

Criteria for

Preparation and Evaluation of Radiological
**EMERGENCY RESPONSE
PLANS AND PREPAREDNESS**

in Support of Nuclear Power Plants

Final Report

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Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

Final Report

December 2019



ABSTRACT

NUREG-0654/FEMA-REP-1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” is a joint United States Nuclear Regulatory Commission (NRC) NUREG-series publication and Federal Emergency Management Agency (FEMA) guidance document. Both agencies use the document to evaluate the adequacy of the emergency plans and preparedness of state, local, and tribal governments within the emergency planning zones (EPZs) surrounding commercial nuclear power plants (NPPs), as well as those of the commercial NPP applicants and licensees.

This NUREG-0654/FEMA-REP-1, Revision 2 update reflects changes to both NRC and FEMA regulations, guidance, policies, and doctrine, as well as advances in technology and best practices that have occurred since the document was originally issued in November 1980. This update also incorporates the four supplemental documents and addenda that have been issued in the intervening years, and is intended to modernize and consolidate the guidance making it easier for users to understand.

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PREFACE

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,” integrates 35 years of lessons learned within the Radiological Emergency Preparedness (REP) Program¹ and consolidates and clarifies previous guidance. This document is consistent with NRC and the Department of Homeland Security’s (DHS’) FEMA regulations² and doctrine. FEMA expects state, local, and tribal governments to adopt and transition to Revision 2 of this document. Part B of the Introduction provides information for use of this document. Part B also provides information regarding the NRC’s plans for using this document and how the NRC staff complies with section 50.109 of Title 10 of the Code of Federal Regulations (CFR), and any applicable finality provisions in 10 CFR Part 52. The decision to revise this document and maintain the joint ownership between NRC and FEMA was agreed upon by the FEMA/NRC Emergency Preparedness (EP) Steering Committee. This update aligns with national preparedness doctrine as directed by the President in directives and supported by the National Preparedness System (NPS)³. Additionally, this revision incorporates the REP Program guidance into the NPS, thus ensuring that it is risk- and threat-informed and appropriate for the whole community.

The revised document is the product of a joint NUREG-0654/FEMA-REP-1 Task Force consisting of headquarters and regional staff members of both agencies. Multiple public meetings and call-in sessions were held to engage stakeholders, including Federal partners and state, local, and tribal governments, and industry representatives. Stakeholders provided constructive input to inform the writing process and validate work products. The Task Force strived to achieve the same relevance that the original authors accomplished. The concepts within this document have served the REP community well since first released in 1980 and were embraced by the Task Force during the rewrite process. NRC and FEMA staff, as directed by the FEMA/NRC EP Steering Committee, will conduct periodic, joint reviews of this document to determine if an update or revision is warranted.

The NUREG-0654/FEMA-REP-1 Task Force acknowledges the contributions of the Nuclear Energy Institute (NEI), the Conference of Radiation Control Program Directors (CRCPD), and the National Emergency Management Association (NEMA). The Task Force also acknowledges the contributions made by other Federal agencies, state, local, and tribal government organizations, members of the public, and the nuclear industry.

The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

¹ The REP Program includes both NRC and FEMA programs that administer EP for commercial NPP sites and surrounding areas. The programs encompass the plans, training, exercises, and resources necessary to prepare emergency personnel to rapidly identify, evaluate, and respond to emergencies.

² This document contains and references information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget (OMB), NRC control numbers 3150-0011 and 3150-0151 and FEMA control number 1660-0024. The NRC and FEMA may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

³ NPS contemporary EP guidance includes, but is not limited to, the National Preparedness Goal and System Description; the National Planning Frameworks; Comprehensive Preparedness Guide (CPG) 101, “Developing and Maintaining Emergency Operations Plans”; CPG 201, “Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide”; the core capabilities; the National Incident Management System (NIMS) and Incident Command System (ICS); the Homeland Security Exercise and Evaluation Program (HSEEP); and the Integrated Planning System.

ABBREVIATIONS AND ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
CFR	Code of Federal Regulations
Ci	Curie
COL	Combined License
CPG	Comprehensive Preparedness Guide
CRCPD	Conference of Radiation Control Program Directors
DHS	U.S. Department of Homeland Security
DRD	Direct-Reading Dosimeter
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
ERO	Emergency Response Organization
ESF	Emergency Support Function
ESP	Early Site Permit
ETE	Evacuation Time Estimate
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
FIOPs	Federal Interagency Operational Plans
FMT	Field Monitoring Team
FR	Federal Register
GE	General Emergency
HAB	Hostile Action-Based
HHS	U.S. Department of Health and Human Services
HSEEP	Homeland Security Exercise and Evaluation Program
HSPD-5	Homeland Security Presidential Directive 5
I&C	Instrumentation and Control
ICS	Incident Command System
IT	Information Technology

ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
JIC	Joint Information Center
JIS	Joint Information System
KI	Potassium Iodide
MOU	Memorandum of Understanding
NDRF	National Disaster Recovery Framework
NEI	Nuclear Energy Institute
NEMA	National Emergency Management Association
NIMS	National Incident Management System
NOUE	Notification of Unusual Event
NPP	Nuclear Power Plant
NPS	National Preparedness System
NRC	U.S. Nuclear Regulatory Commission
NRF	National Response Framework
NRIA	Nuclear/Radiological Incident Annex
OCA	Owner Controlled Area
OMB	Office of Management and Budget
ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PKEMRA	Post-Katrina Emergency Management Reform Act
PPD-8	Presidential Policy Directive 8
PRD	Personal Radiation Detector
RAC	Regional Assistance Committee
REP	Radiological Emergency Preparedness
SAE	Site Area Emergency
SOARCA	State-of-the-Art Reactor Consequence Analyses
SRPC	Site Radiation Protection Coordinator
THIRA	Threat and Hazard Identification and Risk Assessment
TSC	Technical Support Center
UE	Unusual Event
USDA	U.S. Department of Agriculture

SECTION I: Introduction

A. BACKGROUND

NRC and FEMA staff prepared this joint document in support of the NRC's responsibilities under the Atomic Energy Act, as amended.¹

Following the March 1979 Three Mile Island accident, in a statement made on December 7, 1979, President Jimmy Carter announced the transfer of responsibility for offsite emergency activities to FEMA. FEMA received this assignment because of its responsibilities, outlined in Executive Order 12148 of July 20, 1979, to coordinate civil emergency planning, management, and assistance functions and to represent the President in working with state and local governments and the private sector to stimulate vigorous participation in the civil EP programs.² This assignment aligned with FEMA's statutory role in promoting, funding, coordinating, and providing technical assistance for disaster preparedness, as defined in Section 201 of the Disaster Relief Act of 1974.³ Accordingly, FEMA established its REP Program to manage its responsibility to review, evaluate, and approve offsite emergency planning and preparedness in areas around commercial NPPs. As emergency management evolved, additional authorities in the Stafford Act and the NPS have assisted FEMA in performing its radiological preparedness duties. The NRC retained responsibility for onsite activities and authority for making licensing decisions.

The NRC Authorization Act of 1980 (Public Law 96-295) directed the NRC to establish EP as a criterion for licensing commercial NPPs.⁴ Section 109 of Public Law 96-295 directed the NRC to establish through rulemaking (a) standards, developed in consultation with FEMA, for the evaluation of state and local government radiological emergency planning and preparedness and (b) a requirement that the NRC will issue operating licenses only if it determines that there is (i) a state or local emergency response plan compliant with the standards developed in consultation with FEMA or (ii) in absence of such a plan, a state, local, or utility emergency response plan that provides reasonable assurance that public health and safety is not endangered by the NPP's operation.⁵ The NRC revised its regulations in Part 50 of Title 10 of the CFR to incorporate additional EP requirements, including 16 planning standards for onsite and offsite emergency plans as required by Public Law 96-295. FEMA maintains the same 16 planning standards in its regulations in Part 350 of Title 44 of the CFR.

¹ Pub. L. No. 83-703

² Pursuant to DHS Delegation 9000.1, the DHS Secretary delegated to the FEMA Administrator the authority to perform the functions assigned to the Secretary of Homeland Security in Executive Order 12148, as revoked in part and amended by Section 1 of Executive Order 12673 and Section 52 of Executive Order 13286 of February 28, 2003, relating to FEMA.

³ 42 USC 5131, as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 100-707, 102 Stat. 4689 (1988). This Act constitutes the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and FEMA programs.

⁴ Congress reenacted the provisions of section 109(a)(2) of Public Law 96-295 related to emergency planning in two subsequent laws: section 5 of Public Law 97-415 and section 108 of Public Law 98-553. These laws provided authorization of appropriations for the NRC for fiscal years 1982/1983 and 1984/1985, respectively. Although the laws have since expired, the basic terms of the emergency planning provisions of these laws are contained in both NRC and FEMA regulations.

⁵ Pub. L. No. 96-295, § 109 (b)(1)(A)-(B).

B. SCOPE

This document is one of many guidance documents used to ensure the preparedness of our nation. This guidance document focuses on preparedness for radiological incidents at NPPs that could impact public health and safety. The NRC and FEMA regard all of the planning standards identified within regulations as essential for adequate radiological emergency planning. The evaluation criteria in Section II address those elements and attributes of emergency plans and preparedness programs that are directly tied to meeting the planning standards in 10 CFR 50.47(b) and 44 CFR 350.5(a). The NRC and FEMA evaluate the adequacy of the emergency plans and preparedness programs based on these evaluation criteria.

If NRC and FEMA determine that all of the applicable evaluation criteria for a planning standard are met, then an emergency plan and preparedness program are considered adequate with regards to that planning standard. If any evaluation criteria for a particular planning standard are not met, then the licensee, applicant, or offsite response organization (ORO) needs to address the evaluation criteria, provide an acceptable alternative to the evaluation criteria, or justify why the evaluation criteria do not apply to its emergency plan and/or preparedness program.

This guidance describes, and makes available to the public, approaches that the NRC and FEMA consider acceptable for use in implementing specific parts of each of the agencies' regulations. The guidance is not a substitute for regulations, and compliance with it is recommended but not required.

Use of This Document

This document provides a common source of guidance for the following audiences:

1. NRC.
2. FEMA and other Federal agencies engaged in the review and approval of state, local, and tribal government planning and preparedness.
3. OROs and tribal governments.
4. NPP applicants and licensees.⁶
5. Licensee OROs.

Use by NRC

During regulatory discussions on plant-specific operational issues, the staff may discuss with licensees various actions consistent with staff positions in this document, as one acceptable means of meeting the underlying NRC regulatory requirement. However, unless the facility license requires use of this document, the staff may not represent to the licensee that the licensee's failure to comply with the positions in this document constitutes a violation.

