation of FLEX strategies until proposed RP augmentation of 75 minutes from an Alert ECL.

Request:

Provide additional information that demonstrates the following:

- a. Proposed RP on-shift and augmentation staffing changes would not place an undue burden on the on-shift RP staff during the implementation of FLEX strategies until the proposed augmentation at 75 minutes from an Alert ECL.
- b. Implementation of FLEX strategies would not reasonably require the capabilities provided by the augmenting ERO, such as support to either move or install FLEX equipment that might be provided by either maintenance or other augmentation personnel.

Duke Energy Response to NRC RAI-9

The proposed Duke Energy Common Emergency Plan on-shift and augmented staff has the training, procedures, and equipment necessary to perform Emergency Plan implementation functions and FLEX Support Guideline (FSG) strategies, when required. Other on-shift staffing,

controlled outside of the Duke Energy Common Emergency Plan, also have the training, qualifications, procedures, and equipment necessary for implementing FSG strategies. The staffing required to implement FSG strategies are determined through each site's NEI 12-01 Phase 2 Extended Loss of AC Power (ELAP) ERO Staffing Analysis Report and will be evaluated under that process prior to any changes to on-shift staffing. The NEI 12-01 analysis considers Emergency Plan implementation functions as part of determining overall required staff and therefore ensures there will be no undue burden on the ERO staff.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-10

Requirement:

- 10 CFR 50.47(b)(1) requires that each principal response organization has staff to respond and to augment its initial response on a continuous basis.
- 10 CFR 50.47(b)(2) requires that the on-shift facility licensee has adequate staffing to provide initial facility accident response in key functional areas is maintained at all times and timely augmentation of response capabilities is available.
- Associated guidance in NUREG-0654, Section II.B, Evaluation Criterion B.1.a states that the site-specific emergency response organization (ERO) is developed.
- NRC Document, "Technical Basis for the Proposed Guidance in NUREG-0654/FEMA-REP-1, Section II.B, 'Emergency Response Organization,'" dated August 24, 2017.

Issue:

Section 3.2.1.10, "Key Function: Supervision of Repair Team Activities," of each site-specific Enclosure of the Duke Energy LAR provided, in part:

The current ERO structure allows for the management of craft personnel under a single supervisor hierarchy. A single maintenance supervisor can effectively manage the maintenance resources, as demonstrated by OSC [Operations Support Center] performance under this organizational structure in numerous drills and evaluated exercises. The major tasks are aligned with those stated in NUREG-0654 Rev. 2 guidance.

Section 3.4.1.10, "Supervision of Repair Team Activities," of each site-specific Enclosure of the Duke Energy LAR provided, in part:

Furthermore, although the current BNP Emergency Plan does not provide an on-shift position for the Supervision of Repair Team function, it is noted that historic drill and exercise evaluations do not indicate performance issues with regard to on-shift task overburden or overlap related to this function as a result of the currently implemented 75 minute response time.

Based on an NRC staff review of the Duke Energy LAR, it appears that the primary basis for providing a single augmenting Maintenance Supervisor and not a separate Mechanical Supervisor, an Electrical Supervisor, and an Instrument and Control (I&C) Supervisor is the current ERO structure and historic drill evaluations. Considering that both the current Duke Energy ERO staffing and historic drill and exercise evaluations are based on guidance of NUREG-0654, Revision 1 that existed prior to the development of NUREG-0654 Revision 2, it would not be reasonable to assume that observations or evaluations based on previous guidance would adequately justify the proposed difference from updated guidance provided by NUREG-0654 Revision 2.

Request:

Provide additional information that addresses the following:

- a. Demonstrates that the Duke Energy ERO, as augmented, will have the capability for a Mechanical Supervisor to provide oversight of OSC activities related to mechanical equipment.

- b. Supports combining the Electrical and the I&C Supervisor functions such that the capability to provide oversight of OSC activities related to electrical and I&C equipment is maintained.

Duke Energy Response to NRC RAI-10

The single maintenance supervisor structure promotes cross-disciplinary knowledge and has proven successful for maintenance activities at Duke Energy. This includes maintenance shift supervisors within Duke Energy that lead multi-discipline teams of Mechanical and Instrument and Electrical (IAE) personnel. In addition, neither the normal maintenance supervisor training nor the ERO maintenance supervisor training is discipline specific. Finally, although the underlying NRC guidance document is changing from NUREG-0654 Revision 1 to NUREG-0654 Revision 2, the proposed change from the current Duke Energy emergency plans to the Duke Energy Common Emergency Plan does not increase the burden on the ERO Maintenance Supervisor. The number of technicians the supervisor is required to manage is not increasing and there are no additional functions required. Therefore, the historical drill and exercise performance mentioned in the LAR would still provide value in this justification.

In summary, Duke Energy has experience with the single supervisor structure in both normal and ERO maintenance duties. This provides reasonable assurance that one maintenance supervisor can perform the ERO Maintenance Supervisor functions, including oversight of OSC activities related to mechanical, electrical, and I&C equipment, within the proposed Duke Energy Common Emergency Plan.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-11

Requirement:

- 10 CFR 50.47(b)(12) requires that arrangements are made for medical services for contaminated injured individuals.
- 10 CFR Part 50, Appendix E.IV.E.5 requires arrangements for medical service providers qualified to handle radiological emergencies onsite.
- Associated guidance in NUREG-0654, Section II.L, Evaluation Criterion L.2 states that arrangements for the medical treatment of contaminated, injured onsite personnel are described.

Issue:

(BNP only) Item # 44 of Attachment 1B, provides that the current BNP Emergency Plan has the following statement:

In addition, medical assistance is available on, or offsite from physicians in the Southport area who have agreed to provide medical assistance to contaminated patients.

However, the proposed BNP site annex does not include above statement.

The justification for the removal is “Administrative change – Wording change more clearly meets element, does not change intent or level of commitment.”

Request:

Provide further technical justification for removal of this medical assistance from the approved emergency plan.

Duke Energy Response to NRC RAI-11

Medical Physicians are available for assistance at offsite medical facilities (i.e. hospitals) but are not required for onsite assistance. As stated in element L.2.a of the proposed common emergency plan, BNP has an on-site Medical Emergency Response Team (MERT) that provides onsite medical response. The MERT team is trained to provide medical assistance to injured, contaminated personnel. The BNP MERT team is assisted by BNP Radiation Protection (RP) personnel for contamination control. If additional medical assistance is required, an ambulance service from Brunswick County will be requested and respond to BNP for patient transport to Doshier Memorial Hospital. A letter of agreement exists with Doshier Memorial Hospital (element A.4) to provide medical assistance to contaminated patients from the BNP. This transport and medical assistance for injured, contaminated personnel is described in elements L.2.b and L.4 of the BNP site-specific annex. Therefore, the statement regarding physicians in the Southport area is not needed in the BNP site-specific annex.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-12

Requirement:

- 10 CFR 50.47(b)(5) requires that the means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.
- 10 CFR Part 50, Appendix E.IV.D.1 requires the description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.
- Associated guidance in NUREG-0654, Section II.E, Evaluation Criterion E.2 states the alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.

Issue:

Section E, "Notification Methods and Procedures," of each proposed Site-Specific Annex states:

Detailed information on the FEMA approved system used to alert and notify the general public is maintained in [site specific] Alert and Notification System Design Report.

However, there are site-specific details from the existing site emergency plans that should be included in the applicable site-specific annex. For example:

The current BNP Emergency Plan states that,

- The Coast Guard will be used in notifying people along the coast and other large bodies of water where appropriate and necessary.
- Sirens will not be sited in the Sunny Point Army Terminal. Brunswick County will notify the terminal which will alert its personnel using on-site warning methods.
- Activation of the sirens will be accomplished from the Brunswick and New Hanover Counties Emergency Operation Centers. The sirens in each county are independently controlled but may be activated by Duke Energy with permission from the counties.

The HNP Emergency Plan states that,

- Patrol boats will be used in alerting people on Jordan Lake and Harris Lake in accordance the North Carolina Emergency Response Plan in support of the Shearon Harris Nuclear Power Plant Annex G. Supplemental sirens are provided for alerting boaters on Harris Lake.
- Activation of the sirens for warning of the public will be accomplished from the Wake County Emergency Operations Center or the Wake County Warning Point. The sirens can also be activated from the Harris Nuclear Plant or the Public Safety Communications Centers of Harnett, Lee and Chatham Counties.

The RNP Emergency Plan states that,

- Aircraft and patrol boats will be used in notifying people in wooded areas and on Lake Robinson where appropriate and necessary.
- Activation of the sirens will be performed by County Emergency Management Personnel. At the request of the responsible county authorities, HBRSEP may activate any part of the siren system.

Request:

Please provide additional detail in the proposed Section E of each proposed site-specific annex to address licensee requirements in Section IV.D.1 to Appendix E of 10 CFR Part 50.

Duke Energy Response to NRC RAI-12

The NRC request to provide additional detail in Section E is supported by examples in the current Brunswick, Harris, and Robinson emergency plans. The examples given may be grouped into two categories:

- Activation of the alert and notification system (ANS).
- Responsibilities for alerting, warning, and notification of the public in areas not covered by the ANS.

This request was evaluated for all six Duke Energy nuclear sites, not just the three for which examples were provided. For activation of the ANS, Duke Energy proposes to update Section E of each site-specific annex with detail similar to the examples provided.

Responsibility for alerting, warning, and notification of public areas not covered by the ANS is the responsibility of government agencies. These responsibilities are outlined in federal, state, and local emergency operating plans, guidelines, and procedures, which are not controlled by Duke Energy.

Based on the above, Duke Energy proposes to change element E.2 in the common emergency plan and each site-specific annex as shown in Enclosures 2 through 8, identified by revision bars in the margin and red text. Note that two editorial corrections are also made:

1. In element E.2 of the common emergency plan, a reference to element F.1.a is corrected to be element F.3 (regarding ANS testing).
2. In element E.2 of the HNP site annex, the title of CSD-EP-HNP-0603-01 is changed from "HNP..." to "Harris...".

The changes to element E.2 address the specific examples cited in the RAI as described below:

1. The Coast Guard will be used in notifying people along the coast and other large bodies of water where appropriate and necessary.

The paragraph added to element E.2 of the common emergency plan covers this BNP example. The state of North Carolina will use other federal, state, and local agencies to clear waterways. The agencies to be used are designated in state and local government emergency operating plans, guidelines, and procedures.

2. Sirens will not be sited in the Sunny Point Army Terminal. Brunswick County will notify the terminal which will alert its personnel using on-site warning methods.

The paragraph added to element E.2 of the common emergency plan of the common emergency plan covers this BNP example. State and local government emergency operating plans, guidelines, and procedures include actions for military installations.

3. Activation of the sirens will be accomplished from the Brunswick and New Hanover Counties Emergency Operation Centers. The sirens in each county are independently controlled but may be activated by Duke Energy upon request from the counties.

The responsibilities for ANS activation have been added to element E.2 of each site's annex.

4. Patrol boats will be used in alerting people on Jordan Lake and Harris Lake in accordance the North Carolina Emergency Response Plan in support of the Shearon Harris Nuclear Power Plant Annex G. Supplemental sirens are provided for alerting boaters on Harris Lake.

The paragraph added to element E.2 of the common emergency plan covers this HNP example. The state of North Carolina will use other federal, state and local agencies to clear waterways. The agencies to be used are designated in state and local government emergency operating plans, guidelines, and procedures.

5. Activation of the sirens for warning of the public will be accomplished from the Wake County Emergency Operations Center or the Wake County Warning Point. The sirens can also be activated from the Harris Nuclear Plant or the Public Safety Communications Centers of Harnett, Lee and Chatham Counties.

The responsibilities for ANS activation have been added to element E.2 of each site's annex.

6. Aircraft and patrol boats will be used in notifying people in wooded areas and on Lake Robinson where appropriate and necessary.

The paragraph added to element E.2 of the common emergency plan covers this RNP example. The state of South Carolina will use other federal, state and local agencies to clear wooded areas and waterways. The agencies to be used are designated in state and local government emergency operating plans, guidelines, and procedures.

7. Activation of the sirens will be performed by County Emergency Management Personnel. At the request of the responsible county authorities, HBRSEP may activate any part of the siren system.

The responsibilities for ANS activation have been added to element E.2 of each site's annex.

NRC RAI-13

Requirement:

- 10 CFR 50.47(b)(6) requires provisions for prompt communications among principal response organizations to emergency personnel and to the public.
- 10 CFR Part 50, Appendix E.IV.E.9.c requires provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.
- Associated guidance in NUREG-0654, Section II.F, Evaluation Criterion F.1 states that each principal response organization establishes redundant means of communication.

Issue:

(BNP only) Item # 70 of Attachment 1B, provides that the current BNP Emergency Plan has the following statement:

The EVS [Emergency Voice System] is dedicated for Emergency Preparedness (EP) communications, and consists of phones placed in the Control Room, TSC, OSC and the Simulator. Phones on this system also include sets that are dedicated for communicating with the plant load dispatcher, and for use on the NRC Emergency Telecommunications System (ETS).

However, the proposed BNP site annex does not include above statement.

Request:

Provide justification why this system is not described in the BNP site-specific Annex.

Duke Energy Response to NRC RAI-13

As described in Section F of the proposed Duke Energy Common Emergency Plan, several systems are available for communication between entities that are required to support emergency response, such as the Duke Energy Emergency Management Network (DEMNET), Private Branch Exchange (PBX) (including NRC Communications Links), business line, satellite phones, cellular phones, radios, and public address (PA) system. BNP's Emergency Voice System (EVS) is a sub-system of the overarching PBX. The system described in Section F provide adequate redundancy that ensures reliable communications with both onsite and offsite entities. Therefore, the EVS will not be included in the BNP site-specific annex.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-14

Requirement:

- 10 CFR 50.47(b)(6) requires provisions for prompt communications among principal response organizations to emergency personnel and to the public.
- 10 CFR Part 50, Appendix E.IV.E.9.c requires provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.
- Associated guidance in NUREG-0654, Section II.F, Evaluation Criterion F.1 states that each principal response organization establishes redundant means of communication.

Issue:

(HNP only) Item # 61 of Attachment 3B, provides that the current HNP Emergency Plan has the following statement:

A. The Harris E&E [Energy & Environmental] Center (HE&EC) PABX [private automatic branch exchange] telephone system

However, the proposed HNP site annex does not include above statement.

Request:

Provide justification why this system is not described in the HNP site-specific annex as it is an offsite communication system identified in the NRC approved HNP emergency action levels (ML16057A838) for a "Loss of all onsite or offsite communications capabilities."

Duke Energy Response to NRC RAI-14

Subsequent to the version of the existing HNP Emergency Plan provided to the NRC in the proposed LAR, the Harris E&E [Energy & Environmental] Center (HE&EC) PABX [private automatic branch exchange] telephone system was removed from both the HNP Emergency Plan and Emergency Action Levels (EAL) under 10 CFR 50.54(q) as part of a system modification. The HE&EC PABX is no longer a required emergency response communication system for HNP. Therefore, the HE&EC PABX telephone system will not be described in the HNP site-specific annex.

The 10 CFR 50.54(q) evaluations can be found in a letter from Duke Energy to the NRC dated December 18, 2019 (ADAMS Accession # ML19352G695).

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-15

Requirement:

- 10 CFR 50.47(b)(6) requires provisions for prompt communications among principal response organizations to emergency personnel and to the public.
- 10 CFR Part 50, Appendix E.IV.E.9.c requires provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.
- Associated guidance in NUREG-0654, Section II.F, Evaluation Criterion F.1 states that each principal response organization establishes redundant means of communication.

Issue:

(ONS only) Item # 63 of Attachment 5B, provides that the current ONS Emergency Plan has the following statement:

EOF Communication System [EOF phone system]

However, the proposed ONS site annex does not include above statement.

Request:

Provide justification why this system is not described in the ONS site-specific annex as it is an offsite communication system identified in NRC approved ONS emergency action levels (ML16109A093) for a "Loss of all onsite or offsite communications capabilities."

Duke Energy Response to NRC RAI-15

As described in element F.1.b of the proposed Duke Energy Common Emergency Plan, communication systems to be utilized by the EOF include the Duke Energy Emergency Management Network (DEMNET), Private Branch Exchange (PBX), satellite phones, and cellular phones. These systems provide adequate redundancy that ensures reliable EOF communications with both onsite and offsite entities. Therefore, the EOF Communication System [EOF phone system] will not be included in the ONS site-specific annex. Accordingly, Duke Energy will remove the EOF Communication System [EOF phone system] from the ONS Emergency Action Levels in accordance with 10 CFR 50.54(q) no later than LAR implementation.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-16

Requirement:

- 10 CFR 50.47(b)(6) requires provisions or prompt communications among principal response organizations to emergency personnel and to the public.
- 10 CFR Part 50, Appendix E.IV.E.9.c requires provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.
- Associated guidance in NUREG-0654, Section II.F, Evaluation Criterion F.1 states that each principal response organization establishes redundant means of communication.

Issue:

(RNP) Item # 62 of Attachment 6B, provides that the current RNP Emergency Plan has the following statement:

Corporate Telephone Communications System (VoiceNet)

However, the proposed RNP site annex does not include above statement.

Request:

Provide justification why this system is not described in the RNP site-specific annex as it is an offsite communication system identified in NRC approved RNP emergency action levels (ML16061A472) for a "Loss of all onsite or offsite communications capabilities."

Duke Energy Response to NRC RAI-16

As described in Section F of the proposed Duke Energy Common Emergency Plan, several systems are available for communication between entities that are required to support emergency response, such as the Duke Energy Emergency Management Network (DEMNET), Private Branch Exchange (PBX) (including NRC Communications Links), business line, satellite phones, cellular phones, radios, and public address (PA) system. These systems provide adequate redundancy that ensures reliable communications with both onsite and offsite entities. Therefore, the Corporate Telephone Communications System (Voicenet) will not be included in the RNP site-specific annex. Accordingly, Duke Energy will remove the Corporate Telephone Communications System (Voicenet) from the RNP Emergency Action Levels in accordance with 10 CFR 50.54(q) no later than LAR implementation.

There are no changes to the proposed emergency plan as a result of this RAI.

NRC RAI-17

Requirement:

- 10 CFR 50.47(b)(8) requires adequate emergency facilities and equipment to support the emergency response are provided and maintained.
- Associated guidance in NUREG-0654, Section II.F, Evaluation Criterion H.1 states that a Technical Support Center (TSC) is established, using current Federal guidance, from which nuclear power plant conditions are evaluated and mitigative actions are developed.
- Associated guidance in NUREG-0696, "Functional Criteria for Emergency Response Facilities," provides guidance for the TSC.

Issue:

(CNS, MNS, ONS and RNP) Item # 69 of Attachment 2B, item # 75 of Attachment 4B, item # 73 of Attachment 5B, and item #74 of attachment 6B, respectively provide:

Site specific details of the TSC are described in the site-specific annexes to the Duke Energy Common Emergency Plan.

However, the site-specific details in these site-specific annexes do not address some of the functional criteria in NUREG-0696 (i.e., size, structure, habitability, and instrumentation, data system equipment and power supplies).

Request:

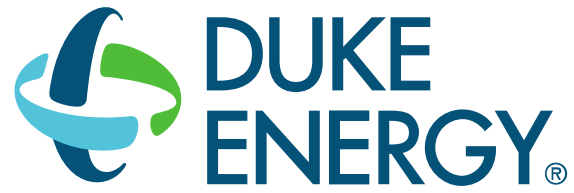
Provide justification for not addressing all of the functional criteria in these site-specific annexes.

Duke Energy Response to NRC RAI-17

Element H.1 of the proposed common emergency plan as well as the CNS, MNS, ONS, and RNP site-specific annexes are revised as shown in Enclosures 2, 4, 6, 7, and 8, respectively. This revision utilized the TSC description from each of the current emergency plans as a guide for level of detail, while also consistently aligning the information throughout the site-specific annexes and ensuring that the NUREG-0696 criteria are addressed either in the annex or appropriate sections of the common plan (e.g. Staffing and Training in Sections B and O, Communications in Section F). Note that certain information has been removed from element H.1 of the common plan, because it is now described in element H.1 of the site-specific annexes. To be consistent with the changes made to the CNS, MNS, ONS, and RNP site-specific annexes, changes were also made to element H.1 of the BNP and HNP site-specific annexes, as shown in Enclosures 3 and 5, respectively.

Enclosure 2
RA-21-0063

Enclosure 2
Duke Energy Common Emergency Plan (EP-ALL-EPLAN)



Duke Energy
Common
Emergency Plan
EP-ALL-EPLAN
REVISION 0

Duke Energy Common Emergency Plan

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Duke Energy Common Emergency Plan

SECTION I: INTRODUCTION

The Duke Energy Common Emergency Plan provides the means to protect the health and safety of the general public, persons temporarily visiting or assigned to nuclear power plants operated by Duke Energy, and plant employees. Duke Energy operates the Brunswick Nuclear Plant (BNP), Catawba Nuclear Station (CNS), Harris Nuclear Plant (HNP), McGuire Nuclear Station (MNS), Oconee Nuclear Station (ONS) and Robinson Nuclear Plant (RNP).

The overall documentation for the Emergency Preparedness (EP) Program for each Duke Energy nuclear site consists of the following documents:

- Duke Energy Common Emergency Plan – The Duke Energy Common Emergency Plan outlines actions taken to prepare for and response to a declared emergency. Planning efforts common to all Duke Energy nuclear sites are encompassed within the Duke Energy Common Emergency Plan.
- Site Specific Duke Energy Emergency Plan Annex – The Duke Energy (*Site*) Emergency Plan Annex contains information and guidance that is unique to the site. The site annexes are subject to the same review and audit requirements as the Duke Energy Common Emergency Plan.
- Site Specific Emergency Action Level Technical Basis Document – Establishes the Emergency Action Level scheme used by the sites to declare emergencies. The Technical Basis documents references and inputs used to determine values or events that would result in declaration of an emergency.
- Site Specific Evacuation Time Estimate (ETE) Studies – The ETE study defines the site's Plume Exposure (~10 Mile) Emergency Planning Zone. It documents the population within defined areas of the zone, evacuation routes and ETEs for different scenarios.
- Site Specific On Shift Staffing Analysis – Shift Staffing Analysis were performed to fulfill requirements of §50 Appendix E.IV subsection A.9.
- Site Specific Alert and Notification System Design Reports – Defines the notification system used to alert the public of an emergency at the Site.
- Emergency Plan Implementing Procedures – Corporate and site procedures that are used to implement the overall emergency plan for the site. Site specific implementing procedures are listed in Table P.7-1, Emergency Plan Response and Administrative Procedures of the site annexes.
- Associated program administrative documents – Directives and other documents (such as training records) that support the emergency planning effort.

The Duke Energy Common Emergency Plan was developed with the guidance of NUREG-0654, FEMA-REP-1, Revision 2, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The Duke Energy Emergency Plan meets the emergency planning standards of 10 CFR 50.47(b), the requirements of Appendix E. Section II of the Duke Energy Emergency Plan is organized using the structure of NUREG-0654, Revision 2. That structure provides the cross-reference to the elements in the base document.

Duke Energy has overall responsibility for maintaining a state of readiness to implement this plan. The authority for planning, developing, and coordinating emergency control measures is derived from being the Nuclear Regulatory Commission (NRC) license holder for the nuclear power plants operated by Duke Energy.

Duke Energy Common Emergency Plan

Any changes made that may affect or alter the Duke Energy Emergency Plan will be evaluated and made using the change process in § 50.54(q) of the Code of Federal Regulations and Regulatory Guide 1.219.

There are supporting and complementing emergency plans, including those of federal agencies, the states of North Carolina, South Carolina, Georgia (Ingestion pathway only for ONS), and individual counties that support the Duke Energy nuclear sites.

Section II of the Duke Energy Common Emergency Plan provides specific guidance how the Emergency Plan meets each planning standard of 10 CFR 50.47(b), the requirements of 10 CFR 50 Appendix E and elements from NUREG 0654.

SECTION II: PLANNING STANDARDS AND ELEMENTS

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1	The Federal, state, local, and tribal governments, licensee, and other private sector organizations that comprise the overall response for the EPZs are identified.
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A description of the Duke Energy Emergency Response Organization (ERO) is detailed in Section B. The subsections below identify the Offsite Response Organizations (OROs), federal, state and county and other organizations that encompass the overall response organization for an event at a Duke Energy nuclear site.

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
-------	--

1. Duke Energy

All emergencies or accident situations at the sites are initially coordinated by the Control Room shift crew under the direction of the Shift Manager. When an abnormal situation occurs, the Shift Manager, using operating and emergency procedures and from background, training and experience, determines whether it rises to the level of a declared emergency. For emergencies classified as Alert, Site Area Emergency and General Emergency, the Shift Manager will augment the ERO with on-call personnel.

When the emergency response facilities are staffed the augmenting ERO relieves the shift personnel of emergency response functions not directly associated with plant operations.

The responsibility of the Control Room, TSC and EOF personnel for the various emergency response functions is further described in Section B.

Duke Energy Common Emergency Plan

2. Federal Organizations

Control, responsibility and interface of federal organizations is governed by the National Response Framework (NRF) and the Nuclear/Radiological Incident Annex to the NRF when they are called to respond to an event at a nuclear power plant. The main federal organizations that may be involved in a significant event at a Duke Energy nuclear site are as follows:

A. Nuclear Regulatory Commission (NRC)

The NRC acts as the lead federal agency with regard to technical matters during a nuclear incident including radiological assistance. The NRC maintains an Incident Response Plan (IRP). The IRP objectives are to provide for protection of the public health and safety, property, and the environment, from the effects of radiological incidents that may occur at licensed facilities. The objectives of the agency plan set forth the organizational and management concepts and responsibilities needed to assure that NRC has an effective emergency response program. The NRC is prepared to recommend appropriate protective actions for the public and technical actions to the licensee. FEMA acts as the lead federal agency for offsite, non-technical concerns.

During an incident, the Chairman of the Commission is the senior NRC authority for all aspects of a response. The Chairman transfers control of emergency response activities to the Director of Site Operations when deemed appropriate.

All NRC Regions as well as Headquarters are prepared to respond to potential emergencies. All Regions and Headquarters have developed plans and procedures for responding to radiological incidents involving NRC licensees. Headquarters has developed the NRC Incident Response Plans and Implementing Procedures. Each NRC Region has developed Regional Supplements that detail how the Region will fulfill all of the responsibilities assigned in the NRC Incident Response Plan.

Each Region and Headquarters has established and maintains an Incident Response Center designed to centralize and coordinate the emergency response function. Each Region is prepared to send a team of qualified specialists to the scene expediently. All of the necessary supplies and equipment needed for emergency response will be provided and maintained by the NRC. Adequate communications are established to link the licensee, Headquarters and the Region. The NRC has established lines of communications with state and local government, other federal agencies, Congress and the White House. Public information is disseminated in a timely manner and periodically.

B. Federal Emergency Management Agency (FEMA)

Per the Federal Response Plan (FRP), FEMA is responsible for the overall coordination of a multi-agency federal response to a significant radiological incident. The primary role of FEMA is to support the state by coordinating the delivery of federal non-technical assistance. FEMA coordinates state requests for federal assistance, identifying which federal agency can best address specific needs. If deemed necessary by FEMA, it will establish a Federal Response Center from which it will manage its assistance activities.

Duke Energy Common Emergency Plan

C. Department of Homeland Security (DHS)

DHS coordinates preparedness activities within the United States to respond to and recover from terrorist attacks, major disasters, and other emergencies. As part of these responsibilities, the Secretary coordinates with federal entities to provide for federal unity of effort for domestic incident management.

D. U.S. Department of Energy (DOE)

With regard to an event at a nuclear power plant, in cooperation with other federal and state agencies, DOE will manage the Federal Radiological Monitoring and Assessment Center (FRMAC) to provide monitoring data and interpretations, including exposure rate contours, dose projections, and other requested radiological assessments, to the primary authority and the states. DOE also arranges consultation and support services through appropriate federal agencies to all other entities (e.g., private contractors) with radiological monitoring functions and capabilities and technical and medical expertise for handling radiological contamination and population monitoring.

In cooperation with other federal and state agencies, DOE also provides personnel and equipment to perform radiological monitoring in support of other response activities, support for treatment of radiologically injured or contamination personnel and modeling of atmospheric dispersion.

If Duke Energy, the NRC or the affected states deem that assistance from DOE is necessary or desirable, the affected state(s) would notify the appropriate DOE operations office.

E. Federal Bureau of Investigation (FBI)

Support from the FBI is available through its statutory responsibility based in Public Law and the US code, and through a memorandum of understanding for cooperation with the NRC. Notification to the FBI of emergencies in which they would have an interest will be through provisions of the nuclear site's Security Plan, or by the NRC.

F. U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers control barge and boat traffic at locks and dams on navigable waterways in the United States. The Corps of Engineers will be contacted by the appropriate state agencies in the event of an incident at an applicable nuclear power plant. The Corps will be responsible for closing their locks and dams to all waterway traffic leading to the affected area, allowing only traffic leaving the area.

G. National Weather Service (NWS)

The NWS provides meteorological information during emergency situations, if required. Data available will include existing and forecasted surface wind directions, wind speed with azimuth variability, and ambient surface air temperature. These NWS offices are located in Wilmington, NC, Columbia, SC, and Greenville, SC.

Duke Energy Common Emergency Plan

H. U.S. Geological Survey (USGS)

The USGS maintains the National Earthquake Information Center (NEIC), which can be reached at the USGS website. The NEIC rapidly determines the location and size of all destructive earthquakes worldwide and immediately disseminates this information to concerned national and international agencies, scientists, and the general public. The NEIC is used as one of several sources to evaluate seismic events that may impact the site.

I. Environmental Protection Agency (EPA)

Assists with field radiological monitoring/sampling and non-plant related recovery and reentry guidance.

3. State Organizations

The Duke ERO coordinates response actions with NC and SC state response organizations, who employ the National Incident Management System (NIMS) and the Incident Command System (ICS). Control, responsibility and interface of the state organizations is governed by their respective emergency plans, which are developed and maintained in coordination with the Duke Energy emergency plan. The state organizations that are involved in an event at a Duke Energy nuclear power plant are as follows:

A. State of North Carolina

Governor's Office: The Governor has the authority to direct and control the state emergency management program. This includes the responsibility for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary. During a declared state of disaster, the governor has the authority to utilize all available state resources reasonably necessary to cope with emergencies. The governor's representatives coordinate as necessary with Duke Energy, the Governor of South Carolina, and with county government officials.

Department of Public Safety: The Department of Public Safety functions as the State of North Carolina Emergency Planning Coordinator. In that capacity the Department has overall management responsibility for North Carolina's radiological emergency response planning, development, and updating of North Carolina's emergency response plan, and coordination with Duke Energy. The Department coordinates emergency response activities for the State of North Carolina and other government response agencies.

The Department, through its State Highway Patrol, in conjunction with the North Carolina Division of Emergency Management provides the initial 24-hour emergency notification point for the state.

North Carolina Division of Emergency Management (NCEM): NCEM is the responsible organization within the N.C. Department of Public Safety to prepare and maintain a State Radiological Emergency Response Plan for Duke Energy sites in coordination with the Departments of Environmental Quality (NCDEQ), Agricultural and Consumer Services (NC DAG&CS), and Health and Human Services (NCDHHS), and other interested agencies. The NCEM is the lead response agency within State Government and coordinates the activities of the State Emergency Response Team (SERT) at the State Emergency Operations Center (SEOC) in Raleigh. Personnel within the SEOC will confer with Duke Energy to determine appropriate emergency response activities which should be taken to protect the health and safety of the public.

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The NCEM in conjunction with the North Carolina Department of Public Safety provides the initial 24-hour emergency notification point for the state.

Radiation Protection Section (RPS): The RPS, which is within NCDHHS, is the lead state agency for the collection and analysis of radiation monitoring reports and of environmental air, foliage, food, and water samples. This section is responsible for dose assessments and projections and personnel radiological monitoring outside the Duke Energy site and other functions as described in the State Emergency Plan.

B. State of South Carolina

Under the direction of the Governor, the total and combined efforts of the state, especially the SC Emergency Management Division (SCEMD) and the SC Department of Health and Environmental Control (DHEC), and county governments will be utilized to mitigate the effects of radiological hazards resulting from an accident. All radiological response organizations will be prepared to react on a 24-hour basis, and will be capable of continuous operation for a protracted period. Directors of state agencies, departments, and commissions are responsible for ensuring that their agencies' radiological emergency responsibilities are accomplished.

SC Emergency Management Division (SCEMD): SCEMD is the lead agency for coordinating with appropriate departments, agencies, and organizations in emergency response involving radiological hazards in the event of a declared state of emergency. The plans and procedures that deal with emergency response activities for radiological incidents are addressed in the following publications: South Carolina Operational Radiological Emergency Response Plan (SCORERP) which is Appendix 2 to the South Carolina Emergency Operations Plan, South Carolina Technical Radiological Emergency Response Plan (SCTREMP), Spent Nuclear Fuel Emergency Action Plan (SNF EAP), Charleston Naval Station Memorandum of Understanding (CNS MOU), and the Westinghouse Commercial Nuclear Fuel Division Emergency Response Plan.

SCEMD operates the 24 hour Warning Point for the State of South Carolina.

SC Department of Health and Environmental Control (DHEC): SC DHEC maintains a radiological hazard assessment capability, directs monitoring efforts in the 50-mile ingestion pathway EPZ and provides radiological technical support, coordination, and guidance for the state. It obtains and coordinates radiological assistance resources from the federal government and other states, and coordinates decontamination and/or disposal during recovery. Additionally, DHEC is the state point of contact for DOE advance notification of SNF shipments to and through South Carolina. SC DHEC is the lead agency for responding to all transportation incidents involving radiological materials and recommending appropriate actions to protect the health and safety of the citizens of South Carolina.

4. County Organizations

Counties within the sites' plume exposure EPZ maintain emergency plans that address the following primary response aspects:

- Notification of their own personnel and other agencies involved, including the local law enforcement, fire & rescue, and the Red Cross.
- Traffic control.
- Notification or warning of persons in affected areas.

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- Evacuation, as necessary, to designated locations out of the affected area, where shelter, food, overnight accommodations, communications, medical care, etc. would be made available.
- Assistance and cooperation with related agencies in other counties, Duke Energy, and state and federal agencies.

Select counties adjacent to the sites' plume exposure EPZ maintain emergency plans to provide assistance and logistics support if evacuation of portions of the ten mile EPZ becomes necessary.

Plume exposure and ingestion pathway EPZ counties are listed in the site specific annexes to the Duke Energy Common Emergency Plan.

5. Private Sector Organizations

Private sector organizations are not used to provide additional personnel for positions on the Duke Energy ERO or perform an operational role. Contractor and private organizations may be requested to provide technical assistance. Those are described in element B.5.

A.1.b	Each organization's emergency plan illustrates these interrelationships in a block diagram.
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The interrelationships between the Duke emergency response facilities and offsite response organizations is provided in element B.4.

A.1.c	Each organization identifies the individual, by title/position, who will be in charge of the emergency response.
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The title of the individual who will be in charge of the emergency response is provided in element B.2.

A.2	References to the applicable acts, codes, or statutes that provide the legal basis for emergency response-related authorities, including those that delegate responsibility and authority to state, local, and tribal governments are included. Each emergency plan indicates who may declare a "State of Emergency" and the powers that ensue.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

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A.3	Each organization specifies the key individual(s), by title/position, responsible for the following functions, as applicable to that organization: command and control, alert and notification, communications, public information, accident assessment, public health and sanitation, social services, fire and rescue, traffic control, emergency medical services, law enforcement, transportation, protective response (including authority to request Federal assistance and to initiate other protective actions), and radiological exposure control.
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Refer to the list of primary responsibilities of each ERO position in element B.1.a and to Table B-1 for the list of key individuals responsible for command and control, alerting and notification, communications, public information, accident assessment, protective response (including authority to request federal assistance and to initiate other protective actions), and radiological exposure control.

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
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Assistance will be provided, as necessary, by federal, state and county agencies that are mandated by charter, regulation or law to protect public health and safety. State and county organizations cooperate with Duke Energy and have developed radiological emergency plans and procedures in an integrated manner. Letters of agreement (LOAs) are not required with these agencies.

Support agreements are necessary when an agency, organization or individual is expected to provide assistance to Duke Energy and is not required otherwise to do so. To that extent, memorandums of understanding (MOUs) and/or LOAs have been developed between Duke Energy and several entities to provide emergency response support and services consistent with this plan.

Specifically, the agreement content includes the following:

- A description of the concept of operations, meaning the mutually accepted criteria for implementation
- When the support will be provided (as a minimum, the agreement states that the support provider will offer its services during an emergency at the affected site(s), including during a Hostile Action).
- Identification of the support to be provided.
- Arrangements for exchange of information.

MOUs and LOAs are referenced by organization and title in the site specific annexes to the Duke Energy Common Emergency Plan, with the actual MOUs and LOAs maintained on file at the applicable location. A contract/purchase order with a private contractor is considered acceptable in lieu of a MOU or LOA for the specified duration of the contract.

Duke Energy Common Emergency Plan

A.5	Each principal response organization is capable of continuous operations for a protracted period. The principal response organization specifies the individual, by title/position, who is responsible for ensuring continuity of resources (technical, administrative, and material).
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Duke Energy maintains a depth to the ERO that is capable of providing continuous (24 hour/day) operation for an extended period of time. Key functions will be maintained throughout a declared emergency by providing relief of the on-shift and augmenting ERO positions by qualified individuals. The shift rotations for the protracted period will be designated by the EOF Director (e.g. 8 or 12 hour shifts) during the event.

The EOF Director is the individual responsible for assuring continuity of resources (technical, administrative, and material) within the ERO.