The NRC staff does not intend to use the positions in this document in a manner that would constitute backfitting as that term is defined in 10 CFR 50.109(a)(1) and described in Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," be inconsistent with any of the issue finality provisions in 10 CFR Part 52, or constitute forward fitting as that term is defined and described in Management Directive 8.4.

For new reactor applications, the NRC staff will use the revision of this document in place six months before the application docket date to conduct the staff's review, unless the applicant specifies and justifies a different revision to be used. Previous reviews, in progress or completed, for which a licensing decision has not yet been determined will continue to be based on the revision of this document utilized at the start of the review process, unless an applicant requests otherwise.

⁶ In this document, *licensees* refers to licensees of NPPs under 10 CFR Parts 50 and 52, and *applicants* refers to applicants for licenses for NPPs under 10 CFR Parts 50 and 52.

If a licensee believes that the NRC is either using this document or requesting or requiring the licensee to implement the approaches or processes in this document in a manner inconsistent with the discussion in this section, then the licensee may file a backfit appeal with the NRC in accordance with the guidance in NUREG-1409, “Backfitting Guidelines,” and NRC Management Directive 8.4.

Use by FEMA

FEMA, as well as other Federal agencies, such as those serving on the Regional Assistance Committee (RAC), use this guidance document to review and approve state, local, and tribal government radiological emergency plans.

Findings by FEMA, with regard to the adequacy of radiological emergency preparedness, will be related to the capability of the OROs to respond in a coordinated manner to emergencies at, or related to, particular NPPs. Periodic reviews by FEMA will verify the capability of OROs to implement various aspects of their emergency plans. This will include observation and evaluation of exercises and certain drills.

Use by OROs and Tribal Governments

For OROs participating in the REP Program, use of this guidance is recommended during the development and maintenance of radiological preparedness and emergency plans to protect public health and safety in the event of a radiological incident at an NPP.

For a tribal government participating in the REP Program, it is recommended that the tribal government enters into consultation with both the NRC and FEMA. In such situations where the tribal government decides to act as an independent entity, it would be appropriate to meet the evaluation criteria marked as applicable for tribal governments. This document does not obligate the tribal governments to use the evaluation criteria to build its emergency plans; however, the tribal governments are highly encouraged to consider the evaluation criteria. Tribal government agreements with states and local governments will dictate the

degree to which evaluation criteria will apply. Additional information for tribal governments can be found in Part F.

Use by NPP Applicants and Licensees

NPP applicants and licensees may voluntarily⁷ use the guidance in this document to demonstrate compliance with the underlying NRC regulations. For currently approved emergency plans based on NUREG-0654/FEMA-REP-1, Revision 1, changes to these plans using Revision 1 will continue to be evaluated by the NRC using Revision 1. Licensees may also use guidance based on Revision 2 to make emergency plan changes. Any changes based on Revision 2 so used by these licensees will be evaluated by the NRC under Revision 2. Licensees should indicate the revision of NUREG-0654/FEMA-REP-1 on which the changes are based. Applicants and licensees may seek approval of a new emergency plan based on Revision 1, Revision 2, or a combination of Revisions 1 and 2. The NRC will evaluate emergency plans submitted for initial approval using the revision(s) of NUREG-0654/FEMA-REP-1 upon which the plans are based and, once the plans are approved, will evaluate any future emergency plan changes using the revision(s) of NUREG-0654/FEMA-REP-1 upon which each change is based.

Methods or solutions that differ from those described in this document may be deemed acceptable if an applicant or licensee makes available sufficient bases and information for the NRC staff to evaluate whether the proposed alternative(s) meet the intent of the planning standards.

Licensees may use the information in this document for actions which do not require NRC review and approval. This would include, for example, changes to an emergency plan under 10 CFR 50.54(q) that do not require prior NRC review and approval. Licensees may use the information in this document or applicable parts to address regulatory issues.

Additional information for early site permit (ESP) applicants can be found in Part G.

⁷ In this section, *voluntarily* means that the licensee is seeking the action of its own accord, without the force of a legally binding requirement or an NRC representation of further licensing or enforcement action.

Use by Licensee OROs

For licensees fulfilling and/or conducting offsite EP roles and responsibilities that would traditionally be addressed by state, local, and/or tribal government organizations, it is recommended that the Licensee ORO address the evaluation criteria for any of the non-participating OROs within this document.

FEMA will continue to evaluate the offsite portion of the planning standards regardless of whether the Licensee ORO or OROs are performing the offsite preparedness and response functions.

Document Hierarchy

This document is a joint NRC/FEMA guidance document. It contains the planning standards solely as a means of referencing the regulations and organizing the evaluation criteria. This document is considered the main source of joint guidance and does not describe regulatory requirements.

The evaluation criteria address overall emergency planning and preparedness capabilities, both onsite and offsite. Guidance for the level of detail that should be provided in emergency plans to describe these capabilities, and allow NRC and FEMA staff to determine whether the evaluation criteria

are met, is further detailed in the current edition of the FEMA REP Program Manual and various NRC guidance documents. Additional information regarding various means by which evaluation criteria may be addressed, such as examples of acceptable approaches, is also provided in the current edition of the FEMA REP Program Manual and various NRC guidance documents.

This document is aligned with NPS principles and planning concepts.

Alternative Approaches

Alternative approaches provide an opportunity for state, local, and tribal governments, applicants, and licensees to meet the planning standards in a manner that is different from what the evaluation criteria recommend within this guidance document. While an alternate approach does not relax the requirements of the planning standards, it provides an opportunity to propose an alternative method for meeting the intent of the planning standards. The specific process for submitting proposed alternative approaches for approval is further explained within the current edition of the FEMA REP Program Manual and various NRC guidance documents.

C. PLANNING BASIS

Background

The 1978 NRC/Environmental Protection Agency (EPA) Task Force on Emergency Planning report, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants (NUREG-0396), EPA 520/1-78-016,” (herein referred to as NUREG-0396) provides “...a basis for Federal, State and local government emergency preparedness organizations to determine the appropriate degree of emergency response planning efforts in the environs of nuclear power plants.” The NRC’s policy statement of October 23, 1979 (44 Federal Register [FR] 61123) incorporated NUREG-0396 guidance into EP regulations and guidance documents.

The primary objective of radiological emergency planning is to provide dose savings for a spectrum of radiological incidents that have the potential to produce offsite doses in excess of the current Federal protective action guides (PAGs).

NUREG-0396 established two predominant exposure pathways. They are the:

- a. Plume exposure pathway – The principal exposure sources from this pathway are:
 - (a) whole body external exposure to gamma radiation from the plume and from deposited material; and
 - (b) inhalation exposure from the passing radioactive plume. The duration of the release leading to potential exposure could range from 30 minutes to days. For the plume exposure pathway, shelter and/or evacuation would likely be the principal immediate protective action recommended for the general public. Administration of a radioprotective drug may also be considered. The ability to best reduce potential exposure under the specific conditions during the course of a radiological incident should determine the appropriate response.
- b. Ingestion exposure pathway – The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables, or aquatic foodstuffs. The duration of potential exposure could range

from hours to months or years. For the ingestion exposure pathway, the planning effort involves the identification of major exposure pathways from contaminated food and water and the associated control and interdiction points and methods. The ingestion pathway exposures in general would represent a longer-term concern, although some early protective actions to minimize subsequent contamination of milk or other supplies should be initiated.

In addition to the NRC and FEMA, other federal agencies provide guidance for these two exposure pathways. These agencies include, but are not limited to, the EPA, the Department of Health and Human Services (HHS) and its agencies (e.g., the Food and Drug Administration (FDA)), and the U.S. Department of Agriculture (USDA).

Emergency Planning Zones

EPZs are areas for which emergency planning is needed to assure prompt and effective actions can be taken to protect the public in the event of a radiological incident. The EPZs associated with each NPP must be defined both for the shorter-term plume exposure pathway and the longer-term ingestion exposure pathway. Plans for addressing radiological incidents are applied by the response organizations in these zones, as applicable. The choice of the size of the EPZs represents a judgment on the extent of the detailed planning that must be performed to ensure an adequate response base. During a particular radiological incident, protective actions may be restricted to only a portion of the EPZ, while the worst possible radiological incidents may necessitate response activities and protective actions be taken outside the EPZs.

The EPA Policy Statement, “Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents,” 45 FR 2893, states that “The EPZ for airborne exposure has a radius of about 10 miles; the EPZ for contaminated food has a radius of about 50 miles. Predetermined protective action plans are needed for the EPZs. The exact size and shape of each EPZ will be decided by emergency planning officials after they consider the specific conditions at

each site.” This concept is reflected in current NRC and FEMA EP policies, regulations, and guidance.

The size of the plume exposure pathway EPZ was based primarily on the following considerations:

- a. Projected doses from the traditional design basis accidents would not exceed Federal PAG levels outside the EPZ.
- b. Projected doses from most core melt sequences would not exceed Federal PAG levels outside the EPZ.
- c. For the worst core melt sequences, immediate life threatening doses would generally not occur outside the EPZ.
- d. Detailed planning within 10 miles would provide a substantial base for expansion of response efforts in the event that this proved necessary.

The NRC/EPA Task Force on Emergency Planning concluded that it would be unlikely that any protective actions for the plume exposure pathway would be required beyond the plume exposure pathway EPZ. Also, the plume exposure pathway EPZ is of sufficient size for actions within this zone to provide substantial reduction in severe, early-stage health effects in the event of a complete core melt.

The size of the ingestion exposure pathway EPZ was based on the following considerations:

- a. The downwind range within which contamination will generally not exceed the Federal PAGs is limited to about 50 miles from an NPP because of wind shifts during the release and travel periods.
- b. There may be conversion of atmospheric iodine to chemical forms which do not readily enter the ingestion pathway.
- c. Much of any particulate material in a radioactive plume would have been deposited on the ground within about 50 miles from the NPP.
- d. The likelihood of exceeding ingestion exposure pathway PAG levels at 50 miles is comparable to the likelihood of exceeding plume exposure pathway PAG levels at 10 miles.

Time Factors Associated with Releases

The range of times between the onset of radiological incident conditions and the start of a radiological release could be on the order of less than an hour to several hours. Radioactive material may be expected to be released for as little as several minutes for a short-term release up to a few days for a continuous release. These timing estimates have been factored into the basis for the emergency declaration and alert and notification capabilities described in Section II. The EP planning basis also requires appropriate mobilization and augmentation of both onsite and offsite resources to address a variety of potential events.

Radiological Characteristics of Releases

Planners will need information on the characteristics of potential radiological releases in order to specify the characteristics of monitoring instrumentation, develop dose projections, and identify critical exposure modes.

For atmospheric releases from NPPs, three exposure modes have been identified. The three exposure modes are: (a) whole body (bone marrow) exposure from external gamma radiation and from ingestion of radioactive material; (b) thyroid exposure from inhalation or ingestion of radioiodines; and (c) exposure of other organs from inhalation or ingestion of radioactive materials.

Radioactive materials produced in the operation of NPPs include fission products, transuranics, and activation products generated by neutron exposure of the structural and other materials within and immediately around the reactor core. The fission products consist of a very large number of different kinds of nuclides, almost all of which are initially radioactive. The amounts of these fission products and their potential for escape from their normal places of confinement represent the dominant potential for consequences to the public. Radioactive fission products exist in a variety of physical and chemical forms of varied volatility. Virtually all activation products and transuranic elements exist as non-volatile solids. The characteristics of these materials show quite clearly that the potential for releases to the environment decreases dramatically in this order: (a) gaseous materials,

(b) volatile solids, and (c) non-volatile solids. For this reason, guidance for source terms representing a hypothetical fission product release from an NPP emphasizes the development of plans relating to the release of noble gases and/or volatiles. However, consideration of particulate materials, should not be completely neglected. For example, the capability to determine the presence or absence of particulate radionuclides will be needed to identify requirements for additional resources.

Continuing Assessment of the Planning Basis for Radiological Emergency Preparedness

Accident phenomena and offsite consequences of severe reactor incidents have been the subject of considerable research over the last several decades resulting in more detailed, integrated,

and realistic studies. The NRC State-of-the-Art Reactor Consequence Analyses (SOARCA) research developed best estimates of the offsite radiological health consequences for potential severe reactor incidents. By applying modern analytic tools and techniques, the SOARCA project evaluated NPP improvements and changes not reflected in earlier studies, including improvements in training, emergency procedures, mitigation efforts, offsite emergency response, and security-related improvements. The SOARCA analyses show that EP programs, implemented as planned and practiced, reduce the risk of health consequences among the public during a severe reactor incident.

D. COORDINATED GOVERNMENT EMERGENCY PLANNING

The concept of radiological emergency planning emphasizes a coordinated response process involving several levels of government – Federal, state, local, and tribal – located (wholly or partially) within the plume and/or ingestion exposure pathway EPZs. For the purposes of this document, it is not necessary to outline the varied governmental and jurisdictional structures that exist throughout the United States, nor is it necessary to describe in detail the varied emergency planning and preparedness mechanisms that can be developed among these governmental entities.

Integrated Guidance and Criteria

NRC and FEMA have created and integrated guidance in this document intended for use by state, local, and tribal governments, applicants/licensees, and licensee OROs to guide their integrated radiological emergency planning activities. An integrated approach to the development of radiological emergency plans is the most effective way to protect the health and safety of the public. NRC and FEMA recognize that applicants/licensees and state, local, and tribal government emergency

plans should not be developed independently. If a radiological incident occurs, the public is best protected when efforts by all response organizations are fully integrated. Each organization involved must have a clear understanding of the role it will play in the response to a radiological incident, and the associated level of preparedness to build and sustain. This understanding is best achieved through integrated plan development and evaluation. Each organization must have a clear recognition of its portion of the overall shared responsibility for safeguarding public health and safety. This integrated guidance also allows each organization to understand the capabilities, responsibilities, and obligations of the other organizations.

This integrated guidance provides staff the basis to conduct a thorough review and analysis of each organization's plan and to understand the relationship of all plans in the integrated effort.

Additional information regarding integrating and synchronizing efforts across various levels of government can be found in CPG 101, "Developing and Maintaining Emergency Operations Plans."

E. FORM AND CONTENT OF PLANS

This guidance does not specify a format for emergency plans, but it is important that the evaluation criteria are addressed fully and clearly, as outlined in Section II of this document. The plans should address what is to be done in an emergency, how and when it is to be done, and by whom.

The NPS contains a number of concepts that may assist applicants/licensees and state, local, and tribal government agencies with their planning. CPG 101 provides guidance for developing emergency plans and promotes understanding of risk-informed planning and preparedness. CPG 201, “Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide,” provides communities with additional guidance for conducting a risk assessment and presents the basic steps of the process. Together, these two CPGs provide a risk-informed basis for the offsite planning effort, as well as encourage the engagement of the whole community to address risks that might impact a jurisdiction and allow, when applicable, for the radiological emergency plan to be integrated with all-hazards plans.

The Nuclear/Radiological Incident Annex (NRIA) to the Response and Recovery Federal Interagency Operational Plans (FIOPs) identifies the Federal response capability inventory, which includes nuclear/radiological-specific assets, resources, and teams that may be available for OROs. OROs are encouraged to incorporate Federal assets that may be used in state, local, and tribal government emergency plans. Details of Federal roles, responsibilities, and assets are provided in the National Planning Frameworks and the FIOPs, as well as individual agency plans and manuals.

NPP licensees have a primary responsibility for planning and implementing emergency response measures within owner controlled areas (OCAs). These emergency response measures include mitigative actions at the NPP site and protective measures and aid for individuals within the OCA.

In the long-term, licensees and OROs are responsible for recovery from any radiological incident and return to affected areas. Emergency plans should identify the organizations responsible for recovery actions, which would include a combination of Federal and private entities.

F. TRIBAL GOVERNMENTS

A historic relationship exists between the Federal Government and tribal governments. FEMA acknowledges the inherent sovereignty of Indian and Alaska Native tribal governments. Indian and Alaska Native tribal governments are not political subdivisions of states, but are recognized by the United States as distinct sovereign entities. Each tribal government establishes its own priorities and goals for the welfare of its membership. FEMA encourages cooperation and partnership between and among Federal, state, local, and tribal governments and public and private entities.⁸

NRC interaction with tribal governments is addressed in 10 CFR 61.71, “State and Tribal government consultation,” which states: “Upon request of a State or tribal governing body, the Director shall make available Commission staff to discuss with representatives of the State or tribal governing body information submitted by the applicant, applicable Commission regulations, licensing procedures, potential schedules, and the type and scope of State activities in the license review permitted by law. In addition, staff shall be made available to consult and cooperate with the State or tribal governing body in developing proposals for participation in the license review.”

⁸ See Executive Order 13175 of November 6, 2000, Consultation and Coordination with Indian Tribal Governments (65 Fed. Reg. 67249, Nov. 9, 2000); Presidential Memorandum on Tribal Consultation of November 5, 2009 (74 Fed. Reg. 57881, Nov. 9, 2009); FEMA Tribal Policy (December 27, 2016); and FEMA Tribal Consultation Policy (July 3, 2019).

G. CRITERIA FOR EMERGENCY PLANNING IN AN EARLY SITE PERMIT APPLICATION

Emergency Planning Provisions of the Rule

The NRC promulgated 10 CFR Part 52 to govern the issuance of ESPs, standard design certifications, combined licenses (COLs), standard design approvals, and manufacturing licenses for NPPs. Part A of the rule sets out the requirements and procedures applicable to NRC issuance of ESPs for approval of a site or sites for one or more NPPs separate from the filing of an application for a construction permit or COL for such a facility. Subpart A includes provisions for addressing emergency planning issues before any construction permit or COL proceeding.

After meeting the mandatory requirement of 10 CFR 52.17(b)(1), the applicant may also exercise one of the two following options:

- **Option 1:** Propose major features of the emergency plans, such as the exact sizes of the EPZs, for review and approval by NRC, in consultation with FEMA,⁹ in the absence of complete and integrated emergency plans. Major features are defined in 10 CFR 52.1(a).
- **Option 2:** Propose complete and integrated plans for review and approval by the NRC, in consultation with FEMA,¹⁰ in accordance with the applicable provisions of 10 CFR 50.47 or propose acceptable alternatives meeting the intent of the planning standards.

For the mandatory requirement and Option 1, the application must include a description of contacts and arrangements made with Federal, state, local, and tribal governmental agencies with emergency planning responsibilities. Under Option 2, the applicant shall make good faith efforts to obtain certifications from the same government agencies that: (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the

plans, including any required field demonstrations; and (3) that these agencies are committed to executing their responsibilities under the plans in the event of an emergency. The application must contain any certifications that have been obtained. If these contracts, arrangements, or certifications cannot be obtained, the application must contain information, including a utility plan as specified in 10 CFR 50.47(c)(1), sufficient to show that the proposed plans provide reasonable assurance that adequate protective measures will be taken in the event of a radiological emergency at the NPP site.

Subpart B of 10 CFR Part 52 addresses the requirements and procedures applicable to standard design certifications. Emergency planning requirements under Subpart B are limited primarily to the specification of an onsite Technical Support Center (TSC) and an onsite Operations Support Center (OSC) within the design bases of the standard NPP design. Subpart C of the rule addresses the requirements and procedures applicable to the issuance of a COL for an NPP. Under Subpart C, the application must contain emergency plans that meet the emergency planning standards of 10 CFR 50.47, as well as the requirements of Appendix E to 10 CFR Part 50. The application may also propose acceptable alternatives meeting the intent of the planning standards, and thus provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the NPP site. If the application for a COL references an ESP, the application may incorporate by reference emergency plans, or major features of emergency plans, approved in conjunction with the issuance of the permit.

Identification of Physical Characteristics

The ESP application must identify physical characteristics unique to the proposed NPP site, such as egress limitations from the area surrounding the site that could pose a significant impediment

⁹ Assessments of offsite plans may be based on the state and local and/or tribal government plans submitted to FEMA under 44 CFR Part 350.

¹⁰ Ibid.

to the development of emergency plans. An ESP applicant may identify such unique physical characteristics by performing a preliminary analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, noting major impediments to the evacuation or other protective actions.

The evacuation time estimate (ETE) analysis is an emergency planning tool that can be used to assess, in an organized and systematic fashion, the feasibility of developing emergency plans for an NPP site. The process for developing an ETE analysis, including specific guidance for ESP and COL applicants, is provided in NUREG/CR-7002, “Criteria for Development of Evacuation Time Estimate Studies.” Such an ETE analysis serves to demonstrate if any physical characteristics or combination of physical characteristics of the site, egress limitations in particular, could pose impediments to the development of emergency plans. It is important to note that the value of the ETE analysis is in the methodology required to perform the analysis rather than in the calculated ETE times. While lower ETEs may reflect favorable site characteristics from an emergency planning standpoint, there is no minimum required evacuation time in the regulations that a licensee or an applicant has to meet. Accordingly, the ETE analysis should not focus on the numerical time estimates, but on the site factors that are considered to be impediments to emergency planning and preparedness. Any major difficulties for an evacuation or the taking of other protective actions, such as sheltering in the plume exposure pathway EPZ, should be discussed.