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B: Emergency Response Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1	The emergency plan specifies how the requirements of 10 CFR 50.47(b)(2) and the applicable sections of Appendix E to 10 CFR Part 50 are met.
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1. 10 CFR 50.47(b)(2) Compliance

Per Regulatory Guide 1.101, the criteria and recommendations contained in Revision 1 of NUREG-0654/FEMA- REP-1 are considered by the NRC staff to be acceptable methods for complying with the standards in 10 CFR 50.47 that must be met in onsite and offsite emergency response plans.

The Duke Energy Common Emergency Plan Section B is based on the criteria provided in the Revision 2 of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", Section II.B, "Emergency Response Organization" (ML19347D139) and the applicable sections of 10 CFR 50 Appendix E, as documented below.

2. 10 CFR 50 Appendix E Compliance

Refer to the 10 CFR 50 Appendix E.IV.A cross-reference in Appendix 1 of this emergency plan.

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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A description of the normal site operating organization is contained in each sites UFSAR (typically Chapter 13).

The requirements for on-shift operations staff, security force staff, and fire brigade/first aid staff are controlled by site-specific Technical Specifications and other site-specific licensing and administrative documents. Positions from these departments are contained in the emergency plan only when assigned an EP function that is performed during an event.

Site specific on-shift staffing analysis reports are developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05. The site specific on-shift staffing analysis reports are maintained as part of the site specific annexes to the Duke Energy Common Emergency Plan.

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The ERO is composed of the following positions which are assigned the following primary EP responsibilities (organized by facility):

1. Main Control Room (MCR)

A. Shift Manager

- Provide overall ERO command and control until relieved.
- Evaluate plant conditions and approve Emergency Action Level (EAL) classifications until relieved.
- Approve Protective Action Recommendations (PAR) until relieved.
- Authorize personnel dose extensions until relieved.
- Evaluate and assess plant and offsite radiological data in the development of onsite protective actions and offsite PARs until relieved.
- Direct all radiation protection activities, including field monitoring team (FMT) direction until relieved.
- Provide relevant information to personnel communicating offsite PARs to OROs until relieved.
- Direct and approve offsite emergency notifications to state and county authorities until relieved.

B. Shift Technical Advisor

- Evaluate reactor conditions.
- Evaluate plant conditions and recommend EAL classifications until relieved.
- Perform dose assessments and provide input regarding PARs to the Shift Manager until relieved.

C. Shift Communicator

- Communicate required information per element E.3 to Offsite Response Organizations (ORO) until relieved.
- Communicate EAL and PARs to NRC until relieved.
- Activate or confirm activation of Emergency Response Data System (ERDS).
- Perform Emergency Notification System (ENS) communications until relieved.

D. Shift RP Qualified Individual

- Provide RP coverage for responders accessing potentially unknown radiological environments.
- Provide in-plant surveys.
- Control dosimetry and radiologically controlled area (RCA) access.

E. Security Supervisor / Alarm Station Operator (ASO)

- Coordinate security-related activities and information with the Shift Manager.
- Activate the ERO notification system

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- Perform site assembly and accountability

2. Technical Support Center (TSC)

A. Emergency Coordinator

- Supervise TSC activities.
- Approve Emergency Action Level (EAL) classifications.
- Authorize personnel dose extensions.

B. NRC Communicator

- Communicate EAL and PARs to NRC.
- Activate or confirm activation of Emergency Response Data System (ERDS).
- Perform Emergency Notification System (ENS) communications.

C. Radiation Protection Manager

- Evaluate and assess onsite radiological data in the development of onsite protective actions.
- Recommend onsite protective actions to the Emergency Coordinator.
- Direct all onsite radiation protection activities, including onsite FMT direction.
- Provide relevant information to personnel communicating offsite PARs to OROs.

D. Operations Manager

- Evaluate plant conditions and recommend emergency classifications.

E. Reactor Engineer

- Provide engineering coverage for Core/Thermal Hydraulics.
- Evaluate reactor conditions.

F. Electrical Engineer

- Provide engineering coverage for electrical and Instrumentation and Control equipment.

G. Mechanical Engineer

- Provide engineering coverage for mechanical equipment.

H. Security Coordinator

- Coordinate security-related activities and information with Emergency Coordinator.

3. Operations Support Center (OSC)

A. OSC Manager

- Supervise OSC activities as directed by Emergency Coordinator.

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B. RP Supervisor

- Supervise OSC activities related to RP.

C. RP Qualified Individual

- Provide RP coverage for accessing potentially unknown radiological environments.
- Provide in-plant surveys.
- Control dosimetry and radiologically controlled area (RCA) access.

D. Onsite Field Monitoring Team Technician

- Assess the protected area for radiation and contamination and provide input to the Radiation Protection Manager.

E. Offsite Field Monitoring Team Technician

- Assess areas outside the protected area for radiation and contamination.
- Track radioactive plume.
- Provide RP coverage for the FMT as directed by Radiological Assessment Manager.

F. Offsite Field Monitoring Team Driver

- Provide transportation for FMT.

G. Maintenance Supervisor

- Supervise OSC activities related to electrical and Instrumentation and Control equipment.
- Supervise OSC activities related to mechanical equipment.

H. Mechanical Maintenance Technician

- Provide mechanical support for ECCS equipment, event mitigation, and equipment repair.

I. IAE Maintenance Technician

- Provide electrical support for ECCS equipment, event mitigation, and equipment repair.
- Provide assistance with logic manipulation and digital Instrumentation and Control equipment.

4. Emergency Operations Facility (EOF)

A. EOF Director

- Provide overall ERO command and control.
- Approve PARs.
- Direct and approve offsite emergency notifications to state and county authorities.

B. Offsite Communicator

- Communicate required information per element E.3 to OROs.

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C. Radiological Assessment Manager

- Evaluate and assess onsite and offsite radiological data in the development of offsite PARs.
- Recommend offsite PARs to the EOF Director.
- Direct all offsite radiation protection activities, including offsite FMT direction.
- Provide relevant information to personnel communicating offsite PARs to OROs.

D. Dose Assessor

- Perform dose assessments and provide input regarding PARs to the Radiological Assessment Manager.
- Perform Health Physics Network (HPN) communications.

5. Joint Information System (JIS) / Joint Information Center (JIC)

Duke Energy maintains a program and process for Corporate Communications and key business unit staff to operate in the Joint Information Center or within a Joint Information System for any event that can impact the company. This organization provides media and public information and communications for the ERO during all declared events.

A. Public Information Officer - JIS

- Provides oversight, direction, and control of public information activities and ensures internal alignment and integration.
- Performs or directs development of media strategy and public information products (e.g. messages, news releases, etc.).
- Coordinates approvals for public information products (e.g. messages, news releases, etc.).
- Coordinates response with other responding facilities.
- Monitor external media and perform rumor control activities.
- Supports integration of external agency representatives.

B. Public Information Liaison - EOF

- Provides site event and response information to public information staff.
- Provides technical assistance for the development of news releases and messages.
- Serves as the primary communications path for the JIS / JIC for gathering and validating event information.

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B.2	An individual is designated as the on-shift emergency coordinator (individual title may vary) who has the authority and responsibility to immediately and unilaterally initiate any emergency response measures, including approving protective action recommendations (PARs) to be disseminated to authorities responsible for implementing offsite emergency response measures.
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The Shift Manager is the individual who is on-shift at all times and who has the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations (PARs) to authorities responsible for implementing offsite emergency measures.

The Shift Manager is responsible to provide overall ERO command and control until relieved.

B.2.a	The functional responsibilities assigned to the ERO are established and the responsibilities that may not be delegated to other members of the ERO are clearly specified in the emergency plan.
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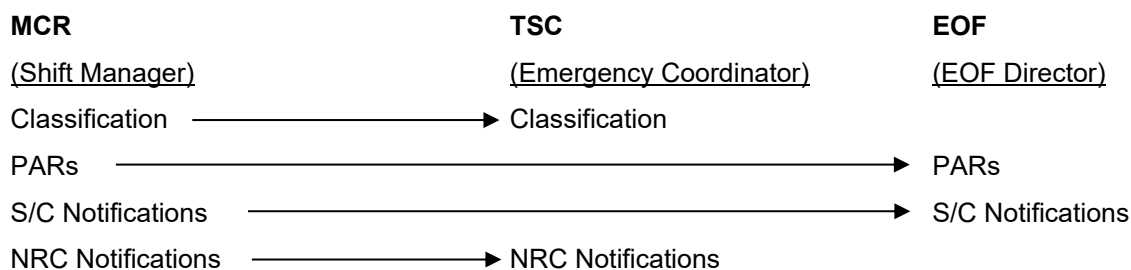
Functional responsibilities for each minimum staff ERO position are listed in element B.1.a.

Non-delegable responsibilities include the following:

- Event classification.
- PARs for the general public.
- Notification of offsite authorities.

The Shift Manager has responsibility for event recognition and performing the non-delegable responsibilities until relieved.

Transition of “Non-Delegable” Responsibilities



The transition of command and control and non-delegable responsibilities will occur all at once. When the Emergency Coordinator and the EOF Director are prepared to assume their responsibilities, the Shift Manager will transfer responsibility for event classification and NRC notification to the Emergency Coordinator and responsibility for state and county notification and PARs to the EOF Director simultaneously.

B.3	A table is developed depicting the site-specific on-shift staffing plan, as well as the ERO staffing augmentation plan. Table B-1, “Emergency Response Organization (ERO) Staffing and Augmentation Plan,” provides a model for licensees to consider.
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The Duke Energy ERO is composed of; (1) on-shift personnel located at the site at all times, and (2) augmenting personnel located either onsite or offsite who are on duty at all times.

Refer to Table B-1 for the Duke Energy on-shift and augmenting ERO staffing plan.

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Table B-1: Duke Energy On-Shift and Augmenting ERO Staffing Plan

Emergency Preparedness Function	On-Shift	OSC	TSC OSC	EOF JIC/JIS
		Alert or Greater Augment within 60 min.	Alert or Greater Augment within 75 min.	Alert or Greater Augment within 75 min.
Command and Control	Shift Manager (1)	Not applicable	Emergency Coordinator – TSC (1)	EOF Director – EOF (1)
Communications	Shift Communicator (1)	Not applicable	NRC Communicator – TSC (1)	Offsite Communicator – EOF (1)
Radiation Protection	RP Qualified Individual (# per site) BNP/CNS/MNS/HNP/RNP (2) ONS (3)	Not applicable	RP Qualified Individual – OSC (6) (In addition to on-shift RP)	Not applicable
Supervision of RP Staff and Site Radiation Protection	Shift Manager ^(e)	Not applicable	RP Manager – TSC (1)	Rad Assessment Manager – EOF (1)
Dose Assessments/ Projections	Shift Dose Assessor ^(a)	Not applicable	Not applicable	Dose Assessor – EOF (1)
Emergency Classifications	Shift Classification Advisor ^(a)	Not applicable	Operations Manager – TSC (1)	Not applicable
Engineering	Shift Technical Advisor (1)	Not applicable	Electrical Engineer – TSC (1) Mechanical Engineer – TSC (1) Reactor Engineer – TSC (1)	Not Applicable
Security	Security Supervisor / ASO (1) Security staff ^(b)	Not applicable	Security Coordinator – TSC (1)	Not applicable
Repair Team Activities	Not applicable	Not applicable	IAE Technician – OSC (2) Mechanical Technician – OSC (1) Additional technicians as needed.	Not applicable
Supervision of Repair Team Activities	Not applicable	Not applicable	OSC Manager – OSC (1) Maintenance Supervisor – OSC (1) RP Supervisor – OSC (1)	Not applicable
Field Monitoring Teams (FMTs)	Not applicable	Onsite FMT Technician – OSC (1)	Offsite FMT Technician – OSC (2) Offsite FMT Driver – OSC (2)	Not applicable
Media Information	Not applicable	Not applicable	Not applicable	Public Information Officer ^(c) – JIS (1) Public Information Liaison – EOF (1)
Information Technology (IT)^(d)	Not applicable	Not applicable	Not applicable	Not applicable

(a) Assigned as a collateral function, primarily performed by the Shift Technical Advisor.

(b) Per the site specific security plan.

(c) Remote responder – not required to respond to a physical ERF.

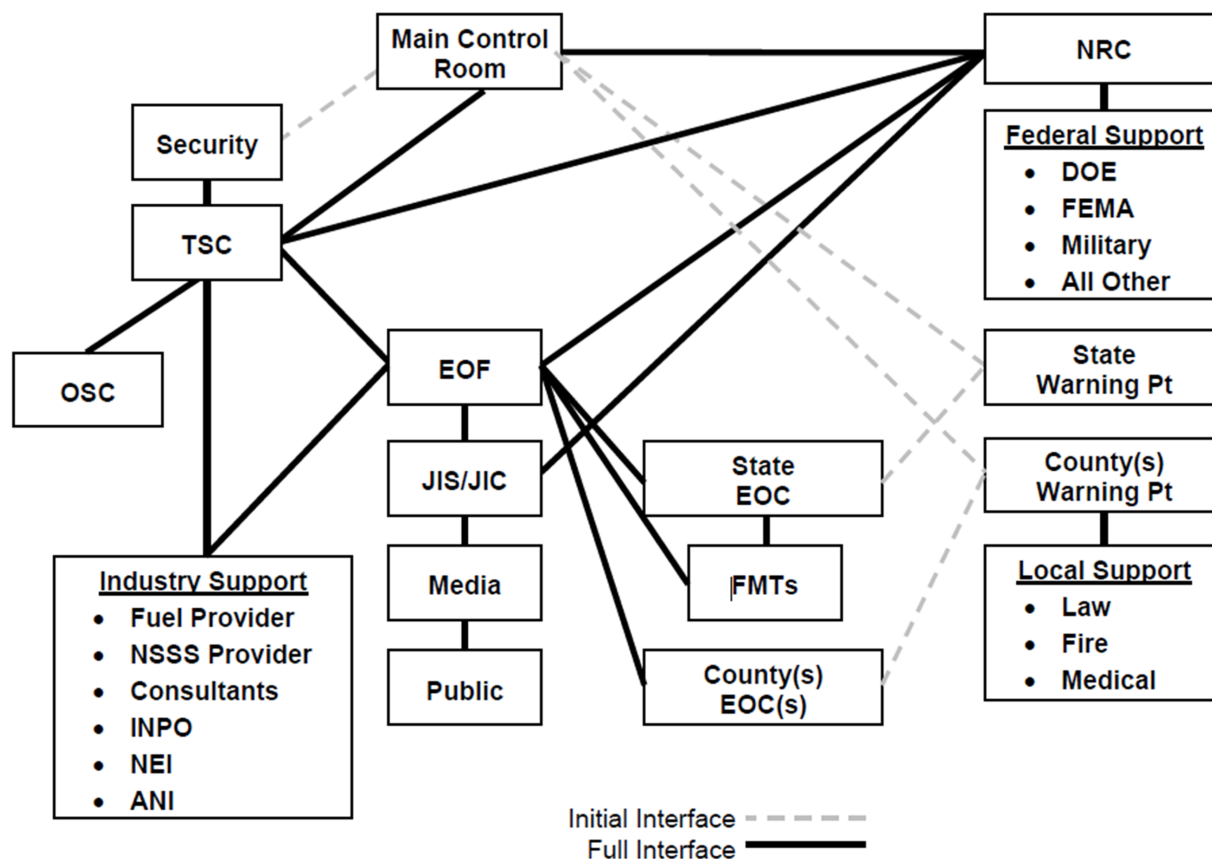
(d) IT personnel monitor critical digital assets remotely and respond any time an issue is identified.

(e) Included with the Command and Control function performed by the Shift Manager.

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B.4	The interfaces between and among the licensee functional areas of emergency activity, local services support, and state, local, and tribal government organizations are identified. The information includes all licensee emergency response facilities. A block diagram is preferred for ease of use, but not required.
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Multiple processes are used for interface between the Duke Energy ERO, state and county offsite response organizations (OROs) and local services support (such as fire, ambulance and law enforcement). Liaisons provide face-to-face interface, phone and radio provide voice interface and the internet provides non-verbal information exchange interface.



An Incident Command Post (ICP) is established and staffed by offsite agencies for a large area fire or security event, and will interface with the TSC, site security, and various offsite response facilities/organizations (based on event type). Duke Energy provides the appropriate liaison (Security, Operations or Radiation Protection) to the ICP for the event.

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B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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1. Private Organization Support

A. Institute of Nuclear Power Operations (INPO)

Duke Energy will notify INPO for all situations involving an Alert, Site Area Emergency, or General Emergency declaration. INPO has an emergency response plan that enables it to provide the assistance in locating sources of emergency personnel, equipment and operational analysis. INPO, Electric Power Research Institute (EPRI) and Nuclear Energy Institute (NEI) maintain a coordination agreement on emergency information with their member utilities. INPO provides an electronic communications system to its members, participants, NEI, and EPRI to coordinate the flow of media and technical information about the emergency. INPO maintains the following emergency support capabilities:

- A dedicated emergency call number.
- Designated INPO representative(s) who can be quickly dispatched to the utility to coordinate INPO support activities and information flow.
- The 24-hour per day operation of an emergency response center at INPO headquarters.

B. American Nuclear Insurers (ANI)

In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law) ANI and Mutual Atomic Energy Liability Underwriters (MAELU) have plans prepared to provide prompt emergency funding to affected members of the public. The pools' emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public.

Pre-established lines of communication exist between each utility and ANI in order to exchange all required information during a developing emergency situation. ANI maintains 24-hour coverage of an emergency notification number. ANI is notified as soon as possible after the declaration of an Alert, Site Area Emergency, or General Emergency, or if the insured believes that offsite persons may be affected and financial assistance may be required.

2. Contractor Support

Private sector organizations are not used to provide additional personnel for positions on the Duke Energy ERO or to perform an operational role. Contractor and private organizations that may be requested to provide technical assistance are described in the site specific annexes to the Duke Energy Common Emergency Plan.

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C: Emergency Response Support and Resources

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's EOF have been made, and other organizations capable of augmenting the planned response have been identified.

Regulatory References: 10 CFR 50.47(b)(3); 44 CFR 350.5(a)(3);
10 CFR Part 50, Appendix E.IV.A and E

C.1	Emergency response support and resources provided to the licensee's EOF, as agreed upon, are described.
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The Duke Energy EOF contains dedicated work areas and resources for federal and state response personnel.

C.2	Provisions made for additional emergency response support and resources are described and include the following:
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C.2.a	The individual(s), by title/position, authorized to request emergency response support and resources from responding organizations.
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The individual authorized to request assistance and resources from responding organizations is the position in overall command & control for the Duke Energy ERO.

Refer to element B.2.a for greater detail regarding command & control.

C.2.b	(1) Each organization from which emergency response support and/or resources may be requested, (2) the circumstance(s) in which the emergency response support and/or resources would be required, (3) the process for requesting needed emergency response support and/or resources, (4) categories of capabilities and/or resources expected to be provided, (5) when the expected emergency response support and/or resources would be available once requested, and (6) how integration would occur.
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Refer to elements A.1.a and A.4 for the description and details of the provisions made for additional assistance and resources.

C.2.c	Coordination of NPP site access and support for external organizations that have agreed to provide requested emergency response support and resources.
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Site access is controlled at all times by the Security organization in accordance with the site security plan and procedures. The TSC Security Coordinator is responsible for coordination with on-shift personnel when site access is needed for non-badged offsite agency and support personnel.

C.2.d	Agreements between licensees and local agencies for law enforcement, medical and ambulance services, fire, hospital support, and other support.
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Agreements with state and county response organizations have been established through the integrated development of their respective emergency plans.

Duke Energy Common Emergency Plan

Agreements with other entities have been formally developed and documented through memorandums of understanding (MOUs) and/or letters of agreement (LOAs).

Refer to element A.4 for details on agreements.

OROs may be called to assist onsite for events requiring firefighting, medical, or law enforcement. Immediate assistance with firefighting, medical, law enforcement at the sites is initiated using the 911 emergency system. When the ERO is activated, coordination of these activities will be performed by response personnel in the TSC.

If an event is of significant magnitude to require establishment of a near site Incident Command Post (ICP), the sites will provide liaison(s) to the ICP to assist in coordinating response efforts.

C.3	The capability of each principal organization to coordinate with other principal organizations leading the incident response is described.
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In addition to the coordination between the individuals in command and control of each organization, Duke Energy personnel liaisons are dispatched to state or county EOCs. The liaisons clarify information contained in emergency notifications and provide a communications link between the Duke Energy and governmental emergency response facilities. Information sharing between these liaisons is typically completed via telephone conference bridge with the EOF.

If liaisons are not dispatched to the state or county EOCs, coordination is typically completed by having representatives from the state and counties contacted by Duke Energy ERO personnel. This is done as requested by the state or county.

When state and NRC representatives are present, additional coordination occurs directly between state and NRC liaisons, the Duke Energy ERO at the EOF, and site TSCs. Coordination with these agencies prior to their arrival occurs via telephone.

C.4	Radiological laboratories, their general capabilities, and expected availability to provide radiological monitoring analysis services that can be used in an emergency are described. Plans to augment the identified radiological laboratories are described.
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The Duke Energy nuclear sites' laboratory/counting room are their primary location for radiological sample analysis activities. The site laboratory is the central point for receipt and analysis of onsite samples and includes equipment for chemical and radiological analyses. The site laboratories have the capability of quantitative analysis of liquid and air samples, and qualitative analysis of terrestrial samples.

Additional facilities for counting and analyzing samples are available at unaffected Duke Energy nuclear sites or state and federal laboratory services. These laboratories can act as backup facilities in the event that the affected nuclear power plant's counting room and laboratory become unusable or the capacity or capability of the plant's laboratory is exceeded.

Offsite laboratory facilities include mobile emergency monitoring capabilities available through the NC Department of Environmental Health and Natural Resources, Division of Radiation Protection; State of South Carolina Department of Health and Environmental Services and the DOE Radiological Assistance Team.

Duke Energy Common Emergency Plan

C.5	Arrangements are described for integrating the licensee's response with the NRC Headquarters and regional incident response centers and, when dispatched, the NRC's site response team.
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The TSC Emergency Coordinator and the EOF Director are the initial primary contact positions for the NRC site response team personnel sent to those facilities.

All Duke Energy nuclear sites have dedicated areas within the TSCs for NRC site response teams. Communications equipment, as well as instrumentation displays are available for use by the response teams.

Provisions for the NRC site response team at the EOF include the following items: conference area with whiteboards, separate areas suitable for briefing and debriefing response personnel, telephones, site ERO contact lists, internet access, access to a copier and office supplies, and access to plant radiological information.

C.5.a	The activation process for the NRC's emergency response data system (ERDS) during an emergency is described.
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The Duke Energy sites' ERDS are continuously operated. When an event occurs ERO personnel will verify ERDS operation as soon as possible but not later than one hour after declaring an alert or higher emergency classification level in accordance with 10 CFR 50.72(a)(4).

C.5.b	Provisions to continuously maintain open communications lines with the NRC, when requested, are described.
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The Duke Energy ERO is staffed for and capable of maintaining continuous communications with the NRC. When requested, open communication lines will be staffed by knowledgeable personnel (i.e., personnel with operations knowledge for the ENS line, radiological knowledge for the HPN line) to ensure efficient and effective information flow.

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D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
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Duke Energy has established and maintains a standard emergency classification and emergency action level scheme. There are three considerations related to Emergency Classification Levels (ECLs). These are:

- The potential impact on radiological safety, either as known now or as can be reasonably projected.
- How far the plant is beyond its predefined design, safety, and operating envelopes.
- Whether or not conditions that threaten health are expected to be confined to within the site boundary.

The four ECLs are described as follows:

1. Unusual Event (UE)

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

2. Alert

Events are in progress, or have occurred, which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be small fractions of the EPA Protective Action Guideline exposure levels.

3. Site Area Emergency (SAE)

Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile action that results in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

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4. General Emergency (GE)

Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile actions that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.

EAL schemes are site specific and are documented in EAL Technical Basis Documents referenced in the site specific annexes to the Duke Energy Common Emergency Plan.

D.1.a	The EALs are developed using guidance provided or endorsed by the NRC that is applicable to the reactor design.
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Emergency Action Levels (EALs) at Duke Energy nuclear sites have been developed in accordance with NEI 99-01 Revision 6, Development of Emergency Action Levels for Non-Passive Reactors. This guidance has been approved by the NRC and is applicable to the reactor design at Duke Energy nuclear sites.

If an entire emergency action level scheme is to be changed the new EALs will be submitted to the NRC for approval before being implemented.

D.1.b	The initial emergency classification and action level scheme is discussed and agreed to by the licensee and OROs, and approved by the NRC. Thereafter, the scheme is reviewed with OROs on an annual basis.
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The emergency classification and EAL scheme has been agreed upon by state and county governmental authorities that support Duke Energy nuclear sites.

The classification scheme and site specific EAL are reviewed with the sites' respective state and county EPZ governmental authorities on an annual basis.

D.2	The capability to assess, classify, and declare the emergency condition within 15 minutes after the availability of indications to NPP operators that an EAL has been met or exceeded is described.
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Duke Energy has and maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an EAL threshold has been met or exceeded.

The 15 minute time requirement to declare events will not be construed as a grace period to attempt to restore conditions to avoid declarations.

In actual events, response actions deemed necessary to protect public health and safety will be performed by plant operators, this may result in slight delays in declaration. No delay is acceptable for events affecting offsite areas if the delay would deny state and county authorities the opportunity to implement measures to protect the public.

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D.3	A summary of emergency response measures to be taken for each ECL is provided. The detailed emergency response measures are described in implementing procedures.
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Duke Energy maintains procedures that include immediate actions to be taken that are consistent with any declared ECL. Those procedures describe in detail required onsite protective actions, activation of the ERO (if required), notification to the supporting state and county governmental agencies, and notification to the NRC.

Other notifications to plant management, corporate communications staff and any other supporting agency are also described in procedures.

A summary of emergency response measures for each ECL are detailed in Table D.3-1. Additional measures not listed may be taken based on event progression (e.g. emergency exposure controls).

Table D.3-1: Matrix of emergency response measures by ECL

<u>Emergency Response Measure</u>	<u>Unusual Event</u>	<u>Alert</u>	<u>Site Area Emergency</u>	<u>General Emergency</u>
Activation of ERO	NOTE	X	X	X
Notification to OROs and NRC	X	X	X	X
Site Assembly and Accountability			X	X
Site Evacuation			X	X
Protective Action Recommendations				X

NOTE: Activation of ERO at Unusual Event ECL is at Emergency Coordinator discretion.

D.4	Emergency response measures based on the ECL declared by the licensee and applicable offsite conditions are described.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

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E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1	The mutually agreeable process for direct and prompt notification of response organizations, aligned with the emergency classification and action level scheme, is described.
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Duke Energy, in coordination with state and county authorities, has developed methods and procedures for notification of offsite response organizations consistent with the emergency classification and EAL scheme. When an ECL is declared or upgraded, or changes are made to PARs (evacuate, and/or shelter), an initial notification will be performed within 15 minutes. The first notification is made to designated offsite warning points listed in the site annexes to the Duke Energy Common Emergency Plan. If the states and counties choose to staff their EOC, notification messages could be received at those facilities. Receipt location of the notification messages is dependent on the applicable state and county procedures.

When multiple units of a multi-unit site each meet the same ECL for the same event, the ECL is reported as applicable to all affected units. When multiple units of a multi-unit site meet different ECLs for the same event, initial notification is made for the unit with the highest of the ECLs.

The primary state and county notification method is by a dedicated communications system. The backup method for notification is via commercial telephones lines.

The initial notification to the NRC is made using ENS as soon as possible after the initial notification to the states and counties, and not longer than 60 minutes of event declaration. If the ENS is inoperative, the required notification will be made using a backup means, such as an alternate commercial line, cell or satellite phone. An accelerated call to the NRC will be made following discovery of an imminent threat or attack against a plant. The accelerated NRC notification will be completed after or concurrent with notification of local law enforcement agencies. The goal will be to initiate the notification within 15 minutes of discovery of an imminent threat or attack against a site. The information provided in the accelerated notification will be limited to the following:

- Site name.
- ECL if determined prior to the accelerated notification.
- Nature of the threat and the attack status.

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E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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Duke Energy nuclear sites will initially notify state and county agencies listed in the site specific annexes to the Duke Energy Common Emergency Plan within fifteen (15) minutes of:

- The initial ECL declaration
- An upgrade to the ECL
- The issuance of, or change to, a shelter and/or evacuation PAR

This notification includes a means of verification or authentication.

Follow-up messages are provided periodically to the appropriate offsite authorities. For long duration events with little change in information between messages, the follow-up message time interval can be increased as agreed upon by all affected agencies. However, changes in event information that do not meet the requirements for an initial notification may warrant a follow-up message at any time.

Initial and follow-up notification message content and the methods used for authentication are mutually developed and agreed upon by Duke Energy and the offsite authorities. Notification forms, methods and the message authentication technique are provided in emergency procedures.

E.1.b	The capability to notify responsible OROs within 15 minutes and the NRC within 60 minutes is described.
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Duke Energy nuclear sites notify responsible OROs within fifteen (15) minutes and the NRC within sixty (60) minutes using the capabilities described in element F.1.b.

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
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Duke Energy ANS used to alert and notify the general public within the plume exposure pathway EPZ is described as follows. Detailed information is maintained in the ANS design report for each site as listed in the site specific annexes to the Duke Energy Common Emergency Plan.

General Description

The ANS utilizes sirens (activated by the counties) as the primary general public notification system for Duke Energy. The ANS is designed to provide an alerting signal throughout the population on an area wide basis throughout the 10 mile EPZ. The states and counties, after the alert signal, provide an informational or instructional message to the population via various methods as approved by FEMA.

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Alerting, warning, and notification of the public are actions taken by government agencies to provide prompt instructions to the public. As such, government agencies will take actions for areas in the EPZ not covered by ANS; such as waterways, unpopulated wooded areas, military installations, and the like; as described in state and local government emergency operating plans, guidelines, and procedures.

As a back-up, should the primary alerting signal fail, state and county plans maintain the alert mechanism via emergency vehicles with PA Systems, automated dialing systems (reverse 911), etc. to also alert and notify essentially 100% of the population to monitor commercial broadcasts for emergency information.

Concept of Activation and Operation

Activating the ANS requires procedures and relationships between both Duke Energy and the off-site agencies that support Duke Energy. Prompt (within about 15 minutes) alerting and notification of the public within the plume exposure pathway EPZ is the obligation of state and county government or other responsible authority. The responsibility for ensuring the means exist to carry out this purpose rests with Duke Energy.

ANS is available and operational in the 10-mile EPZ area around each of the six operating Duke Energy nuclear sites. The ANS provides an alerting signal to essentially 100% of the population on an area-wide basis throughout the 10-mile EPZ within 15 minutes from the time the cognizant off-site agencies have determined the need for such alerting exists. Analyses of site specific siren acoustics are used to satisfy FEMA requirements ensuring adequate coverage of the population within the 10-mile EPZ. The emergency plans of each state include evidence of EAS preparation for emergency situations and the means for activating the system. ANS performance is verified via automated reports generated from the siren systems after activation or testing.

To ensure ANS is maintained in an operational readiness posture, the system is tested on a periodic basis as described in element F.3 that meets or exceeds FEMA guidance. Duke Energy personnel are notified of failed tests and initiate corrective actions to return ANS equipment to full operational readiness in a timely manner to meet FEMA operability requirements as referenced in the FEMA Radiological Emergency Preparedness Program Manual. In addition to routine testing, preventive maintenance of ANS is performed per manufacturer's recommendations.

E.3	The licensee and state, local, and tribal government organizations establish the contents of the initial and follow-up emergency notifications to be sent from the NPP.
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In conjunction with state and county authorities, Duke Energy nuclear sites have established the content of the initial notification message to be used during an emergency. The content of the initial notification will include the following:

- The site's name
- The ECL
- If a General Emergency, any PARs

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In conjunction with state and county authorities, Duke Energy nuclear sites have established the content of the follow-up notification message to be used during an emergency. Content of the follow-up messages will include the following based on the event and available plant information:

- Location of incident and name and phone number (or communications channel identification) of caller
- Date/time of incident
- The ECL
- Type of actual or projected release and estimated duration/impact times
- Estimate of quantity of radioactive material released or being released
- Magnitude and mix of the radionuclides being released, including estimates of the relative quantities and concentration of noble gases, iodines, and particulates
- Meteorological conditions at appropriate levels (e.g., wind speed, direction [from], indicator of stability, precipitation [if any])
- Projected integrated dose at site boundary
- Projected integrated dose at the projected peak and at 2, 5, and 10 miles, including sector(s) affected
- Licensee emergency response actions underway
- Recommended protective measures
- Request for any needed onsite support by offsite organizations
- Prognosis for worsening or termination of event based on plant information

E.4	Each organization establishes the contents of the initial and follow-up messages to the public including, as applicable, instructions for protective actions.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

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E.5	Provisions are made to provide timely supplemental information periodically throughout the radiological incident to inform the public.
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State and county procedures provide for initial and follow-up messages to the public including instructions for protective actions, if required. Duke Energy assist with establishment appropriate instructions and message content.

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F: Emergency Communications

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Regulatory References: 10 CFR 50.47(b)(6); 44 CFR 350.5(a)(6)

F.1	Each principal response organization establishes redundant means of communication and addresses the following provisions:
F.1.a	Continuous capability for notification to, and activation of, the emergency response network, including a minimum of two independent communication links.

Duke Energy sites maintain the capability to perform emergency communications, notifying NRC and OROs, and activating the ERO. Communication systems are designed to facilitate normal and emergency communications within the plant, between the plant and emergency facilities, and between the plant and NRC and OROs. Redundant systems are provided to ensure continuous communications between entities and personnel. At least one system used for on-site communications and one system used for offsite communications is maintained with an alternate power source to ensure continuous availability.

Voice communication systems available include:

- Duke Energy Emergency Management Network (DEMNET)
- Private Branch Exchange (PBX)
- Business Line
- Satellite Telephones
- Cellular Telephones
- Radios (on-site)
- Public Address (PA) System

ERO notification systems are described in element F.1.c.

F.1.b	Communication with applicable organizations to include a description of the methods that may be used when contacting each organization.
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Provisions exist for communications with state and county governments, federal EROs, NRC, and Duke Energy nuclear sites, and FMTs within the EPZs. The methods available to contact and communicate with each organization are detailed below.

Each site has the following voice communication systems available for use by the ERO for performing emergency communications:

1. Duke Energy Emergency Management Network (DEMNET)

The DEMNET consists of equipment and circuits linking Duke Energy nuclear sites with the offsite agencies involved in initial emergency notifications. This system can quickly conference the offsite agencies for notifications. All MCRs and the EOF have this system. It may also be located in the site's Alternate Emergency Facility.

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DEMNET is the primary means of communication for the MCR and EOF when contacting OROs.

2. Private Branch Exchange (PBX)

A PBX is a full featured telephone system that provides internal calling services for one or more locations. The PBX terminates commercial phone lines from a carrier (AT&T, Verizon, CenturyLink, etc.) to provide inbound and outbound calling capabilities between Duke Energy and external parties. PBX systems have a number of mechanisms which make them resistant to failure including, redundant power connections, redundant network connections, and server hardware installed in geographically diverse locations.

PBX is the primary means of communication between the MCR, TSC, OSC, and EOF.

PBX is the alternate means of communication for the MCR and EOF when contacting OROs.

NRC Communications Links

PBX is the primary means of communication with the NRC. Extensions designated for NRC communications are located in the MCRs, TSCs, and EOF.

Telephones have been designated for the following NRC communications:

- a. NRC Emergency Notification System (ENS) – This communications line provides a communications link to the NRC Operations Center in Rockville, Maryland, and is used for initial notifications and continuous communications in a classified emergency.
- b. NRC Health Physics Network (HPN) – This communications line provides a communications link with the NRC to provide radiological information. Normally available from the TSC and the EOF.
- c. NRC Reactor Safety Counterpart Link (RSCL) – This communications line provides a communications link for the NRC to conduct internal NRC discussions on plant equipment conditions separate from the licensee.
- d. Protective Measures Counterpart Link (PMCL) – This communications line provides a communications link for the NRC to conduct internal NRC discussions on radiological releases, meteorological conditions, and the need for protective actions.
- e. Management Counterpart Link (MCPL) (Executive Bridge Line) – This communications line provides a communications link for any NRC internal discussions between the NRC Executive Team Director or Executive Team members and the NRC response team leader or top-level licensee management at the site.

3. Business Line

A direct single telephone line (i.e. copper) from a carrier (AT&T, Verizon, CenturyLink, etc.) directly to an end point within the plant. These lines do not pass through any other phone systems (i.e. PBX).

The Business line is an alternate means of communication for the MCR when contacting OROs or NRC.

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4. Satellite Phones

Any mobile telephone capable of sending and receiving phone calls through orbiting satellites.

Satellite phones are an alternate means of communication between the MCR, TSC, and EOF.

Satellite phones are an alternate means of communication for the MCR and EOF when contacting OROs.

Satellite phones are an alternate means of communication for the MCR and TSC when contacting NRC.

Satellite phones are an alternate means of communication for the MCR and EOF when contacting FMTs.

5. Cellular Phones

Any mobile telephone (non-Duke Energy or Duke Energy provided) capable of sending and receiving phone calls through ground based cell sites.

Cellular phones are an alternate means of communication between the MCR, TSC, and EOF.

Cellular phones are an alternate means of communication for the MCR and EOF when contacting OROs.

Cellular phones are an alternate means of communication for the MCR and TSC when contacting NRC.

Cellular phones are the primary means of communication for the MCR and EOF when contacting FMTs.