Major Features of Emergency Plans

Emergency Planning Zones (EPZs)

An ESP applicant that chooses the option of proposing major features of the emergency plans (i.e., applicant, state, local, and tribal government plans) should give special emphasis to the exact sizes of the EPZs. The exact size and configuration of the EPZs surrounding a particular NPP should be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and

jurisdictional boundaries [10 CFR 50.47(c)(2)]. Plume exposure pathway EPZ boundaries that run through the middle of schools or hospitals, or that arbitrarily carve out small portions of governmental jurisdictions should be avoided [CLI 89-12, 26 NRC 383 (1987)].

Planning Standards and Evaluation Criteria

An ESP application that includes major features of emergency plans will be evaluated against the emergency planning standards and evaluation criteria in Section II of this document. The evaluation criteria for each of the planning standards should be fully addressed. If the applicant cannot or chooses not to address any of the evaluation criteria associated with a particular planning standard, the resolution of those evaluation criteria should be addressed in the ESP application (e.g., stating that the missing evaluation criteria will be addressed at the COL application stage). While the regulations do not address the use of inspections, tests, analyses, and acceptance criteria (ITAAC) for emergency planning for the ESP major features option, the inclusion of a limited set of EP ITAAC in the application, associated with evaluation criteria that are not addressed, is not prohibited. The guidance in NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition,” Section 14.3.10, including generic EP ITAAC Table 14.3.10-1, may be used by the applicant to identify a limited set of possible EP ITAAC that may be appropriate for an ESP major features application.

Complete and Integrated Plans

An ESP application that includes complete and integrated emergency plans will be evaluated against the emergency planning standards and evaluation criteria in Section II of this document. The application must also include any proposed EP ITAAC information required under 10 CFR 52.17(b) (3). The guidance in NUREG-0800, Section 14.3.10, including generic EP ITAAC Table 14.3.10-1, may be used by the applicant to identify a set of possible EP ITAAC that may be appropriate for an ESP complete and integrated emergency plan application.

SECTION II: Planning Standards and Evaluation Criteria

INTRODUCTION

Section II of NUREG-0654/FEMA-REP-1 contains evaluation criteria for each planning standard of 10 CFR 50.47(b) and 44 CFR 350.5(a) that provide specific guidance for developing radiological emergency plans. The colored boxes to the left of each evaluation criterion's text indicate applicability, which has been divided into four categories that represent (1) NRC applicants/licensees and organizations at the (2) state, (3) local, and (4) tribal government levels. When a box is colored in and labeled, it indicates that the corresponding evaluation criterion may be applicable to organizations in that category. Although a category box may be highlighted for a certain evaluation criterion, there can be exceptions or variations to the actual implementation within emergency plans. This may mean that not all evaluation criteria marked for "State" responsibility will be addressed within the state's emergency plan. This is particularly true for jurisdictions within home rule states, where some evaluation criteria may be more appropriately addressed in a local jurisdiction's plan. Users of this document may reference the more specific guidance found in the current edition of the FEMA REP Program Manual and various NRC guidance documents listed in Section III: Resources for further details and clarification.

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)

Number & Applicability	Evaluation Criteria				
<p>A.1</p> <table border="1" data-bbox="240 627 402 695"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The Federal, state, local, and tribal governments, licensee, and other private sector organizations that comprise the overall response for the EPZs are identified.</p>
Licensee	State				
Local	Tribal				
<p>A.1.a</p> <table border="1" data-bbox="261 768 427 835"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The organizations having an operational role specify their concept of operations and relationship to the total effort.</p>
Licensee	State				
Local	Tribal				
<p>A.1.b</p> <table border="1" data-bbox="261 909 427 976"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Each organization’s emergency plan illustrates these interrelationships in a block diagram.</p>
Licensee	State				
Local	Tribal				
<p>A.1.c</p> <table border="1" data-bbox="261 1050 427 1117"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Each organization identifies the individual, by title/position, who will be in charge of the emergency response.</p>
Licensee	State				
Local	Tribal				
<p>A.2</p> <table border="1" data-bbox="240 1190 402 1260"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>A.3</p> <table border="1" data-bbox="240 1371 402 1438"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>A.4</p> <table border="1" data-bbox="240 1558 402 1625"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>A.5</p> <table border="1" data-bbox="240 1715 402 1782"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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).</p>
Licensee	State				
Local	Tribal				

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, Sec. IV.A

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">B.1</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.1.a</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.2</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.2.a</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.3</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.4</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">B.5</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.</p>
Licensee					

Table B-1: Emergency Response Organization (ERO) Staffing and Augmentation Plan

NOTES

- i. The minimum number of personnel assigned EP functions for on-shift and augmented response (henceforth called the ERO staffing plan) is dependent on specific licensee requirements and is as approved by the NRC for the site-specific emergency plan. Augmented response provides (1) relief to the on-shift staff of EP functions (if necessary) and (2) provides support staff for effective emergency plan implementation.
- ii. This table lists the EP functions needed to implement the typical emergency plan. It is intended to provide a model for applicants and licensees to consider in the development of their site-specific emergency plan. The minimum ERO staffing plan of a specific licensee should be described.
- iii. The minimum ERO staffing plan is that which is required to effectively implement the site-specific emergency plan (i.e., the emergency plan cannot be effectively implemented without this staff). The emergency plan should only describe the minimum ERO staffing plan, while supporting implementing procedures can describe any additional staff response desired by the licensee, as this additional staff is not critical to effective emergency plan implementation. The augmentation times listed are intended to provide a model for applicants and licensees to consider in the development of their site-specific emergency plan.
- iv. The titles of the positions are as defined in the site-specific emergency plan.
- v. The locations of these positions are intended to provide a model for applicants and licensees to consider in the development of their site-specific emergency plan. Licensees may choose to have these positions, or functions, at other facilities and/or activated at different emergency classification levels (ECLs).
- vi. Many of these EP functions may be assigned as collateral duties; however, the licensee is required to evaluate if the addition of collateral duties would preclude the performance of EP functions regardless of the other (non-EP) duties assigned to an individual responder.
- vii. The development of an ERO staffing plan should use a performance-based approach to the degree practicable. The licensee will need to demonstrate that the listed EP functions are constantly maintained. Once developed, and approved by the NRC, changes to the minimum ERO staffing plan are evaluated and controlled in accordance with 10 CFR 50.54(q).
- viii. The number of operations staff, security force staff, or fire brigade staff on-shift is controlled by the site-specific Technical Specifications or other licensing documents.

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Command and Control <ul style="list-style-type: none"> Provide overall ERO command and control, until relieved. Approve emergency action level (EAL) and/or PAR classifications, until relieved. Authorize personnel dose extensions, until relieved. 	Operations Shift Manager	(1) Emergency Coordinator	Not applicable	(1) Emergency Director
Communications <ul style="list-style-type: none"> Communicate EAL and PAR classifications to OROs, including the NRC, until relieved. 	Communicator ¹	(2) Communicators (TSC) <i>One communicator for the NRC and one communicator for OROs.</i>	As needed. <i>One communicator staffed for NRC communications if needed.</i>	(1) Communicator
Radiation Protection <ul style="list-style-type: none"> Provide qualified radiation protection coverage for responders accessing potentially unknown radiological environments during emergency conditions. Provide in-plant surveys. Control dosimetry and radiologically controlled area access. 	Radiation Protection Personnel ⁴	(3) Additional Radiation Protection Technicians <i>[In addition to personnel on-shift] (OSC)</i>	(3) Additional Radiation Protection Technicians <i>[In addition to personnel on-shift and those responding within 60 min.] (OSC)</i>	Not applicable

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
<p>Supervision of Radiation Protection Staff and Site Radiation Protection</p> <ul style="list-style-type: none"> Evaluate and assess plant and offsite radiological data in the development of onsite protective actions and offsite PARs, until relieved. Recommend onsite protective actions and offsite PARs to the applicable decision-maker, until relieved. Direct all radiation protection activities, including field monitoring team (FMT) direction, until relieved. Provide relevant information to applicable communicators who are communicating offsite PARs to OROs, until relieved. 	Operations Shift Manager	(1) Site Radiation Protection Coordinator (SRPC) (TSC)	Not applicable	(1) Radiation Protection Manager (EOF)
<p>Dose Assessments/ Projections</p> <ul style="list-style-type: none"> Perform dose assessments/projections and provide input to applicable PAR decision-maker, until relieved. 	Dose Assessment/ Projection Staff ¹	(1) Dose Assessment/ Projection Staff (TSC)	Not applicable	(1) Dose Assessment/ Projection Staff (EOF)

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Emergency Classifications <ul style="list-style-type: none"> Evaluate plant conditions and recommend emergency classifications, until relieved. 	Emergency Classification Advisor ¹	(1) Emergency Classification Advisor (TSC) <i>Licenseses should consider having a liaison between Operations (Control Room) and the TSC to perform this function.</i>	Not applicable	Not applicable
Engineering <ul style="list-style-type: none"> Provide engineering coverage related to the specific discipline of the assigned engineer, until relieved. 	Core/Thermal Hydraulics Engineer¹ <ul style="list-style-type: none"> Evaluate reactor conditions. 	TSC Engineering Staff <ul style="list-style-type: none"> (1) Electrical/ Instrumentation and Control (I&C): Provide engineering coverage for the ERO related to electrical or I&C equipment. (1) Mechanical: Provide engineering coverage for the ERO related to mechanical equipment. (1) Core/Thermal Hydraulics: Evaluate reactor conditions. 	As needed	Not applicable

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Security	Security staffing per the site-specific security plan.	(1) Security Liaison (TSC) <ul style="list-style-type: none"> Coordinate security-related activities and information with the Emergency Coordinator. 	Not applicable	Not applicable
Repair Team Activities	Not applicable	Maintenance Personnel (OSC) (1 electrician, 1 mechanic) <ul style="list-style-type: none"> (1) Electrician: Provide electrical support for emergency core cooling system (ECCS) equipment, event mitigation, and equipment repair. (1) Mechanic: Provide mechanical support for ECCS equipment, event mitigation, and equipment repair. 	Maintenance Personnel (OSC) <ul style="list-style-type: none"> (1) I&C Technician: Provide assistance with logic manipulation, support for event mitigation and equipment repair, and support of digital I&C if applicable. Additional I&C staff may be called out if needed. Electricians – As needed. Mechanics – As needed. 	Not applicable

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Supervision of Repair Team Activities	Not applicable	<p>(1) Lead OSC Supervisor</p> <ul style="list-style-type: none"> Supervise OSC activities as directed by the Emergency Coordinator. 	<p>OSC Supervisors</p> <ul style="list-style-type: none"> (1) Electrical: Supervise OSC activities related to electrical equipment. (1) Mechanical: Supervise OSC activities related to mechanical equipment. (1) I&C: Supervise OSC activities related to I&C equipment. May be combined with Electrical Supervisor. (1) Radiation Protection: Supervise OSC activities related to radiation protection. 	Not applicable

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Field Monitoring Teams (FMTs)	Not applicable	<p>Onsite FMT</p> <ul style="list-style-type: none"> (1) Qualified individual to assess the protected area for radiation and contamination and provide input to the SRPC. Responsible for radiation protection coverage for the FMT as directed by SRPC (TSC) or Radiation Protection Manager (EOF). (1) Driver to provide transportation. <p>Offsite FMT A</p> <ul style="list-style-type: none"> (1) Qualified individual to assess the area(s) outside the protected area for radiation and contamination, and for radioactive plume tracking, as directed by, and under the control of, the SRPC (TSC) or Radiation Protection Manager (EOF). Responsible for the radiation protection coverage of the FMT as directed by SRPC (TSC) or Radiation Protection Manager (EOF). (1) Driver to provide transportation. 	<p>Offsite FMT B</p> <ul style="list-style-type: none"> (1) Qualified individual to assess the area(s) outside the protected area for radiation and contamination, and for radioactive plume tracking, as directed by, and under the control of, the SRPC (TSC) or Radiation Protection Manager (EOF). Responsible for the radiation protection coverage of the FMT as directed by SRPC (TSC) or Radiation Protection Manager (EOF). (1) Driver to provide transportation. 	Not applicable

Emergency Preparedness (EP) Functions	On-Shift	Technical Support Center (TSC)/Operations Support Center (OSC)		Emergency Operations Facility (EOF)/ Joint Information Center (JIC)/ Joint Information System (JIS)
		Alert or Greater Augment w/in 60 min. ^{1,2}	Alert or Greater Augment w/in 90 min. ^{1,2}	Site Area Emergency (SAE) or Greater Augment w/in 60 min. ³
Media Information <ul style="list-style-type: none"> Manage and coordinate media information related to the event. 	Not applicable	JIC/JIS staff to address media inquiries. ⁵	Not applicable	Staff to perform JIC/JIS-related tasks.
Information Technology (IT)⁶ <ul style="list-style-type: none"> If emergency plan functions rely on computer-based equipment, provide IT support. 	Not applicable	Not applicable	(1) IT Lead (TSC)¹ <ul style="list-style-type: none"> Qualified individual to ensure IT equipment is operable. 	(1) IT Lead (EOF/JIC/JIS)¹ <ul style="list-style-type: none"> Qualified individual to ensure IT equipment is operable.

¹ Other personnel may be assigned this function if no collateral duties are assigned to an individual that are beyond the capability of that individual to perform at any given time. A 10 CFR Part 50, Appendix E on-shift staffing analysis must be performed to support assignment of multiple roles to individual responders on-shift. For augmented ERO positions, a performance-based approach is acceptable for evaluating whether augmented personnel can adequately perform collateral functions without having competing priorities.

² Specified TSC/OSC personnel should be capable of performing their required functions within 60 (90) minutes of an Alert or higher EAL classification. Emergency response facility activation timing is not the concern; it is whether the facility staff is performing the stated function(s) within the time specified.

³ Specified EOF/JIC/JIS personnel should be capable of performing their required functions within 60 minutes of an SAE or higher EAL classification. Emergency response facility activation timing is not the concern; it is whether the facility staff is performing the stated function(s) within the time specified. Note: For JIC/JIS, licensees should use whatever term is used for the media support function/program/ location as applicable.

⁴ Two qualified radiation protection personnel for a single unit site or one per unit for a multi-unit site.

⁵ Does not need to be performed in the TSC/OSC, but needs to be established at this point.

⁶ IT staff is only required to be described in the emergency plan if critical digital assets are identified per 10 CFR 73.54.

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, Sec. IV.A and E

Number & Applicability	Evaluation Criteria				
<p>C.1</p> <table border="1" data-bbox="240 611 402 678"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Emergency response support and resources provided to the licensee’s EOF, as agreed upon, are described.</p>
Licensee	State				
Local	Tribal				
<p>C.2</p> <table border="1" data-bbox="240 753 402 821"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Provisions made for additional emergency response support and resources are described and include the following:</p>
Licensee	State				
Local	Tribal				
<p>C.2.a</p> <table border="1" data-bbox="240 896 402 963"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The individual(s), by title/position, authorized to request emergency response support and resources from responding organizations.</p>
Licensee	State				
Local	Tribal				
<p>C.2.b</p> <table border="1" data-bbox="240 1073 402 1140"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>(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.</p>
Licensee	State				
Local	Tribal				
<p>C.2.c</p> <table border="1" data-bbox="240 1249 402 1316"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Coordination of NPP site access and support for external organizations that have agreed to provide requested emergency response support and resources.</p>
Licensee	State				
Local	Tribal				
<p>C.2.d</p> <table border="1" data-bbox="240 1392 402 1459"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Agreements between licensees and local agencies for law enforcement, medical and ambulance services, fire, hospital support, and other support.</p>
Licensee	State				
Local	Tribal				
<p>C.3</p> <table border="1" data-bbox="240 1535 402 1602"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The capability of each principal organization to coordinate with other principal organizations leading the incident response is described.</p>
Licensee	State				
Local	Tribal				
<p>C.4</p> <table border="1" data-bbox="240 1677 402 1745"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>C.5</p> <table border="1" data-bbox="240 344 402 411"> <tr> <td data-bbox="240 344 326 380">Licensee</td> <td data-bbox="326 344 402 380"></td> </tr> <tr> <td data-bbox="240 380 326 411"></td> <td data-bbox="326 380 402 411"></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>C.5.a</p> <table border="1" data-bbox="261 485 423 552"> <tr> <td data-bbox="261 485 347 520">Licensee</td> <td data-bbox="347 485 423 520"></td> </tr> <tr> <td data-bbox="261 520 347 552"></td> <td data-bbox="347 520 423 552"></td> </tr> </table>	Licensee				<p>The activation process for the NRC’s emergency response data system (ERDS) during an emergency is described.</p>
Licensee					
<p>C.5.b</p> <table border="1" data-bbox="261 625 423 693"> <tr> <td data-bbox="261 625 347 661">Licensee</td> <td data-bbox="347 625 423 661"></td> </tr> <tr> <td data-bbox="261 661 347 693"></td> <td data-bbox="347 661 423 693"></td> </tr> </table>	Licensee				<p>Provisions to continuously maintain open communications lines with the NRC, when requested, are described.</p>
Licensee					

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, Sec. IV.B and C

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">D.1</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c6e0b4;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">D.1.a</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c6e0b4;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The EALs are developed using guidance provided or endorsed by the NRC that is applicable to the reactor design.</p>
Licensee					
<p style="text-align: center;">D.1.b</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c6e0b4;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">D.2</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c6e0b4;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">D.3</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c6e0b4;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>A summary of emergency response measures to be taken for each ECL is provided. The detailed emergency response measures are described in implementing procedures.</p>
Licensee					
<p style="text-align: center;">D.4</p> <table border="1" style="width: 100%;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	<p>Emergency response measures based on the ECL declared by the licensee and applicable offsite conditions are described.</p>
	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p>E.1</p> <table border="1" data-bbox="240 646 402 709"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The mutually agreeable process for direct and prompt notification of response organizations, aligned with the emergency classification and action level scheme, is described.</p>
Licensee	State				
Local	Tribal				
<p>E.1.a</p> <table border="1" data-bbox="261 787 423 850"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Provisions for notification of response organizations are established, including the means for verification of messages.</p>
Licensee	State				
Local	Tribal				
<p>E.1.b</p> <table border="1" data-bbox="261 951 423 1014"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The capability to notify responsible OROs within 15 minutes and the NRC within 60 minutes is described.</p>
Licensee					
<p>E.2</p> <table border="1" data-bbox="240 1110 402 1173"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>E.3</p> <table border="1" data-bbox="240 1274 402 1337"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>E.4</p> <table border="1" data-bbox="240 1417 402 1480"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Each organization establishes the contents of the initial and follow-up messages to the public including, as applicable, instructions for protective actions.</p>
	State				
Local	Tribal				
<p>E.5</p> <table border="1" data-bbox="240 1560 402 1623"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Provisions are made to provide timely supplemental information periodically throughout the radiological incident to inform the public.</p>
Licensee	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">F.1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Each principal response organization establishes redundant means of communication and addresses the following provisions:</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">F.1.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Continuous capability for notification to, and activation of, the emergency response network, including a minimum of two independent communication links.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">F.1.b</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Communication with applicable organizations to include a description of the methods that may be used when contacting each organization.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">F.1.c</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Systems for alerting or activating emergency personnel in each response organization.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">F.2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Systems for coordinated communication methods for applicable fixed and mobile medical support facilities are described.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">F.3</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p>G.1</p> <table border="1" data-bbox="240 695 402 758"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>G.2</p> <table border="1" data-bbox="240 863 402 926"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>G.3</p> <table border="1" data-bbox="240 1010 402 1073"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Organizations designate news media points of contact and a spokesperson(s) with access to necessary information.</p>
Licensee	State				
Local	Tribal				
<p>G.3.a</p> <table border="1" data-bbox="240 1146 402 1209"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Arrangements are made for the timely exchange of information among the designated spokespersons representing the entities involved in incident response.</p>
Licensee	State				
Local	Tribal				
<p>G.4</p> <table border="1" data-bbox="240 1293 402 1356"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Organizations establish coordinated arrangements for identifying and addressing public inquiries and inaccurate information.</p>
Licensee	State				
Local	Tribal				
<p>G.5</p> <table border="1" data-bbox="240 1436 402 1499"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Organizations conduct programs to acquaint news media with the emergency plans at least annually.</p>
Licensee	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p>H.1</p> <table border="1" data-bbox="250 537 417 606"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.</p>
Licensee					
<p>H.2</p> <table border="1" data-bbox="250 682 417 751"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.</p>
Licensee					
<p>H.3</p> <table border="1" data-bbox="250 827 417 896"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>H.3.a</p> <table border="1" data-bbox="272 972 440 1041"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>H.4</p> <table border="1" data-bbox="250 1117 417 1186"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>H.5</p> <table border="1" data-bbox="250 1283 417 1352"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>H.6</p> <table border="1" data-bbox="250 1472 417 1541"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>H.7</p> <table border="1" data-bbox="250 1640 417 1709"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">H.8</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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).</p>
Licensee					
<p style="text-align: center;">H.9</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">H.10</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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).</p>
Licensee					
<p style="text-align: center;">H.11</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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:</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">H.11.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Identification of the organization(s) responsible for the testing and maintenance of emergency equipment.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">H.11.b</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	<p>Calibration and operational checks of emergency equipment per national standards or the manufacturer's instructions, whichever is more frequent.</p>
	State				
Local	Tribal				
<p style="text-align: center;">H.12</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">H.13</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p>I.1</p> <table border="1" data-bbox="237 573 404 642"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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:</p>
Licensee					
<p>I.1.a</p> <table border="1" data-bbox="261 716 428 785"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>I.1.b</p> <table border="1" data-bbox="261 858 428 928"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>I.1.c</p> <table border="1" data-bbox="261 1001 428 1071"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>A capability to coordinate and implement in-field radiological assessments by FMTs and provisions to assess the data obtained.</p>
Licensee					
<p>I.2</p> <table border="1" data-bbox="237 1144 404 1213"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Methods for assessing contamination of drinking water through liquid release pathways or deposition of airborne materials for NPP sites located on or near bodies of water from which public drinking water is drawn.</p>
	State				
Local	Tribal				
<p>I.3</p> <table border="1" data-bbox="237 1392 404 1461"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<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.
Licensee					
<p>I.4</p> <table border="1" data-bbox="237 1673 404 1743"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The methods and responsibility for determining the source term present in reactor coolant, containment atmosphere, and spent fuel pool area atmosphere are described.</p>
Licensee					
<p>I.4.a</p> <table border="1" data-bbox="261 1816 428 1885"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					