6. Radios (on-site)

Standard fixed and mobile transceivers that allow point-to-point communications onsite.

Radios are an alternate means of communication between the MCR, TSC, and OSC.

7. PA System

The on-site PA System can broadcast a message via speakers located throughout the site. It is used to notify site personnel of emergency declarations, provide additional means to notify the ERO, and facilitate on-site protective actions for personnel.

F.1.c

Systems for alerting or activating emergency personnel in each response organization.

The Plant Public-Address (PA) System will be used to alert and notify on-site personnel of an emergency condition within 15 minutes.

Duke Energy nuclear sites use an automated ERO Notification System to rapidly notify members of the ERO. The system can notify impacted members of the ERO simultaneously

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using multiple methods. The vendor supplied notification system is designed with redundant power, and with geographic separation. Activation of the ERO Notification System is performed by on-shift personnel as described in element B.1.a.

Alternate methods of ERO activation are in place via an automated dial out system, or individual callouts of needed personnel utilizing any of the various calling methods available.

All ERO members applicable to the impacted site are notified and expected to respond if able (all-call, all-come).

F.2	Systems for coordinated communication methods for applicable fixed and mobile medical support facilities are described.
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Local medical facilities are listed in element L.2.b of the site specific annexes to the Duke Energy Common Emergency Plan.

PBX is the primary means of communication to local medical facilities from the MCR, TSC, or EOF.

F.3	The testing method and periodicity for each communication system used for the functions identified in evaluation criteria E.2, F.1, and F.2 are described.
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Communications tests will be conducted and documented on the frequency specified below. Each of these tests includes provisions to ensure participants in the test are able to understand the content of the messages in the test.

- Systems used to communicate with state and county government warning points within the plume exposure pathway EPZ will be tested monthly. This testing may be performed as part of drills or exercises.
- Systems used to communicate from the MCR, TSC, and EOF to NRC Headquarters and NRC Regional Office Operations Center will be tested monthly. This testing may be performed as part of drills or exercises.
- Systems used to communicate with state and county government EOCs will be tested annually. This testing may be performed as part of drills or exercises.
- Systems used to communicate between Duke Energy ERFs, and also from the applicable ERF to the field assessment teams, are tested annually. This testing may be performed as part of drills or exercises.
- Systems used to communicate with Federal emergency response organizations will be tested annually.
- The ERDS will be verified to be connected and transmitting data on a quarterly basis.
- ANS testing frequency is as follows:
 - Silent Tests are performed every two (2) weeks.
 - Growl Tests are performed quarterly and after preventative and on-demand maintenance is performed.
 - Full Cycle Tests (FEMA Full-Scale Test) is performed annually. This test also fulfills the requirements for the quarterly Growl Test.

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G: Public Education and Information

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Regulatory References: 10 CFR 50.47(b)(7); 44 CFR 350.5(a)(7)

G.1	Provisions are made for a coordinated annual dissemination of information to the public within the plume exposure pathway EPZ, including transient populations and those with access and functional needs, regarding how they will be notified and what actions should be taken. The information is disseminated using multiple methods, to include non-English translations per current Federal guidance.
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Duke Energy, in coordination with state and county emergency management personnel, updates and distributes site related emergency planning information annually to residents living within the plume-exposure pathway emergency planning zone (EPZ).

This public education and information program is intended to ensure that members of the public are (1) aware of the potential for an occurrence of a radiological emergency; (2) able to recognize a radiological emergency notification; and (3) knowledgeable of the proper, immediate actions to be taken upon notification.

The information for event notification includes siren and primary EAS radio station instructions. The information for event response actions includes protective actions, evacuation routes, pick-up points for school children, and reception center locations. Additionally, educational information on radiation and emergency planning contacts numbers to call with questions are included.

This will be accomplished by: (1) distribution of the annual Duke Energy safety information which contains educational information on emergency preparedness, sheltering, sirens, and radiation including telephone numbers of agencies to contact for more information; (2) availability of qualified personnel to address civic, religious, social, and occupational organizations; and (3) distribution of news material to the media.

Information for residents with special needs and non-English translations per current federal guidance is incorporated.

Public information for the transient population will also be provided. This information includes lake access signs and emergency planning information. Transient locations will be identified by Duke Energy EP personnel, Corporate Communications, and state and county emergency management officials. These locations may include, but are not limited to, motels, hotels, marinas, and lake access areas.

The list of transient locations will be reviewed annually and updated as needed. Locations will be contacted periodically to ensure adequate copies of materials are available.

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G.2	Methods, consistent with JIS concepts, are established for coordinating and disseminating information to the public and media. Plans include the physical location(s) for interacting with the media.
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The JIS is activated within 75 minutes of an Alert or higher classification by Duke Energy Corporate Communications personnel to ensure coordination with affected agencies, and provide public information to the media and the public. However, the Corporate Communications personnel will perform necessary JIS functions at the Unusual Event declaration and initially upon a higher initial EAL declaration. The JIS provides the necessary structure and mechanism for organizing, developing, integrating, and delivering coordinated interagency messages via established plans, procedures and strategies.

Interactions with the media may occur at various locations and with various agencies depending on the extent of the response. Although not required to activate, when needed (e.g. intense media attention/interest, ORO request, etc.) Duke Energy will provide a fully equipped Joint Information Center (JIC) with space to interact with the media, located in the Duke Energy corporate headquarters in Charlotte, NC, which is available for joint use by federal, state and county agencies. Duke Energy Corporate Communications personnel and equipment are available to support state and county agencies with other emergency management public information response activities as needed.

Appropriate information is released as clearly, concisely and quickly as possible. Various means are used to share information with the public and the media, such as media briefings in person or by phone, news conferences, social media posts, web posts, blogs, interactive voice response messages, news releases/updates/advisories, etc.

News releases are designed to be a written confirmation of the event and are public information. The coordination and sharing of news releases occurs via the JIS, or within a JIC when activated. Duke Energy news releases are approved by the company spokesperson or the EOF director/assistant director, if the company spokesperson is not available. Once approved and shared within the JIS/JIC, they are distributed to the media.

News conference/media briefings are conducted to keep the media informed of events and activities related to the emergency. These briefings provide the most current, up-to-date information about events and response to the incident. Public Information Officers (PIOs) from all agencies responding to the emergency are encouraged to participate in news conferences / media briefings to discuss their activities.

G.3	Organizations designate news media points of contact and a spokesperson(s) with access to necessary information.
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During the initial stages of an emergency, responses to media questions relative to plant status are typically provided by site communications or the corporate communications team. When the EOF is not activated, the normal Duke Energy media interaction and news release process is followed.

When the EOF is activated, JIS event response procedures are implemented for gathering and disseminating information. For scheduled news conferences and media briefings, a company spokesperson will provide plant and event status and company information. Designated company spokespersons include the chief nuclear officer and their direct reports, and/or their designees. Corporate Communications/Nuclear Communications may also provide information to the media.

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G.3.a	Arrangements are made for the timely exchange of information among the designated spokespersons representing the entities involved in incident response.
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Arrangements are made for the timely exchange of information among the designated spokespersons that use various means and technologies (i.e., face-to-face, phone, text, email, shared platforms such as WebEOC, conference bridge lines, etc.) as agreed upon by the particular agencies. Duke Energy will provide information and updates to address the emergency event to include plant conditions and associated response actions. States and counties will address public response and actions.

G.4	Organizations establish coordinated arrangements for identifying and addressing public inquiries and inaccurate information.
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Traditional, social media and customer response lines are monitored through the JIS to identify and address public concerns and rumors/inaccurate information. A Corporate Communications liaison will work with state, county and federal public information officers via the JIS, or in a JIC, to acknowledge rumors and determine the origin. A coordinated response will be made to address rumors or correct misinformation.

G.5	Organizations conduct programs to acquaint news media with the emergency plans at least annually.
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Information is offered each calendar year to acquaint news media outlets with the overall emergency preparedness at Duke Energy nuclear sites and the methods for obtaining information during an emergency. The material includes information about the site, radiation effects, emergency response activities, points of contact, etc.

The information may be disseminated via media mailings, training, open houses, etc.

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H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC provides a location to house personnel who are responsible for management and technical support of plant operations during emergency conditions. The TSC also functions to relieve the on-shift personnel of peripheral duties and communications not directly related to reactor system manipulations and preventing congestion in the MCR.

Each Duke Energy nuclear site has a dedicated TSC for use during emergency situations to implement emergency actions and analyze and mitigate accident conditions. The TSCs are sized to accommodate ERO responders and NRC representatives. State and county personnel are not expected to report to the TSC.

The TSC is required to be activated within 75 minutes following the declaration of an Alert or higher classification. TSC activation at the Unusual Event emergency classification level is optional. When activated, the TSC's primary functions include:

- Prompt relief of the on-shift ERO emergency response activities
- Coordination of site emergency response actions
- Capability to display and trend plant data
- Assessment of the plant status and potential offsite impact
- Continued evaluation of event classification
- Communications with the NRC
- Communication of technical data and information to the EOF

Site specific details of the TSC are described in the site specific annexes to the Duke Energy Common Emergency Plan.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The purpose of the OSC is to minimize congestion in the Control Room during emergencies by providing a location, separate from the Control Room, where plant maintenance, operations, RP, Chemistry, and other plant emergency support personnel will assemble and stand by to assist as needed.

Each Duke Energy nuclear site has an OSC that provides an area for coordinating and planning event response activities and for staging personnel and equipment. Additional space is available to accommodate other personnel, such as NRC site team representatives, as needed.

The OSC is required to be activated within 75 minutes following the declaration of an Alert or higher classification. OSC activation at the Unusual Event emergency classification level is optional.

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When the OSC is activated, dosimetry, respiratory protection, radiation survey equipment, and Radiation Work Permits will be provided. In the event of a personnel contamination, decontamination will be performed in the area normally designated for this purpose.

The OSC has the capability to display vital plant data and radiological information, in near real time, to be used by knowledgeable individuals responsible for management of OSC activities.

The OSCs have access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

Emergency supplies are maintained in or accessible to the OSC. Additional supplies and Duke Energy resources can be obtained from other unaffected plants upon request.

Each OSC provides reliable voice communications to the MCR, the TSC, and teams dispatched from the OSC.

If the OSC is deemed uninhabitable, the OSC may be moved to other locations identified or as deemed appropriate by the OSC Manager.

Site specific details of the OSC are described in the site specific annexes to the Duke Energy Common Emergency Plan.

H.3	An EOF is established, using current Federal guidance, as the primary base of emergency operations for the licensee during a radiological incident. The EOF facilitates the management and coordination of the overall emergency response, including the sharing of information with Federal, state, local, and tribal government authorities.
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The Duke Energy EOF is the central location for management of the offsite emergency response, coordination of radiological assessment, and management of initial recovery operations. The EOF is a dedicated facility located at 526 South Church Street, Charlotte, North Carolina, and serves as the EOF for all operating Duke Energy nuclear sites (BNP, CNS, HNP, MNS, ONS, and RNP). Access to the EOF is controlled through the use of electronic card readers. If the Church street location cannot be used, the EOF can be set-up and operated at either MNS or CNS.

The EOF is capable of accommodating designated Duke Energy personnel and offsite county, state and federal responders including NRC and FEMA. It is anticipated that representatives from the state(s) of North Carolina, and South Carolina, may be dispatched to the EOF for an event at specific Duke Energy site(s).

The EOF is required to be activated within 75 minutes following the declaration of an Alert or higher classification.

The EOF provides for:

- Overall management of emergency response
- The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations
- Coordination of emergency response activities with federal, state, and county agencies
- Coordination of offsite radiological and environmental assessments

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- Development of PARs
- Notification of offsite agencies
- Management of recovery operations
- Communications with the NRC
- Response to and coordination of response efforts for events occurring simultaneously at more than one site

Because the EOF is located outside the plume exposure Emergency Planning Zone for all Duke Energy nuclear sites, specialized ventilation systems and radiological monitoring are not required. The EOF ventilation system is consistent in design with standard building codes.

Normal power to the EOF is from reliable offsite sources. Backup power for the EOF is supplied by onsite diesel generation. Essential equipment is backed up by the diesel generation system.

The EOF has the capability to display vital plant data and radiological information for each site and unit, in near real time, to be used by knowledgeable individuals responsible for providing technical briefings on plant conditions, event prognosis, and for management of overall emergency response.

The EOF provides reliable voice communications to each site's MCR, TSC, OSC, the NRC, and state and county warning points and EOCs.

The EOF has access to site reference materials that may be needed for supporting emergency response.

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The EOF is greater than 25 miles from BNP, HNP, ONS, and RNP. Duke Energy maintains space for members of an NRC Site Team and federal, state and county responders at a location near those sites. The location and provisions of the near-site facilities is described in the site specific annexes to the Duke Energy Common Emergency Plan.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
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An Alternate Emergency Facility for staging of ERO personnel has been designated for each Duke Energy nuclear site. The Alternate Emergency Facility may also serve as an evacuation location for TSC and OSC personnel should those facilities become uninhabitable. The location of Alternative Emergency Facility for each site is provided in the site specific annexes to the Duke Energy Common Emergency Plan. The alternate location for the EOF is described in element H.3.

The designated Alternative Emergency Facility is designed to be accessible in the event of a Security or Hostile Action threat.

Duke Energy Common Emergency Plan

H.5	A JIC is established, and its location is identified, to coordinate communication from Federal, state, local, and tribal government authorities and licensee personnel with the public and media.
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Refer to Section G for details regarding the Duke Energy JIC and JIS.

H.6	Each organization establishes an emergency operations center (EOC) for use in directing and controlling response functions, and provides for timely EOC activation. For an EOC located within the plume exposure pathway EPZ, an alternate EOC, or location outside the plume exposure pathway EPZ, is identified to continue response functions in the event of an evacuation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

H.7	Onsite monitoring systems used to initiate emergency response measures in accordance with the emergency classification scheme, as well as those to be used for conducting assessment, are identified. Monitoring systems consist of geophysical phenomena monitors, including meteorological, hydrologic, and seismic instrumentation; radiation monitors and sampling equipment; plant process monitors; and fire, toxic gas, and combustion products detectors.
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Duke Energy nuclear sites have installed monitoring instrumentation for seismic monitoring, radiation monitoring, fire protection and meteorological monitoring, in accordance with its UFSAR and plant Technical Specifications (TS), or commitments made to the NRC.

1. Meteorological Monitoring

Each Duke Energy nuclear site has a permanent meteorological monitoring station located near the plant for the acquisition and recording of wind speed, wind direction, and ambient and differential temperatures for use in making offsite dose projections. Meteorological information is displayed in the CR, TSC, and EOF. Refer to Chapter 2 of the UFSARs for descriptions the meteorological monitoring systems.

2. Hydrologic Monitoring

Each Duke Energy nuclear site has hydrological monitors as appropriate. The design basis flood, probable maximum precipitation, and other extremes in hydrologic natural phenomena are described in Chapter 2 of the UFSARs.

3. Seismic Monitoring

Each Duke Energy nuclear site has a seismic monitoring system that measures and records the acceleration of the structure if activated by an earthquake of sufficient magnitude. It also provides signals for immediate remote indication that specific preset response accelerations have been exceeded. Refer to Chapter 3 of the UFSARs for descriptions the seismic monitoring systems.

4. Process and Area Radiation Monitors

Process Radiation Monitors (PRMs) are used for the measurement of radioactive noble gas, iodine, and particulate concentrations in gaseous effluent pathways and for gross radioactivity in other gaseous and fluid streams.

Duke Energy Common Emergency Plan

Area Radiation Monitors (ARMs) are used for the direct measurement of in-plant dose rates. The ARM readings allow in-plant dose rate determinations to be made remotely without requiring local hand-held meter surveys. This information may be used, initially, to aid in the determination of plant area accessibility.

Refer to Chapters 11 and 12 of the UFSARs for descriptions the process and area radiation monitoring systems.

Process and Area Radiation Monitors applicable to the Emergency Plan are described in the site EAL and dose assessment technical bases manuals.

5. Portable Radiation Monitors

Portable radiation monitoring equipment is available for uses such as area monitoring, sampling, personnel surveys, and continued accident assessment.

6. Sampling Systems

Liquid and Gaseous Sampling Systems consists of normal sampling systems and panels located throughout the unit(s) at each site. Sampling points are established at permanently installed locations or can be identified when needed to permit reactor coolant and containment atmosphere sampling under normal and severe accident conditions. Various chemical analyses and radiological measurements on these samples can be performed, including the determination of radionuclide concentrations.

Refer to Chapter 9 of the UFSARs for descriptions the sites operational and post accident sampling systems.

Refer to elements C.4 and H.8 for a description of laboratory capabilities.

7. Fire and combustion products detectors

The Fire Detection System consists primarily of fire/smoke detectors, control panel units, and annunciator panels designed to detect products of combustion or heat in designated areas of the plant. The fire alarm communication systems and subsystems are located at strategic points throughout the plant to warn personnel of a fire or other emergency conditions.

The types and number of detectors have been selected in accordance with the combustible materials and electrical equipment present in the area and the physical surroundings of each area. Smoke detectors sense the presence of products of combustion before they are visible in the form of smoke. Thermal detectors are sensitive to both temperature and the rate of rise of increasing temperature.

Additional description of the fire protection system is provided in each site's UFSAR.

The MCR and backup control locations are equipped with plant process monitors for use in normal operations and in emergency conditions. These indications include reactor coolant system pressure and temperatures, containment pressure and temperature, and various liquid levels, flow rates, status, or lineup of equipment components.

Duke Energy Common Emergency Plan

A plant monitoring/information system provides the data acquisition and database capability for performing plant monitoring functions. The system is designed to display various parameters and indications, convert sensor output to various appropriate engineering units, limit and alarm checks, and store data for recall and analysis. The system scans flows, pressures, temperatures, fluid levels, radiation levels, equipment, and valve status at required frequencies.

The Safety Parameter Display System (SPDS) provides a display of plant parameters from which the safety status of operation may be assessed in the MCR, TSC, and EOF. Primary and secondary power sources are supplied to this system. Displays fed from provide SPDS data for each unit on terminals in the TSC, OSC, TSC, EOF and the site's Alternate Emergency Facility.

Instrumentation used to continuously monitor vital plant parameters in the MCR is described in Chapter 7 of the site UFSARs. Essential process monitoring (critical plant parameters) are available in the emergency facilities through facility computer and display systems.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
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Site specific details of offsite geophysical monitors as they relate to the EP Program are provided in the site specific annexes to the Duke Energy Common Emergency Plan.

1. Meteorological Monitoring

Meteorological information from offsite sources can be obtained from Duke Energy Meteorologists and the National Weather Service. Duke Energy Meteorologists can independently access on-site meteorological data, contact the National Weather Service to obtain additional synoptic scale weather data and compile a site specific atmospheric diffusion assessment for each Duke Energy nuclear site.

2. Hydrologic Monitoring

Duke Energy can obtain hydrology information and expertise from within the Duke system of dams and hydro-electric facilities in the event onsite information becomes unavailable.

3. Seismic Monitoring

Seismic information from offsite sources can be obtained from the National Earthquake Information Center. A considerable array of seismometers is located in the region. A central point of contact to obtain information about a seismic event is the USGS in Reston, Virginia.

Offsite programs and processes are developed within the Radiological Environmental Assessment Program (REMP) at each site as described in the site specific Offsite Dose Calculation Manual (ODCM). The EP Program utilizes the resources of this program to support analysis of a release of radioactivity. The Radiological Environmental Assessment Program includes:

- Fixed continuous air samplers.
- Routine sampling of water, vegetation, consumable products.
- A fixed TLD monitoring network.

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The locations of the normal on-site and off-site environmental monitoring stations and the locations of the TLD monitoring stations are described in the ODCM. Additional predetermined emergency off-site monitoring locations are contained in environmental monitoring procedures.

Site specific details of the radiological environmental assessment program are provided in the site specific ODCMs. Facilities for counting and analyzing samples can be provided by any Duke Energy nuclear site and the Duke Energy Environmental Laboratory near MNS. Dosimeter (TLD) processing can be provided at the Duke Energy Environmental Laboratory near MNS or through contracted vendors.

Additional laboratory facilities include the mobile emergency monitoring capabilities available through the SC Department of Health and Environmental Control, Bureau of Radiological Health, and the NC Department of Environment, Health, and Natural Resources, Division of Radiation Protection.

The DOE, through the Radiological Assistance Program (RAP) has access to any national laboratory.

H.9	Organizations directly responsible for offsite radiological monitoring provide for radiological monitoring equipment. This includes equipment that is located or stored near the NPP site, as well as additional equipment that may be brought to the site.
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Each Duke Energy nuclear site maintains a sufficient supply of emergency equipment (such as portable survey, counting, and air sampling instrumentation and other radiological monitoring equipment and supplies) to be used for environmental monitoring. These equipment and supplies are sufficient for one onsite and two offsite environmental Field Monitoring Teams. Additional offsite radiological monitoring equipment and resources are available from other Duke Energy nuclear sites.

H.10	Instrumentation is provided to obtain current meteorological information. Additional provisions are made to obtain representative meteorological information from other sources as needed by the NPP's radiological assessment models for site-specific characterization of plume dispersion and transport. Meteorological information is provided to the control room, TSC, EOF (or backup EOF), and NRC (via ERDS).
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Refer to element H.7 for a description of the onsite meteorological monitoring capabilities.

Refer to element H.8 for a description of the offsite meteorological monitoring capabilities. Site meteorological information is available directly in the MCR, and is provided to the TSC and EOF using EP-NET.

The ERDS will supply the NRC with selected meteorological data points on a near real time basis. ERDS is always activated. The selected ERDS data points are transmitted via Virtual Private Network (VPN) to the NRC at approximately 1-minute intervals.

Meteorological inputs for the URI dose assessment model are taken from plant parameter display systems for the site meteorological towers. Input parameters include wind speed, wind direction and stability class (delta T).

Meteorological parameters used for input into the site specific URI dose assessment model are described in the site specific URI Site Annex documents.

Duke Energy Common Emergency Plan

H.11	Provisions are made to ensure that emergency equipment and supplies are tested, maintained, and available in sufficient quantities, to include reserves and replacements, when needed. This includes:
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In addition to supplies of normal use equipment and instruments, emergency kits are maintained at Duke Energy nuclear sites. Routine quarterly inventories are performed to verify contents, inspect and operationally check equipment/instruments.

The applicable procedures to maintain facilities and equipment are listed in Table P.7-1 of the common emergency plan and the site specific annexes. Requirements to operationally check emergency equipment and instruments prior to use, if needed, are contained in procedures.

Sufficient reserves of instruments and equipment are maintained to replace those removed from emergency kits or lockers for calibration or repair.

H.11.a	Identification of the organization(s) responsible for the testing and maintenance of emergency equipment.
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Radiation Protection is responsible for the maintenance and storage of radiological equipment and instruments.

H.11.b	Calibration and operational checks of emergency equipment per national standards or the manufacturer's instructions, whichever is more frequent.
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Requirements to calibrate emergency equipment and instruments are specified in site or fleet procedures.

H.12	Emergency kits are identified by general category. Contents and quantity of each emergency kit are specified in the emergency plan or other document(s) referenced in the emergency plan.
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Emergency kits may be assembled for radiation protection, field monitoring, first aid or other emergency use needs based on location and availability at each site.

Details of emergency kit contents and locations are contained in plant-specific procedures listed in the site specific annexes to the Duke Energy Common Emergency Plan.

H.13	Each organization identifies the location(s) for the receipt and analysis of field monitoring data and coordination of sample media, and identifies the organization(s) responsible for assessing radiological data.
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Duke Energy EOF is the primary location for receipt and analysis of field monitoring team environmental sample data. The EOF Radiological Assessment Manager will be responsible for the coordination efforts. Sampling and analysis equipment are available (see element H.8) for quantitative activity determination of liquid and air samples, and qualitative activity determination of terrestrial samples.

Duke Energy Common Emergency Plan

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.1	Capabilities for performing radiological assessment for all reactor core and spent fuel pool sources, individually and collectively, including response to events occurring simultaneously at all units on the NPP site, are described. These capabilities include:
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I.1.a	Methods for determining the magnitude and isotopic composition of an ongoing release of radioactive material through waterborne or airborne release pathways, or estimating these parameters for a potential release.
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The magnitude of a release of radioactive material to the environment is primarily identified directly by effluent monitors. Survey and sample analysis may also be used to determine the magnitude of a release. Indirect means such as core damage estimates and release pathway assumptions may be used to estimate the magnitude of a release of radioactive material.

The isotopic composition of a release of radioactive material to the environment may be determined by; (1) specialized gaseous monitors that distinguish between gasses, iodines and particulate, (2) survey and sample analysis, or (3) source term estimates based on core damage and release pathway assumptions.

Dose assessment model methods are capable of estimating source term and magnitude of gaseous releases from effluent monitors or plant parameter data and release rate projections.

I.1.b	A radiological assessment model for airborne releases that provides estimates of offsite radiation exposures and contamination levels using a dispersion model that is representative of the plant release points, topographical features, and meteorological regimes at the NPP site.
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Duke Energy uses site specific versions of the Unified RASCAL Interface (URI) off-site dose projection computer model. The underlying dose assessment model in URI is the NRC RASCAL 4 model, based on the methods and equations documented in NUREG-1940.

The URI model provides off-site radiological dose and dose rate estimates based on near real time or hypothetical inputs. Projected dose is based on EPA-400 dose conversion factors and provided as; (1) the total effective dose equivalent, or TEDE (the sum of the effective dose equivalent from immersion, 4 days of ground deposition, and the committed effective dose equivalent from inhalation), and (2) the committed dose equivalent to the thyroid (CDE thyroid).

URI dose projection results are given for various locations from the site boundary to 10 miles. URI is capable of providing dose assessment results for multiple release points from the site.

URI dose projection results and field monitoring readings are used in assessing radiological EALs and PARs.

Duke Energy Common Emergency Plan

I.1.c	A capability to coordinate and implement in-field radiological assessments by FMTs and provisions to assess the data obtained.
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On-site (inside the owner controlled area (OCA)) out of plant environmental monitoring is performed by site radiation protection personnel under the direction of OSC RP Supervisor or TSC RP Manager ERO positions.

Off-site (outside the OCA) environmental monitoring is performed by qualified field monitoring team personnel under the direction of the EOF Field Monitoring Coordinator (or EOF Radiological Assessment Manager, if the EOF Field Monitoring Coordinator is not available).

Field monitoring teams are provided dedicated vehicles and equipment. Field monitoring surveys and sampling may be performed at pre-identified locations or other geographic locations within the EPZ determined during the event. Field monitoring teams are directed to track a radioactive plume by monitoring radiation levels and by obtaining and analyzing air samples. Samples taken by the off-site monitoring teams will be evaluated further by one of the available laboratory facilities described in elements C.4 and H.8.

I.2	A methodology for assessing contamination of drinking water by waterborne releases for sites located on bodies of water from which public drinking water is drawn.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

I.3	<p>The capability and responsibility for monitoring the following parameters, which provide input to radiological assessments during an emergency, are described:</p> <ol style="list-style-type: none">1. Status of reactor fuel (e.g., no fuel damage, technical specification activity, clad failure, core melt).2. Status of containment integrity.3. Leakage of radioactive material from plant systems, structures, and components.4. Status of engineered safety features used to mitigate the release of radioactive material to the environment (e.g., filters, containment spray, etc.).5. Onset and duration of an actual release of radioactive material to the environment, or estimating these parameters for a potential release.
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The Duke Energy ERO monitors plant parameters (i.e., radiation monitors, core exit thermocouples, reactor water level, containment hydrogen concentration) using information provided by plant data transmittal systems to assess the status of reactor fuel (e.g., no fuel damage, fuel clad damage, core melt) using core damage assessment procedures.

The ERO also monitors plant data transmittal systems to evaluate the status of containment integrity, systems used to mitigate the release of radioactive material to the environment (e.g., filters, containment spray, etc.) and to identify leakage of radioactive material from plant systems, structures, and components.

Duke Energy Common Emergency Plan

By observing effluent and process monitors, the onset and duration of an actual release of radioactive material to the environment can be determined, or these parameters estimated for a potential release.

I.4	The methods and responsibility for determining the source term present in reactor coolant, containment atmosphere, and spent fuel pool area atmosphere are described.
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Source term present in reactor coolant, containment atmosphere, and spent fuel pool area atmosphere are estimated using effluent, process and area radiation monitor readings, comparison of plant conditions against design basis event scenarios, sample analysis and environmental survey results, and plant parameter indications (such as core exit temperatures, hot leg temperatures, containment hydrogen) as inputs into the dose assessment and core damage assessment processes.

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Each Duke Energy nuclear site has received NRC approval for the elimination of post-accident sample system (PASS) requirements from technical specifications. In accordance with their site specific safety evaluation, contingency plans are maintained outside the EP Program.

Site specific arrangements to obtain and analyze highly radioactive samples are described in the site specific annexes to the Duke Energy Common Emergency Plan.

I.5	The organizations responsible for FMT activities, and necessary resources, are identified.
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Responsibility for state field monitoring team personnel remains with state ORO personnel and responsibility for Duke Energy field monitoring team personnel remains with Duke Energy ERO personnel. State representative radiological personnel may co-locate in the Duke Energy EOF to coordinate field monitoring team activities.

Duke Energy field monitoring team activities are coordinated with environmental monitoring efforts performed by teams from NCDEQ, NCDHHS, and SC Department of Health and Environmental Control, Bureau of Radiological Health, as appropriate for the site.

I.6	Each organization, where appropriate, provides methods, equipment, and expertise to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including development of post-plume PARs for comparison to current Federal guidance.
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Duke Energy uses an industry recognized dose assessment code (i.e. URI) to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through gaseous release pathways. Personnel qualified in dose assessment are available on shift and the common EOF. Dose assessment results and field monitoring readings assist in evaluating appropriate ECLs based on radiological EALs and developing any related PARs.

The immediate on-site magnitude and consequences of liquid releases with regard to event classification are primarily determined by liquid effluent monitors and direct area surveys.

Duke Energy Common Emergency Plan

Post-plume PARs (i.e. ingestion pathway) are developed by OROs and described in state and county radiological emergency plans. Duke Energy FMT and laboratory personnel may assist ORO decision making with sample collection and analysis using established procedures and protocols.

I.7	The capability to detect and measure radioiodine concentrations in air in the plume exposure pathway EPZ as low as 10^{-7} $\mu\text{Ci/cc}$ (microcuries per cubic centimeter) under field conditions is described. The sample collection process takes into account the sample flow rate, collection efficiency of the sample media used to collect the sample, duration of the sample, counter efficiency, and background radiation, including interference from the presence of noble gases.
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Duke Energy field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as $1\text{E-}7$ $\mu\text{Ci/cc}$ in the presence of noble gases. Air samples will be taken with portable air sampling equipped with a Silver Zeolite or equivalent cartridge and particulate filter. Interference from the presence of noble gas and background radiation is minimized by ensuring that monitoring teams move to areas of low background prior to analyzing the sample cartridge.

Air sample results can be estimated in the field through the use of a portable single channel analyzer or a count rate meter. The samples can be analyzed for greater precision by one of the available laboratory facilities described in elements C.4 and H.8 using a multi-channel analyzer.

I.8	A means is established for relating the various measured parameters (e.g., exposure rates, contamination levels, and air activity levels) to dose or dose rates. Provisions are made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with current Federal guidance. In addition, provisions are established to validate dose projections with field data and compare projections with other organizations also calculating dose projections. The detailed provisions are described in implementing procedures.
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Duke Energy field monitoring teams will track the plume from any radiological release by monitoring radiation levels as indicated on radiological measuring instruments and by obtaining and analyzing air samples. Field monitoring team environmental survey and air sample results are compared with dose assessment results to validate or adjust projections. Additionally, field monitoring results can be input into the Duke Energy URI dose assessment model to develop projections at different locations.

I.9	Arrangements to locate and track the airborne radioactive plume are made using available resources, which includes Federal, state, local, and tribal governments, and/or licensee resources. Provisions are made to characterize the plume including taking peak plume measurements. Identification of the plume, includes determining a measurement that is high enough to be reasonably above background radiation readings and sufficient enough to indicate submersion within the plume.
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Duke Energy provides dedicated vehicles and equipment for the field monitoring teams. Methods to monitor a radioactive plume include establishing peak centerline values and edges. Monitoring strategies may include the traversing of plumes when road networks and exposure rate permit. Additionally, local field sampling and monitoring points are specified to support pre-positioning of teams or use in comparison with dose projection results.

Duke Energy Common Emergency Plan

Duke Energy personnel coordinate environmental radiological monitoring and assessment efforts with NCDEQ, NCDHHS, and SC Department of Health and Environmental Control, Bureau of Radiological Health, as appropriate for the site. Accommodations are provided for state agency representatives to co-locate in the EOF in order to directly coordinate field monitoring team activities and compare dose projection results.

Assistance from the DOE Radiological Assistance Team can be requested by Duke Energy or the states.

I.10	Organizations directly responsible for radiological monitoring, analysis, and dose projections describe the capability for coordinating monitoring efforts, tracking and trending data, and sharing analytical results with other organizations performing radiological assessment functions.
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Duke Energy personnel coordinate environmental radiological monitoring and assessment efforts with NCDEQ, NCDHHS, and SC Department of Health and Environmental Control, Bureau of Radiological Health, as appropriate for the site.

Accommodations are provided for state agency representatives to co-locate in the EOF in order to directly coordinate field monitoring team activities and compare dose projection results.

NRC site team representatives are also provided space to co-locate in the EOF to share dose assessment results.

Duke Energy Common Emergency Plan

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.1	The means and time required to alert, notify, and provide a range of protective actions for onsite individuals and individuals who may be in areas controlled by the licensee (including members of the public) during a radiological incident are described.
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The site assembly alarm and the Public Address (PA) system will be used to alert and notify on-site personnel of an emergency condition within 15 minutes. Security personnel with portable loudspeakers may be used, as available, to augment the PA system and check evacuation of outlying areas for other individuals, including those who may be on or passing through the OCA. The PA system is supplemented by the use of the normal and emergency communication systems.

Notification of persons who are in the public access areas, on or passing through the site, or within the OCA, will be performed by site Security. Such notifications will be in accordance with the emergency procedures.

Visitors within the Protected Area are escorted by a permanently badged individual. The escort is responsible for informing the visitors of what to do in the event of an emergency and for taking action to evacuate the visitors from the site, as necessary.

J.1.a	Provisions are made for evacuation of onsite non-essential personnel at an SAE or General Emergency (GE).
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A site evacuation of all non-essential personnel inside the OCA is conducted at a Site Area or General Emergency classification level unless delayed due to safety issues. Non-essential personnel inside the Protected Area will typically exit to the OCA by following normal RP and Security processes and proceed to a designated assembly for accountability. Non-essential personnel will then be directed to exit the site will proceed either to their homes or, if radiological conditions warrant, to reception centers located in the surrounding counties.

A process is in place, controlled by Security, to perform a rapid evacuation of the Protected Area without monitoring and assembly if conditions warrant.

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J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
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Site evacuation routes and relocation areas have been coordinated with offsite agencies.

Site and local area maps, information available from meteorological tower instrument readouts and current radiological data are used for determining the evacuation route and destination. On-site personnel will evacuate the site when directed using transportation that was employed to arrive at the site. Personnel without transportation will be identified during the assembly phase and provided transportation.

Evacuation routes and evacuation locations for each site, including alternate location(s) and route(s), are described in the site-specific annexes to the Duke Energy Common Emergency Plan.

J.3	Provisions for radiological monitoring and decontamination, if necessary, of personnel evacuated from the NPP site are described.
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Site personnel evacuating the Protected Area will be monitored for contamination and typically decontaminated, if necessary, as they leave the Protected Area. If conditions do not allow for decontamination of personnel prior to exiting the Protected Area, they will be directed to an offsite location such as a county reception center or another Duke Energy site.

Personnel evacuating the site from outside the Protected Area will be monitored at county reception centers with the public, as required by event conditions.

J.4	The capability to account for all individuals inside the NPP Protected Area following declaration of an SAE or GE is described. The names of missing individuals are ascertained within 30 minutes following the emergency declaration and accountability is maintained for the duration of the incident. This capability includes provisions for prompt accountability following events that may preclude completion within 30 minutes (e.g., hostile action).
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All personnel within the Protected Area will be accounted for within 30 minutes of the declaration of a Site Area Emergency or General Emergency classification level. Accountability may be called for at any time prior to the declaration of a Site Area Emergency, if deemed appropriate. After initially completed, accountability will be maintained continuously thereafter during the emergency by maintaining log sheets in the MCR, TSC, and OSC of all ERO personnel inside the Protected Area.

Accountability may be delayed during a security event if the Emergency Coordinator, in consultation with Security, determines that performing accountability could be detrimental to the safety of plant personnel. If accountability is delayed, then accountability should be performed as soon as when conditions permit.

Missing individual(s) will be identified by Security. Search procedures will be implemented to locate unaccounted for persons.

Duke Energy Common Emergency Plan

J.5	Provisions are made for personal radiological protection for individuals arriving or remaining onsite during the incident.
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Protective equipment and supplies will be distributed to personnel remaining on site or arriving on site during the emergency to minimize the effects of radiological exposures or contamination in accordance with radiation protection procedures. Protective measures include the following:

1. Individual Respiratory Protection

Respiratory protection equipment is used by qualified personnel when called for by ALARA exposure control procedures. Radiological use respiratory protection equipment is maintained by RP.

Self-contained breathing apparatus is used in areas that are deficient in oxygen or when fighting fires. Self-contained breathing apparatus are available with other firefighting equipment for use by the site fire brigade.

2. Individual Thyroid Protection

All efforts should be made to utilize respiratory protective equipment to minimize ingestion and/or inhalation of radionuclides and to maintain internal exposure below the limits specified in 10 CFR 20, Appendix B. However, if an unplanned incident involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide tablets (KI) are maintained and available for distribution.

3. Protective Clothing

Protective clothing will be issued to maintain individual exposures (ALARA) and limit the spread of contamination.

Duke Energy Common Emergency Plan

J.6	The basis and methodology are established for the development of PARs for the responsible OROs, including evacuation, sheltering, and, if appropriate, radioprotective drug use, for the plume exposure pathway EPZ. Current Federal guidance is used.
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Duke Energy nuclear sites have developed site specific PARs for the plume exposure pathway EPZ based on guidance in Supplement 3 to NUREG-0654/FEMA-REP-1, Rev. 1. PARs include evacuation, shelter in place, and recommendations for radioprotective drug use. Plant conditions, offsite projected dose, and field monitoring team data are used in PAR decision making. Site specific ETEs were used in determining appropriate PARs for rapidly progressing severe accidents, and whether staged evacuations were beneficial in certain circumstances. External factors such as road conditions, traffic control, weather, etc. impacting evacuation capabilities are generally unknown to Duke Energy PAR decision makers. Therefore the impact of external factors are evaluated by OROs in determining whether evacuation or sheltering in place is more beneficial.

PARs were developed using the following Federal guidance:

- NUREG-0654/FEMA-REP-1, Rev. 1, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans*, Supplement 3, *Guidance for Protective Action Strategies*, November 2011
- NEI 99-01, Revision 6, *Development of Emergency Action Levels for Non-Passive Reactors*, November 2012
- EPA-400-R-92-001, *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, May 1992
- Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, December 2002
- Potassium Iodide as a Thyroidal Blocking Agent in Radiation Emergencies, FDA Guidance, November 2011

PARs are approved by the Shift Manager or the EOF Director, once the EOF is activated. PARs are communicated to OROs using methods and criteria established in Duke Energy Common Emergency Plan Section E.

J.7	A site-specific protective action strategy or decision-making process, informed by the ETE study, is coordinated between the licensee and OROs. Current Federal guidance is used.
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Site-specific protective action strategies, informed by the site-specific ETEs, have been developed using guidance provided in NUREG-0654. Rev 1. Supplement 3, Guidance for Protective Action Strategies, in coordination between Duke Energy and the site-specific Offsite Response Organizations (OROs).

Discussions conducted with offsite officials determined that sheltering would be recommended during a hostile action based event in which no release of radioactive materials has occurred or is expected. The decision to use sheltering as an alternative to evacuation for impediments and special populations is one that will be made by offsite officials. If dose projections show that PAGs have been exceeded at 10 miles, the dose assessment code and in-field measurements, when available, will be used to calculate doses at various distances downwind to determine how far from the site PAG levels are exceeded. The Radiological Assessment Manager forwards the results to the EOF Director who will communicate this information to the offsite authorities.

Duke Energy Common Emergency Plan

J.8	The latest ETEs are:
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J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The most recent site-specific ETEs are incorporated by reference into this emergency plan. Refer to the Site annex for specific reference to ETEs.

Updated ETE analyses will be submitted to the NRC under §50.4 no later than 365 days after Duke Energy determines that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to state and county governmental authorities for use in developing offsite protective action strategies.

The criteria for determination that an updated ETE analysis is required is as follows:

1. The availability of the most recent decennial census data from the U.S. Census Bureau;

OR

2. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the currently NRC approved or updated ETE.

During the years between decennial censuses Duke Energy will estimate EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and state/county government population data, if available. Duke Energy will maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and will submit these estimates to the NRC with any updated ETE analysis.

J.8.b	Incorporated either by reference or as a summary of the latest ETE analysis into the emergency plan.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.9	PARs are provided, in a timely manner, directly to the designated ORO(s) responsible for making protective action decisions (PADs) within the plume exposure pathway EPZ.
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Applicable plume exposure pathway EPZ PARs of evacuate, shelter, and take potassium iodide are developed at the General Emergency classification level and provided to the ORO personnel responsible for making protective action decisions.

Prior to ERO activation, the Shift Manager is responsible for making these recommendations. Following ERO activation, the EOF Director assumes the responsibility for PARs.

PARs are communicated using the initial notification form and process. See section E for a discussion of emergency notification.

Duke Energy Common Emergency Plan

J.10	Plans include maps, charts, or other information that demonstrate the following for the plume exposure pathway EPZ:
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J.10.a	Evacuation routes, evacuation areas, reception centers in host areas, and shelter areas.
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Maps and other information showing site specific evacuation routes, evacuation areas, reception centers in host areas, and shelter areas are contained in the site-specific ETE study reports.

Each site's Duke Energy EP group is responsible for updating their maps and other information.

J.10.b	Population distribution around the NPP site by evacuation areas.
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Maps and other information showing population distribution around each Duke Energy nuclear site, by evacuation area, are contained in the site-specific ETE study reports.

J.11	A capability for implementing protective actions based on current Federal guidance is established. The process ensures coordinated implementation of PADs with all appropriate jurisdictions. The process for implementing protective actions for the plume exposure pathway EPZ is described and includes the following:
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.a	Means for identifying and protecting residents who would have difficulty in implementing protective actions without assistance. This includes those with access and functional needs, transportation-dependent residents, those in special facilities, and those in correctional facilities. These means include notification, support, and assistance in implementing protective actions where appropriate.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.b	The decision-making methodologies for use of radioprotective drugs and the provisions for administration to the general public, emergency workers, and institutionalized persons within the plume exposure pathway EPZ. This includes the means of determining quantities, maintaining and managing supplies, communicating recommendations, and distributing.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.c	Means of evacuation informed by the updated ETEs. The evacuation routes and transportation resources to be utilized are described and include projected traffic capacities of evacuation routes and implementation of traffic control schemes during evacuation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

Duke Energy Common Emergency Plan

J.11.d	The locations of pre-identified reception centers beyond the boundaries of the plume exposure pathway EPZ, organizations responsible for managing reception centers, arrangements for handling service animals and pets, and provisions for radiological monitoring/decontamination.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.e	Means for the initial and ongoing control of access to evacuated areas and organizational responsibilities for such control, including identifying pre-selected control points.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.f	Identification of and means for dealing with potential impediments to the use of evacuation routes (e.g., seasonal impassability of roads) and contingency measures. The resources available to clear impediments and responsibility for re-routing traffic, as necessary, are described.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.11.g	Identification of and means to implement precautionary protective actions (e.g., actions taken at an SAE).
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.12	Protective actions to be used for the ingestion exposure pathway EPZ are specified, including the methods for protecting the public from consumption of contaminated foodstuffs, and are based on current Federal guidance.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.13	The means for registering, monitoring, and decontaminating evacuees, service animals, pets, vehicles, and possessions at reception centers in host areas are described. The personnel and equipment available are capable of monitoring 20 percent of the plume exposure pathway EPZ population, including transients, assigned to each facility within a 12-hour period.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14	General plans for the removal or continued exclusion of individuals from restricted areas are developed. Relocation plans include:
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Duke Energy Common Emergency Plan

J.14.a	Process for implementing current Federal guidance for relocation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14.b	Means to identify and determine the boundaries of relocation areas, including a buffer zone.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14.c	Prioritization of relocation based on projected dose to an individual and the timeframe for relocation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14.d	Control of access to and egress from relocation areas and security provisions for evacuated areas.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14.e	Contamination control during relocation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

J.14.f	Means for coordinating and providing assistance during relocation.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

Duke Energy Common Emergency Plan

K: Radiological Exposure Control

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

Regulatory References: 10 CFR 50.47(b)(11); 44 CFR 350.5(a)(11)

K.1	The radiation protection controls for emergency workers to be implemented during emergencies are described. These controls address the following aspects:
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At the onset of a declared emergency, the normal operational radiation protection program is utilized to the extent that it does not prevent actions that would endanger personnel, public or plant safety.

If emergency workers are expected to receive an exposure in excess of normal occupational limits, then dose extensions are determined and approved on a task basis. Approval is required before emergency workers are allowed to exceed normal occupational radiation dose limits. ALARA practices are utilized during emergencies as much as practical.

The administration of radioprotective drugs such as potassium iodide (KI) to Duke Energy personnel may also be used to mitigate the consequences of inhalation of radioactive materials such as radioiodine during an emergency. The process for administration of radioprotective drugs to Duke Energy and vendor employees is described in Emergency Plan Implementing Procedures. Ingestion of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE-thyroid from radioiodine is expected.

K.1.a	Onsite emergency exposure guidelines for emergency workers consistent with their assigned duties and current Federal guidance and the conditions under which the guidelines apply.
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Onsite exposure guidelines for emergency workers, consistent with EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, U.S. Environmental Protection Agency, May 1992, Table 2-2, "Guidance on Dose Limits for Workers Performing Emergency Services," have been established as follows:

TEDE Limit (Rem)	Activity
5	All activities during the emergency.
10	Protecting valuable property when lower dose is not practicable.
25	Lifesaving or protection of large populations when lower dose is not practical per EPA-400-R-92-001.
Greater Than 25	Lifesaving or protection of large populations, only if individuals receiving exposure is a volunteer, and fully aware of risks involved.

NOTES

- Emergency exposure limits are exclusive of current occupational exposure.
- Only one emergency exposure is allowed per lifetime.
- Dose to lens of the eye is limited to three times listed value.
- Dose to other organs, including skin and body extremities, is limited to ten times listed value.

Duke Energy Common Emergency Plan

K.1.b	The capability to evaluate emergency worker dose (i.e., the sum of the effective dose equivalent and the committed effective dose equivalent) at the time of exposure when direct measurement is not feasible.
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Emergency worker exposure is monitored at the time of exposure by the use of electronic dosimeters. If direct measurement of airborne concentrations is not available at time of exposure, workers will be provided respirator protection, when feasible, and TEDE exposures will be calculated after the fact using follow up survey data and whole body counting equipment.

K.1.c	The capability to monitor and assess the radiation doses received by emergency workers for the duration of the incident.
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Personnel monitoring equipment (such as TLDs, wrist dosimetry, and/or finger dosimetry) are issued to and worn by Duke Energy radiation worker qualified personnel who may be required to work in Radiological Controlled Areas as required in 10 CFR 20 and RP procedures as a record of radiation exposure. Other radiation detection devices (such as pocket ion chambers, electronic dosimeters, self-reading dosimeters, pocket high radiation alarms) are available for use by emergency workers to allow real time measurement of exposure. The issuance of high range dosimetry and extremity TLDs will be in accordance with radiation protection procedures.

Radiation protection personnel in the OSC and TSC have the responsibility to monitor and assess the radiation doses received by ERO personnel on a 24-hour per day basis throughout a declared event.

Personnel dose records will be documented and managed using an electronic dose tracking system. Should this system not be readily accessible or available, dose tracking and records will be maintained manually.

Dosimeters are available and will be provided to off-site agency responders for events that could result in exposure or entry into any radiologically controlled areas.

K.1.d	The capability to implement onsite contamination control measures.
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Radiation safety controls are established 24 hours per day to contain the spread of loose surface radioactive contamination. Contamination control limits are defined in radiation protection procedures. Personnel leaving the contaminated areas are monitored to ensure that they and their clothing are not radioactively contaminated. Contaminated clothing or personal articles will be decontaminated or replaced.

Under emergency conditions when a release of activity has occurred, eating, drinking, smoking, and chewing will be not permitted until the facility manager, with input from Radiation Protection, has determined that it is safe to do so. If drinking water is contaminated above acceptable levels, uncontaminated water will be brought into the plant for personnel to drink.

Contamination on personnel will be removed in accordance with established radiation protection procedures. If normal decontamination procedures do not reduce contamination to acceptable levels, the case will be referred to a competent medical authority.

Duke Energy Common Emergency Plan

K.1.e	The capability to decontaminate emergency workers, equipment, and vehicles.
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Guidelines as established in radiation protection procedures will be used to determine action levels for decontamination. Radiation protection pre-planning efforts have been established for decontamination of emergency workers and equipment. The means for disposal of contaminated waste are also established.

Equipment will be released for use outside of the contaminated areas only if loose surface radioactive contamination is within acceptable limits. All equipment must be checked for contamination before being taken from a known contaminated area. If the item is found to be contaminated and decontamination is not practical, the item must remain in that area.

K.1.f	Appropriate radiation protection briefings for repair teams that are being dispatched into the plant and FMTs being sent onsite and offsite, the scope of which is consistent with the expected risk to the team.
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Emergency teams that must enter areas where they might be expected to receive higher than normal doses will be briefed on the task assigned, the planned route to destination, allowed dose and dose rates, stay time, protective clothing/equipment and other hazards or conditions as applicable. The team members will be instructed not to deviate from the planned route unless required by unanticipated conditions, such as rescue or performance of an operation that would minimize the emergency condition.

During dispatch, if the monitored dose or dose rates, or stay times exceed the limits set for the task, the team will communicate with the OSC for further direction or will return to the area from where they were dispatched. Once their task has been completed, team personnel will follow monitoring and personnel decontamination procedures as specified by Radiation Protection.

Offsite Field Monitoring Teams will be briefed regarding their duties and actions and what they are to do while in the field. They will also be briefed as to potential dose rates and protective clothing requirements.

K.1.g	The process for NPP site access and dosimetry issuance to personnel from OROs arriving to assist with the onsite response.
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Non-Duke Energy emergency workers supporting on-site activities will be issued dosimetry and/or be monitored by radiation protection personnel when responding to areas where a dose to radiation may be received. This process will be implemented by ERO radiation protection and site security personnel.

K.2	Individual(s) who can authorize personnel to receive radiation doses in excess of the occupational dose limits in accordance with the minimum standards set forth in 10 CFR Part 20 or 29 CFR 1910.1096, as applicable to the organization, are identified by title/position. Such authorizations are documented.
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The Shift Manager or Emergency Coordinator authorizes exposures to radiation in excess of 10 CFR 20 limits. Such authorizations are documented as part of the emergency exposure controls process provided in element K.1.c.

Duke Energy Common Emergency Plan

K.2.a	The process for allowing onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities is described.
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All personnel dispatched into radiation areas or areas of unknown radiation levels are briefed on the task and environmental conditions and are provided appropriate monitoring and personnel protective equipment.

Refer to element K.1.a for the description of activities and their exposure thresholds and considerations.

K.2.b	The process for authorizing emergency workers to incur exposures that may result in doses in excess of the current Federal guidance is described.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

K.3	The capability to determine the doses received by emergency workers involved in any commercial NPP radiological incident is described. Each organization makes provisions for distribution of direct-reading dosimeters (DRDs) and permanent record dosimeters (PRDs).
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

K.3.a	Provisions to ensure that DRDs are read at designated intervals and dose records are maintained for emergency workers are described.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

K.4	Action levels for determining the need for decontamination are specified and the means for radiological decontamination are established for emergency workers and the general public, as well as equipment, vehicles, and personal possessions. The means for disposal of contaminated waste created by decontamination efforts are also established.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

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L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.1	Arrangements are established with primary and backup hospitals (one hospital is located outside the plume exposure pathway EPZ) and medical services. These facilities have the capability for evaluation of radiation exposure and uptake. The persons providing these services are adequately trained and prepared to handle contaminated, injured emergency workers and members of the general public.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

L.2	Arrangements for the medical treatment of contaminated, injured onsite personnel and those onsite personnel who have received significant radiation exposures and/or significant uptakes of radioactive material are described. These arrangements include the following components:
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Refer to element L.2.e for arrangements for personnel who have received significant radiation exposures and/or significant uptakes of radioactive material.

L.2.a	An onsite first aid capability with adequate medical equipment and supplies.
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Duke Energy nuclear sites maintain first aid supplies and equipment for the treatment of injured persons. The on-shift Medical Emergency Response Team (MERT) and radiation protection personnel will provide first aid to personnel who are injured and potentially contaminated. Emergency treatment of injured personnel will normally be performed on the scene. Medical equipment and supplies are maintained by MERT. It is anticipated that contaminated personnel will not leave the site except for cases that require off-site medical care.

L.2.b	Primary and backup offsite medical facilities.
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Arrangements have been made with local hospitals for the medical treatment of contaminated injured personnel.

Primary and backup offsite medical facilities to treat contaminated injured personnel are described in the site specific annexes to the Duke Energy Common Emergency Plan.

Duke Energy Common Emergency Plan

L.2.c	Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas.
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Duke Energy personnel are available to assist medical personnel with decontamination, radiation exposure and contamination control. Hospitals are equipped and hospital personnel trained to address contaminated injured individuals. Training of medical support personnel at agreement hospitals includes basic training on the nature of radiological emergencies, diagnosis and treatment, and follow-up medical care. Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas are described in licensee radiation protection department and hospital procedures.

L.2.d	Provisions to evaluate for radiological contamination either prior to transport to a medical facility or after arrival.
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Injured personnel are evaluated for radiological contamination prior to transport to a medical facility per radiation protection department procedures.

L.2.e	Contact information for facilities capable of treating overexposure to radioactive material.
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Primary and backup offsite medical facilities to treat contaminated injured personnel are described in the site specific annexes to the Duke Energy Common Emergency Plan under element L.2.b. Contact information is contained in CSD-EP-ALL-0104-01, Emergency Telephone Directory.

The Radiation Emergency Assistance Center Training Site (REAC/TS) located at Oak Ridge, Tennessee, will respond to and/or provide advice and assistance to offsite medical facilities in the event of a severe radiation accident.

L.3	Supplemental lists are developed that indicate the location of the closest public, private, and military hospitals and other emergency medical facilities within the state or contiguous states considered capable of providing medical support for any contaminated, injured individual.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
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In addition to the information provided in element L.2.a, radiation monitoring services are provided by Duke Energy personnel whenever it becomes necessary to use an ambulance service for the transportation of contaminated persons. Injured personnel are evaluated for radiological contamination and packaged to control contamination prior to transport to a medical facility per radiation protection department procedures. Duke Energy personnel will assist with decontamination of transport vehicles if necessary. Ambulance services are described in the site specific annexes to the Duke Energy Common Emergency Plan.

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M: Recovery, Reentry, and Post-Accident Operations

General plans for recovery and reentry are developed.

Regulatory Reference: 10 CFR 50.47(b)(13); 44 CFR 350.5(a)(13)

M.1	General recovery, reentry, and return plans for radiological incidents are developed, as appropriate. These plans address reoccupancy, as appropriate. The plans should include:
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M.1.a	Provisions for allowing reentry into areas controlled by the licensee. Reentry planning includes evaluation of the controls necessary for reentry under post-incident conditions.
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The plans and procedures for area reentry will consider existing and potential conditions. Prior to reentry, the following actions will be taken:

- Review all available radiation survey data.
- Determine site areas potentially affected by radiological hazards.
- Review radiation dose history of all personnel scheduled to participate in recovery operations.
- Determine the need for additional personnel to keep radiation doses to employees and other radiation workers as low as reasonably achievable.
- Review the adequacy of radiation survey equipment available.
- Determine the need for additional radiation survey equipment and a source of procurement.
- Pre-plan team activities, including areas to be surveyed, anticipated radiation levels, survey equipment required, protective clothing requirements, access control procedures, dose control procedures and communication capabilities.
- Conduct comprehensive radiation survey of site facilities and define all radiological problem areas.
- Isolate and post with appropriate warning signs and barriers, as needed, all radiation and contamination areas.
- Perform visual inspection of site areas and equipment.
- Evaluate all radiological conditions discovered and existing in the facility by the reentry survey.
- Determine what procedures are required to restore the site to a normal status.
- Control and document personnel radiation dose.
- Monitor and control emergency personnel and equipment leaving the radiation control area.

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M.1.b	Provisions for reentry into restricted areas, including exposure and contamination control, as appropriate. A method for coordinating and implementing decisions regarding temporary reentry into restricted areas is addressed.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

M.2	Individuals who will comprise the licensee's recovery organization are identified by title/position. The recovery organization includes technical personnel with responsibilities to develop, evaluate, and direct recovery and reentry operations.
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Figure M-1 illustrates a suggested organization structure. It may be modified or supplemented as necessary to fit the particular circumstances. In some situations (such as no core damage), the normal organization may be adequate, and a recovery organization may not be needed.

The recovery activities would be managed much like a normal outage, except that certain activities unique to the post accident situation may be managed by the recovery organization. The organization would function as a matrix management organization to coordinate activities with the normal company organization. This organization may be located at the EOF or the site, as appropriate.

The primary positions in the Recovery Organization are described as follows:

- Recovery Manager – Overall management of recovery activities. High level coordination with federal, state, and county governments.
- Onsite Recovery Director – Directs the recovery activities onsite to restore the plant to pre-incident conditions.
- Offsite Recovery Director – Directs interface with federal, state and county agencies during the recovery process.
- Radiological Assessment Manager (if needed) – Coordinates radiological and environmental assessment with federal and state agencies. Coordinates offsite radwaste management and decontamination activities.
- Company Spokesperson or Public Information Officer – Directs the Public Information Program during the recovery process.
- Other Support – Other individuals or groups assigned specific tasks to support activities during the Recovery Phase.

Other site management and supervisory personnel will interface with recovery operations as necessary and as warranted.

M.3	The process for initiating recovery actions is described and includes the criteria for terminating the emergency.
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Once the Emergency Coordinator, in consultation with the EOF Director, has determined that the conditions warranting a state of emergency have passed, steps will be taken to terminate directly from the event or transition to a state of recovery operations. The following considerations have been established to support the exit from a declared emergency:

- Radiation levels in site areas are stable or decreasing with time.

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- Releases of radioactive materials to the environment from the site are under control or have ceased.
- Emergency conditions (arising from initiating events such as fire, flood, or security related) are controlled or have ceased.

The decision to exit from a General Emergency classification level must be discussed with the NRC site team lead and the appropriate state(s) representatives before it occurs. Decisions to relax protective actions for the public will be made by the appropriate state representatives. The EOF Director will provide information to the appropriate state agencies to facilitate that decision.

Emergency procedures provide guidance to directly terminate from an emergency, usually from the Unusual Event and Alert classification levels when a normal outage organization is able to address any plant issues, or to transition to a recovery organization.

Recovery from an emergency situation is guided by the following principles:

- The protection of the public health and safety is the foremost consideration in formulating recovery plans.
- Public officials would be kept informed of recovery plans so that they can properly carry out their responsibilities to the public,
- Periodic information would be provided to the news media so that they can provide information to the public regarding recovery plans and progress made.
- Periodic status reports would be given to company employees at other locations and to government and industry representatives.

When a recovery organization has been determined to be necessary, the EOF Director will designate a Recovery Manager and develop a recovery organization. The recovery organization, under the direction of the Recovery Manager, will have the following responsibilities:

- Develop a recovery plan.
- Identify resources needed to complete the recovery.
- Obtain any services and equipment necessary to complete the needed repair.
- Assess and determine the overall damage.
- Obtain all necessary licenses, or amendments to licenses, required for repair of the unit and disposal of waste products.
- Oversee coordination with county and state agencies to keep them informed of onsite activities on a timely basis and provide support for any offsite protective actions required during the recovery phase.
- Maintain security for the plant and associated facilities.
- Coordinate with NRC activities at the site in an effort to avoid duplication and minimize impact on the plant staff.
- Control personnel exposure during re-entry and recovery.

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The EOF Director will take the following steps to inform members of the EOF, site organization, and off-site agencies that recovery operations are being initiated and that activities associated with bringing the plant to a safe shutdown condition are completed:

1. Develop a brief message as to the time and date of recovery operations initiation as well as any necessary organizational realignments.
2. Distribute the message to EOF managers, JIC Manager, Company Spokesperson, Emergency Coordinator, state and county officials, NRC and other representatives. Ask that each person inform those under his/her direction.

M.4	The process for initiating recovery actions is described and includes provisions to ensure continuity during transfer of responsibility between phases. The chain of command is established.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

M.5	The framework for relaxing protective actions and allowing for return are described. Prioritization is given to restoring access to vital services and facilities.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

M.6	The organization(s) responsible for developing and implementing cleanup operations offsite is identified.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

M.7	Provisions for developing and modifying sampling plans are established. Provisions for laboratory analysis of samples are included in the plan.
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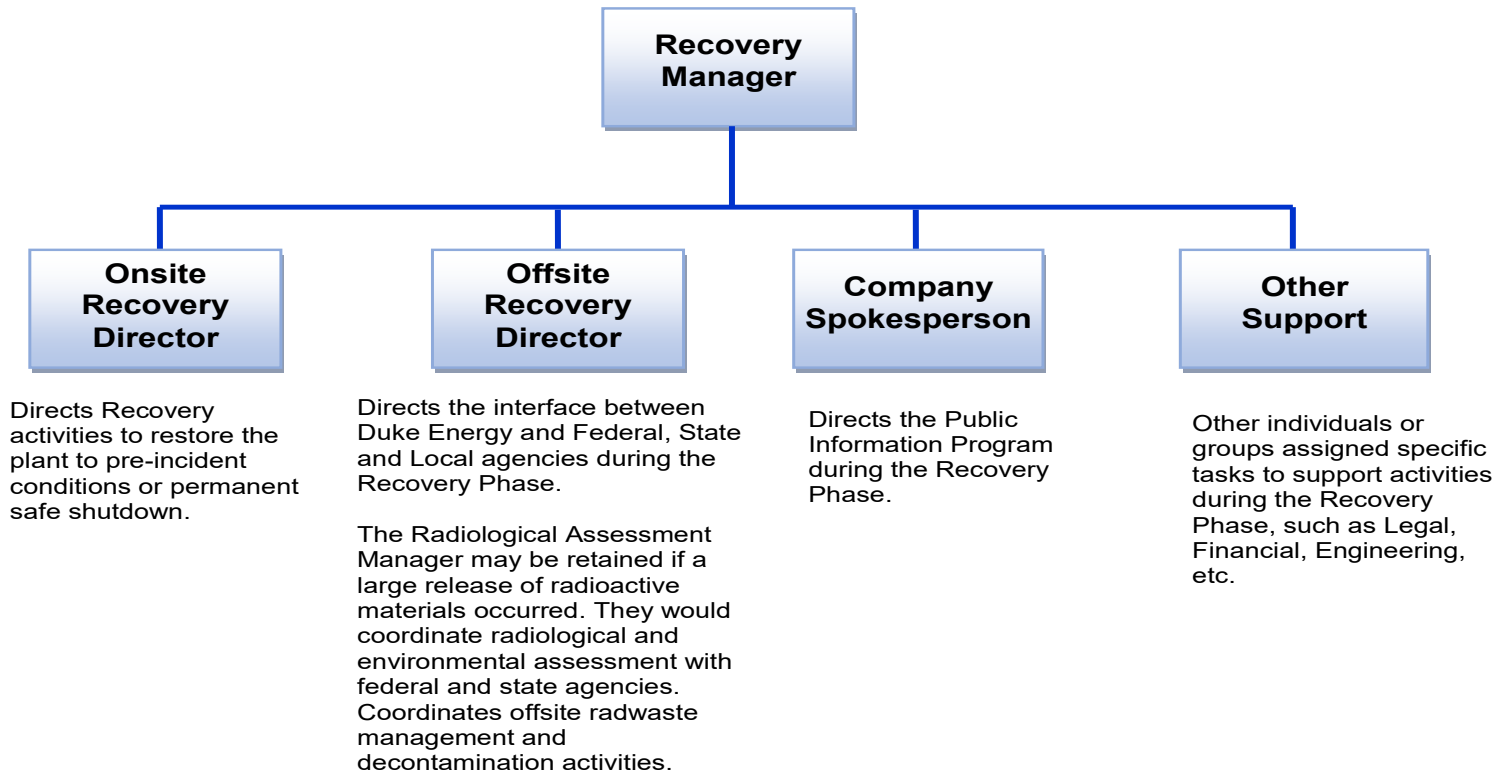
The recovery organization will coordinate Duke Energy environmental sampling activities with the state agencies. Refer to elements C.4 and H.8 for a description of laboratory capabilities.

M.8	A method for periodically conducting radiological assessments of public exposure is established.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

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Figure M-1: Recovery Organization



Duke Energy Common Emergency Plan

N: Exercises and Drills

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

Regulatory References: 10 CFR 50.47(b)(14); 44 CFR 350.5(a)(14);

N.1	Exercises and drills are conducted, observed, and critiqued/evaluated as set forth in NRC and FEMA regulations and guidance.
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An exercise is an event that tests the integrated capability and a major portion of the elements of the emergency plans and organizations. Over the period of the exercise cycle, exercises will test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public alert and notification system, and ensure that emergency organization personnel are familiar with their duties.

Exercises must provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas (see N.4) of emergency response.

A drill is aimed at testing, developing and maintaining skills in a particular operation, and is often a component of an exercise.

N.1.a	The process to critique/evaluate exercises and drills is described.
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Following the observation of exercises and drills, a critique is conducted by qualified Duke Energy individuals to evaluate areas (such as personnel performance, response procedure processes, and facility and equipment adequacy) and identify issues. Specifically, the critique is performed as soon as possible following the conclusion of a drill or exercise using preselected drill and exercise performance objectives that are evaluated against measurable demonstration criteria. Provisions are made for federal, state, and county representatives to observe and participate in drill and exercise critiques when present.

Biennially, representatives from the NRC observe and evaluate the licensee's ability to conduct an adequate self-critical critique. For partial and full offsite participation exercises, the NRC and FEMA, will observe and evaluate both the exercise and the critique process.

A written critique report is prepared by the EP group following a drill or exercise to document whether the objectives were successfully demonstrated. Failed or degraded performance objectives are entered into the corrective action program (CAP). Failed or degraded demonstration criteria, improvement items and recommendations are dispositioned within the report and may be entered into the CAP. Critique reports are approved by the manager of EP or designee.

If the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency or (2) determine that the ERO has maintained key skills specific to emergency response. Remedial exercises and drills are not required when performance issues are identified in non-biennial exercises, although identified issues will be documented for appropriate action within the CAP.

Critique reports are maintained by the EP group as documentation for the completion of performance objectives throughout an eight-year exercise cycle.

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N.1.b	The process used to track findings and associated corrective actions identified by drill and exercise critiques/evaluations, including their assignment and completion, is described.
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Objectives and demonstration criteria that are not adequately accomplished are described in the critique report and entered into the CAP for trend tracking and/or corrective action. The significance of any identified issue, the action(s) taken to resolve it, and the schedule for its closure are determined by the manager of EP through the CAP process.

For issues affecting departments other than EP, the manager of EP or designee will coordinate with the respective department heads for assignment of corrective actions and due dates, as appropriate.

N.1.c	A drill or exercise starts between 6:00 p.m. and 4:00 a.m. at least once every eight-year exercise cycle.
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Each Duke Energy nuclear site will conduct at least one off-hours drill or exercise within an eight-year exercise cycle.

An off-hours drill or exercise is established as any time of day on a weekday holiday, as any time of day on a weekend day, or between the hours of 6:00 p.m. and 4:00 a.m. on a normal Duke Energy workday.

The off-hours drill or exercise requirement may be satisfied by an actual event provided it meets the above off-hours criteria and the objectives are evaluated and documented in a critique report for the augmentation of the ERO, and the transfer of responsibilities with ERF activation occurs.

N.1.d	A drill or exercise is unannounced at least once every eight-year exercise cycle.
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Each Duke Energy nuclear site will conduct at least one unannounced drill or exercise within an eight-year cycle.

The unannounced drill or exercise requirement may be satisfied by an actual event provided objectives are evaluated and documented in a critique report for the augmentation of the ERO, and the transfer of responsibilities with ERF activation occurs.

N.2	Exercises are designed to enable the response organizations' demonstration of the key skills and capabilities necessary to implement the emergency plan. The following two types of exercises are conducted at the frequency noted:
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Each Duke Energy nuclear site will conduct a biennial exercise. Exercises may also be conducted in the off year from the NRC evaluated biennial exercise. Exercises may include the participation of state and/or county personnel and resources, and when they do are intended to verify ORO capability to respond to an accident and test the public alert and notification system. Full and partial participation exercises are conducted in accordance with NRC/FEMA regulations and guidance.

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N.2.a	Plume Exposure Pathway Exercises. Plume exposure pathway exercises are conducted biennially. These exercises include mobilization of licensee and state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities within the plume exposure pathway EPZ.
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Each Duke Energy nuclear site will conduct a biennial exercise. Specifically, the biennial exercise is developed to provide the ERO with the opportunity to demonstrate proficiency in key skills necessary to implement the principal functional areas of emergency response (those which test the adequacy of timing and content of implementing procedures, test equipment and communications networks, and ensure that the ERO are familiar with their duties).

Each biennial exercise is developed to provide the opportunity for the ERO to demonstrate key skills specific to emergency response duties in the MCR, TSC, OSC, EOF, and JIS. As a minimum, each biennial exercise contains objectives to demonstrate the following:

- Shift staff response to accident transients or other events that meet EAL criteria while implementing the emergency plan
- Timely classification of events
- Timely notification of offsite authorities
- ERO response and ERF activation following declared emergencies
- Management and coordination of emergency response
- PAR development (development of PARs involving public evacuation or sheltering is required only in exercises that include a GE)
- Assessment of radiological releases onsite and offsite (Note exception for element N.3.c commitment.)
- Integration of licensee response with OROs to include briefings, coordination of worker protection, and, as appropriate to the scenario, coordination of public protective actions, radiological release monitoring, and offsite response to the site
- Communications that support response between onsite and offsite ERFs
- Dissemination of information to the public via media channels and press briefings
- Development and implementation of radiological or physical protection (i.e. in response to hostile action) protective actions for onsite workers as appropriate to the scenario
- Operational and engineering assessment of accident sequences
- Accident mitigation planning and execution through the attempted simulated repair of equipment (this includes mechanical, electrical, and/or instrumentation and control activities). The exercise scenario may allow some repairs to be successful if the activity does not adversely impact the ability to demonstrate all required objectives and radiological control activities may support some repair teams.

State and county authorities will be invited to participate in biennial exercises. If a state or county organization chooses not to participate, their participation is not required and it should be documented that they were given the opportunity to participate.

Biennial exercise scenarios are submitted to the NRC under §50.4 at least 60 days before they are held.

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N.2.b	<u>Ingestion Exposure Pathway Exercises.</u> Ingestion exposure pathway exercises are conducted at least once every eight years. These exercises include mobilization of state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities to a release of radioactive materials requiring post-plume phase protective actions within the ingestion exposure pathway EPZ.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element. However, Duke Energy nuclear sites will assist in development and participate as requested in beyond the plume exposure pathway (ingestion pathway) exercises to support FEMA evaluation of state and county emergency plan response activities in this area.

N.3	<u>Exercise Scenario Elements.</u> During each eight-year exercise cycle, biennial, evaluated exercise scenario content is varied to provide the opportunity to demonstrate the key skills and capabilities necessary to respond to the following scenario elements:
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The Duke Energy EP group is responsible for the coordination of the development of drill and exercise scenarios and the assignment of qualified controllers and evaluators to the Duke Energy Emergency Response Facilities (ERFs). Scenarios, prepared in advance, govern the conduct of exercises and drills and will include the following as applicable:

- General Information – A section containing the scope of the scenario.
- Timeline – A section containing the time schedule of real and simulated initiating events.
- Messages – A section for plant data, injects, messages, and symptomology cards.
- Onsite Radiological Data – A section for area radiation maps and display system snapshots, if warranted by the scenario events.
- Offsite Radiological and Meteorological Data – A section for onsite and offsite maps and data tables, if warranted by the scenario events.
- Public Information – A section containing messages and injects to support the completion of public information and rumor control objectives, if applicable to the drill or exercise.
- Objectives – A section containing a table of performance objectives expected to be demonstrated during the scenario.
- Participant/Controller/Evaluator/Observer Instructions – as applicable to the drill or exercise.

In each eight calendar year exercise cycle, the contents of scenarios are varied to provide the opportunity for the ERO to demonstrate proficiency in the key skills.

The EP group will also coordinate scope, objectives and schedule with appropriate federal, state and county emergency organizations and agencies for exercises in which they participate.

Drill and exercise scenario event type, sequencing and timing are varied to the extent that anticipatory responses will not result from preconditioning of participants.

Failure mechanisms used for reaching initiating conditions and the failed equipment itself are varied to the extent practical, with circumstances and timing used to affect the required variation (e.g., a fire or explosion causes the failure rather than a random mechanical fault).

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Drill scenarios are not reused for a biennial exercise within 2 years of their conduct. For a biennial exercise, no more than one EAL threshold should be common with the previous biennial exercise or any practice drills/exercises conducted in preparation for the upcoming biennial exercise. If more than one EAL threshold is common between those scenarios, then a description of the classification difficulties encountered during scenario development, identification of when the EAL thresholds were last used and how scenario developers minimized other similarities will be included when the scenario is submitted for NRC review and verification.

Scenario details are kept confidential from participants whenever performance objectives are selected for evaluation.

A record of performance objective demonstration is maintained for the full eight-year exercise cycle to document successful completion of all required scenario elements.

N.3.a	<u>Hostile Action-Based (HAB).</u> Hostile action directed at the NPP site. This scenario element may be combined with either a radiological release scenario or a no/minimal radiological release scenario, but a no/minimal radiological release scenario should not be included in consecutive HAB exercises at an NPP site.
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Each Duke Energy nuclear site will conduct at least one HAB scenario in an exercise within an eight-year cycle.

The HAB scenario will include either a radiological release scenario or no/minimal radiological release scenario, but HAB scenarios combined with a no/minimal radiological release scenario will not be used in consecutively in exercises.

N.3.b	<u>Rapid Escalation.</u> An initial classification of, or rapid escalation to, an SAE or GE.
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Each Duke Energy nuclear site will conduct at least one rapid escalation scenario in an exercise within an eight-year cycle.

The rapid escalation scenario will begin with an initial classification of or rapidly escalate to the Site Area Emergency level while event response is performed from the MCR.