Number & Applicability	Evaluation Criteria				
<p>I.5</p> <table border="1" data-bbox="240 344 402 411"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The organizations responsible for FMT activities, and necessary resources, are identified.</p>
Licensee	State				
Local	Tribal				
<p>I.6</p> <table border="1" data-bbox="240 485 402 552"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>I.7</p> <table border="1" data-bbox="240 646 402 714"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>I.8</p> <table border="1" data-bbox="240 842 402 909"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>I.9</p> <table border="1" data-bbox="240 1037 402 1104"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>I.10</p> <table border="1" data-bbox="240 1232 402 1299"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">J.1</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">J.1.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Provisions are made for evacuation of onsite non-essential personnel at an SAE or General Emergency (GE).</p>
Licensee					
<p style="text-align: center;">J.2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.3</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Provisions for radiological monitoring and decontamination, if necessary, of personnel evacuated from the NPP site are described.</p>
Licensee					
<p style="text-align: center;">J.4</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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).</p>
Licensee					
<p style="text-align: center;">J.5</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Provisions are made for personal radiological protection for individuals arriving or remaining onsite during the incident.</p>
Licensee					
<p style="text-align: center;">J.6</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.7</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">J.8</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	The latest ETEs are:
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.8.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				Incorporated either by reference or in their entirety into the emergency plan.
Licensee					
<p style="text-align: center;">J.8.b</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	Incorporated either by reference or as a summary of the latest ETE analysis into the emergency plan.
	State				
Local	Tribal				
<p style="text-align: center;">J.9</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.10</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	Plans include maps, charts, or other information that demonstrate the following for the plume exposure pathway EPZ:
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.10.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	Evacuation routes, evacuation areas, reception centers in host areas, and shelter areas.
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.10.b</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9ead3;">Licensee</td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	Population distribution around the NPP site by evacuation areas.
Licensee	State				
Local	Tribal				
<p style="text-align: center;">J.11</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	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:
	State				
Local	Tribal				
<p style="text-align: center;">J.11.a</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	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.
	State				
Local	Tribal				
<p style="text-align: center;">J.11.b</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="background-color: #d9ead3;">State</td> </tr> <tr> <td style="background-color: #d9ead3;">Local</td> <td style="background-color: #d9ead3;">Tribal</td> </tr> </table>		State	Local	Tribal	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.
	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>J.11.c</p> <table border="1" data-bbox="261 344 427 411"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>J.11.d</p> <table border="1" data-bbox="261 485 427 552"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>J.11.e</p> <table border="1" data-bbox="261 625 427 693"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Means for the initial and ongoing control of access to evacuated areas and organizational responsibilities for such control, including identifying pre-selected control points.</p>
	State				
Local	Tribal				
<p>J.11.f</p> <table border="1" data-bbox="261 766 427 833"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>J.11.g</p> <table border="1" data-bbox="261 907 427 974"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Identification of and means to implement precautionary protective actions (e.g., actions taken at an SAE).</p>
	State				
Local	Tribal				
<p>J.12</p> <table border="1" data-bbox="261 1050 427 1117"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>J.13</p> <table border="1" data-bbox="261 1190 427 1257"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>J.14</p> <table border="1" data-bbox="261 1331 427 1398"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>General plans for the removal or continued exclusion of individuals from restricted areas are developed. Relocation plans include:</p>
	State				
Local	Tribal				
<p>J.14.a</p> <table border="1" data-bbox="261 1472 427 1539"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Process for implementing current Federal guidance for relocation.</p>
	State				
Local	Tribal				
<p>J.14.b</p> <table border="1" data-bbox="261 1612 427 1680"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Means to identify and determine the boundaries of relocation areas, including a buffer zone.</p>
	State				
Local	Tribal				
<p>J.14.c</p> <table border="1" data-bbox="261 1753 427 1820"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Prioritization of relocation based on projected dose to an individual and the timeframe for relocation.</p>
	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>J.14.d</p> <table border="1" data-bbox="261 344 428 411"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Control of access to and egress from relocation areas and security provisions for evacuated areas.</p>
	State				
Local	Tribal				
<p>J.14.e</p> <table border="1" data-bbox="261 485 428 552"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Contamination control during relocation.</p>
	State				
Local	Tribal				
<p>J.14.f</p> <table border="1" data-bbox="261 625 428 693"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Means for coordinating and providing assistance during relocation.</p>
	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p style="text-align: center;">K.1</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The radiation protection controls for emergency workers to be implemented during emergencies are described. These controls address the following aspects:</p>
Licensee					
<p style="text-align: center;">K.1.a</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Onsite emergency exposure guidelines for emergency workers consistent with their assigned duties and current Federal guidance and the conditions under which the guidelines apply.</p>
Licensee					
<p style="text-align: center;">K.1.b</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">K.1.c</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The capability to monitor and assess the radiation doses received by emergency workers for the duration of the incident.</p>
Licensee					
<p style="text-align: center;">K.1.d</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The capability to implement onsite contamination control measures.</p>
Licensee					
<p style="text-align: center;">K.1.e</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The capability to decontaminate emergency workers, equipment, and vehicles.</p>
Licensee					
<p style="text-align: center;">K.1.f</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p style="text-align: center;">K.1.g</p> <table border="1" style="width: 100%;"> <tr> <td style="background-color: #c8e6c9;">Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The process for NPP site access and dosimetry issuance to personnel from OROs arriving to assist with the onsite response.</p>
Licensee					

Number & Applicability	Evaluation Criteria				
K.2 <table border="1" data-bbox="240 344 404 411"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
K.2.a <table border="1" data-bbox="261 495 428 562"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				The process for allowing onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities is described.
Licensee					
K.2.b <table border="1" data-bbox="261 636 428 703"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	The process for authorizing emergency workers to incur exposures that may result in doses in excess of the current Federal guidance is described.
	State				
Local	Tribal				
K.3 <table border="1" data-bbox="240 779 404 846"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	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).
	State				
Local	Tribal				
K.3.a <table border="1" data-bbox="261 919 428 987"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	Provisions to ensure that DRDs are read at designated intervals and dose records are maintained for emergency workers are described.
	State				
Local	Tribal				
K.4 <table border="1" data-bbox="240 1060 404 1127"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	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.
	State				
Local	Tribal				

L: MEDICAL AND PUBLIC HEALTH SUPPORT

Arrangements are made for medical services for contaminated injured individuals.

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

Number & Applicability	Evaluation Criteria				
<p>L.1</p> <table border="1" data-bbox="237 548 404 615"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>L.2</p> <table border="1" data-bbox="237 699 404 766"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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:</p>
Licensee					
<p>L.2.a</p> <table border="1" data-bbox="261 840 428 907"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>An onsite first aid capability with adequate medical equipment and supplies.</p>
Licensee					
<p>L.2.b</p> <table border="1" data-bbox="261 980 428 1047"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Primary and backup offsite medical facilities.</p>
Licensee					
<p>L.2.c</p> <table border="1" data-bbox="261 1121 428 1188"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>L.2.d</p> <table border="1" data-bbox="261 1262 428 1329"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Provisions to evaluate for radiological contamination either prior to transport to a medical facility or after arrival.</p>
Licensee					
<p>L.2.e</p> <table border="1" data-bbox="261 1402 428 1470"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Contact information for facilities capable of treating overexposure to radioactive material.</p>
Licensee					
<p>L.3</p> <table border="1" data-bbox="237 1543 404 1610"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>L.4</p> <table border="1" data-bbox="237 1684 404 1751"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				

M: RECOVERY, REENTRY, AND POST-ACCIDENT OPERATIONS

General plans for recovery and reentry are developed.