N.3.c	<u>No/Minimal Release of Radioactive Materials.</u> No release or an unplanned minimal release of radioactive material which does not require public protective actions. This scenario element is used only once during each eight-year exercise cycle.
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Each Duke Energy nuclear site will conduct at least one no or minimal radiological release scenario that does not escalate to the General Emergency classification level with PARs in an exercise within an eight-year cycle.

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N.3.c.1	The licensee is required to demonstrate the ability to respond to a no/minimal radiological release scenario. State, local, and tribal government response organizations have the option, and are encouraged, to participate jointly in this demonstration. If the offsite organizations elect not to participate in the licensee's required minimal or no release exercise, the OROs will still be obligated to meet the exercise requirements as specified in 44 CFR 350.9.
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State and county agencies located within the plume exposure pathway EPZ are invited to participate in no or minimal radiological release scenarios included in exercises. Duke Energy will support offsite agencies in meeting FEMA demonstration requirements when they elect to not participate in a required minimal or no release scenario that is included in an exercise.

N.3.c.2	When planning for a joint no/minimal radiological release exercise, affected state, local, and tribal government jurisdictions, the licensee, and FEMA will identify offsite capabilities that may still need to be evaluated and agree upon appropriate alternative evaluation methods to satisfy FEMA's biennial criteria requirements. Alternative evaluation methods that could be considered during the extent of play negotiations include expansion of the exercise scenario, out of sequence activities, plan reviews, staff assistance visits, or other means as described in FEMA guidance.
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FEMA will determine whether a no or minimal radiological release scenario is acceptable for use in a full or partial participation biennial exercise.

N.3.d	<u>Resource Integration.</u> Integration of offsite resources with onsite response.
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Each Duke Energy nuclear site will conduct at least one scenario that integrates offsite resources (such as fire, medical, and law enforcement) with onsite response in an exercise within an eight-year cycle.

Demonstration of resource integration includes briefings, offsite response to the site and coordination of worker protection, as appropriate to the scenario.

N.3.e	<u>10 CFR 50.54(hh)(2) Strategies.</u> Demonstration of the use of equipment, procedures, and strategies developed in compliance with 10 CFR 50.54(hh)(2).
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Each Duke Energy nuclear site will conduct at least one loss of large plant area scenario in a drill or exercise within an eight-year cycle.

Loss of large plant area scenarios demonstrate capabilities to maintain or restore core cooling, containment, or spent fuel pool cooling capabilities under the circumstances associated with the loss of area due to explosions or fire. Strategies to be demonstrated may include one or more of the following:

- Fire fighting
- Operations to mitigate fuel damage
- Actions to minimize radiological release.

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N.3.f	Dual Site Event. In accordance with the NRC approval for common EOF, an exercise requiring multi-site events and response is conducted once each cycle.
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The corporate EOF will participate in a multi-site event scenario conducted as an exercise within each eight-year exercise cycle.

The participating sites will be varied.

N.3.g	Minimum Staffing. In accordance with the NRC approval for common emergency plan, an exercise with only minimum augmenting ERO response (no participation of non-minimum augmenting ERO personnel) is conducted once each cycle.
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A minimum staffing response exercise that requires facility activation, full transfer of responsibilities from the Main Control Room and demonstration of event assessment and response activities will be performed within each eight-year exercise cycle.

The participating site will be varied.

N.4	Drills are designed to enable an organization's demonstration and maintenance of key skills and capabilities necessary to fulfill functional roles. Drills include, but are not limited to, the following at their noted frequencies:
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Drills are conducted during the interval between biennial exercises to ensure that adequate emergency response capabilities are maintained, including at least one drill involving a combination of some of the principal functional areas of the onsite emergency response capabilities. The principal functional areas of emergency response include activities such as:

- command and control of emergency response
- accident assessment
- event classification
- notification of offsite authorities
- assessment of the onsite and offsite impact of radiological releases
- protective action recommendation development
- protective action decision making
- plant system repair and mitigative action implementation

Over the course of an eight-year exercise cycle;

- all initiating conditions in the EAL scheme (with the exception of judgment ICs) will be used for the demonstration of event classification
- a multi-site drill will be performed with any two sites that the Duke Energy Charlotte EOF supports

During drills; activation of all of the ERFs is not required, supervised instruction is permitted, participants may be given the opportunity to resolve problems (success paths), and focus may be primarily on onsite training objectives. Drills may include evaluation of specific performance objectives or be conducted for non-evaluated training only.

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State and county agencies located within the plume exposure pathway EPZ are provided the opportunity to participate in drills when requested by such state or county agencies.

N.4.a	<u>Emergency Medical Drills.</u> Emergency medical drills are conducted annually. These drills involve a simulated, contaminated individual and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).
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Each Duke Energy nuclear site will conduct an emergency medical drill once per calendar year.

The scope of the emergency medical drill will include a simulated contaminated individual and participation by support services agencies (i.e., ambulance and offsite medical treatment facility).

N.4.b	<u>Medical Services Drills.</u> Medical services drills are conducted annually at each medical facility designated in the emergency plan. These drills involve a simulated, contaminated emergency worker and/or member of the general public and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

N.4.c	<u>Laboratory Drills.</u> Laboratory drills are conducted biennially at each laboratory designated in the emergency plan. These drills involve demonstration of handling, documenting, provisions for record keeping, and analyzing air, soil, and food samples, as well as quality control and quality assurance processes. These drills also involve an assessment of the laboratory's capacity to handle daily and weekly samples and the volume of samples that can be processed daily or weekly.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

N.4.d	<u>Environmental Monitoring Drills.</u> Environmental monitoring drills are conducted annually. These drills include direct radiation measurements in the environment, collection and analysis of all sample media (e.g., water, vegetation, soil, and air), and provisions for record keeping.
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Each Duke Energy nuclear site will conduct an environmental monitoring drill once per calendar year.

The scope of the environmental monitoring drill will include performance objectives for direct radiation measurements in the environment, collection and analysis of sample media (e.g., water, vegetation, soil, and air), provisions for communications and record keeping.

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N.4.e	<u>Ingestion Pathway and Post-Plume Phase Drills.</u> Ingestion pathway and post-plume phase drills are conducted biennially. These drills involve sample plan development, analysis of lab results from samples, assessment of the impact on food and agricultural products, protective decisions for relocation, and food/crop embargos.
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This element is not applicable to the licensee. See state and county radiological emergency plans for specific information related to this element.

N.4.f	<u>Communication Drills.</u> Communications amongst and between emergency response organizations, including those at the state, local, and Federal level, the FMTs, and nuclear facility within both the plume and ingestion exposure pathway EPZs, are tested at the frequencies determined in evaluation criterion F.3. Communications drills include the aspect of understanding the content of messages and can be done in conjunction with the testing described in evaluation criterion F.3.
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Communications Drills are accomplished during testing described in element F.3.

N.4.g	<u>Post-Accident Sampling Drills.</u> Post-accident sampling drills are conducted annually. These drills address capabilities including analysis of liquid and containment atmosphere samples with simulated elevated radiation levels. This criterion is not applicable if the NPP unit(s) does (do) not have licensing basis requirements for post-accident sampling.
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Each Duke Energy nuclear site has received NRC approval for the elimination of post-accident sample system (PASS) requirements from technical specifications. In accordance with their site specific NRC safety evaluation, contingency plans have been developed for obtaining and analyzing highly radioactive samples; however, these contingency plans do not have to be carried out in emergency plan drills or exercises.

Refer to site specific annex to the Duke Energy Common Emergency Plan, element I.4.a, for reference to the PASS elimination safety evaluation.

N.4.h	<u>Off-Hours Report-In Drills.</u> Off-hours report-in drills are conducted biennially and are unannounced.
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Each Duke Energy nuclear site will conduct an off-hours unannounced ERO report-in (augmentation) drill biennially. The EOF will conduct an off-hours unannounced ERO report-in (augmentation) drill biennially concurrent with any one of the Duke Energy site's report-in drill. The site chosen shall be rotated such that the EOF does not participate with the same site for two consecutive report-in drills.

The scope of the off-hours unannounced ERO augmentation drill will require actual response to the assigned facility.

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N.4.i	<u>Off-Hours Call-In Drills.</u> Off-hours call-in drills are conducted quarterly, such that each ERO member's normally expected response time is assessed at least biennially based on call-in drill responses or an alternate means for determining response time. Some drills are unannounced.
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Each Duke Energy nuclear site and the EOF will conduct an off-hours call-in drill quarterly. Some call-in drills will be unannounced.

The scope of the off-hours call-in drill will require ERO member's response regarding ability to respond to their applicable facility within the required augmentation time in Table B-1. Each Table B-1 ERO member's ability to respond within the required augmentation time will be assessed at least biennially.

N.4.j	<u>Onsite Personnel Protective Action Drills.</u> Onsite personnel protective action drills are conducted during every eight-year exercise cycle. These drills demonstrate the NPP site's ability to implement and coordinate protective actions for onsite personnel during hostile action.
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Each Duke Energy nuclear site will conduct a protective action drill within an eight-year cycle.

The scope of the protective actions drill will demonstrate the ability to implement and coordinate protective actions for onsite personnel during a hostile action using one or more of the following:

- Warning personnel in the OCA outside the protected area
- Evacuation of personnel from target buildings, including security personnel
- Site evacuation by opening (while continuing to defend) security gates (demonstrated through discussion/table top)
- Dispersal of licensed operators
- Sheltering of personnel in structures away from potential site targets
- Arrangements for accounting for personnel after the attack

N.4.k	<u>Aircraft Threat/Attack Response Drills.</u> Aircraft threat/attack response drills are conducted during every eight-year exercise cycle. These drills demonstrate the use of procedures and protective measures developed for responding to hostile action involving an aircraft threat or attack.
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Each Duke Energy nuclear site will conduct an aircraft threat/attack response drill within an eight-year cycle.

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O: Radiological Emergency Response Training

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

Regulatory References: 10 CFR 50.47(b)(15); 44 CFR 350.5(a)(15)

O.1	Each organization ensures the training of emergency responders and other appropriate individuals with an operational role described in the emergency plan. Initial training and at least annual retraining are provided.
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Initial training and annual retraining will be conducted for members of the ERO and those offsite organizations that may be called upon to provide assistance to the site in the event of an emergency.

Responsibilities for implementing the training program reside with site or corporate training departments, depending on the position or type of training needed. Training is conducted by qualified training personnel or Subject Matter Experts (SMEs).

Administration of the training program includes student registration, or attendance records, to track training participation for both initial and requalification for each member of the ERO. Member's training participation is tracked utilizing a database to ensure responding members are properly trained and qualified to respond in the event of an emergency. The training database notifies individuals of training coming due and expired training.

ERO personnel who are responsible for responding to an emergency receive the appropriate level of plant access training, training on basic emergency response procedures, communication, evacuation, as well as specialized training specific to their role in the organization. Individuals assigned to the ERO acquire and maintain qualification by receiving initial and requalification training. The training program for emergency response personnel is developed based on the position-specific responsibilities.

1. Shift Managers, TSC Emergency Coordinators and EOF Directors – These positions receive training to maintain proficiency on the topics listed below:
 - Event Classification
 - Protective Action Recommendations
 - Offsite Notification
2. Accident Assessment Personnel – Accident assessment personnel receive training to maintain proficiency in the areas below as applicable to their specific ERO position:
 - Core damage Assessment
 - Dose Assessment
 - Event Classification
 - Protective Action Recommendations
3. Radiological Field Monitoring Teams – Radiological Field Monitoring Team personnel will receive classroom and hands-on training for the actions they will be expected to perform during an emergency as part of their initial training. The following general topics will be included in the training:
 - Equipment and Equipment Checks

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- Communications
 - Plume Tracking Techniques
 - Personnel Monitoring
 - Emergency Exposure Criteria
 - Locations and use of Radiological Emergency Equipment
4. Fire Brigade Training – Individuals assigned to fire brigade maintain fire brigade qualifications by receiving initial and requalification training periodically as defined by the site fire protection program.
 5. Repair and Damage Control Teams – Operations, maintenance, chemistry and radiation protection personnel who would be assigned to repair and damage control teams are trained as part of their normal job-specific duties to respond to both normal and abnormal plant operations and work under direction of an ERO supervisor in the OSC.
 6. Medical, First Aid and Rescue Personnel – Individuals assigned as first aid responders will maintain qualifications for rescue first aid and Cardio-Pulmonary Resuscitation (CPR) training. On-site medical personnel receive specialized training in the handling of contaminated victims and hospital interface. Offsite ambulance and hospital personnel are offered periodic training as outlined in element O.1.a.
 7. Duke Energy Corporate Personnel – Personnel who work at the corporate offices who are part of the ERO receive training as described in items 1 and 2 above as appropriate to their ERO duties.
 8. Security Training – Individuals assigned to site security receive required emergency plan training as part of their normal job specific training required to qualify or maintain qualification. Security management personnel assigned to the ERO in the facilities receive additional training.

O.1.a	Site-specific emergency response training is developed and conducted for those offsite organizations that may be called upon to provide onsite assistance in the event of an emergency.
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Duke Energy offers emergency response training annually (once per calendar year) for those offsite organizations that may be called upon to provide onsite assistance (such as fire and ambulance) in the event of an emergency. They are invited to attend training applicable to the Duke Energy site or sites where they could provide assistance.

Offsite organizations and agencies that may provide onsite emergency assistance are encouraged to become familiar with the general layout of Duke Energy sites and are instructed as to the identity of those persons in the onsite response organization who will control their support activities. The training will also include an overview of EP, the notification process for their organization, basic radiation protection, and their organizations' expected role.

Training of state and county offsite response organizations is described in their respective radiological emergency plans, with support provided by Duke Energy, if requested.

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O.2	The ERO training program consists of learning objectives that are used to develop and maintain key skills. This includes a systematic analysis of jobs and tasks to be performed from which learning objectives are derived.
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The ERO Training Program ensures a consistent program is in place to support the training, qualification, continuing training, and requalification of individuals who may be called on for assistance during an emergency. Specific emergency response task training, prepared for response positions, is described in lesson plans and position specific guides. Job task analyses are used to develop learning objectives, create lesson plans and position specific guides. The lesson plans, position specific guides, and written tests are contained in the ERO Training Program.

Requalification training for onsite ERO members consists of an annual ERO update/refresh training and periodic participation in drills. In addition to Duke Energy annual ERO update/refresh training, personnel assigned to selected onsite emergency response positions will receive training specific to their position, if a decline in performance is noted in drills or to maintain proficiency. Focus Area Drills (FADs) will be developed to improve or maintain performance as training needs are identified. FADs will be developed using the principles of the Systematic Approach to Training process.

Members of the Duke Energy ERO receive periodic performance-based emergency response training. Performance-based training is generally provided by participation in a performance drill. Drills allow individuals to demonstrate the ability to perform their assigned emergency functions. During drills, on-the-spot correction of erroneous performance may be made and a demonstration of the proper performance offered by the Controller.

Training will be evaluated in accordance with the principles of the Systematic Approach to Training practices when applicable to ensure effectiveness and in order to identify areas that need improvement or correction.

O.2.a	The ERO training program is reviewed at least annually and revised as necessary.
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Revisions to the training program are identified with feedback from trainees in training and critique items during drills. EP training is also reviewed during EP assessments at the Duke Energy sites. During assessments, ERO and EP staff performance is reviewed and appropriate revisions to the training program are made using the principles of the SAT process.

O.2.b	Training sessions that provide performance opportunities to develop, maintain, or demonstrate key skills are critiqued in order to identify weak or deficient areas that need correction.
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Training sessions (e.g. drills) providing performance enhancing opportunities for key positions must be critiqued in order to identify weak or deficient areas that need correction for the key skills demonstrated. Critiques are documented such that the adequacy and evaluation of key skills demonstrated is sufficiently justified.

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P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.1	The training program, including initial training and periodic retraining, of individuals responsible for the planning effort is described.
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Initial training of the EP staff consists of classroom training, reading for awareness, and reading with discussion and is documented in the Nuclear Generation Department EP Staff Training Plan Position Specific Guide.

Periodic retraining of EP personnel is accomplished at least biennially through related training, workshops, information exchange meetings with other licensees, and conferences held by industry and government agencies, as available, to maintain current knowledge of the overall planning effort. Other continuing training opportunities include observing exercises at other sites or attending courses, such as Duke Energy technical training, that will enhance plant operational working knowledge. This training will be documented in training files.

In addition to the above training, EP staff should complete training on the Applicability Determination process and 10 CFR 50.54(q) process per fleet procedures, as directed by supervision.

P.2	The individual with the overall authority and responsibility for radiological emergency planning is identified by title/position.
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The Senior Vice President and Chief Nuclear Officer has the overall authority and responsibility for the Duke Energy Emergency Plan.

P.3	The individual(s) with the responsibility for the development, maintenance, review, updating, and distribution of emergency plans, as well as the coordination of these plans with other response organizations, is identified by title/position.
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The Fleet EP organization and management is responsible for the development, maintenance, review, and updating of the emergency plan, as well as the coordination of the plan with other response organizations.

Site EP personnel and management are responsible for the development, maintenance, review, and updating of their site specific annexes and coordination with other organizations at or near the site.

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P.4	The process for reviewing annually, and updating as necessary, the emergency plan, implementing procedures, maps, charts, and agreements is described. The process includes a method for recording changes made to the documents and, when appropriate, how those changes are retained.
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The Emergency Plan (common plan, site annexes, site extension documents) will be reviewed and certified to be current on an annual basis, and updated if necessary. Any changes due to regulatory revisions, issues identified by drills and exercises, or other updates will be incorporated into the Emergency Plan.

Agreements with supporting organizations (MOUs, LOAs) will be reviewed and certified to be current on an annual basis and updated, if necessary. Changes to agreements may be coordinated with the annual review of the Emergency Plan.

Changes will be processed in accordance with 10 CFR 50.54(q) requirements and fleet document control/records management procedures.

P.5	Provisions for distributing the emergency plan and implementing procedures to all organizations and appropriate individuals with responsibility for implementation of the plan/procedures are described.
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Approved changes to the Emergency Plan and emergency procedures will be transmitted in accordance with the distribution list maintained in the Electronic Document Management System (EDMS). Changes to the Emergency Plan and emergency procedures are submitted to the NRC in accordance with 10 CFR 50.4.

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
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Table P.6-1 provides a listing of annexes and emergency plan extension documents (documents that are considered part of the emergency plan but are maintained separately).

External emergency plans specific that support the Duke Energy Common Emergency Plan include the following:

- Department of Homeland Security National Response Framework
- U.S. Nuclear Regulatory Commission Incident Response Plan
- Interagency Radiological Assistance Plan - Region 3 - U.S. Department of Energy
- North Carolina Emergency Response Plan
- South Carolina Operational Radiological Emergency Response Plan in support of Fixed Nuclear Facilities
- South Carolina Department of Health and Environmental Control Standard Technical Operating Procedure and Technical Radiological Emergency Response Plan
- INPO Emergency Response Plan

Supporting plans for organizations that support individual sites are listed in the appropriate site specific annex to the Duke Energy Common Emergency Plan.

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P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing by title of the fleet procedures required to maintain and implement the emergency plan and the section(s) of the emergency plan to be implemented by each procedure. Site specific procedures are listed in the appropriate site specific annex to the Duke Energy Common Emergency Plan.

P.8	A table of contents and a cross-reference index to each of the NUREG-0654/FEMA-REP-1, Rev. 2 evaluation criteria are included. The evaluation criteria that do not apply are identified.
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The Duke Energy Emergency Plan contains a specific table of contents. The Emergency Plan paragraphs are numbered corresponding to the NUREG-0654/FEMA-REP-1, Rev.2 evaluation criteria. Evaluation criteria which do not apply to utilities are list and identified.

P.9	Provisions for addressing the requirements of 10 CFR 50.54(t) are described.
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An independent review of the EP Program for each site and the corporate office is performed as required.

All elements of the EP Program will be reviewed once every 24 months. Additionally, a review will be conducted as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect EP, but no longer than 12 months after the change.

The independent review will include the following plans, procedures, training programs, drills/exercises, equipment, and state/ county government interfaces:

- The Fleet Emergency Plan
- The applicable site specific annex and extension documents
- Emergency Plan Implementing Procedures
- State/County Support Agency Training Program
- Emergency Response Training Program
- Public & Media Training/Awareness
- Equipment, Communications, Monitoring, Meteorological, Public Alerting
- State/County Plan Interface

The review findings will be submitted to the appropriate corporate and nuclear site management. The part of the review involving the evaluation of the adequacy of interface with state and county governments will be reported to the appropriate state and county governments. Corporate or nuclear site management, as appropriate, will evaluate the findings affecting their area of responsibility and ensure effective corrective actions are taken. The results of the review, along with recommendations for improvements, will be documented, and retained for a period of five (5) years.

Duke Energy Common Emergency Plan

P.10	The administrative process for the periodic review and updating of contact information identified in the emergency plan and implementing procedures is described.
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CSD-EP-ALL-0104-01, Emergency Telephone Directory, contains contact numbers for ORO, ERF, and support organizations identified in the emergency plan and implementing procedures.

CSD-EP-ALL-0104-01, Emergency Telephone Directory, is reviewed routinely as described in implementing procedures and updated as needed. Personnel use the document revision request process to identify changes needed to CSD-EP-ALL-0104-01.

ERO personnel are contacted quarterly and requested to validate and update as necessary their contact information in the Duke Energy human resources database. EP staff update call out information in the Emergency Response Organization Notification System (ERONS) at least quarterly using data from the Duke Energy human resources database.

P.11	The process for entering EP program-related issues that could reduce the effectiveness of the emergency plan into the site-wide corrective action program is described.
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The Duke Energy Corrective Action Program is used to capture all events that do not meet program regulations, requirements or expectations, or are otherwise conditions adverse to quality.

P.12	The process to evaluate changes in plant configuration for their impact on the effectiveness of the emergency plan is described.
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Changes in plant configuration are evaluated for their impact on the effectiveness of the emergency plan through the Applicability Determination process specified in Regulatory Affairs procedures and, if required, the 10 CFR 50.54(q) process specified in EP procedures.

Duke Energy Common Emergency Plan

Table P.6-1: Site Specific Emergency Plan Annexes and Extension Documents

Site Specific Emergency Plan Annexes:	
All	EP-BNP-EPLAN, Duke Energy Brunswick Emergency Plan Annex EP-CNS-EPLAN, Duke Energy Catawba Emergency Plan Annex EP-HNP-EPLAN, Duke Energy Harris Emergency Plan Annex EP-MNS-EPLAN, Duke Energy McGuire Emergency Plan Annex EP-ONS-EPLAN, Duke Energy Oconee Emergency Plan Annex EP-RNP-EPLAN, Duke Energy Robinson Emergency Plan Annex
Site Specific Emergency Plan Extension Documents:	
BNP	CSD-EP-BNP-0101-01, Brunswick Plant EAL Technical Basis Document CSD-EP-BNP-0603-01, Brunswick Plant Alert and Notification System Design Report CSD-EP-BNP-0603-02, Brunswick Plant On-Shift Staffing Analysis CSD-EP-BNP-0603-03, Brunswick Plant Evacuation Time Estimate Study
CNS	CSD-EP-CNS-0101-01, Catawba Plant EAL Technical Basis Document CSD-EP-CNS-0603-01, Catawba Plant Alert and Notification System Design Report CSD-EP-CNS-0603-02, Catawba Plant On-Shift Staffing Analysis CSD-EP-CNS-0603-03, Catawba Plant Evacuation Time Estimate Study
HNP	CSD-EP-HNP-0101-01, Harris Plant EAL Technical Basis Document CSD-EP-HNP-0603-01, Harris Plant Alert and Notification System Design Report CSD-EP-HNP-0603-02, Harris Plant On-Shift Staffing Analysis CSD-EP-HNP-0603-03, Harris Plant Evacuation Time Estimate Study
MNS	CSD-EP-MNS-0101-01, McGuire Plant EAL Technical Basis Document CSD-EP-MNS-0603-01, McGuire Plant Alert and Notification System Design Report CSD-EP-MNS-0603-02, McGuire Plant On-Shift Staffing Analysis CSD-EP-MNS-0603-03, McGuire Plant Evacuation Time Estimate Study
ONS	CSD-EP-ONS-0101-01, Oconee Plant EAL Technical Basis Document CSD-EP-ONS-0603-01, Oconee Plant Alert and Notification System Design Report CSD-EP-ONS-0603-02, Oconee Plant On-Shift Staffing Analysis CSD-EP-ONS-0603-03, Oconee Plant Evacuation Time Estimate Study
RNP	CSD-EP-RNP-0101-01, Robinson Plant EAL Technical Basis Document CSD-EP-RNP-0603-01, Robinson Plant Alert and Notification System Design Report CSD-EP-RNP-0603-02, Robinson Plant On-Shift Staffing Analysis CSD-EP-RNP-0603-03, Robinson Plant Evacuation Time Estimate Study

Duke Energy Common Emergency Plan

Table P.7-1: Procedures Required to Maintain the Emergency Plan

Document ID	Document title	Plan Sections Implemented
AD-EP-ALL-0002	NRC Regulatory Assessment Performance Indicator Guideline Emergency Preparedness Cornerstone	P
AD-EP-ALL-0100	Emergency Response Organization (ERO)	B, H
AD-EP-ALL-0101	Emergency Classification	D, H, I
AD-EP-ALL-0102	WebEOC	E, F
AD-EP-ALL-0103	Activation and Operation of the Emergency Operations Facility	A, B, C, E, F, H, I, J, M
AD-EP-ALL-0104	ERO Common Guidelines and Forms	B, C, H, I, M
AD-EP-ALL-0105	Activation and Operation of the Technical Support Center	A, B, C, E, F, H, I, M
AD-EP-ALL-0106	Activation and Operation of the Operations Support Center	A, B, F, H, M
AD-EP-ALL-0107	Emergency Operations Facility (EOF) Services	A, B, H
AD-EP-ALL-0109	Offsite Protective Action Recommendations	E, H, I, J, M
AD-EP-ALL-0110	Recovery	B, M
AD-EP-ALL-0111	Control Room Emergency Plan Response	A, B, F, H, M
AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment	H, I, J
AD-EP-ALL-0203	Field Monitoring During Declared Emergency	C, H, I
AD-EP-ALL-0204	Distribution of KI Tablets in the Event of a Radioiodine Release	J, K
AD-EP-ALL-0205	Emergency Exposure Controls	K
AD-EP-ALL-0301	Activation of The ERO Notification System (ERONS)	E, F
AD-EP-ALL-0304	State and County Notifications	E, F, I
AD-EP-ALL-0400	Emergency Communication Equipment	F
AD-EP-ALL-0404	Administration of the Emergency Response Data System (ERDS)	F
AD-EP-ALL-0406	Duke Emergency Management Network (DEMNET)	F
AD-EP-ALL-0500	Emergency Response Training	O
AD-EP-ALL-0501	Emergency Preparedness Staff Training and Qualifications	P
AD-EP-ALL-0502	10 CFR 50.54(q) Training Requirements	P
AD-EP-ALL-0602	Emergency Plan Change Screening and Effectiveness Evaluations 10 CFR 50.54(q)	P
AD-EP-ALL-0801	Design and Development of Drills and Exercises	N
AD-EP-ALL-0802	Conducting Drills and Exercises	N
AD-EP-ALL-0803	Evaluation and Critique of Drills and Exercises	N
AD-EP-ALL-0901	Determining the Status of Offsite Emergency Preparedness	P
AD-EP-ALL-1000	Conduct of Emergency Preparedness	N, P
AD-EP-NGO-0403	Common EOF Data Coordinator Equipment Startup and Troubleshooting	H
TE-EP-ALL-0407	Verification of Emergency Operations Facility Communication Equipment Operation and Equipment/Supply Inventory	F, H, N
TE-EP-ALL-0408	Periodic Test of the EOF DEMNET, ENS, AND ETS	F, H, N

SECTION III: APPENDICES

Appendix 1, Definitions

Access and functional needs: individual circumstances requiring assistance, accommodation, or modification for mobility, communication, transportation, safety, health maintenance, etc., due to any situation that limits an individual's ability to take action in an emergency.

Accident: Any unforeseen, or unintentional occurrence or mishap resulting in, or potentially resulting in, physical injury or injury due to radiation exposure or excessive exposure to radioactive materials.

Activated (ERO): the ERO has been notified of a declared event and instructed to respond to an emergency facility/location.

Activated (Facility): the facility has met minimum staffing requirements, key systems and equipment is verified operational, and the ERO personnel are performing their assigned functions.

Alert and Notification: the process of providing a warning signal to the public at risk indicating the need to seek additional information regarding an emergency event in progress (alert), followed by informing the public about the nature of the event and any protective actions (notification).

Alert and Notification System (ANS): the system used to alert and notify the public, including the physical means (equipment and methods) and administrative means (organizational responsibility and interaction of responsible organizations for alert and notification).

Alert: an ECL indicating that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be limited to small fractions of the EPA PAG exposure levels.

Alternate Emergency Facility (AEF): the AEF is a near site alternative to the onsite emergency response facilities if the onsite emergency response facilities are not available or if travel to the site is unsafe and may endanger personnel.

Annual: At least once per 366 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+91 days). NOTE: This does not apply to scheduling of offsite agency training, MOU/LOA review, Emergency Classification Level or Emergency Action Level schemes. This Offsite agency training, and reviews identified are conducted during the calendar year based on the availability of the offsite agencies.)

Augmented (ERO): the ERO is divided into two categories – on-shift and augmented. The augmented ERO relieves the shift personnel of the emergency response functions.

Backup Route Alerting: General population alerting accomplished using Mobile Route Alerting should the primary alert system (or a portion of the system) have known or indications of sirens being out of service.

Biennial or Biennially: At least once per 731 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+182).(NOTE: This does not apply to the scheduling of biennial exercises. An exercise can occur at any time during the second calendar year after the previous exercise.)

Calendar Year: Period of time beginning January 1 and ending December 31.

Command and Control: management of emergency response functions within a particular context (e.g., an ERF) through leadership and use of authority.

Commercial Nuclear Power Plant (NPP): a facility licensed by the NRC to use a nuclear reactor to produce electricity.

Concept of Operations: delineation of an organization's roles and responsibilities and how the organization will function to accomplish those responsibilities.

Containment: a physical structure surrounding a reactor that is designed to prevent or control the release of radioactive material.

Containment Closure: The procedurally defined actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

Contamination: undesirable radioactive material (with a potentially harmful effect) that is either airborne or deposited in (or on the surface of) structures, objects, soil, water, or living organisms (people, animals, or plants) in a concentration that may harm people, equipment, or the environment.

Continuous: action carried out without stopping or interruption.

Main Control Room: the area in an NPP from which most of the plant power production and emergency safety equipment can be operated remotely.

Corrective Action (Non-Emergency): a concrete, actionable step that is intended to resolve EP program gaps and shortcomings experienced in drills, exercises, or actual events.

Corrective Actions (Emergency): Emergency measures taken to ameliorate or terminate an emergency situation at or near the source of the problem to prevent an uncontrolled release of radioactive material or to reduce the magnitude of the release, e.g., shutting down equipment, firefighting, repair and damage control.

Curie (Ci): a unit used to measure the intensity of radioactivity in a sample of material, equal to 37 billion (3.7×10^{10}) disintegrations per second.

Decontamination: a process used to reduce, remove, or neutralize radiological, chemical, or biological contamination to reduce the risk of exposure.

Direct-Reading Dosimeter (DRD): a small ionization detection instrument that indicates radiation exposure directly and can be read in real time by the user. Also referred to as a "pocket dosimeter."

Dose Rate: the radiation dose delivered per unit of time, measured for example in rem per hour.

Dosimeter: a small portable instrument (such as a film badge, thermoluminescent dosimeter, or electronic dosimeter) used to measure and record the total accumulated personal dose of ionizing radiation.

Dosimetry: the theory and application of the principles and techniques involved in measuring and recording doses of ionizing radiation.

Drill: a coordinated, supervised activity usually employed to validate a specific operation or function in a single agency or organization. Drills are commonly used to provide training on new equipment, develop or validate new policies or procedures, or practice and maintain current skills.

Drywell: the containment structure enclosing the vessel and recirculation system of a boiling water reactor. The drywell provides both a pressure suppression system and a fission product barrier under accident conditions.

Eight Year Cycle: a period defined by an 8 year duration where certain drill and exercise objectives must fall. An exercise, drill or objective having a requirement to be performed once each cycle could have an interval of almost 16 years if performed on the ends of each cycle.

Emergency Action Level (EAL): a pre-determined, site-specific, observable threshold for an initiating condition that, when met or exceeded, places the plant in a given ECL.

Emergency Classification Level (ECL): one of a set of names or titles established by the NRC for grouping off-normal events or conditions according to potential or actual effects or consequences and resulting onsite and offsite response actions. The four ECLs used for commercial NPPs, in ascending order of severity, are: Notification of Unusual Event (NOUE), Alert, SAE, and GE.

Emergency Operations Center (EOC): a facility that is the primary base of emergency operations for an ORO in a radiological incident.

Emergency Operations Facility (EOF): a support facility for the management of overall licensee emergency response (including coordination with Federal, state, local, and tribal government officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions.

Emergency Planning Zone (EPZ): as defined in 10 CFR 50.47(c)(2) (45 FR 55409, August 19, 1980) and 44 CFR 350.7(b) (48 FR 44338, September 28, 1983).

Emergency Release: An unplanned, quantifiable airborne radiological release to the environment attributed to the emergency event.

Emergency Response Data System (ERDS): a direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected plant parameters.

Emergency response network: generic term used to refer to communications systems, including hardwired and wireless telephone networks, broadcast and cable television, radios, mobile radios, satellite systems, and increasingly the Internet.

Emergency Response Organization (ERO): the personnel assigned to perform tasks and activities associated with implementation of a licensee's emergency plan for coping with radiological incidents.

Emergency worker (offsite): individual who has an essential mission to protect the health and safety of the public who could be exposed to ionizing radiation from the plume or from its deposition. Emergency workers may or may not be individuals normally exposed to ionizing radiation as a part of their occupations. Ultimately, state and local authorities designate what categories of workers are classified as emergency workers. Emergency workers may include law enforcement personnel, radiation monitoring personnel, firefighters, health services personnel, emergency operations center personnel, and animal care specialists.

Environmental Protection Agency (EPA): the mission of the EPA is to protect human health and the environment. The EPA is responsible for coordinating Federal environmental response and cleanup for nuclear/radiological incidents.

Evacuation Time Estimate (ETE): a calculation of the time it would take to evacuate the public within the plume exposure pathway EPZ under emergency conditions.

Evaluation: the process of observing exercise performance to identify strengths and opportunities for improvement in an entity's emergency preparedness and response capabilities.

Every 5 Years: at least once per 1825 days. A maximum allowable extension which shall not exceed 25% of the specified interval.

Exclusion Area: the area surrounding the reactor where the licensee has the authority to determine all activities, including exclusion or removal of personnel and property.

Exercise: an instrument to train for, assess, practice, and improve performance in prevention, protection, mitigation, response, and recovery capabilities. Exercises can be used for testing and validating policies, plans, procedures, training, equipment, and interagency agreements; clarifying and training personnel in roles and responsibilities; improving interagency coordination and communications; improving individual performance; identifying gaps in resources; and identifying opportunities for improvement.

Exposure rate: the rate of charge production from ionizing radiation per unit mass of air (e.g., the amount of gamma radiation that an individual would be exposed to in one hour as measured in air), commonly expressed in roentgens per hour (R/h) or milliroentgens per hour (mR/h).

Federal Emergency Management Agency (FEMA): the agency responsible for establishing Federal policies for and coordinating emergency planning, management, mitigation, and assistance functions of executive agencies. FEMA assists state, local, and tribal government agencies in their emergency planning. Its primary role is one of coordinating Federal, state, local, and tribal governments and volunteer response actions. FEMA is part of DHS.

Federal organization: an agency or department of the U.S. Federal Government, or its component(s), having a role in emergency planning and preparedness.

Field Monitoring Team (FMT): a group used to detect and monitor radiation in the environment (e.g., measure radiation levels in the air, water, vegetation, soil, etc.).

General Emergency (GE): an ECL indicating that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.

Hostile Action: an act directed toward an NPP or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.

Implementing Procedure: instructions that provide a detailed description, often including checklists, of the operations that are to be conducted by either a specific group of individuals or a designated position.

Ingestion Exposure Pathway: the principal exposure from this pathway would be from ingestion of contaminated water or foods. The duration of potential exposure could range in length from hours to months to even years.

Ingestion Exposure Pathway Emergency Planning Zone: a geographic area, approximately 50 miles in radius, including and surrounding a commercial NPP, within which the health and safety of the general public could be adversely affected through the ingestion of water or food that has been contaminated through exposure to radiation, primarily from the deposition of radioisotopes after a radiological incident.

Initiating Condition: a plant state or situation that indicates a radiological emergency, or event(s) that could lead to a radiological emergency, has occurred.

Institutionalized individual: a person who resides in an institution, such as a nursing home or correctional facility, who may need to depend on others for assistance with taking protective actions. An institutionalized individual may or may not have access and functional needs.

Joint Information Center (JIC): a location that facilitates operation of the JIS, where personnel with public information responsibilities perform critical emergency information functions, crisis communications, and public affairs functions.

Joint Information System (JIS): a structured approach to organizing, integrating, and delivering information which ensures that timely, accurate, accessible, and consistent messages can be delivered across multiple jurisdictions and/or disciplines to the media, nongovernmental organizations, and the private sector. Critical supporting elements of the JIS include the plans, protocols, procedures, and structures used to provide public information.

KI (potassium iodide): see potassium iodide.