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

Number & Applicability	Evaluation Criteria				
<p>M.1</p> <table border="1" data-bbox="240 600 402 667"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>General recovery, reentry, and return plans for radiological incidents are developed, as appropriate. These plans address reoccupancy, as appropriate. The plans should include:</p>
Licensee	State				
Local	Tribal				
<p>M.1.a</p> <table border="1" data-bbox="261 741 428 808"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Provisions for allowing reentry into areas controlled by the licensee. Reentry planning includes evaluation of the controls necessary for reentry under post-incident conditions.</p>
Licensee					
<p>M.1.b</p> <table border="1" data-bbox="261 884 428 951"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>M.2</p> <table border="1" data-bbox="240 1024 402 1092"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>M.3</p> <table border="1" data-bbox="240 1165 402 1232"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The process for initiating recovery actions is described and includes the criteria for terminating the emergency.</p>
Licensee					
<p>M.4</p> <table border="1" data-bbox="240 1306 402 1373"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>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.</p>
	State				
Local	Tribal				
<p>M.5</p> <table border="1" data-bbox="240 1446 402 1514"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>The framework for relaxing protective actions and allowing for return are described. Prioritization is given to restoring access to vital services and facilities.</p>
	State				
Local	Tribal				
<p>M.6</p> <table border="1" data-bbox="240 1587 402 1654"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>The organization(s) responsible for developing and implementing cleanup operations offsite is identified.</p>
	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>M.7</p> <table border="1" data-bbox="240 346 404 411"> <tr> <td data-bbox="240 346 326 380">Licensee</td> <td data-bbox="329 346 404 380">State</td> </tr> <tr> <td data-bbox="240 384 326 411">Local</td> <td data-bbox="329 384 404 411">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Provisions for developing and modifying sampling plans are established. Provisions for laboratory analysis of samples are included in the plan.</p>
Licensee	State				
Local	Tribal				
<p>M.8</p> <table border="1" data-bbox="240 489 404 554"> <tr> <td data-bbox="240 489 326 522"></td> <td data-bbox="329 489 404 522">State</td> </tr> <tr> <td data-bbox="240 527 326 554">Local</td> <td data-bbox="329 527 404 554">Tribal</td> </tr> </table>		State	Local	Tribal	<p>A method for periodically conducting radiological assessments of public exposure is established.</p>
	State				
Local	Tribal				

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)

Number & Applicability	Evaluation Criteria				
<p>N.1</p> <table border="1" data-bbox="240 604 404 674"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	Exercises and drills are conducted, observed, and critiqued/evaluated as set forth in NRC and FEMA regulations and guidance.
Licensee	State				
Local	Tribal				
<p>N.1.a</p> <table border="1" data-bbox="240 741 404 810"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	The process to critique/evaluate exercises and drills is described.
Licensee	State				
Local	Tribal				
<p>N.1.b</p> <table border="1" data-bbox="240 877 404 947"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	The process used to track findings and associated corrective actions identified by drill and exercise critiques/evaluations, including their assignment and completion, is described.
Licensee	State				
Local	Tribal				
<p>N.1.c</p> <table border="1" data-bbox="240 1014 404 1083"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				A drill or exercise starts between 6:00 p.m. and 4:00 a.m. at least once every eight-year exercise cycle.
Licensee					
<p>N.1.d</p> <table border="1" data-bbox="240 1150 404 1220"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				A drill or exercise is unannounced at least once every eight-year exercise cycle.
Licensee					
<p>N.2</p> <table border="1" data-bbox="240 1287 404 1356"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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:
Licensee	State				
Local	Tribal				
<p>N.2.a</p> <table border="1" data-bbox="240 1423 404 1493"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
<p>N.2.b</p> <table border="1" data-bbox="240 1560 404 1629"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	Ingestion Exposure Pathway Exercises. 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.
	State				
Local	Tribal				
<p>N.3</p> <table border="1" data-bbox="240 1759 404 1829"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	Exercise Scenario Elements. 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:
Licensee	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>N.3.a</p> <table border="1" data-bbox="256 344 420 411"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Hostile Action-Based (HAB). 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.</p>
Licensee	State				
Local	Tribal				
<p>N.3.b</p> <table border="1" data-bbox="256 497 420 564"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Rapid Escalation. An initial classification of, or rapid escalation to, an SAE or GE.</p>
Licensee	State				
Local	Tribal				
<p>N.3.c</p> <table border="1" data-bbox="256 634 420 701"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>No/Minimal Release of Radioactive Materials. 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.</p>
Licensee	State				
Local	Tribal				
<p>N.3.c.1</p> <table border="1" data-bbox="256 785 420 852"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>N.3.c.2</p> <table border="1" data-bbox="256 995 420 1062"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>N.3.d</p> <table border="1" data-bbox="256 1194 420 1262"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Resource Integration. Integration of offsite resources with onsite response.</p>
Licensee	State				
Local	Tribal				
<p>N.3.e</p> <table border="1" data-bbox="256 1331 420 1398"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>10 CFR 50.54(hh)(2) Strategies. Demonstration of the use of equipment, procedures, and strategies developed in compliance with 10 CFR 50.54(hh)(2).</p>
Licensee					
<p>N.4</p> <table border="1" data-bbox="256 1472 420 1539"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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:</p>
Licensee	State				
Local	Tribal				
<p>N.4.a</p> <table border="1" data-bbox="256 1614 420 1682"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Emergency Medical Drills. 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).</p>
Licensee					
<p>N.4.b</p> <table border="1" data-bbox="256 1761 420 1829"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Medical Services Drills. 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).</p>
	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>N.4.c</p> <table border="1" data-bbox="256 380 420 447"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Laboratory Drills. 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.</p>
	State				
Local	Tribal				
<p>N.4.d</p> <table border="1" data-bbox="256 554 420 621"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Environmental Monitoring Drills. 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.</p>
Licensee	State				
Local	Tribal				
<p>N.4.e</p> <table border="1" data-bbox="256 695 420 762"> <tr> <td></td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>		State	Local	Tribal	<p>Ingestion Pathway and Post-Plume Phase Drills. 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.</p>
	State				
Local	Tribal				
<p>N.4.f</p> <table border="1" data-bbox="256 879 420 947"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>Communications Drills. 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.</p>
Licensee	State				
Local	Tribal				
<p>N.4.g</p> <table border="1" data-bbox="256 1058 420 1125"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Post-Accident Sampling Drills. 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.</p>
Licensee					
<p>N.4.h</p> <table border="1" data-bbox="256 1207 420 1274"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Off-Hours Report-In Drills. Off-hours report-in drills are conducted biennially and are unannounced.</p>
Licensee					
<p>N.4.i</p> <table border="1" data-bbox="256 1348 420 1415"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Off-Hours Call-In Drills. 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.</p>
Licensee					
<p>N.4.j</p> <table border="1" data-bbox="256 1488 420 1556"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Onsite Personnel Protective Action Drills. 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.</p>
Licensee					
<p>N.4.k</p> <table border="1" data-bbox="256 1629 420 1696"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>Aircraft Threat/Attack Response Drills. 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.</p>
Licensee					

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)

Number & Applicability	Evaluation Criteria				
<p>O.1</p> <table border="1" data-bbox="240 541 404 606"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>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.</p>
Licensee	State				
Local	Tribal				
<p>O.1.a</p> <table border="1" data-bbox="261 682 428 749"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>O.2</p> <table border="1" data-bbox="240 825 404 892"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>O.2.a</p> <table border="1" data-bbox="261 968 428 1035"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>The ERO training program is reviewed at least annually and revised as necessary.</p>
Licensee					
<p>O.2.b</p> <table border="1" data-bbox="261 1110 428 1178"> <tr> <td>Licensee</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					

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)

Number & Applicability	Evaluation Criteria				
P.1 <table border="1" data-bbox="240 688 402 758"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	The training program, including initial training and periodic retraining, of individuals responsible for the planning effort is described.
Licensee	State				
Local	Tribal				
P.2 <table border="1" data-bbox="240 831 402 900"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	The individual with the overall authority and responsibility for radiological emergency planning is identified by title/position.
Licensee	State				
Local	Tribal				
P.3 <table border="1" data-bbox="240 974 402 1043"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
P.4 <table border="1" data-bbox="240 1117 402 1186"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
P.5 <table border="1" data-bbox="240 1260 402 1329"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
P.6 <table border="1" data-bbox="240 1402 402 1472"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.
Licensee	State				
Local	Tribal				
P.7 <table border="1" data-bbox="240 1545 402 1614"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				
P.8 <table border="1" data-bbox="240 1688 402 1757"> <tr> <td>Licensee</td> <td>State</td> </tr> <tr> <td>Local</td> <td>Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	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.
Licensee	State				
Local	Tribal				

Number & Applicability	Evaluation Criteria				
<p>P.9</p> <table border="1" data-bbox="237 344 404 413"> <tr> <td data-bbox="237 344 321 380">Licensee</td> <td data-bbox="321 344 404 380"></td> </tr> <tr> <td data-bbox="237 380 321 413"></td> <td data-bbox="321 380 404 413"></td> </tr> </table>	Licensee				<p>Provisions for addressing the requirements of 10 CFR 50.54(t) are described.</p>
Licensee					
<p>P.10</p> <table border="1" data-bbox="237 487 404 556"> <tr> <td data-bbox="237 487 321 522">Licensee</td> <td data-bbox="321 487 404 522">State</td> </tr> <tr> <td data-bbox="237 522 321 556">Local</td> <td data-bbox="321 522 404 556">Tribal</td> </tr> </table>	Licensee	State	Local	Tribal	<p>The administrative process for the periodic review and updating of contact information identified in the emergency plan and implementing procedures is described.</p>
Licensee	State				
Local	Tribal				
<p>P.11</p> <table border="1" data-bbox="237 630 404 699"> <tr> <td data-bbox="237 630 321 665">Licensee</td> <td data-bbox="321 630 404 665"></td> </tr> <tr> <td data-bbox="237 665 321 699"></td> <td data-bbox="321 665 404 699"></td> </tr> </table>	Licensee				<p>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.</p>
Licensee					
<p>P.12</p> <table border="1" data-bbox="237 772 404 842"> <tr> <td data-bbox="237 772 321 808">Licensee</td> <td data-bbox="321 772 404 808"></td> </tr> <tr> <td data-bbox="237 808 321 842"></td> <td data-bbox="321 808 404 842"></td> </tr> </table>	Licensee				<p>The process to evaluate changes in plant configuration for their impact on the effectiveness of the emergency plan is described.</p>
Licensee					

SECTION III: Resources

AUTHORITIES AND REFERENCES

FEMA-Specific Legislative Authorities

- NRC Authorization Acts of 1980 (Pub. L. No. 96-295), 1982–1983 (Pub. L. No. 97-415), and 1984–1985 (Pub. L. No. 98-553).
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288 (1974) (codified as amended at 42 U.S.C. §§ 5121-5207).
- Homeland Security Act of 2002, Pub. L. No. 107-296 (2002) (codified as amended at 6 U.S.C. § 101 et seq.).
- Security and Accountability for Every Port Act of 2006, Pub. L. No. 109-347 (2006).
- U.S. Department of Veterans Affairs and U.S. Department of Housing and Urban Development, and Independent Agencies Appropriations for 1999, Pub. L. No. 105-276 (1999).
- Post-Katrina Emergency Management Reform Act of 2006, Pub. L. No. 109-295, §§ 641-654 (2006) (codified as amended at 6 U.S.C. §§ 741-754).
- Reorganization Plan No. 3 of 1978.