Key Skill: a capability necessary for implementing emergency response functions to protect public health and safety. A listing of ERO key skills is provided in NSIR-DPR-ISG-01.

Licensee: the utility or organization that has received from the NRC (1) a license to construct or operate a commercial NPP, (2) an ESP for a commercial NPP, (3) a combined license for a commercial NPP, or (4) any other NRC license that is now or may become subject to requirements for radiological emergency planning and preparedness activities.

Licensee ORO: an organization that develops plans for and would implement offsite emergency response activities and functions because state, local, and/or tribal government organizations have declined to participate in the REP Program. More information can be found in regulation under 10 CFR 50.47(c) and 44 CFR 352.

Local Organization: a municipal, county, or regional government agency or office having a role in radiological emergency planning and preparedness, as defined in radiological emergency response plans.

Memorandum of Understanding (MOU): a document that details the respective authorities and responsibilities of the signatory organizations for specified radiological emergency response planning, preparedness, or response.

Microcurie (μCi): one millionth part of a curie (see curie).

Mitigation: the capabilities necessary to reduce the loss of life and property by lessening the impact of a NPP incident or other disaster.

Monthly: At least once per 31 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+7 days).

National Incident Management System (NIMS): a systematic, proactive approach to guide all levels of government, nongovernmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the NPS. NIMS provides a consistent foundation for dealing with all incidents, ranging from daily occurrences to incidents requiring a coordinated Federal response.

National Preparedness Goal: doctrine describing what it means for the whole community to be prepared for the types of incidents that pose the greatest threat to the security of the Nation, including acts of terrorism and emergencies and disasters, regardless of cause. The goal itself is: “A secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”

National Preparedness System (NPS): an organized process to achieve the National Preparedness Goal of a secure and resilient Nation.

National Response Framework (NRF): the guiding principles, roles, and structures that enable all domestic incident response partners to prepare for and provide a unified national response to disasters and emergencies. It describes how the Federal government, states, tribal governments, communities, and private sector work together to coordinate a national response. The framework builds upon the scalable, flexible, and adaptable concepts identified in NIMS, which provides a template for managing incidents.

Non-participating organization: an ORO that is not involved in emergency planning and preparedness for incidents at a commercial NPP.

Notification of Unusual Event (NOUE): an ECL indicating that events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. This term is sometimes shortened to Unusual Event (UE) or other similar site-specific terminology. The terms Notification of Unusual Event, and Unusual Event, are used interchangeably.

NRC Site Team: NRC regional personnel who may be activated for onsite assessment and face-to-face coordination with licensee, state, local, and tribal governments, and Federal responders.

Nuclear Regulatory Commission (NRC): the federal agency that regulates commercial NPPs and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection, and enforcement of its requirements.

NUREG-series publication: nonsensitive information related to the NRC's mission that does not contain regulatory requirements and is published in a formal agency series to ensure the "dissemination to the public of scientific and technical information relating to atomic energy..." as mandated by the Atomic Energy Act of 1954, as amended. Each publication bears an agency designator (NUREG number and sometimes a revision number).

Offsite: outside the boundaries of the OCA.

Offsite Response Organization (ORO): any state, local, or tribal governmental organization; private or voluntary organization; or licensee ORO formed when state, local, and/or tribal governments choose not to participate in the REP Program; that is responsible for carrying out emergency response functions during a radiological emergency.

Onsite: the OCA of a commercial NPP.

Operations Support Center (OSC): a licensee onsite emergency response facility that provides for maintenance and other support personnel to gather as a ready resource to support emergency response actions.

Owner Controlled Area (OCA): all areas contiguous to the commercial NPP that are owned or leased by the licensee (or by any of its associated business units) over which the licensee exercises control. The OCA is usually larger than, and encompasses, the exclusion area.

Permanent record dosimeter (PRD): a device designed to be worn by a single individual for the assessment of radiation dose from external sources of radiation and evaluated by a processor accredited by the National Voluntary Laboratory Accreditation Program or other accreditation program in accordance with the American National Standards Institute, Standard N13.11-2009, "Personal Dosimetry Performance - Criteria for Testing". Film badges, thermoluminescent dosimeters (TLDs), and optically stimulated luminescence dosimeters (OSLDs) are examples of PRDs.

Pet: a domesticated animal, such as a dog, cat, bird, rabbit, rodent, or turtle that is traditionally kept in the home for pleasure rather than for commercial purposes, can travel in commercial carriers, and can be housed in temporary facilities. Household pets do not include reptiles (except turtles), amphibians, fish, insects/arachnids, farm animals (including horses), and animals kept for racing purposes.

Plan: as used within this document, may refer to REP plans, response plans, emergency plans, emergency response plans, emergency operations plans, and all-hazards plans as they relate to radiological emergency response and preparedness in support of NPPs.

Planning Standard: an emergency planning element or attribute that must be met in onsite and offsite emergency plans and preparedness programs. The planning standards are found in NRC regulations at 10 CFR 50.47 and FEMA regulations at 44 CFR 350.5.

Plant Operator (NRC Definition): Any member of the plant staff, who by virtue of training and experience, is qualified to assess the indications or reports for validity and to compare the same to the EALs in the licensee's emergency classification scheme. 'Plant operators' may be, but need not be, licensed operators or members of the ERO. 'Plant operators' may be located in the Main Control Room or in another emergency facility in which emergency declarations are performed. A 'plant operator' does not encompass plant personnel such as chemists, radiation protection technicians, craft personnel, security personnel, and others whose positions require they report, rather than assess, abnormal conditions to the Main Control Room.

Plume exposure pathway: a term describing the means by which whole body radiation exposure occurs as a result of immersion in a gaseous release of radioactive material. The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited materials, and (b) inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from 30 minutes to days.

Plume exposure pathway emergency planning zone: a geographic area, approximately 10 miles in radius, including and surrounding a commercial NPP within which the health and safety of the general public could be adversely affected by direct whole body external exposure to gamma radiation from the plume and from deposited materials, as well as inhalation exposure from the passing radioactive plume during a radiological incident.

Population at Risk: Those persons for whom protective actions are being or would be taken.

Post-Plume Phase: the period that includes response activities (such as limiting exposure from ingestion of contaminated food and water, relocation, reentry, and return) occurring after a radiological release has been terminated.

Potassium Iodide (KI): a prophylactic compound containing a stable (i.e., non-radioactive) form of iodine that can be used effectively to block the uptake of radioactive iodine by the thyroid gland in a human being.

Precautionary protective actions: any preventive or emergency protective actions implemented without the verification of radionuclide measurements by field monitoring or laboratory analysis.

Principal Organization: the nuclear utility (licensee) and any Federal, state, local, and tribal government agency, department, or executive office having a major or lead role in emergency planning and preparedness.

Private Sector Organization: an industry group or entity, volunteer group, quasi-governmental body, etc. having a role in emergency planning and preparedness.

Procedures: an organization's documented implementing instructions for managing its internal response to emergencies and coordinating its external response with other organizations. The term "procedures" as used in this document, includes implementing procedures, standard operating procedures, administrative procedures, maintenance procedures, and testing procedures.

Projected Dose: the prediction of the dose that a population or individual could receive.

Protected area: the NPP area under continuous access monitoring and control by the licensee, and armed protection as described in the site security plan.

Protective Action: an action taken to avoid or reduce projected dose. See also protective measure.

Protective Action Decision (PAD): measures taken in anticipation of, or in response to, a release of radioactive material to the environment. The purpose of PADs is to provide dose savings by avoiding or minimizing the radiation exposure received by individuals, thereby minimizing the health risks resulting from radiation exposure. Sheltering and evacuation are the two PADs most often relied upon for limiting the direct exposure of the general public within the plume exposure pathway EPZ. Preventive and emergency PADs are two categories of PADs relied upon for limiting exposure from contaminated food and water in the ingestion exposure pathway EPZ.

Protective Action Guide (PAG): a projected dose to an individual in the general population that warrants the implementation of protective action.

Protective Action Recommendation (PAR): an advisement from an NPP licensee to state, local, and/or tribal government officials, or from state officials to other offsite officials, concerning emergency response measures that should be taken to protect the public from exposure to radiation.

Protective Measure: an action taken in the event of a radiological emergency at, or related to, an NPP to protect the public from exposure to radiation.

Public Information: information provided to the general public on a periodic basis concerning what they should know about radiation and how to respond to a radiological emergency. This would include topics such as educational information about radiation, who to contact for additional information, and what their actions should be in an actual emergency.

Quarterly: At least once per 92 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+23 days). (NOTE: This does not apply to quarterly siren test that are conducted during the Biennial Exercise at the request of offsite agencies. In this situation the maximum interval may be exceeded; however, the siren test will be conducted during the applicable quarter.)

Rad: radiation absorbed dose, the basic unit of absorbed radiation dose. One rad is equal to an absorbed dose of 100 ergs per gram of the absorbing material or tissue.

Radiation protection: the protection of people from the effects of exposure to ionizing radiation, and the means for achieving this.

Radioisotope: an unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation. Approximately 5000 natural and artificial radioisotopes have been identified.

Radiological Emergency Preparedness (REP) Exercise: an event involving organizational responses to a simulated commercial NPP incident with radiological consequences. The purpose of an exercise is to test the integrated capabilities of onsite and OROs to implement emergency functions set forth in their radiological emergency response plans/procedures.

Radiological Emergency Preparedness (REP) Program: refers to both FEMA and NRC programs that administer EP for commercial NPPs and surrounding areas and encompasses the plans, training, exercises, and resources necessary to prepare emergency response personnel to rapidly identify, evaluate, and respond to radiological emergencies.

Radioprotective Drug: a chemical compound or substance serving to protect or aid in protecting against the injurious effects of radiation.

Reasonable Assurance: a determination that NRC licensee or applicant onsite plans and state, local, and tribal government and utility offsite plans and preparedness are adequate to protect public health and safety in the emergency planning areas of a commercial NPP.

Reception/Relocation Center: a pre-designated facility located outside the plume exposure pathway EPZ (at a minimum distance of 15 miles from the NPP) at which the evacuated public can register; receive radiation monitoring and decontamination; receive assistance in contacting others; receive directions to congregate care centers; reunite with others; and receive general information. It generally refers to a facility where monitoring, decontamination, and registration of evacuees are conducted. A reception/relocation center is also referred to as a registration center or public registration and decontamination center.

Recovery: the process of reducing radiation exposure rates and concentrations of radioactive material in the environment to acceptable levels for return by the general public for unconditional occupancy or use after the emergency phase of a radiological emergency. More broadly, recovery is accomplished through the timely restoration, strengthening, and revitalization of infrastructure, housing, and a sustainable economy, as well as the health, social, cultural, historic, and environmental fabric of communities affected by a catastrophic incident.

Re-entry: workers or members of the public going into relocation or radiological contaminated areas on a temporary basis under controlled conditions.

Regional Assistance Committee (RAC): a group of representatives from a number of Federal agencies that have agreed to assist the FEMA Region in providing technical assistance to OROs and to evaluate radiological emergency response plans/ procedures and exercises on the basis of their special authorities, missions, and expertise.

Relocation: the removal or continued exclusion of people (households) from contaminated areas to avoid chronic radiation exposure.

Relocation Center: see Reception/Relocation center.

Reoccupancy: the return of households and communities to relocation areas during the cleanup process, at radiation levels acceptable to the community.

Restricted area: any area to which access is controlled for the protection of individuals from exposure to radiation and radioactive materials.

Return: permanent resettlement in evacuation or relocation areas with no restrictions, based on acceptable environmental and public health conditions.

Roentgen (r): a unit of exposure of gamma (or X-ray) radiation in field dosimetry. One roentgen is essentially equal to one rad (see "rad"). A unit for measuring the amount of radiation energy imparted to a volume of air. The roentgen can be used only to measure X-rays or gamma rays.

Roentgen Equivalent Man (rem): the quantity of ionizing radiation of any type which, when absorbed by man or other mammals, produces a physiological effect equivalent to that produced by the absorption of 1 roentgen of X-ray or gamma radiation.

Semi Annual or Semiannually: At least once every 184 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+46 days).

Service animal: any dog that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability. Other species of animals, whether wild or domestic, trained or untrained, are not service animals for the purposes of this definition. The work or tasks performed by a service animal must be directly related to the handler's disability. Examples of work or tasks include, but are not limited to, assisting individuals who are blind or have low vision with navigation and other tasks, alerting individuals who are deaf or hard of hearing to the presence of people or sounds, providing non-violent protection or rescue work, pulling a wheelchair, assisting an individual during a seizure, alerting individuals to the presence of allergens, retrieving items such as medicine or the telephone, providing physical support and assistance with balance and stability to individuals with mobility disabilities, and helping persons with psychiatric and neurological disabilities by preventing or interrupting impulsive or destructive behaviors. The crime deterrent effects of an animal's presence and the provision of emotional support, well-being, comfort, or companionship do not constitute work or tasks for the purposes of this definition.

Site Area Emergency (SAE): an ECL indicating that events are in progress or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or hostile action that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

Site Boundary: the line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

Spent fuel pool (SPF): a structure that provides onsite storage for spent nuclear fuel. These pools are robust constructions made of reinforced concrete several feet thick, with steel liners. The water is typically about 40 feet deep, and serves both to shield the radiation and cool the fuel rods.

State of emergency: a situation of national danger or disaster in which a government suspends normal constitutional procedures in order to regain control.

State Organization: the state government agency or office having the principal or lead role in emergency planning and preparedness. This includes any state or commonwealth of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any possession of the United States.

Support Organization: any organization, such as an agency, department, office, or local jurisdiction, having a supportive role to the principal or lead organization(s) in emergency planning and preparedness.

Technical Support Center (TSC): an onsite facility that provides plant management and technical support to the reactor operating personnel located in the control room during emergency conditions.

Threat and Hazard Identification and Risk Assessment (THIRA): a comprehensive guide to identifying and addressing risks and impacts through the whole community approach; this is a joint effort between Federal, state, local, and tribal governments, and territorial organizations.

Timely (timely manner): performing appropriate actions with a sense of urgency and without undue delay.

Total Effective Dose Equivalent (TEDE): the sum of the deep dose equivalent (for external exposures) and committed effective dose equivalent (for internal exposures).

Transient Person: a person who does not permanently reside in the plume exposure pathway EPZ, but may be present during an emergency.

Tribal Government: a Federally-recognized American Indian and Alaska Native tribal government. A listing of Federally-recognized Indian tribal entities can be found in the Tribal Directory maintained on the U.S. Department of the Interior, Indian Affairs' webpage (www.bia.gov).

Triennial: At least once every three years. A maximum allowable extension which shall not exceed 25% of the specified interval (+274 days).

Warning Point: A facility that receives warning and other information and disseminates or relays this information in accordance with prearranged plan.

Weekly: At least once every 7 days. A maximum allowable extension which shall not exceed 25% of the specified interval (+2 days) (NOTE Weekly siren test may exceed this interval if requested/required by offsite agencies.)

Appendix 2, Abbreviations and Acronyms

ADAMS	Agency-wide Documents Access and Management System
ANS	Alert and Notification System
AEF	Alternate Emergency Facility
AOP	Abnormal Operating Procedures
CFR	Code of Federal Regulations
BNP	Brunswick Nuclear Plant
Ci	Curie
CNS	Catawba Nuclear Station
DIL	Derived Intervention Level
DRD	Direct-reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECCS	Emergency Core Cooling System
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ESF	Emergency Support Function
ETE	Evacuation Time Estimate
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FPB	Fission Product Barrier
FRMAC	Federal Radiological Monitoring and Assessment Center
GE	General Emergency
HAB	Hostile Action-Based
HP	Health Physics
HNP	Harris Nuclear Plant
HSEEP	Homeland Security Exercise and Evaluation Program
I&C	Instrumentation and Control
IAE	Instrument and Electrical
ICS	Incident Command System
ISFSI	Independent Spent Fuel Storage Installation
IT	Information Technology
JIC	Joint Information Center
JIS	Joint Information System
KI	Potassium Iodide
LOA	Letter of Agreement
MCR	Main Control Room

MNS	McGuire Nuclear Station
MOU	Memorandum of Understanding
NEI	Nuclear Energy Institute
NIMS	National Incident Management System
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant
NPS	National Preparedness System
NRC	Nuclear Regulatory Commission
NTTF	Near-Term Task Force
OCA	Owner Controlled Area
ONS	Oconee Nuclear Station
ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PRD	Permanent Record Dosimeter
REOF	Remote Emergency Operations Facility
REP	Radiological Emergency Preparedness
RNP	Robinson Nuclear Plant
SAE	Site Area Emergency
SAT	Systematic Approach to Training
SEOC	State Emergency Operations Center
TBD	To Be Determined
TEDE	Total Effective Dose Equivalent
THIRA	Threat and Hazard Identification and Risk Assessment
TSC	Technical Support Center
UE	Unusual Event

Appendix 3, Cross Reference to 10 CFR 50 Appendix E.IV – Content of Emergency Plans

1. The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping with radiological emergencies, assessment actions, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, recovery, and onsite protective actions during hostile action.

Regulatory Criteria

E-Plan Reference

2. This nuclear power reactor license applicant shall also provide an analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, using the most recent U.S. Census Bureau data as of the date the applicant submits its application to the NRC. J.8.a
3. Nuclear power reactor licensees shall use NRC approved evacuation time estimates (ETEs) and updates to the ETEs in the formulation of protective action recommendations J.8.a

and shall provide the ETEs and ETE updates to state and local governmental authorities for use in developing offsite protective action strategies. J.7
4. Within 365 days of the later of the date of the availability of the most recent decennial census data from the U.S. Census Bureau or December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis using this decennial data and submit it under § 50.4 to the NRC. These licensees shall submit this ETE analysis to the NRC at least 180 days before using it to form protective action recommendations and providing it to state and local governmental authorities for use in developing offsite protective action strategies. N/A
5. During the years between decennial censuses, nuclear power reactor licensees shall estimate EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and state/local government population data, if available. These licensees shall maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and shall submit these estimates to the NRC with any updated ETE analysis. J.8.a
6. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the nuclear power reactor licensee's currently NRC approved or updated ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. J.8.a

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
The licensee shall submit the updated ETE analysis to the NRC under § 50.4 no later than 365 days after the licensee's determination that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to state and local governmental authorities for use in developing offsite protective action strategies.	J.8.a
7. After an applicant for a combined license under part 52 of this chapter receives its license, the licensee shall conduct at least one review of any changes in the population of its EPZ at least 365 days prior to its scheduled fuel load. The licensee shall estimate EPZ permanent resident population changes using the most recent U.S. Census Bureau annual resident population estimate and state/local government population data, if available. If the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ, to increase by 25 percent or 30 minutes, whichever is less, from the licensee's currently approved ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC for review under § 50.4 of this chapter no later than 365 days before the licensee's scheduled fuel load.	N/A

10 CFR 50 Appendix E.IV.A – Organization

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency. Specifically, the following shall be included:

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. A description of the normal plant operating organization.	B.1.a
2. A description of the onsite ERO with a detailed discussion of:	
a. Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;	B.1.a, B.2, B.2.a
b. Plant staff emergency assignments;	B.1.a
c. Authorities, responsibilities, and duties of an onsite emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures.	B.1.a B.2, B.2.a
3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.	B.1.a

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
4. Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite dose projections,	B.1.a
and a description of how these projections will be made	I.6
and the results transmitted to state and local authorities, NRC, and other appropriate governmental entities.	E.3
5. Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise.	B.1.a
Other persons with special qualifications, such as consultants, who are not employees of the licensee and who may be called upon for assistance for emergencies shall also be identified. The special qualifications of these persons shall be described.	B.5
6. A description of the local offsite services to be provided in support of the licensee's emergency organization.	B.8
7. By June 23, 2014, identification of, and a description of the assistance expected from, appropriate state, local, and federal agencies with responsibilities for coping with emergencies, including hostile action at the site. For purposes of this appendix, "hostile action" is defined as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.	A.4
8. Identification of the state and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary.	A.1.a
9. By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.	B.1.a

10 CFR 50 Appendix E.IV.B – Assessment Actions

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and state agencies, the Commission, and other federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety.	I.6
The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant.	D.1.a
The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC.	D.1.b
Thereafter, emergency action levels shall be reviewed with the state and local governmental authorities on an annual basis.	D.1.b
2. A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change.	D.1.a
Licensees shall follow the change process in § 50.54(q) for all other emergency action level changes.	Introduction

10 CFR 50, Appendix E.IV.C – Activation of Emergency Organization

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described.	D.1, D.1.2
The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described.	F.1.c
Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as the pressure in containment and the response of the Emergency Core Cooling System) for notification of offsite agencies shall be described.	D.1.2
The existence, but not the details, of a message authentication scheme shall be noted for such agencies.	E.1.a

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
The emergency classes defined shall include: (1) Notification of unusual events, (2) alert, (3) site area emergency, and (4) general emergency. These classes are further discussed in NUREG-0654/FEMA-REP-1.	D.1
2. By June 20, 2012, nuclear power reactor licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level.	D.2
Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded.	D.2
Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the state and local authorities the opportunity to implement measures necessary to protect the public health and safety.	D.2

10 CFR 50, Appendix E.IV.D – Notification Procedures

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. Administrative and physical means for notifying local, state, and federal officials and agencies and agreements reached with these officials and agencies for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the state and local government agencies within the EPZs.	E.2, E.3
2. Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an emergency.	G.1
Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an accident occurs.	G.1
3. A licensee shall have the capability to notify responsible state and local governmental agencies within 15 minutes after declaring an emergency.	E.1

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
The licensee shall demonstrate that the appropriate governmental authorities have the capability to make a public alerting and notification decision promptly on being informed by the licensee of an emergency condition.	E.2
Prior to initial operation greater than 5 percent of rated thermal power of the first reactor at a site, each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ.	N/A
The design objective of the prompt public alert and notification system shall be to have the capability to essentially complete the initial alerting and initiate notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this alerting and notification capability will range from immediate alerting and notification of the public (within 15 minutes of the time that state and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the appropriate governmental authorities to make a judgment whether or not to activate the public alert and notification system.	E.2
The alerting and notification capability shall additionally include administrative and physical means for a backup method of public alerting and notification capable of being used in the event the primary method of alerting and notification is unavailable during an emergency to alert or notify all or portions of the plume exposure pathway EPZ population. The backup method shall have the capability to alert and notify the public within the plume exposure pathway EPZ, but does not need to meet the 15-minute design objective for the primary prompt public alert and notification system.	E.2
When there is a decision to activate the alert and notification system, the appropriate governmental authorities will determine whether to activate the entire alert and notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public alert and notification system shall remain with the appropriate governmental authorities.	N/A

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
4. If FEMA has approved a nuclear power reactor site's alert and notification design report, including the backup alert and notification capability, as of December 23, 2011, then the backup alert and notification capability requirements in Section IV.D.3 must be implemented by December 24, 2012. If the alert and notification design report does not include a backup alert and notification capability or needs revision to ensure adequate backup alert and notification capability, then a revision of the alert and notification design report must be submitted to FEMA for review by June 24, 2013, and the FEMA-approved backup alert and notification means must be implemented within 365 days after FEMA approval. However, the total time period to implement a FEMA-approved backup alert and notification means must not exceed June 22, 2015.	N/A

10 CFR 50, Appendix E.IV.E – Emergency Facilities and Equipment

Adequate provisions shall be made and described for emergency facilities and equipment, including:

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. Equipment at the site for personnel monitoring;	K.1.b, K.1.c
2. Equipment for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment;	I.8, I.9
3. Facilities and supplies at the site for decontamination of onsite individuals;	H.2, J.3
4. Facilities and medical supplies at the site for appropriate emergency first aid treatment;	L.2.a
5. Arrangements for medical service providers qualified to handle radiological emergencies onsite;	L.2
6. Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;	L.4
7. Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary;	L.2.b
8.a (i) A licensee onsite technical support center and an emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency;	H.1, H.3
8.a (ii) For nuclear power reactor licensees, a licensee onsite operational support center;	H.2

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
<p>8.b For a nuclear power reactor licensee's EOF required by paragraph 8.a of this section, either a facility located between 10 miles and 25 miles of the nuclear power reactor site(s), or a primary facility located less than 10 miles from the nuclear power reactor site(s) and a backup facility located between 10 miles and 25 miles of the nuclear power reactor site(s). An EOF may serve more than one nuclear power reactor site. A licensee desiring to locate an EOF more than 25 miles from a nuclear power reactor site shall request prior Commission approval by submitting an application for an amendment to its license.</p> <p>For an EOF located more than 25 miles from a nuclear power reactor site, provisions must be made for locating NRC and offsite responders closer to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site. Provisions for locating NRC and offsite responders closer to a nuclear power reactor site that is more than 25 miles from the EOF must include the following:</p> <ol style="list-style-type: none"> (1) Space for members of an NRC site team and federal, state, and local responders; (2) Additional space for conducting briefings with emergency response personnel; (3) Communication with other licensee and offsite emergency response facilities; (4) Access to plant data and radiological information; and (5) Access to copying equipment and office supplies; <p>8.c By June 20, 2012, for a nuclear power reactor licensee's EOF required by paragraph 8.a of this section, a facility having the following capabilities:</p> <ol style="list-style-type: none"> (1) The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; (2) The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and (3) The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site; and 	<p>H.3</p> <p>H.3.a</p> <p>H.3.a</p> <p>H.3.a</p> <p>H.3.a</p> <p>H.3.a</p> <p>H.3</p> <p>H.3</p> <p>H.3</p>

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
8.d For nuclear power reactor licensees, an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and collectively having the following characteristics:	H.4
<ul style="list-style-type: none"> the capability for communication with the EOF, Control Room, and plant security; 	H.4
<ul style="list-style-type: none"> the capability to perform offsite notifications; 	H.4
<ul style="list-style-type: none"> and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action. 	H.4
The requirements in this paragraph 8.d must be implemented no later than December 23, 2014, with the exception of the capability for staging emergency response organization personnel at the alternative facility (or facilities) and the capability for communications with the emergency operations facility, Control Room, and plant security, which must be implemented no later than June 20, 2012.	N/A
8.e A licensee shall not be subject to the requirements of paragraph 8.b of this section for an existing EOF approved as of December 23, 2011.	N/A
9. At least one onsite and one offsite communications system; each system shall have a backup power source.	F.1, F.1.a
All communication plans shall have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Where consistent with the function of the governmental agency, these arrangements will include:	E.1
a. Provision for communications with contiguous state/local governments within the plume exposure pathway EPZ.	E.1, F.1.b
Such communications shall be tested monthly.	F.3
b. Provision for communications with federal emergency response organizations.	E.1, F.1.b
Such communications systems shall be tested annually.	F.3
c. Provision for communications among the nuclear power reactor control room, the onsite TSC, and the EOF; and among the nuclear facility, the principal state and local emergency operations centers, and the field assessment teams.	F.1.a, F.1.b
Such communications systems shall be tested annually.	F.3

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite TSC, and the EOF.	E.1, F.1.b
Such communications shall be tested monthly.	F.3

10 CFR 50, Appendix E.IV.F – Training

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
1. The program to provide for:	
(a) The training of employees and exercising, by periodic drills, of emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and	N.4
(b) The participation in the training and drills by other persons whose assistance may be needed in the event of a radiological emergency shall be described.	N.4, N.4.a, N.4.b N.4.c, N.4.d, N.4.e N.4.f, N.4.g, N.4.h N.4.i, N.4.j, N.4.k
This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:	O.1
i. Directors and/or coordinators of the plant emergency organization;	O.1 (1)
ii. Personnel responsible for accident assessment, including control room shift personnel;	O.1 (2)
iii. Radiological monitoring teams;	O.1 (3)
iv. Fire control teams (fire brigades);	O.1 (4)
v. Repair and damage control teams;	O.1 (5)
vi. First aid and rescue teams;	O.1 (6)
vii. Medical support personnel;	O.1 (6)
viii. Licensee's headquarters support personnel;	O.1 (7)
ix. Security personnel.	O.1 (8)
In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, local news media persons.	O.1.a

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public alert and notification system, and ensure that emergency organization personnel are familiar with their duties.	N.1
2.a A full participation exercise which tests as much of the licensee, state, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located.	N.2.a
Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a.	N.2.a
(i) For an operating license issued under this part, this exercise must be conducted within 2 years before the issuance of the first operating license for full power (one authorizing operation above 5 percent of rated thermal power) of the first reactor and shall include participation by each state and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than 1 year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before issuance of an operating license for full power. This exercise need not have state or local government participation.	N/A
(ii) For a combined license issued under part 52 of this chapter, this exercise must be conducted within two years of the scheduled date for initial loading of fuel. If the first full participation exercise is conducted more than one year before the scheduled date for initial loading of fuel, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before the scheduled date for initial loading of fuel. This exercise need not have state or local government participation. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of the first full participation exercise, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.	N/A

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
(iii) For a combined license issued under part 52 of this chapter, if the applicant currently has an operating reactor at the site, an exercise, either full or partial participation, ⁵ shall be conducted for each subsequent reactor constructed on the site. This exercise may be incorporated in the exercise requirements of Sections IV.F.2.b. and c. in this appendix. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of this exercise for the new reactor, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.	N/A
2.b Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years.	N.1.a, N.2.a
Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b.	N.2.a
The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section.	N.1.a
In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, event classification, notification of offsite authorities, assessment of the onsite and offsite impact of radiological releases, protective action recommendation development, protective action decision making, plant system repair and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities (TSC, OSC, and the EOF) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.	N.4
2.c Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period.	N/A

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
If two different licensees each have licensed facilities located either on the same site or on adjacent, contiguous sites, and share most of the elements defining co-located licensees, then each licensee shall:	N/A
(1) Conduct an exercise biennially of its onsite emergency plan;	N/A
(2) Participate quadrennially in an offsite biennial full or partial participation exercise;	N/A
(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected state and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises;	N/A
(4) Conduct a hostile action exercise of its onsite emergency plan in each exercise cycle; and	N/A
(5) Participate in an offsite biennial full or partial participation hostile action exercise in alternating exercise cycles.	N/A
2.d Each state with responsibility for nuclear power reactor emergency preparedness should fully participate in the ingestion pathway portion of exercises at least once every exercise cycle. In states with more than one nuclear power reactor plume exposure pathway EPZ, the state should rotate this participation from site to site.	N/A
Each state with responsibility for nuclear power reactor emergency preparedness should fully participate in a hostile action exercise at least once every cycle and should fully participate in one hostile action exercise by December 31, 2015. states with more than one nuclear power reactor plume exposure pathway EPZ should rotate this participation from site to site.	N/A
2.e Licensees shall enable any state or local government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such state or local government.	N.4
2.f Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency or (2) determine that the Emergency Response Organization (ERO) has maintained key skills specific to emergency response. The extent of state and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises.	N.1.a

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
2.g All exercises, drills, and training that provide performance opportunities to develop, maintain, or demonstrate key skills must provide for formal critiques in order to identify weak or deficient areas that need correction.	N.1.a
Any weaknesses or deficiencies that are identified in a critique of exercises, drills, or training must be corrected.	N.1.b
2.h The participation of state and local governments in an emergency exercise is not required to the extent that the applicant has identified those governments as refusing to participate further in emergency planning activities, pursuant to § 50.47(c)(1). In such cases, an exercise shall be held with the applicant or licensee and such governmental entities as elect to participate in the emergency planning process.	N.2.a
2.i Licensees shall use drill and exercise scenarios that provide reasonable assurance that anticipatory responses will not result from preconditioning of participants. Such scenarios for nuclear power reactor licensees must include a wide spectrum of radiological releases and events, including hostile action. Exercise and drill scenarios as appropriate must emphasize coordination among onsite and offsite response organizations.	N.3
2.j The exercises conducted under paragraph 2 of this section by nuclear power reactor licensees must provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas of emergency response identified in paragraph 2.b of this section. Each exercise must provide the opportunity for the ERO to demonstrate key skills specific to emergency response duties in the control room, TSC, OSC, EOF, and JIC.	N.1, N.4
Additionally, in each eight calendar year exercise cycle, nuclear power reactor licensees shall vary the content of scenarios during exercises conducted under paragraph 2 of this section to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following scenario elements:	N.3
• hostile action directed at the plant site,	N.3.a
• no radiological release or an unplanned minimal radiological release that does not require public protective actions,	N.3.c
• an initial classification of or rapid escalation to a Site Area Emergency or General Emergency,	N.3.b
• implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2),	N.3.e
• and integration of offsite resources with onsite response.	N.3.d
The licensee shall maintain a record of exercises conducted during each eight year exercise cycle that documents the content of scenarios used to comply with the requirements of this paragraph.	N.3

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
Each licensee shall conduct a hostile action exercise for each of its sites no later than December 31, 2015. The first eight-year exercise cycle for a site will begin in the calendar year in which the first hostile action exercise is conducted. For a site licensed under Part 52, the first eight-year exercise cycle begins in the calendar year of the initial exercise required by Section IV.F.2.a.	N/A

10 CFR 50, Appendix E.IV.G – Maintaining Emergency Preparedness

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
Provisions to be employed to ensure that the emergency plan, its implementing procedures, and emergency equipment and supplies are maintained up to date shall be described.	P.2, P.3, P.4

10 CFR 50, Appendix E Section IV.H – Recovery

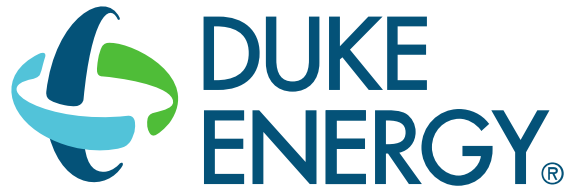
<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
Criteria to be used to determine when, following an accident, reentry of the facility would be appropriate or when operation could be resumed shall be described.	M.1.a

10 CFR 50, Appendix E.IV.I – Onsite Protective Actions During Hostile Action

<u>Regulatory Criteria</u>	<u>E-Plan Reference</u>
By June 20, 2012, for nuclear power reactor licensees, a range of protective actions to protect onsite personnel during hostile action must be developed to ensure the continued ability of the licensee to safely shut down the reactor and perform the functions of the licensee's emergency plan.	J.7

Enclosure 3
RA-21-0063

Enclosure 3
BNP Site Annex (EP-BNP-EPLAN)



Duke Energy
Brunswick
Emergency Plan Annex
EP-BNP-EPLAN
REVISION 0

Duke Energy BNP Site Specific Annex

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Duke Energy BNP Site Specific Annex

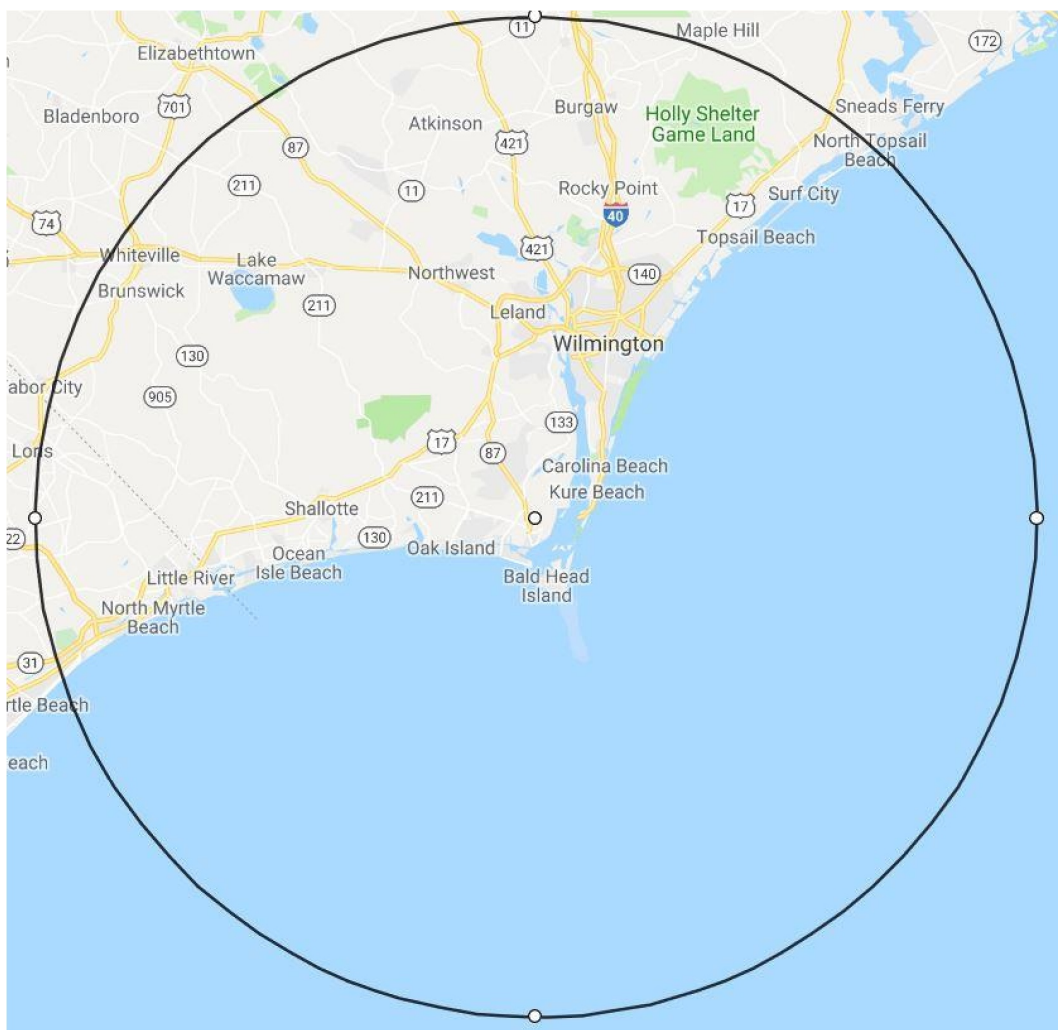
INTRODUCTION

This Duke Energy Brunswick Emergency Plan Annex supplements the Duke Energy Common Emergency Plan by providing site specific information unique to the site. It is subject to the same change and audit requirements as the Common Emergency Plan.