NRC-Specific Legislative Authorities

- Atomic Energy Act of 1954, as amended (Public Law 83-703).
- Energy Reorganization Act of 1974, as amended (Public Law 93-438).
- Reorganization Plan No. 1 of 1980.
- Energy Policy Act of 2005 (Public Law 109-58).
- NRC Authorization Acts of 1980 (Public Law 96-295), 1982–1983 (Public Law 97-415), and 1984–1985 (Public Law 98-553).

Executive Orders/Presidential Directives and Documents

- Executive Order 12127, as amended.
- Executive Order 12148, as amended.
- Executive Order 12241, as amended.
- Executive Order 12657, as amended.
- Executive Order 13175.
- Homeland Security Presidential Directive 5, “Management of Domestic Incidents” (HSPD-5) (February 28, 2003).
- Presidential Policy Directive 8, “National Preparedness” (PPD-8) (March 30, 2011).
- President Jimmy Carter’s Remarks Announcing Actions in Response to the Kemeny Commission Report (December 7, 1979).
- Presidential Memorandum on Tribal Consultation of November 5, 2009 (74 Fed. Reg. 57881, Nov. 9, 2009).

Code of Federal Regulations

- NRC’s regulations in Title 10, Chapter I, Parts 20, 50 and 52 of the CFR.
- FEMA’s regulations in Title 44, Chapter I, Parts 350–354 of the CFR.
- 10 CFR 61.71, “State and Tribal government consultation.”
- 10 CFR 73.54, “Protection of digital computer and communication systems and networks.”
- 29 CFR 1910.1096, “Ionizing radiation.”

NRC Documents

- Management Directive 8.4, “Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests,” September 2019, ADAMS Accession No. ML18093B087.
- NSIR/DPR-ISG-01, “Interim Staff Guidance Emergency Planning for Nuclear Power Plants,” November 2011, ADAMS Accession No. ML113010523.
- NUREG-75/014, “Reactor Safety Study – An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants,” (WASH-1400), October 1975, (App III, IV) ADAMS Accession No. ML070610293, (App V) ML070530533, (App VI) ML070600389, (App VII-X) ML070600376.
- NUREG-0396, EPA 520/1-78-016, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” December 1978, ADAMS Accession No. ML051390356.
- NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,” Chapter 13.3, “Emergency Planning,” Revision 3, March 2007, ADAMS Accession No. ML063410307.
- NUREG-1150, “Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants,” 1990, (Vols. 1, 2, 3, and Appendices), ADAMS Accession No. ML040140729.
- NUREG-1301, “Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors,” April 1991, ADAMS Accession No. ML091050061.
- NUREG-1302, “Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Boiling Water Reactors,” April 1991, ADAMS Accession No. ML091050059.
- NUREG-1409, “Backfitting Guidelines,” July 1990, ADAMS Accession No. ML032230247.
- NUREG-1935, “State-of-the-Art Reactor Consequence Analyses (SOARCA) Report,” November 2012, ADAMS Accession No. ML12332A057 (Part 1) and ML12332A058 (Part 2).
- NUREG-1953, “Confirmatory Thermal-Hydraulic Analysis to Support Specific Success Criteria in the Standardized Plant Analysis Risk Models – Surry and Peach Bottom,” May 2011, ADAMS Accession No. ML11256A023.
- NUREG/CR-7002, “Criteria for Development of Evacuation Time Estimate Studies,” Revision 0, November 2011, ADAMS Accession No. ML113010515.
- NUREG/CR-7032, “Developing an Emergency Risk Communication (ERC)/Joint Information Center (JIC) Plan for a Radiological Emergency,” Revision 0, February 2011, ADAMS Accession No. ML110490119.
- NUREG/CR-7033, “Guidance on Developing Effective Radiological Risk Communication Messages: Effective Message Mapping and Risk Communication with the Public in Nuclear Plant Emergency Planning Zones,” Revision 0, February 2011, ADAMS Accession No. ML110490120.
- Regulatory Guide 1.101, “Emergency Response Planning and Preparedness for Nuclear Power Reactors,” Various Revisions, (Revision 3) ADAMS Accession No. ML003740302, (Revision 4) ML032020276, (Revision 5) ML050730286.

- Regulatory Guide 1.219, “Guidance on Making Changes to Emergency Response Plans for Nuclear Power Reactors,” Revision 0, November 2011, ADAMS Accession No. ML102510626.
- SECY-03-0165, “Evaluation of Nuclear Power Reactor Emergency Preparedness Planning Basis Adequacy in the Post-9/11 Threat Environment,” September 22, 2003, ADAMS Accession No. ML031960020 (not publicly available).
- SECY-06-0200, “Results of the Review of Emergency Preparedness Regulations and Guidance,” September 20, 2006, ADAMS Accession No. ML061910707.
- SECY-08-0024, “Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes That Represent a Decrease in Effectiveness,” February 25, 2008, ADAMS Accession No. ML072900547.
- Staff Requirements Memorandum – SECY-08-0024, “Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes That Represent a Decrease in Effectiveness,” May 19, 2008, ADAMS Accession No. ML081400510.
- SECY-12-0095, “Tier 3 Program Plans and 6-Month Update in Response to Lessons Learned from Japan’s March 11, 2011, Great Tohoku Earthquake and Subsequent Tsunami,” July 13, 2012, ADAMS Accession No. ML12208A208 (redacted).
- “Planning Basis for Emergency Responses to Nuclear Power Plant Accidents,” (44 FR 61123, October 23, 1979).
- Commission Decision Regarding the Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), CLI-87-12, 26 NRC 383 (1987).

DHS/FEMA Documents

- FEMA Publication 1 (Pub 1), April 2016.
- FEMA REP Program Manual, current edition.
- FEMA Tribal Policy (FP 305-111-1), December 27, 2016.
- FEMA Tribal Consultation Policy (FP 101-002-02), July 3, 2019.
- National Preparedness System (NPS), November 2011.
- National Preparedness Goal, second edition, September 2015.
- Comprehensive Preparedness Guide (CPG) 101, “Developing and Maintaining Emergency Operations Plans,” Version 2.0, November 2010.
- Comprehensive Preparedness Guide (CPG) 201, “Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide,” third edition, May 2018.
- National Incident Management System (NIMS), third edition, October 2017.
- Homeland Security Exercise and Evaluation Program (HSEEP), April 2013.
- National Response Framework (NRF), third edition, June 2016.
- National Response Framework (NRF), Emergency Support Function (ESF) #15 – External Affairs Annex, June 2016.
- National Response Framework (NRF), Public Affairs Support Annex, May 2013.
- Nuclear/Radiological Incident Annex (NRIA) to the Response and Recovery Federal Interagency Operational Plans (FIOPs), October 2016.
- National Response Framework (NRF), Mass Evacuation Incident Annex, June 2008.
- National Disaster Recovery Framework (NDRF), second edition, June 2016.

Joint NRC/FEMA Documents

- FEMA/NRC Memorandum of Understanding (MOU), December 7, 2015 (81 FR 15755, March 24, 2016), ADAMS Accession No. ML15344A371.
- NUREG-0654/FEMA-REP-1, Rev. 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” November 1980, ADAMS Accession No. ML040420012.
- NUREG-0654/FEMA-REP-1, Rev. 1, Addenda, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” March 2002, ADAMS Accession No. ML021050240.
- NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants – Criteria for Utility Offsite Planning and Preparedness,” Final Report, September 1988, ADAMS Accession No. ML083180169.
- NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 2, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants – Criteria for Emergency Planning in an Early Site Permit Application,” Draft Report for Comment, April 1996, ADAMS Accession No. ML050130188.
- NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants – Guidance for Protective Action Strategies,” October 2011, ADAMS Accession No. ML113010596.
- NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 4, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants – Criteria for National Preparedness Initiative Integration, Exercise Enhancement, and Backup Alert and Notification Systems,” October 2011.

Other Federal Agency Guidance

- EPA-400/R-17/001, “PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents,” January 2017.
- EPA-400-R-92-001, “Manual of Protective Action Guides and Protective Actions for Nuclear Incidents,” May 1992.

GLOSSARY

This Glossary serves as a practical and easy-to-use guide for terminology utilized within this document. The terms within this Glossary represent jointly agreed-upon definitions that may be used as a resource within the context of this document.

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.

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.

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).

Annual: every calendar year, except in cases relevant to 10 CFR 50.54(t) where *annual* means 365 days.

Applicant: an entity that has applied for an NPP construction permit/operating license under 10 CFR Part 50 or 10 CFR Part 52.

Biennial: every two calendar years.

Buffer zone: an area adjacent to a restricted area where residents may temporarily re-enter, but for which protective measures are recommended to minimize exposure to radiation. The buffer zone serves as an area in which response and recovery efforts are staged and coordinated, and provides an area to conduct decontamination efforts to prevent the spread of contamination to unrestricted areas.

Combined license (COL): a combined construction permit and operating license with conditions for a nuclear power facility issued under Subpart C of 10 CFR Part 52.

Command and control: management of emergency response functions within a particular context (e.g., an EOC) 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.

Committed effective dose equivalent: the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues.

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.

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.

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: a concrete, actionable step that is intended to resolve EP program gaps and shortcomings experienced in drills, exercises, or actual events.

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.

Early site permit (ESP): a permit through which the NRC addresses site safety, environmental protection, and EP issues, in order to approve one or more proposed sites for a nuclear power facility, independent of a specific nuclear plant design or an application for a construction permit or COL. An ESP is valid for 10 to 20 years, but can be renewed for an additional 10 to 20 years.

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 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.

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 or hostile action that results 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.

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.

Key skill: a capability necessary for implementing emergency response functions to protect public health and safety. For applicants/licensees, a listing of ERO key skills is provided in NSIR/DPR-ISG-01.

KI (potassium iodide): see potassium iodide.

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).

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 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. 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.

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.

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.

Radiation protection: the protection of people from the effects of exposure to ionizing radiation, and the means for achieving this.

Radioisotope: an unstable form 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.

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: 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.

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).

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NUREG-0654/FEMA-REP-1 provides guidance on the 16 Planning Standards referenced in the NRC's regulations in section 50.47 of title 10 of the Code of Federal Regulations, and in FEMA's regulations at 44 CFR 350.5. Both agencies use these Planning Standards to evaluate the adequacy of emergency plans and preparedness of commercial nuclear power plant owners and operators, and state, local, and tribal governments located near commercial nuclear power plant sites.

This revision consolidates the four supplementary documents and one addendum that were issued subsequent to Revision 1, and provides updates and additional guidance reflective of over 35 years of improvements and lessons learned in the radiological emergency preparedness community.

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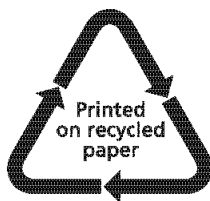
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