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

Emergency Planning for the Brunswick Nuclear Plant (BNP) is performed within the following two Emergency Planning Zones (EPZ):

- Plume Exposure Pathway EPZ – The BNP Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- Ingestion Pathway EPZ – The BNP Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



Duke Energy BNP Site Specific Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
-------	--

2. Federal Organizations

- A. US Coast Guard (USCG): The USCG controls access of navigable waterways in the vicinity of BNP and provides public warning and notification as described in the NC State Emergency Plan.

4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of BNP are:

- Brunswick
- New Hanover

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of BNP are:

North Carolina

Bladen New Hanover
Brunswick Onslow
Columbus Pender
Sampson

South Carolina

Horry

Duke Energy BNP Site Specific Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
-----	---

Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by BNP with the following organizations:

- Brunswick County / Brunswick County EMS
- New Hanover County
- Doshier Memorial Hospital
- New Hanover Regional Medical Center
- Brunswick County Sheriff's Office
- City of Southport Fire Department
- State of North Carolina
- Leland Police Department

Duke Energy BNP Site Specific Annex

B: Emergency Response Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
-------	---

The BNP on-shift staffing analysis has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-BNP-0603-02, Brunswick Plant On-Shift Staffing Analysis.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
-----	--

2. Contractor Support

- A. General Electric (the NSSS vendor for BNP): General Electric will form a Technical Support Team upon request. The team will be composed of personnel with the appropriate technical disciplines that can be dispatched to the plant site. General Electric will also establish dedicated telephone communications for data transmission until the arrival of the team.
- B. AECOM (the architect-engineer for BNP): AECOM (formerly URS Energy and Construction) will form a Technical Support Team upon request.

Duke Energy BNP Site Specific Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
-----	---

The BNP EAL scheme is documented in CSD-EP-BNP-0101-01, Brunswick EAL Technical Basis Document.

Duke Energy BNP Site Specific Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
-------	--

The site-specific state and county entities (24/7 warning points) notified of a declared emergency at BNP are as follows:

- State of North Carolina
- Brunswick County
- New Hanover County
- United States Coast Guard

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
-----	---

Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-BNP-0603-01, Brunswick Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Brunswick and New Hanover counties. Each county can control the sirens within their boundaries, or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

Duke Energy BNP Site Specific Annex

F: Emergency Communications

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Regulatory References: 10 CFR 50.47(b)(6); 44 CFR 350.5(a)(6) .

F.1.b	Communication with applicable organizations to include a description of the methods that may be used when contacting each organization.
-------	---

Provisions exist for continuous communications with USCG and BNP. The methods available to contact and communicate are:

- Duke Energy Emergency Management Network (DEMNET)
- Private Branch Exchange (PBX)
- Satellite Telephones
- Cellular Telephones

F.3	The testing method and periodicity for each communication system used for the functions identified in evaluation criteria E.2, F.1, and F.2 are described.
-----	--

Systems used to communicate with the USCG warning point will be tested monthly.

Duke Energy BNP Site Specific Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
-----	---

The TSC has the following characteristics/capabilities:

1. The TSC is located outside the protected area next to the main access facility. If it should become necessary to expedite travel between the TSC and Main Control Room (MCR), Security has provisions in place to provide direct access between the TSC and the Protected Area.
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. The TSC is located in a well-engineered reinforced concrete building situated on reinforced concrete spread footings with grade beams and slab on grade and was built in accordance with the local building code. The north wall is 18 inches thick and the other walls and roof are 14 inches thick.
4. The TSC has been designed to have the same habitability as the MCR. The TSC ventilation and drain systems are described below.

- TSC Emergency Ventilation System

The TSC Building Ventilation System is equipped with two filter systems (containing both HEPA and charcoal filters), one for each of the two ventilation intake locations (Mechanical Rooms 134 and 165). The TSC Building Ventilation System is equipped with two intake air radiation monitors. The probes are installed in the intake air ducts where detection of a high level of radiation can automatically trigger the HVAC system to actuate emergency fans to direct intake air through the filter trains.

The intake air radiation monitors are provided with an audible local alarm that is located on the radiation monitor. When the alarm setpoint is reached, the monitor will energize its associated radiation monitor relay, which will automatically activate an emergency fan to redirect the intake air through the associated filtering system.

- TSC Emergency Contaminated Drain System

During an emergency, contaminated drainage could occur at the decontamination shower. An emergency drain system is provided to isolate potential contaminated drainage which can be collected in a 1,000 gallon holding tank. For normal operating conditions, all drainage would be collected by the sanitary drain lines. The holding tank is located underground on the west side of the building. Manually operated valves allow the rerouting of potentially contaminated liquid to the 1,000 gallon holding tank.

Duke Energy BNP Site Specific Annex

5. The TSC has the capability to display vital plant data and radiological information, in near real time provided from each unit's Emergency Response Facility Information System (ERFIS) Computer to be used by knowledgeable individuals responsible for providing technical briefings on plant conditions, event prognosis, and for management of overall emergency response.
6. Normal power to the TSC is from reliable offsite sources. In the event of a loss of power, an auxiliary diesel generator is located near the building to supply an alternate source of power.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures

In the event the TSC must be evacuated, a backup location has been designated in the Control Room. If travel to the site is unsafe or may endanger personnel, the TSC staff will report to the Alternate Emergency Facility.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
-----	---

The OSC is located in the O&M Building.

In the event the OSC must be evacuated, a backup location has been established in the simulator building, which is in the TSC habitability envelope.

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
-------	---

The Duke Energy EOF is located greater than 25 miles from the site. The Duke Energy Progress Building in Leland, NC has been designated for use as a near site location for the NRC and other off-site agency staff.

This location provides conference areas with white boards, separate briefing/debriefing areas, telephones, ERO telephone contact lists, computers with internet access, necessary office supplies and photocopier access, and access to plant radiological information.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
-----	--

The Duke Energy Progress Building in Leland, NC has been designated as the BNP Alternate Emergency Facility.

Duke Energy BNP Site Specific Annex

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
-----	--

1. Meteorological Monitoring

BNP has a permanent meteorological monitoring station located within the site area boundary for display and recording of wind speed, wind direction, and temperature differences for use in making off-site dose projections and PARs. Meteorological information is presented in the Control Room through ERFIS and to the rest of the ERO through EP-NET.

The meteorological instrumentation which Duke Energy uses at the BNP meteorological monitoring station meets the requirements of NRC Regulatory Guide 1.23 (Rev. 0) and provides the meteorological parameters to the locations specified within NRC Regulatory Guide 1.97 (Rev. 2), Table 1 and Table 2. As specified within Section 8.2 of the Supplement Number 1 to NUREG-0737, Duke Energy maintains telephone numbers for voice communications to the nearest National Weather Service first order observation station (Wilmington, NC) for twenty-four hour per day access to this backup meteorological information should the on-site system fail. This backup source of meteorological data is the closest location which can provide reliable representative meteorological information for the BNP site.

2. Seismic Monitoring

The BNP Seismic Monitoring System senses and records earthquake ground motion received in the Unit 2 Reactor Building.

The Seismic Monitoring System consists of a Passive Subsystem and an Active Subsystem. The Passive Subsystem has no immediate visual indication of an event, whereas the Active Subsystem actually displays an immediate visual indication.

The Passive Subsystem consists of three self-contained Multi-Element Triaxial Peak Accelerographs and are located as follows:

1. Unit 2 Reactor Building Basement/Equipment Drain Tank (Elevation -17 ft).
2. Unit 2 Reactor Building RHR Heat Exchanger Support (Elevation 20 ft).
3. Unit 2 Reactor Building Refueling Area (Elevation 117 ft).

The peak shock recorders measure and record the acceleration of the structure. The peak shock recorder senses and permanently records the information defining a response spectrum.

The Unit 2 Active Seismic Monitoring System senses and records earthquake ground motion in two areas of the Unit 2 Reactor Building where remote accelerometers are installed:

1. Basement foundation in North Core Spray Room (Elevation -17ft).
2. Containment structure (Elevation +89ft).

Duke Energy BNP Site Specific Annex

The Active Seismic Monitoring System consists of two remote accelerometers and a Seismic Monitoring Panel. The Seismic Monitoring Panel consists of a central controller, LCD display monitor, alarm and interconnect panel, battery backup dual recorder unit, printer, and UPS battery backup power supply for the central controller. Earthquakes produce low frequency accelerations which, when detected by the remote accelerometers, will activate the Seismic Monitoring Panel from a standby condition located in the Electronics Equipment Room to record and visually display the earthquake ground motion.

Duke Energy BNP Site Specific Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 02/11/03. The NRC issued Amendments No. 226 (Facility Operating License DPR-71) and No. 253 (Facility Operating License DPR-62). The amendments delete TS Section 5.5.3, "Post Accident Sampling System (PASS)," and thereby eliminates the requirement to have and maintain the PASS at Brunswick Steam Electric Plant, Units 1 and 2

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, drywell, and torus samples. Procedures are in place to assess core damage under accident conditions.

Duke Energy BNP Site Specific Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
-----	--

The main plant access road and the secondary access road may be used to depart from the site. Evacuation routes to designated reception centers are identified in CSD-EP-0603-03, Brunswick Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
-----	----------------------

J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The BNP site specific ETE report is documented in CSD-EP-0603-03, Brunswick Plant Evacuation Time Estimate Study.

Duke Energy BNP Site Specific Annex

L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
-------	--

The primary and backup offsite medical facilities to treat contaminated, injured personnel from BNP are:

Primary – Doshier Memorial Hospital

A specially designated emergency area is maintained in readiness at Doshier Memorial Hospital for Duke Energy's use for the treatment of contaminated patients. An emergency kit is maintained at Doshier Memorial Hospital containing supplies and equipment for personnel monitoring and the control of radioactive contamination.

Backup – New Hanover Regional Medical Center

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
-----	--

The City of Southport Rescue Squad and Brunswick County EMS are used to provide ambulance service for individuals transported from BNP. They have the means to control contamination while transporting victims.

Duke Energy BNP Site Specific Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
-----	--

External emergency plans specific to the support of BNP include the following:

- Brunswick County Emergency Response Plan for the Brunswick Nuclear Plant
- New Hanover County Emergency Response Plan for the Brunswick Nuclear Plant

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing of the BNP site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

Duke Energy BNP Site Specific Annex

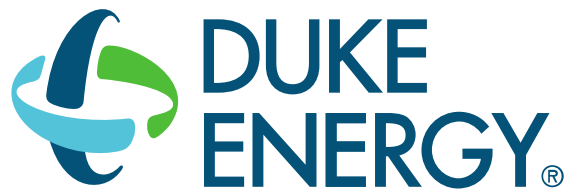
Table P.7-1: BNP Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-BNP-0105	BNP Site Specific TSC Support	B, H
AD-EP-BNP-0106	BNP Site Specific OSC Support	B, H
AD-EP-BNP-0203	BNP Site Specific Field Monitoring Information	D, I, H
0PEP-02.6.30	Alternate Emergency Facility Operation	H
0PEP-03.1.3	Use of Communication Equipment	E, F
0PEP-03.6.1	Release Estimates Based Upon Stack/Vent Readings	I
0PEP-03.6.3	Estimate of the Extent of Core Damage Under Accident Conditions	D, I
0PEP-03.6.5	Collection and Analysis of Highly Radioactive Samples	I
0PEP-03.8.2	Personnel Accountability and Evacuation	E, J
0PEP-03.9.3	First Aid, Medical Care and Transport for Injured Personnel	L
0PEP-03.9.6	Search and Rescue	J
0PEP-04.1	Record Keeping and Documentation	N, O, P
0PEP-04.2	Emergency Facilities and Equipment	H
0PEP-04.3	Performance of On-Shift Training, Exercises, and Drills	N, O
0PEP-04.5	Public Education and Information	G
0PEP-04.6	Radiological Emergency Kit Inventories	H, K
0PEP-04.08	Periodic Review of Emergency Plan	P
0SI-31	Medical Emergency Response and Technical Rescue	H, L
0AOP-40.0	Security Events	J

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements

Enclosure 4
RA-21-0063

Enclosure 4
CNS Site Annex (EP-CNS-EPLAN)



Duke Energy
Catawba
Emergency Plan Annex
EP-CNS-EPLAN
REVISION 0

Duke Energy CNS Emergency Plan Annex

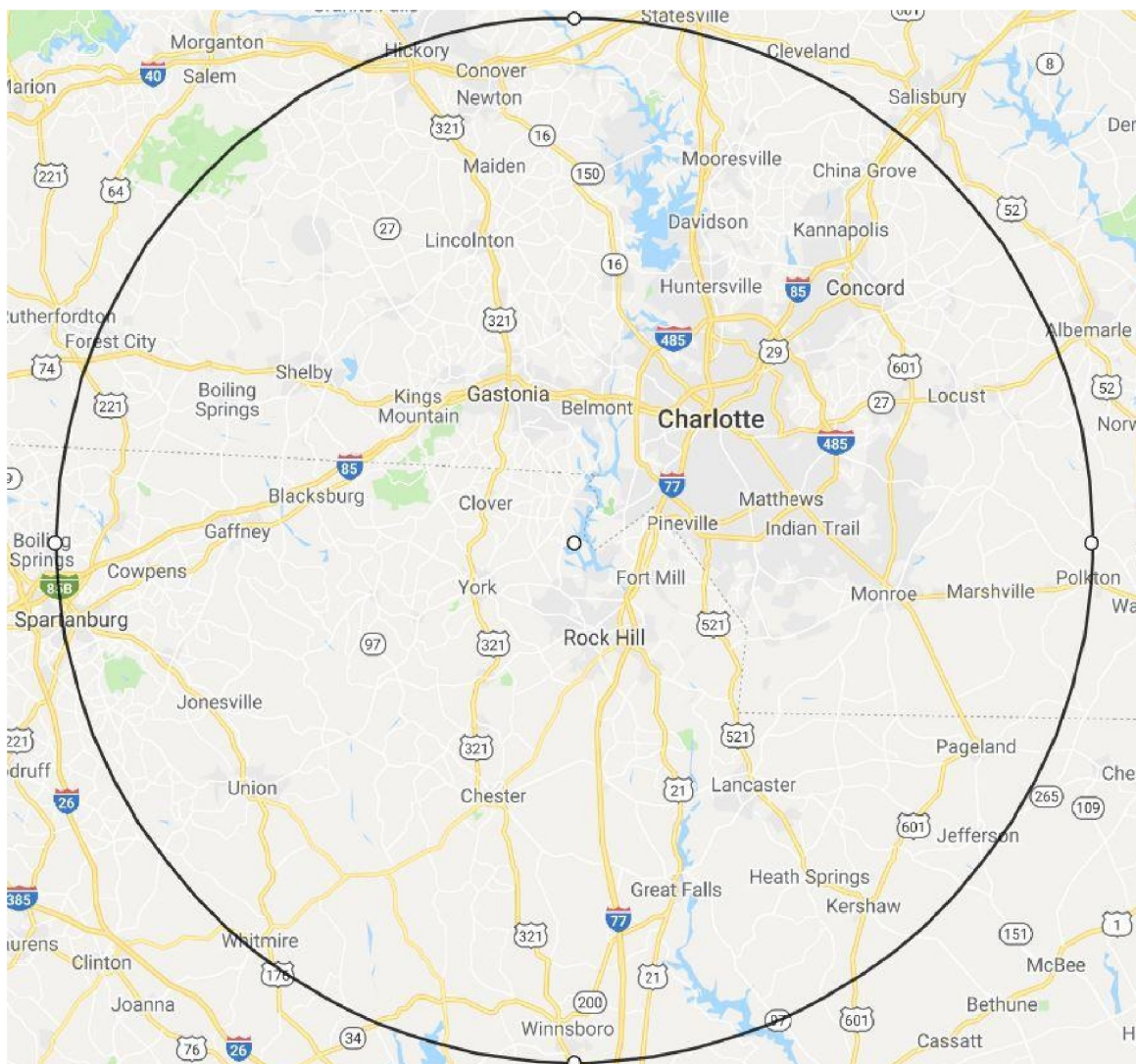
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INTRODUCTION

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

- **Plume Exposure Pathway EPZ** – The CNS Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- **Ingestion Pathway EPZ** – The CNS Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



Duke Energy CNS Emergency Plan Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
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4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of CNS are:

- York
- Gaston
- Mecklenburg

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of CNS are:

North Carolina

Anson	Cleveland	Mecklenburg	Union
Burke	Gaston	Rowan	
Cabarrus	Iredell	Rutherford	
Catawba	Lincoln	Stanley	

South Carolina

Cherokee	Lancaster
Chester	Newberry
Chesterfield	Spartanburg
Fairfield	Union
Kershaw	York

Duke Energy CNS Emergency Plan Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
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Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by CNS with the following organizations:

- Gaston County, North Carolina
- Mecklenburg County, North Carolina
- York County, South Carolina
- **York County Sheriff**
- Carolinas Medical Center
- Piedmont Medical Center
- Bethel Volunteer Fire Department
- State of North Carolina
- State of South Carolina

Duke Energy CNS Emergency Plan Annex

B: Onsite Emergency Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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The CNS on-shift staffing analysis has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-CNS-0603-02, Catawba Plant On-Shift Staffing Analysis.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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2. Contractor Support

- A. Westinghouse (the NSSS vendor for CNS): Westinghouse will form a Technical Support Team upon request. The team will be composed of personnel with the appropriate technical disciplines that can be dispatched to the plant site. Westinghouse will also establish dedicated telephone communications for data transmission until the arrival of the team.

Duke Energy CNS Emergency Plan Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
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The CNS EAL scheme is documented in CSD-EP-CNS-0101-01, Catawba EAL Technical Basis Document.

Duke Energy CNS Emergency Plan Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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The site-specific state and county entities (24/7 warning points) notified of a declared emergency at CNS are as follows:

- State of North Carolina
- State of South Carolina
- Gaston County
- Mecklenburg County
- York County

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
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Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-CNS-0603-01, Catawba Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Gaston, Mecklenburg, and York counties. Each county can control the sirens within their boundaries, or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

Duke Energy CNS Emergency Plan Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC has the following characteristics/capabilities:

1. The TSC is a permanent facility in the Service Building located near the Control Room on elevation 594. The TSC is within two (2) minutes walking distance from the Control Room.
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. The TSC is located in a well-engineered steel framed building situated on a reinforced concrete substructure and was built in accordance with standard building codes.
4. Radiological habitability during postulated radiological accidents to the same degree as the Control Room. Monitoring for direct radiation and airborne radioactive materials with local readout of radiation level and alarms if levels are exceeded.
5. Display, printout or trend record of comprehensive data necessary to monitor reactor system status and to evaluate plant system abnormalities, in-plant and off-site radiological parameters and meteorological parameters are available. This capability is provided via the operator aid computer. Capabilities to access and display parameters, individually or in groups is provided.
6. Normal power to the TSC is from either Unit 1 or Unit 2 onsite power available through an automatic transfer switch. Backup power can be supplied from the unit Emergency Diesel Generator.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

In the event the TSC must be evacuated, a backup location has been designated in the Control Room.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The OSC is located in the Service Building on the 609 elevation with the OCC. It is a permanent facility.

If the OSC becomes unavailable, a backup location has been designated in the Administrative Building.

Duke Energy CNS Emergency Plan Annex

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The Duke Energy Common EOF is not located greater than 25 miles from the site. Therefore, this element does not apply to CNS.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
-----	--

The Common EOF, located in the Duke Energy Corporate Headquarters, Charlotte, North Carolina has been designated as the CNS Alternate Emergency Facility.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
-----	--

1. Meteorological Monitoring

The meteorological monitoring program is designed to provide the ERO with on-site meteorological conditions, taking into account modeling needs. The meteorological system instrumentation includes:

- Basic meteorological variables (e.g. wind speed and wind direction measured at high and low levels, and delta-temperature).
- A digital data link connecting the instrumentation and the station.
- Digital chart recorder (in Control Room).
- The data is scanned and averaged by the station process monitoring computer and transferred to databases accessible by the ERO.

Additional details of site meteorology and instrumentation is found in CNS UFSAR Section 2.3.

2. Hydrologic Monitoring

A hydrological description of CNS is located in the CNS UFSAR, Section 2.4.

3. Seismic Monitoring

A description of the seismic monitoring instrumentation and area seismology studies are found in CNS UFSAR, Sections 3.7 and 2.5 respectively.

Duke Energy CNS Emergency Plan Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 09/11/01. The NRC issued Amendments No. 193 (Facility Operating License NPF-35) and No. 185 (Facility Operating License NPF-52). The amendments delete TS Section 5.5.4, "Post Accident Sampling," for CNS, Units 1 and 2, and thereby eliminates the requirement to have and maintain the post-accident sampling systems (PASS - PALSS/PACS).

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, and Residual Heat Removal, and Containment Sump samples. Procedures are in place to assess core damage under accident condition.

Duke Energy CNS Emergency Plan Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
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Personnel would drive along Concord Road (SR 1132) west (which is not in one of the prevailing wind directions) to SC Highway 274. Personnel would then drive either south approximately 11 miles and assemble at the Duke Energy York Operations Center or north approximately 10 miles to the Duke Energy Allen Plant.

Evacuation routes to designated reception centers are identified in CSD-EP-CNS-0603-03, Catawba Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
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J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The CNS site specific ETE report is documented in CSD-EP-CNS-0603-03, Catawba Plant Evacuation Time Estimate Study.

Duke Energy CNS Emergency Plan Annex

L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
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The primary and backup offsite medical facilities to treat contaminated, injured personnel from CNS are:

Primary – Piedmont Medical Center; Rock Hill, SC

Backup – Carolinas Medical Center

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
-----	--

The Piedmont Medical Center; Rock Hill, SC is used to provide ambulance service for individuals transported from CNS. They have the means to control contamination while transporting victims.

Duke Energy CNS Emergency Plan Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
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External emergency plans specific to the support of CNS include the following:

- York County, SC, Emergency Operations Plan
- Mecklenburg County (Charlotte Fire Department Emergency Management) Emergency Operations Plan
- Gaston County, NC, Emergency Operations Plan
- Emergency Response Plan, Water Reactors Division, Westinghouse Electric Corporation
- North Carolina Radiological Emergency Response Plan
- South Carolina Operational Radiological Emergency Response Plan

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing of the CNS site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

Duke Energy CNS Emergency Plan Annex

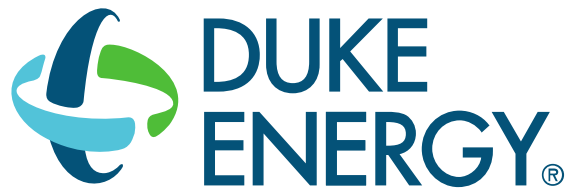
Table P.7-1: CNS Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-CNS-0105	CNS Site Specific TSC Support	B, H
AD-EP-CNS-0106	CNS Site Specific OSC Support	B, H
AD-EP-CNS-0203	CNS Site Specific Field Monitoring Information	D, I, H
RP/0/A/5000/010	Conducting a Site Assembly or Preparing the Site for an Evacuation	E, J, K
AP/0/A/5500/046	Hostile Aircraft Activity	D, J
HP/0/B/1000/006	Emergency Equipment Functional Check and Inventory	H, K
HP/0/B/1009/003	Radiation Protection Response Following a Primary to Secondary Leak	D, E, I
HP/0/B/1009/005	Personnel/Vehicle Monitoring for Emergency Conditions	D, J
HP/0/B/1009/006	Alternative Method for Determining Dose Rate within the Reactor Building	D, I
HP/0/B/1009/007	In plant Particulate and Iodine Monitoring Under Accident Conditions	D, I
HP/0/B/1009/008	Contamination Control of Injured Individuals	D, K, L, L
HP/0/B/1009/014	Radiation Protection Actions Following an Uncontrolled Release of Liquid Radioactive Material	D, I
HP/0/B/1009/019	Emergency Radio System Operation, Maintenance and Communication	F.1.b
PT/0/B/4600/004	Periodic Verification of Emergency Supplies and Equipment Operation	F, H
PT/0/B/4600/005A	Monthly Communications Verification.	F, H
PT/0/B/4600/005B	Quarterly Communications Verification	F, N
PT/0/B/4600/005C	Annual Communications Verification	F, N
RP/0/A/5000/015	Core Damage Assessment	D, I
RP/0/B/5000/026	Site Response to Security Events	D, J

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements

Enclosure 5
RA-21-0063

Enclosure 5
HNP Site Annex (EP-HNP-EPLAN)



Duke Energy
Harris
Emergency Plan Annex
EP-HNP-EPLAN
REVISION 0

Duke Energy HNP Emergency Plan Annex

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Duke Energy HNP Emergency Plan Annex

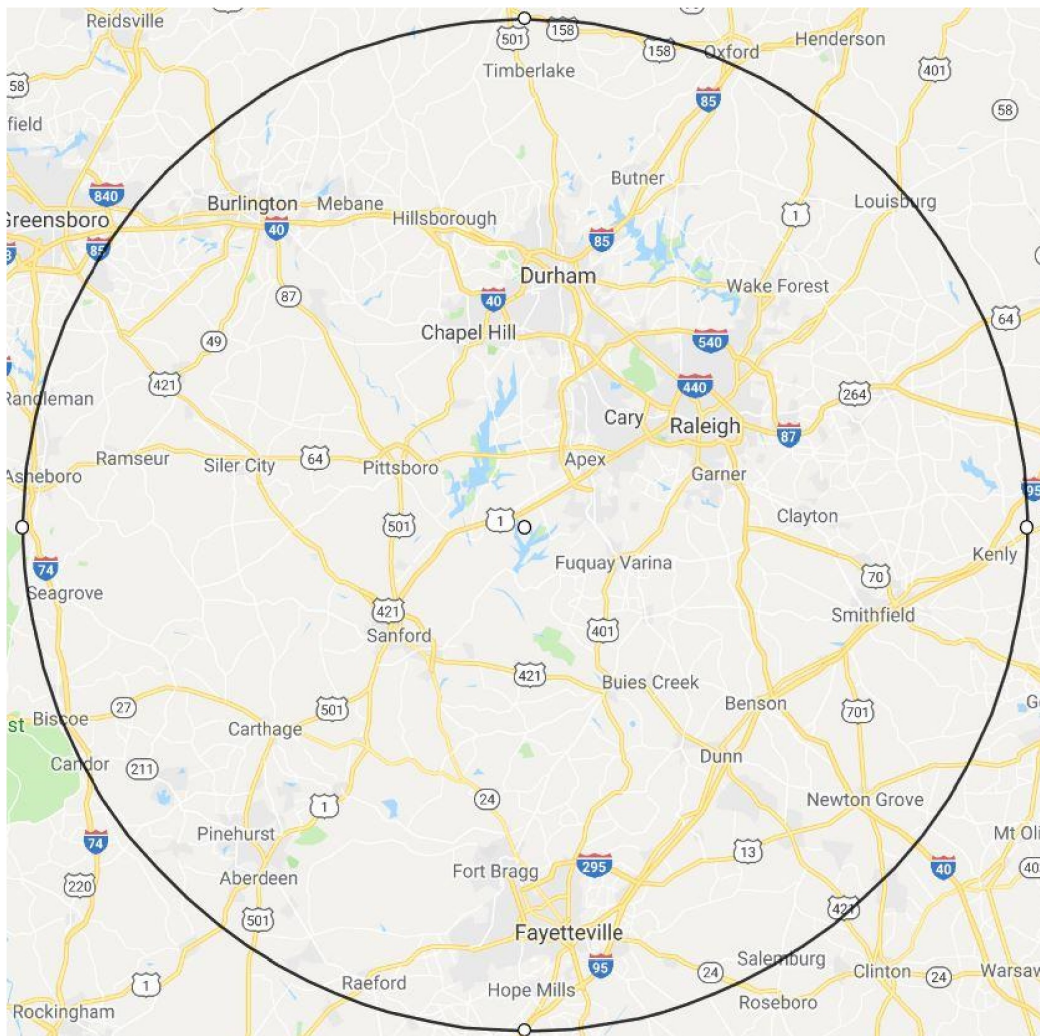
INTRODUCTION

This Duke Energy Harris Emergency Plan Annex supplements the Duke Energy Common Emergency Plan by providing site specific information unique to the site. It is subject to the same change and audit requirements as the Common Emergency Plan.

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

Emergency Planning for the Harris Nuclear Plant (HNP) is performed within the following two Emergency Planning Zones (EPZ):

- Plume Exposure Pathway EPZ – The HNP Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- Ingestion Pathway EPZ – The HNP Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



Duke Energy HNP Emergency Plan Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
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4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of HNP are:

- Chatham County
- Harnett County
- Lee County
- Wake County

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of HNP are:

North Carolina

Alamance	Franklin	Johnston	Orange	Vance
Caswell	Granville	Lee	Person	Wake
Chatham	Guilford	Montgomery	Randolph	Wayne
Cumberland	Harnett	Moore	Robeson	Wilson
Durham	Hoke	Nash	Sampson	

Duke Energy HNP Emergency Plan Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
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Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by HNP with the following organizations:

- Chatham County
- Harnett County
- Lee County
- Wake County
- Wake County Sheriff
- Apex Volunteer Fire Department
- Rex Healthcare
- WakeMed Raleigh
- State of North Carolina

Duke Energy HNP Emergency Plan Annex

B: Onsite Emergency Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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The HNP on-shift staffing analysis report has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-HNP-0603-02, Harris Plant On-Shift Staffing Analysis.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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2. Contractor Support

- A. Westinghouse (the NSSS vendor for HNP): Westinghouse will form a Technical Support Team upon request. The team will be composed of personnel with the appropriate technical disciplines that can be dispatched to the plant site. Westinghouse will also establish dedicated telephone communications for data transmission until the arrival of the team.
- B. AECOM (the architect-engineer for HNP): AECOM (formerly URS Energy and Construction) will form a Technical Support Team upon request.

Duke Energy HNP Emergency Plan Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
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The HNP EAL scheme is documented in CSD-EP-HNP-0101-01, HNP EAL Technical Basis Document.

Duke Energy HNP Emergency Plan Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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The site-specific state and county entities (24/7 warning points) notified of a declared emergency at HNP are as follows:

- State of North Carolina
- Chatham County
- Harnett County
- Lee County
- Wake County

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
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Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-HNP-0603-01, **Harris** Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Chatham, Harnett, Lee, and Wake counties. Each county can control the sirens within their boundaries, or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

Duke Energy HNP Emergency Plan Annex

G: Public Education and Information

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Regulatory References: 10 CFR 50.47(b)(7); 44 CFR 350.5(a)(7);

G.1	Provisions are made for a coordinated annual dissemination of information to the public within the plume exposure pathway EPZ, including transient populations and those with access and functional needs, regarding how they will be notified and what actions should be taken. The information is disseminated using multiple methods, to include non-English translations per current Federal guidance.
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In addition to the public information distribution methods described in the common plan, HNP will also:

- Provide an annual distribution of a school brochure to school bus drivers and students;
- Periodic publication of information for 10-mile EPZ residents, at least annually.

Lake warning signs are posted at boat ramps, or access roads to boat ramps, at Harris and Jordan Lakes. These signs describe the activities which would be taken to initiate an evacuation of the lake and actions which should be taken in response to the evacuation. The posting of these signs is verified semiannually.

Duke Energy HNP Emergency Plan Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC has the following characteristics/capabilities:

1. The TSC is located within the Protected Area at elevation 324'-0" in the Fuel Handling Building, Section "K," approximately 400 feet walking distance from the Main Control Room (MCR) (primary route).
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. Exterior walls, roof, and floor are built to Seismic Category I, tornado, wind, and missile safety-related criteria. The exceptions are several penetrations on the west exterior wall which are not constructed to Seismic Category I standards and various roof penetrations that are not tornado missile protected. The TSC penetrations on the west exterior wall comply with the minimum standards required of the NC Building Code and will therefore withstand the most adverse conditions reasonably expected during the design life of the plant. Equipment is non-safety related and nonredundant. The TSC was designed taking into account good human factors engineering principles.
4. Provided with radiation protection equivalent to Main Control Room habitability requirements such that the dose to an individual in the TSC for the duration of a design basis accident is less than 5 Rem TEDE. The Emergency Ventilation System includes HEPA and carbon filtration. The TSC is also environmentally controlled to provide room air temperature, humidity and cleanliness appropriate for personnel and equipment. Decontamination and monitoring area is available.
5. Video System capable of displaying Emergency Response Facility Information System (ERFIS) information (such as, plant data, SPDS, and RMS).
6. Reliable power for habitability systems and battery pack emergency lighting are provided. Power to the TSC is supplied from 2 reliable and diverse offsite power sources available through an automatic transfer switch.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

In the event the TSC must be evacuated, the backup location is the 305' Shift Manager, Shift Technical Advisor, and the Auxiliary Operator office area.

Duke Energy HNP Emergency Plan Annex

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The OSC located in the Waste Processing Building inside the Protected Area. The total area is approximately 1500 square feet in the Waste Processing Building HP Tech Work Area. This area includes a separate Command and Control area for coordinating and planning of OSC activities in addition to sufficient area for team members to standby for activities. Additional space in excess of 8500 square feet is available in adjacent offices and locker rooms to accommodate additional personnel as may be required.

In the event the OSC must be evacuated, a backup location has been established in the Fuel Handling Building, Section "K," near the TSC.

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The Duke Energy EOF is located greater than 25 miles from the site. The Harris Energy & Environmental Center (HEEC) is used as a near site location for the NRC and other off-site agency staff.

This location will provide for conference areas with white boards, separate briefing/debriefing areas, telephones, ERO telephone contact lists, computers with internet access, necessary office supplies and photocopier access, and access to plant radiological information.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
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The Harris Energy & Environmental Center (HEEC) located on New Hill Holleman Road has been designated as the HNP Alternate Emergency Facility.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
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1. Meteorological Monitoring

HNP has a permanent meteorological monitoring station located within the exclusion area boundary for display and recording of wind speed, wind direction, and differential temperature for use in making off-site dose projections. Meteorological information is presented in the Main Control Room, the TSC, and the EOF by means of a communication interface. Additional information on the on-site meteorological monitoring system can be found in UFSAR Section 2.3.3.

2. Hydrologic Monitoring

The design basis flood, probable maximum precipitation, and other improbable, conceivable extremes in hydrologic natural phenomena are well below any design limits for this site. Refer to UFSAR Sections 2.4.2 and 2.4.3.

Duke Energy HNP Emergency Plan Annex

3. Seismic Monitoring

HNP has a seismic monitoring system, described in UFSAR Section 3.7.4 and procedure PLP-114, that is located inside safety-related structures and measures horizontal and vertical acceleration. A seismic event is digitally recorded, analyzed, and displayed by the seismic monitor computer in the Main Control Room. The digital record can also be sent off site for additional analysis.

4. Radiation Monitoring

The Radiation Monitoring System (RMS) is a plant-wide radiation information gathering and control system encompassing the process and effluent monitors and the area and airborne monitors. Radiological monitors are provided for plant systems as described in UFSAR Sections 11.5 and 12.3.4. The types, ranges, and locations of monitors are listed in USFAR Tables 11.5.2-1, 11.5.2-2 and 12.3.4-1.

Duke Energy HNP Emergency Plan Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 01/14/02. The NRC issued Amendment No. 108 (Facility Operating License NPF-FP). The amendment deletes TS Section 6.8.4.e, "Post Accident Sampling," and thereby eliminates the requirement to have and Maintain the Post-Accident Sampling System at HNP.

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, and Residual Heat Removal, and Containment Sump samples. Procedures are in place to assess core damage under accident condition.

Duke Energy HNP Emergency Plan Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
-----	--

The main plant access road and the secondary access road may be used to depart from the site, and evacuation from the 10-mile EPZ and to reception centers will be by way of evacuation routes identified in CSD-EP-HNP-0603-03, Harris Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
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J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The HNP site specific ETE report is documented in CSD-EP-HNP-0603-03, Harris Plant Evacuation Time Estimate Study.

Duke Energy HNP Emergency Plan Annex

L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
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The primary and backup offsite medical facilities to treat contaminated, injured personnel from HNP are:

Primary – Rex Healthcare Raleigh, N.C.

Backup – WakeMed Raleigh, N.C.

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
-----	--

The Wake County EMS is used to provide ambulance service for individuals transported from HNP. They have the means to control contamination while transporting victims.

Duke Energy HNP Emergency Plan Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
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External emergency plans specific to the support of HNP include the following:

- Chatham County's Plan to Support the Harris Nuclear Power Plant
- Harnett County's Plan to Support the Harris Nuclear Power Plant
- Lee County Plan to Support the Harris Nuclear Power Plant
- Wake County Emergency Operations Plan
- Emergency Response Plan, Water Reactors Division, Westinghouse Electric Corporation

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing of the HNP site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

Duke Energy HNP Emergency Plan Annex

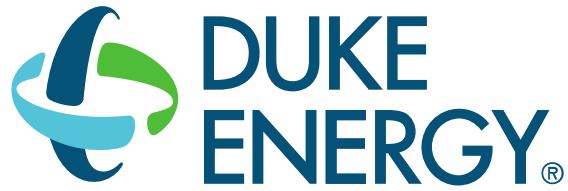
Table P.7-1: HNP Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-HNP-0105	HNP Specific TSC Support	H
AD-EP-HNP-0106	HNP Specific OSC Support	H
AD-EP-HNP-0203	HNP Site Specific Field Monitoring	I
PEP-342	Core Damage Assessment	D, I
EPM-400	Public Notification and Alerting System	E.4
EPM-410	Communication and Facility Performance Tests	F, H, P
EPM-420	Emergency Equipment Inventory	F, H
EPM-601	Core Damage Assessment Technical Basis	I
EPL-001	Emergency Phone List	P

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements

Enclosure 6
RA-21-0063

Enclosure 6
MNS Site Annex (EP-MNS-EPLAN)



Duke Energy
McGuire
Emergency Plan Annex
EP-MNS-EPLAN
REVISION 0

Duke Energy MNS Emergency Plan Annex

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Duke Energy MNS Emergency Plan Annex

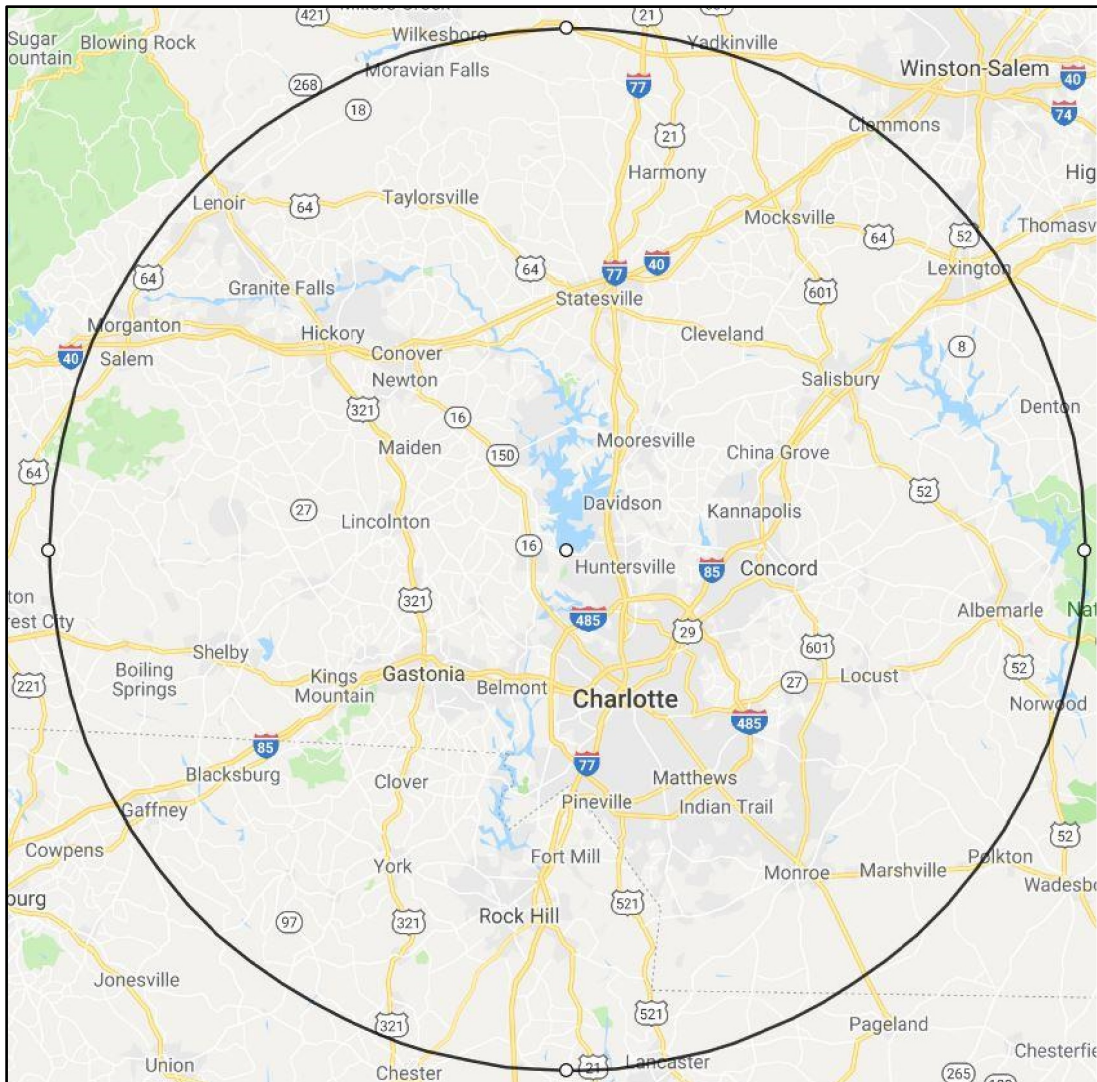
INTRODUCTION

This Duke Energy McGuire Emergency Plan Annex supplements the Duke Energy Common Emergency Plan by providing site specific information unique to the site. It is subject to the same change and audit requirements as the Common Emergency Plan.

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

Emergency Planning for the McGuire Nuclear Station (MNS) is performed within the following two Emergency Planning Zones (EPZ):

- Plume Exposure Pathway EPZ – The MNS Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- Ingestion Pathway EPZ – The MNS Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



Duke Energy MNS Emergency Plan Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
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4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of MNS are:

- Catawba
- Gaston
- Iredell
- Lincoln
- Mecklenburg

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of MNS are:

North Carolina

Alexander	Davidson	Rutherford
Anson	Davie	Rowan
Burke	Gaston	Stanly
Cabarrus	Iredell	Union
Caldwell	Lincoln	Wilkes
Catawba	Mecklenburg	Yadkin
Cleveland	Montgomery	

South Carolina

Cherokee	Chester
Lancaster	York

Duke Energy MNS Emergency Plan Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
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Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by MNS with the following organizations:

- Carolina's Medical Center
- University Hospital
- Huntersville Fire Department
- Mecklenburg Emergency Medical Services Agency (MEDIC)
- Charlotte-Mecklenburg Emergency Management
- Iredell County Emergency Management
- Lincoln County Emergency Management
- Gaston County Emergency Management
- Catawba County Emergency Management
- Charlotte Mecklenburg Police Department
- State of North Carolina

Duke Energy MNS Emergency Plan Annex

B: Onsite Emergency Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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The MNS on-shift staffing analysis report has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-MNS-0603-02, McGuire Plant On-Shift Staffing Analysis.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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2. Contractor Support

- A. Westinghouse Electric (the NSSS vendor for MNS): Westinghouse Electric will form a Technical Support Team upon request. The team will be composed of personnel with the appropriate technical disciplines that can be dispatched to the plant site. Westinghouse Electric will also establish dedicated telephone communications for data transmission until the arrival of the team.

Duke Energy MNS Emergency Plan Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
-----	---

The MNS EAL scheme is documented in CSD-EP-MNS-0101-01, McGuire EAL Technical Basis Document.

Duke Energy MNS Emergency Plan Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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The site-specific state and county entities (24/7 warning points) notified of a declared emergency at MNS are as follows:

- State of North Carolina
- Gaston County
- Lincoln County
- Iredell County
- Mecklenburg County
- Catawba County

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
-----	---

Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-MNS-0603-01, McGuire Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Gaston, Iredell, Lincoln, and Mecklenburg counties. Each county can control the sirens within their boundaries (except for Catawba county, which has one siren that will be activated by Lincoln county), or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

Duke Energy MNS Emergency Plan Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC has the following characteristics/capabilities:

1. The TSC is located near the Control Room, on elevation 767, in the Service Building. The TSC is within one (1) minute walking distance from the Control Room. This is a permanent facility.
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. The TSC is located in a well-engineered steel framed building situated on a reinforced concrete substructure and was built in accordance with standard building codes.
4. Radiological habitability during postulated radiological accidents to the same degree as the Control Room. Monitoring for direct radiation and airborne radioactive materials with local readout of radiation level and alarms if levels are exceeded.
5. Display, printout or trend record of comprehensive data necessary to monitor reactor system status and to evaluate plant system abnormalities, in-plant and offsite radiological parameters and meteorological parameters are available. This capability is provided via the operator aid computer. Capabilities to access and display parameters, individually or in groups is provided.
6. Normal power to the TSC is from either Unit 1 or Unit 2 onsite power available through an automatic transfer switch. In the event of a loss of power, the TSC diesel generator supplies a backup source of power to the TSC.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

In the event the TSC must be evacuated, an alternate location has been established in the McGuire Administrative Building.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The OSC is located in the Auxiliary Building roof office, elevation 784'. Workspace and resources are shared with the Outage Control Center (OCC). It has priority over the OCC if any emergency is declared during an outage.

In the event the OSC must be evacuated, a backup location has been established in the McGuire Administrative Building.

Duke Energy MNS Emergency Plan Annex

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The Duke Energy Common EOF is not located greater than 25 miles from the site. Therefore, this element does not apply to MNS.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
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The Common EOF, located in the Duke Energy Corporate Headquarters, Charlotte, North Carolina has been designated as the MNS Alternate Emergency Facility.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
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1. Meteorological Monitoring

The meteorological parameters measured at MNS include wind speed and wind direction measured at high and low levels, delta-temperature and sigma theta for stability classification, ambient air and dew point temperature, and precipitation.

Meteorological data consists of a primary digital recording/storage system and a secondary analog chart recording system both of which meet system accuracies and other specifications as suggested in Regulatory Guide 1.23, Proposed Revision 1. In the digital system meteorological variables are sampled at varying time (1-60 seconds) intervals from which 15 minute total, average and/or standard deviation quantities are computed. Digital data is placed on an external PI server accessible to computers that are used for emergency effluent dispersion modeling and dose calculation. The chart recording system is maintained as a backup to the digital system.

2. Hydrologic Monitoring

A hydrological description of MNS is located in the UFSAR Section 2.4.

3. Seismic Monitoring

A description of the seismic monitoring instrumentation and area seismology studies for MNS are found in UFSAR Sections 3.7 and 2.5 respectively.

Duke Energy MNS Emergency Plan Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 09/17/01. The NRC issued Amendments No. 199 (Facility Operating License NPF-9) and No. 180 (Facility Operating License NPF-17). The amendments delete TS Section 5.5.4, "Post Accident Sampling," for MNS, Units 1 and 2, and thereby eliminates the requirement to have and maintain the post-accident sampling systems (PASS - PALSS/PACS).

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, and Residual Heat Removal, and Containment Sump samples. Procedures are in place to assess core damage under accident condition.

Duke Energy MNS Emergency Plan Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
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The main plant access road may be used to depart from the site. Evacuation routes and relocation areas are shown in CSD-EP-MNS-0603-03, McGuire Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
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J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The MNS site specific ETE report is documented in CSD-EP-MNS-0603-03, McGuire Plant Evacuation Time Estimate Study.

Duke Energy MNS Emergency Plan Annex

L: Medical And Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
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The primary and backup offsite medical facilities to treat contaminated, injured personnel from MNS are:

Primary – Carolinas Medical Center (Charlotte, NC)

Backup – University Hospital (Charlotte, NC)

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
-----	--

The Mecklenburg Emergency Medical Services Agency – MEDIC is used to provide ambulance service for individuals transported from MNS. They have the means to control contamination while transporting victims.

Duke Energy MNS Emergency Plan Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
-----	--

External emergency plans specific to the support of MNS include the following:

- Catawba County, NC, Radiological Emergency Response Plan in Support of the McGuire Nuclear Site
- Gaston County, NC, Radiological Emergency Response Plan in Support of the McGuire Nuclear Site
- Iredell County, NC, Radiological Emergency Response Plan in Support of the McGuire Nuclear Site
- Lincoln County, NC, Radiological Emergency Response Plan in Support of the McGuire Nuclear Site
- Mecklenburg County, NC, Radiological Emergency Response Plan in Support of the McGuire Nuclear Site
- Emergency Response Plan, Water Reactors Division, Westinghouse Electric Corporation

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
-----	---

Table P.7-1 provides a listing of the MNS site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

Duke Energy MNS Emergency Plan Annex

Table P.7-1: MNS Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-MNS-0105	MNS Site Specific TSC Support	H
AD-EP-MNS-0106	MNS Site Specific OSC Support	H
AD-EP-MNS-0203	MNS Site Specific Field Monitoring	I
RP/0/A/5700/011	Conducting a Site Assembly, Site Evacuation or Containment Evacuation	E, J, K
RP/0/A/5700/019	Core Damage Assessment	I
RP/0/A/5700/026	Operations/Engineering Required Actions in the Technical Support Center (TSC)	B, I
HP/0/B/1009/002	Alternative Methods for Determining Dose Rate within the Reactor Building	I
HP/0/B/1009/006	Procedure for Quantifying High Level Gaseous Radioactivity Release During Accident Conditions	I
HP/0/B/1009/010	Releases of Liquid Radioactive Materials Exceeding Selected Licensee Commitments	I
HP/0/B/1009/021	Estimating Food Chain Doses Under Post-Accident Conditions	I
HP/0/B/1009/022	Accident and Emergency Response	I
HP/0/B/1009/024	Personnel Monitoring for Emergency Conditions	K
PT/0/A/4600/088	Functional Check of Emergency Vehicle and Equipment	H

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements

Enclosure 7
RA-21-0063

Enclosure 7
ONS Site Annex (EP-ONS-EPLAN)



Duke Energy
Oconee
Emergency Plan Annex
EP-ONS-EPLAN
REVISION 0

ONS Emergency Plan Annex

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ONS Emergency Plan Annex

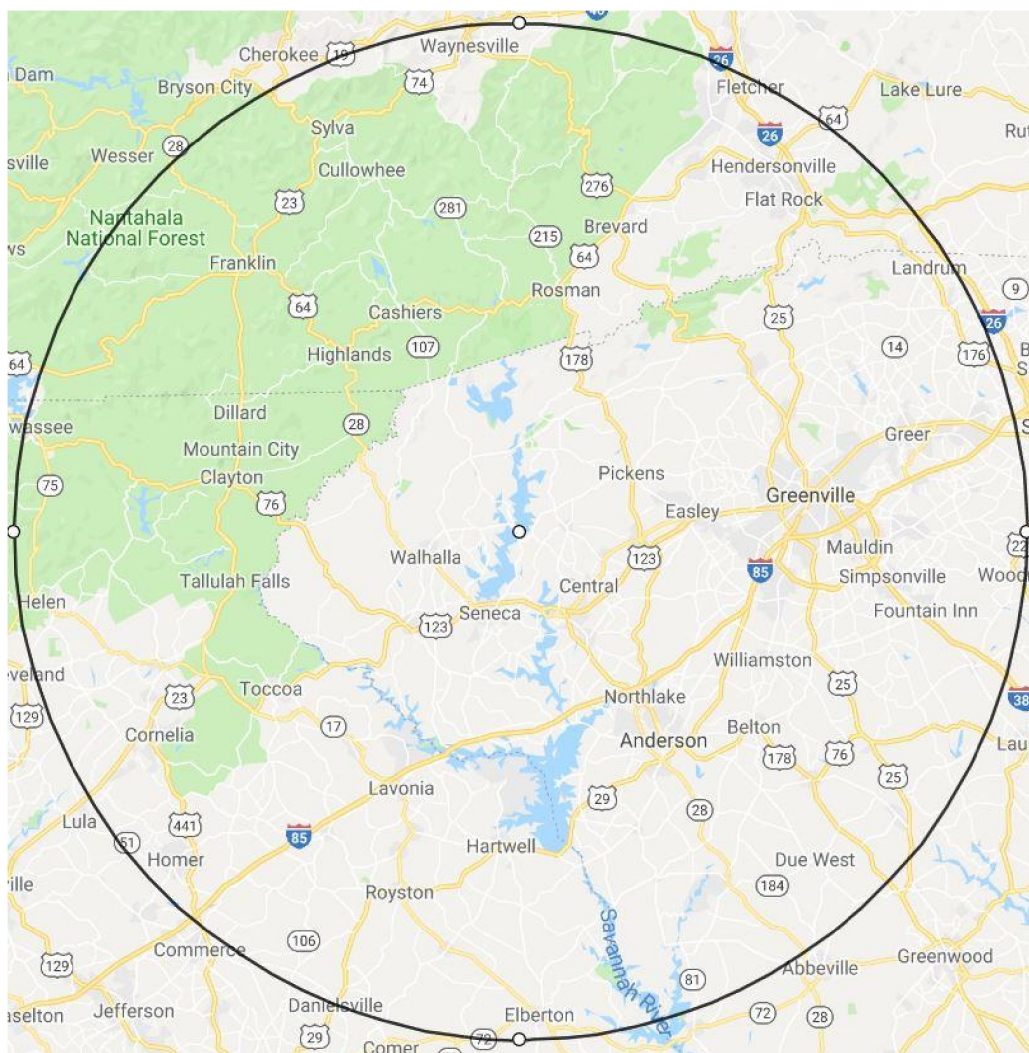
INTRODUCTION

This Duke Energy Oconee Emergency Plan Annex supplements the Duke Energy Common Emergency Plan by providing site specific information unique to the site. It is subject to the same change and audit requirements as the Common Emergency Plan.

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

Emergency Planning for the Oconee Nuclear Station (ONS) is performed within the following two Emergency Planning Zones (EPZ):

- Plume Exposure Pathway EPZ – The ONS Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- Ingestion Pathway EPZ – The ONS Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



ONS Emergency Plan Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
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4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of ONS are:

- Oconee County
- Pickens County

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of ONS are:

North Carolina

Buncombe	Henderson	Polk
Clay	Jackson	Swain
Haywood	Macon	Transylvania

South Carolina

Abbeville	Greenville	Pickens
Anderson	Greenwood	Spartanburg
Laurens	Oconee	

Georgia

Banks	Hall	Rabun
Elbert	Hart	Stephens
Franklin	Jackson	Towns
Habersham	Madison	White

ONS Emergency Plan Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
-----	---

Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by ONS with the following organizations:

- Oconee County Sheriff's Department
- Oconee Memorial Hospital
- AnMed Health Cannon
- Keowee-Fire Tax District
- Oconee Emergency Medical Service
- Oconee County
- Pickens County
- State of South Carolina

ONS Emergency Plan Annex

B: Onsite Emergency Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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The ONS on-shift staffing analysis report has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-ONS-0603-02, Oconee Plant On-Shift Staffing Analysis.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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2. Contractor Support

The current NSSS vendor for ONS is Framatome. Framatome can be called on during emergency situations to provide the technical analysis and engineering support necessary to mitigate abnormal plant conditions.

ONS Emergency Plan Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
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The ONS EAL scheme is documented in CSD-EP-ONS-0101-01 Oconee EAL Technical Basis Document.

ONS Emergency Plan Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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The site-specific state and county entities (24/7 warning points) notified of a declared emergency at ONS are as follows:

- State of South Carolina
- Oconee County
- Pickens County

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
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Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-ONS-0603-01, Oconee Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Oconee and Pickens counties. Each county can control the sirens within their boundaries, or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

ONS Emergency Plan Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC has the following characteristics/capabilities:

1. The TSC is located in the area known as the Operations Center, together with the nearby offices adjacent to the Control Rooms 1&2 on the fifth floor of the Auxiliary Building.
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. The TSC is located within the control room ventilation and shielding envelope and therefore is built to the same structural requirements as the Oconee Control Rooms 1&2.
4. Habitability during postulated radiological accidents to the same degree as the Control Room. Monitoring for direct radiation and airborne radioactive contaminants, with local readout of radiation level and alarms if preset levels are exceeded. Laboratory analysis is required if it becomes necessary to detect radioiodines at concentrations as low as 1.0 E-7 microcurie/cc.
5. Display, printout or trending of comprehensive data necessary to monitor reactor systems status and to evaluate plant system abnormalities; in-plant radiological parameters and meteorological parameters are also available. This capability is provided via each unit's Operator Aid Computer. Offsite radiological conditions are provided via radio from the field monitoring teams.
6. Normal power to the TSC is from reliable onsite power sources. Backup power can be supplied from the site emergency power sources.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

In the event the TSC must be evacuated, an alternate location has been designated in the Oconee Office Building, Room 316. Radio and telephone communications are available to offsite agencies and the NRC to the same extent as the designated TSC.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The OSC is located in the area adjacent to the Unit 3 Control Room. The OSC has shielding and ventilation to the same degree as the Control Room.

In the event the OSC must be evacuated, a backup location has been established in the Oconee Office Building, Room 316 A. Communication links are provided for information flow both to the MCR and TSC.

ONS Emergency Plan Annex

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The Duke Energy EOF is located greater than 25 miles from the site. The Oconee Media Center located on Issaqueena Trail, Clemson, SC has been designated for use as a near site location for the NRC and other off-site agency staff.

This location will provide for conference areas with white boards, separate briefing/debriefing areas, telephones, ERO telephone contact lists, computers with internet access, necessary office supplies and photocopier access, and access to plant radiological information.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
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The Oconee Media Center located on Issaqueena Trail, Clemson, SC has been designated as the ONS Alternate Emergency Facility.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
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1. Meteorological Monitoring

The Meteorological Monitoring System monitors and records continuous data for upper and lower levels of wind speed and direction, ambient air temperature and temperature differential at Site #1 (Northwest Met Tower). Wind speed, wind direction and precipitation is recorded at Site #2 (Keowee River Tower). All data points are included on each of the Units OAC computers where the data is averaged over a 15 minute period of time, except for precipitation.

2. Hydrologic Monitoring

A hydrological description of ONS is located in the UFSAR Section 2.4..

3. Seismic Monitoring

A description of the seismic monitoring instrumentation and area seismology studies for ONS are found in UFSAR Sections 3.7 and 2.5 respectively.

ONS Emergency Plan Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 07/12/05. The NRC issued Amendments No. 346 (Facility Operating License NPF-38), No. 347 (Facility Operating License NPF-47) and No. 348 (Facility Operating License NPF-55). The amendments delete TS Section 5.5.4, "Post Accident Sampling," for ONS, Units 1, 2 and 3, and thereby eliminates the requirement to have and maintain the post-accident sampling systems.

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, and Residual Heat Removal, and Containment Sump samples. Procedures are in place to assess core damage under accident condition.

ONS Emergency Plan Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
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The main plant access road and the secondary access road may be used to depart from the site. Evacuation routes and designated relocation areas are identified in CSD-EP-ONS-0603-03, Oconee Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
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J.8.a	Incorporated either by reference or in their entirety into the emergency plan.
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The ONS site specific ETE report is documented in CSD-EP-ONS-0603-03, Oconee Plant Evacuation Time Estimate Study.

ONS Emergency Plan Annex

L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
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The primary and backup offsite medical facilities to treat contaminated, injured personnel from ONS are:

- Primary – Oconee Memorial Hospital (Seneca, SC)
- Backup – AnMed Health Cannon (Pickens, SC)

Medical assistance is provided by the Oconee Memorial Hospital and on-call physicians.

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
-----	--

The Oconee Emergency Medical Service is used to provide ambulance service for individuals transported from ONS. They have the means to control contamination while transporting victims.

ONS Emergency Plan Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
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External emergency plans specific to the support of ONS Include the following:

- Oconee County Emergency Operations Plan, Annex Q
- Pickens County Emergency Operations Plan, Annex Q

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing of the ONS site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

ONS Emergency Plan Annex

Table P.7-1: ONS Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-ONS-0105	ONS Site Specific TSC Support	H
AD-EP-ONS-0106	ONS Site Specific OSC Support	H
AD-EP-ONS-0203	ONS Site Specific Field Monitoring	I
RP/0/A/1000/009	Procedure for Site Assembly	E, J
RP/0/A/1000/010	Procedure for Emergency Evacuation/Relocation of Site Personnel	E, J
HP/0/B/1009/016	Procedure for Emergency Decontamination of Personnel and Vehicles On-Site and From Off-Site Remote Assembly Areas	J, K
RP/0/A/1000/018	Core Damage Assessment	D, I
HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check	H
PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment	F
PT/0/A/2000/008	Procedure to Verify the Availability of Supplies and Equipment in the Emergency Response Facilities	H
TE-EP-ALL-0408	Periodic Test of The Emergency Operations Facility DEMNET, ENS, and ETS	F, H

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements

Enclosure 8
RA-21-0063

Enclosure 8
RNP Site Annex (EP-RNP-EPLAN)



Duke Energy
Robinson
Emergency Plan Annex
EP-RNP-EPLAN
REVISION 0

Duke Energy RNP Emergency Plan Annex

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Duke Energy RNP Emergency Plan Annex

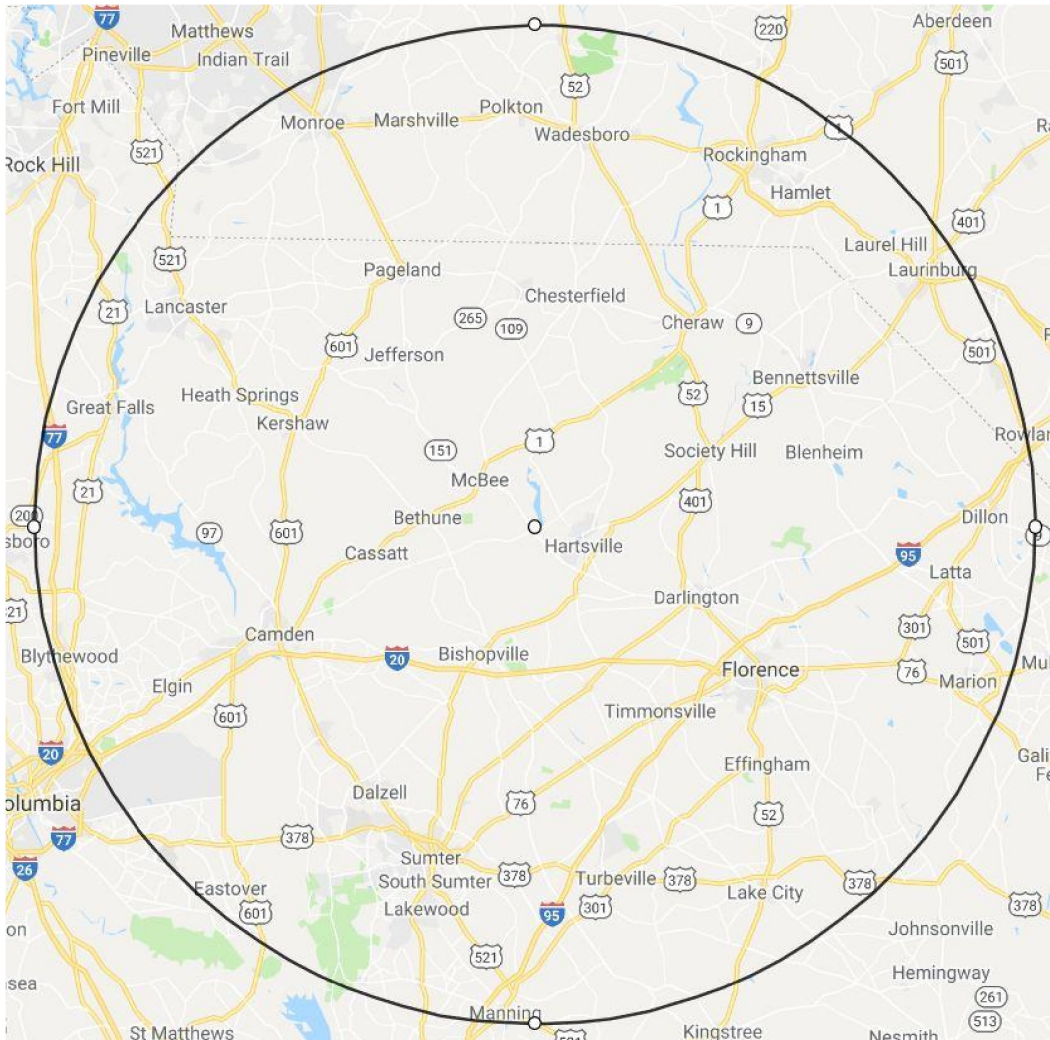
INTRODUCTION

This Duke Energy Robinson Emergency Plan Annex supplements the Duke Energy Common Emergency Plan by providing site specific information unique to the site. It is subject to the same change and audit requirements as the Common Emergency Plan.

This document matches the structure of the Duke Energy Common Emergency Plan in following the format of NUREG-0654, Rev 2. It only contains the guidance elements that have site specific information therefore the numbering may not always be sequential.

Emergency Planning for the Robinson Nuclear Plant (RNP) is performed within the following two Emergency Planning Zones (EPZ):

- Plume Exposure Pathway EPZ – The RNP Plume Exposure Pathway EPZ approximates a 10-mile radius around the plant site and is described and illustrated in the station's Evacuation Time Estimate Study report.
- Ingestion Pathway EPZ – The RNP Ingestion Pathway EPZ approximates a 50-mile radius around the plant site as illustrated below.



Duke Energy RNP Emergency Plan Annex

A: Assignment of Responsibility

Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the EPZs have been assigned, the emergency responsibilities of the various supporting organization have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1)

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.
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4. County Organizations

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of RNP are:

- Chesterfield
- Darlington
- Lee

The county and municipal governments (within the counties) with emergency service departments and other agencies interrelated to these local governments within the 50-mile EPZ (ingestion exposure pathway) of RNP are:

South Carolina Counties

Chester	Chesterfield	Clarendon
Darlington	Dillon	Fairfield
Florence	Kershaw	Lancaster
Lee	Marlboro	Marion
Richland	Sumter	Williamsburg

North Carolina Counties

Anson	Robeson	Richmond
Scotland	Union	

Duke Energy RNP Emergency Plan Annex

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are referenced. The agreements describe the concept of operations, emergency response measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.
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Site specific letters of agreement (LOAs) or memorandums of understanding (MOUs), located in the Electronic Document Management System, are maintained by RNP with the following organizations:

- Carolina Pines Regional Medical Center
- McLeod Health Cheraw
- Darlington County Sheriff's Department
- Florence County Sheriff's Department
- Chesterfield County
- Lee County
- Darlington County
- State of South Carolina

Duke Energy RNP Emergency Plan Annex

B: Onsite Emergency Organization

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

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.
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The RNP on-shift staffing analysis report has been developed in accordance with 10 CFR 50 Appendix E.IV.A.9 and NEI 10-05.

Refer to CSD-EP-RNP-0603-02, Robinson Plant On-Shift Staffing Analysis Report.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.
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2. Contractor Support

- A. Westinghouse Electric (the NSSS vendor for RNP): Westinghouse Electric will form a Technical Support Team upon request. The team will be composed of personnel with the appropriate technical disciplines that can be dispatched to the plant site. Westinghouse will also establish dedicated telephone communications for data transmission until the arrival of the team.
- B. AECOM (the architect-engineer for RNP): AECOM (formerly URS Energy and Construction) will form a Technical Support Team upon request.

Duke Energy RNP Emergency Plan Annex

D: Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.
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The RNP EAL scheme is documented in CSD-EP-RNP-0101-01, Robinson EAL Technical Basis Document.

Duke Energy RNP Emergency Plan Annex

E: Notification Methods and Procedures

Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5)

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.
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The site-specific state and county entities (24/7 warning points) notified of a declared emergency at RNP are as follows:

- State of South Carolina
- Chesterfield County
- Darlington County
- Lee County

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.
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Detailed information on the FEMA approved system used to alert and notify the general public is maintained in CSD-EP-RNP-0603-01, Robinson Plant Alert and Notification System Design Report.

Activation of the ANS will be accomplished from county ANS activation equipment located in Emergency Operation Centers or warning points in Chesterfield, Darlington, and Lee counties. The ANS can be controlled independently from each county, or the ANS for the entire EPZ can be controlled from one county. Any part of the ANS may be controlled by Duke Energy, with a request from the counties.

Duke Energy RNP Emergency Plan Annex

H: Emergency Facilities and Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8)

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.
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The TSC has the following characteristics/capabilities:

1. The TSC is adjacent to the Protected Area in the TSC/Training Building.
2. The TSC provides at least 75 square feet per person for the required TSC augmenting responders plus five (5) NRC personnel.
3. The TSC is a well-engineered structure located in a reinforced concrete building situated on a concrete slab and was built in accordance with the local building code.
4. Radiation monitors (area and atmosphere) are provided to determine the radiological habitability of the TSC. Charcoal and HEPA Filters are also provided for personnel habitability during radioactive releases.
5. Equipment is provided to acquire Emergency Response Facility Information System (ERFIS) plant data and present the data on display terminals. The capability will exist to present the data in various formats and provide hard copies on demand.
6. The TSC is supplied by electrical service from two separate sources through an automatic transfer switch. Upon loss or degradation of the normal source, the vital building loads will be automatically transferred to the alternate source. One of the power sources is fed from offsite power and the other source is fed from the TSC/Security Diesel Generator.
7. The TSC has access to drawings and other records, including general arrangement diagrams, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures.

In the event the TSC must be evacuated, the TSC plant management function shall relocate to the Control Room or the Remote Emergency Response Facility (RERF). In the event TSC personnel are unable to report to the site, the RERF will serve as an alternate facility for the TSC.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.
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The OSC is located in the O&M Building on Unit 2.

In the event of an OSC evacuation, a backup location has been established in the Training Building 410 or the Remote Emergency Response Facility.

Duke Energy RNP Emergency Plan Annex

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.
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The Duke Energy EOF is located greater than 25 miles from the site. The Remote Emergency Response Facility in Hartsville, SC is used as a near site location for the NRC and other off-site agency staff.

This location will provide for conference areas with white boards, separate briefing/debriefing areas, telephones, ERO telephone contact lists, computers with internet access, necessary office supplies and photocopier access, and access to plant radiological information.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP site is under threat of or experiencing hostile action.
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The Duke Energy Hartsville Operations Center in Hartsville, South Carolina has been designated as the RNP Alternate Emergency Facility.

In the event of a large onsite fire, personnel are notified and assemble at Darlington County Fire District Station #8 to support the onsite response activities. Radio communication devices, radiological monitoring instruments, and appropriate guidance documents are available at this location for their use.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).
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1. Meteorological Monitoring

RNP has a permanent meteorological monitoring station located on site for display and recording of wind speed, wind direction, and temperature differences for use in making off-site dose projections, etc. Meteorological information is presented in the Control Room by means of the plant computer. Wind speed and direction are measured at approximately 11.0 and 62.0 meters above tower base. Differential Temperature is measured at approximately 10.0 and 61.0 meters above tower base. This information is remotely interrogatable using a computer or other data access terminal.

The meteorological instrumentation which Duke Energy uses at the meteorological monitoring station, meets the requirements of N.R.C. Regulatory Guide 1.23 (Rev. 0) and provides the meteorological parameters to the locations specified in our December 31, 1984 and July 18, 1985 responses to N.R.C. on Regulatory Guide 1.97 (Rev. 3), Table 1 and Table 3.

Additional information on RNP meteorological instrumentation is located in the UFSAR Section 2.3.

2. Hydrologic Monitoring

A hydrological description of RNP is located in the UFSAR Section 2.4.

3. Seismic Monitoring

Duke Energy RNP Emergency Plan Annex

A description of the seismic monitoring instrumentation and area seismology studies for RNP are found in UFSAR Sections 3.7 and 2.5 respectively.

4. Process Monitors

A description of process monitors at RNP is located in the UFSAR Section 7.5.

Duke Energy RNP Emergency Plan Annex

I: Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9)

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.
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Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 01/14/02. The NRC issued Amendments No. 1923 (Facility Operating License DPR-23). The amendment deletes TS Section 5.5.3, "Post Accident Sampling," for RNP Unit 2 and thereby eliminates the requirement to have and maintain the post-accident sampling system.

A Chemistry Management Procedure describes post-accident contingency plans for obtaining Reactor Coolant, and Residual Heat Removal, and Containment Sump samples. Procedures are in place to assess core damage under accident condition.

Duke Energy RNP Emergency Plan Annex

J: Protective Response

A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10)

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.
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The west access road will be used as the primary route to depart from the site. Alternate routes through the east access road and the north access road to Silo Road will be used as appropriate.

Evacuation routes to designated reception centers are identified in CSD-EP-RNP-0603-03, Robinson Plant Evacuation Time Estimate Study.

J.8	The latest ETEs are:
J.8.a	Incorporated either by reference or in their entirety into the emergency plan.

The RNP site specific ETE report is documented in CSD-EP-RNP-0603-03, Robinson Plant Evacuation Time Estimate Study.

Duke Energy RNP Emergency Plan Annex

L: Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12)

L.2.b	Primary and backup offsite medical facilities.
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The primary and backup offsite medical facilities to treat contaminated, injured personnel from RNP are:

Primary – Carolina Pines Regional Medical Center, Hartsville, SC

Backup – McLeod Health Cheraw in Cheraw, SC

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.
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The Darlington County Emergency Medical Service is used to provide ambulance service for individuals transported from RNP. They have the means to control contamination while transporting victims.

Duke Energy RNP Emergency Plan Annex

P: Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16)

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
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External emergency plans specific to the support of RNP include the following:

- Chesterfield County Emergency Operations Plan
- Darlington County Emergency Operations Plan
- Lee County Emergency Operations Plan
- Emergency Response Plan, Water Reactors Division, Westinghouse Electric Corporation

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.
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Table P.7-1 provides a listing of the RNP site-specific procedures required to maintain and implement the emergency plan, and the section(s) of the emergency plan implemented by each procedure.

Duke Energy RNP Emergency Plan Annex

Table P.7-1: RNP Emergency Plan Response and Administrative Procedures

Document ID	Document Title	Plan Sections Implemented ⁽¹⁾
AD-EP-RNP-0105	RNP Site Specific TSC Support	H
AD-EP-RNP-0106	RNP Site Specific OSC Support	H
AD-EP-RNP-0203	RNP Site Specific Field Monitoring	I
RST-003	Emergency Kit Inventory	H, K, L
EPNOT-01	CR Emergency Communicator	E
EPPRO-02	Maintenance and Testing	F.4
EPPRO-07	Operation and Maintenance of the Alert Notification System	F
EPRAD-02	Processing Very High Level Rad Samples	I
EPRAD-04	Personnel Decontamination	K
EPSPA-05	Unified Incident Command	C
EPSPA-01	Evacuation and Accountability	E, J
EPSPA-02	First Aid and Medical Care	F, L
EPTSC-07	Damage Assessment	D, I

(1) All letters refer to Sub-Sections of Plan Section II, Planning Standards and Elements