

# ***Question and Response Report***

***for:***

## **Module 10: Emergency Preparedness and Response**

# IRRS Question and Response Report

Question No: 184	Module 10: Emergency Preparedness and Response
<b>Question</b> Is there an established system of governmental emergency response and intervention capability to assure effective emergency preparedness? Describe this system.	
<b>Response</b> The National Response Framework (NRF), last updated January 2008, establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. The plan incorporates best practices and procedures from incident management disciplines—homeland security, emergency management, law enforcement, firefighting, public works, public health, responder and recovery worker health and safety, emergency medical services, and the private sector—and integrates them into a unified structure. It forms the basis of how the Federal government coordinates with State, local, and Tribal governments and the private sector during incidents.	
Question No: 185	Module 10: Emergency Preparedness and Response
<b>Question</b> What emergency preparedness has been established at local level, national level, between states, and international level?	
<b>Response</b> The NRF and the Radiological Emergency Preparedness (REP) program establish (to different degrees) requirements for emergency preparedness at the local and national level, as well as between jurisdictions (including States). The United States is a signatory to post-Chernobyl conventions to keep the International Atomic Energy Agency (IAEA) informed and to assist other States as requested through the U.S. State Department. At the local level, responders such as fire, police, hazmat, and medical have defined duties and responsibilities under the NRF and the REP. The local authority—mayor or governor—also has defined responsibilities under both plans. The Governor in most States has the authority to order protective actions. Emergency preparedness at the national level is outlined in the NRF and is discussed further in the responses to Questions 184 and 190. There are a number of nuclear power plants that have emergency planning zones that are co-located in two or more States. These States typically work collectively in the implementation of the offsite emergency plan. Specific agreements are detailed within Memoranda of Agreement, etc. Similarly, there are agreements in place between the United States and both Canada and Mexico.	

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Question No: 186

Module 10: Emergency Preparedness and Response

## Question

How is this preparedness maintained?

## Response

There are regularly scheduled drills and exercises for nuclear power plant licensees that are designed to test key components of the plans for both onsite and offsite response. In addition, there is training that is required to be conducted on a routine basis. There are scheduled Federal exercises as well as limited-objective exercises. In Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," the U.S. Nuclear Regulatory Commission (NRC) details the requirements:

1. The program to provide for: (a) The training of employees and exercising, by periodic drills, of radiation emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and (b) The participation in the training and drills by other persons whose assistance may be needed in the event of a radiation emergency shall be described. This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:

- i. Directors and/or coordinators of the plant emergency organization;
- ii. Personnel responsible for accident assessment, including control room shift personnel;
- iii. Radiological monitoring teams;
- iv. Fire control teams (fire brigades);
- v. Repair and damage control teams;
- vi. First aid and rescue teams;
- vii. Medical support personnel;
- viii. Licensee's headquarters support personnel;
- ix. Security personnel.

In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, local news media persons.

2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties;

a. A full participation exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located.

(i) For an operating license issued under this part, this exercise must be conducted within two years before the issuance of the first operating license for full power (one authorizing operation above 5 percent of rated power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than 1 year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation.

(ii) For a combined license issued under part 52 of this chapter, this exercise must be conducted within two years of the scheduled date for initial loading of fuel. If the first full participation exercise is conducted more than one year before the scheduled date for initial loading of fuel, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before the scheduled date for initial loading of fuel. This exercise need not have State or local government participation. If DHS identifies one or more deficiencies in the state of offsite emergency preparedness as the result of the first full participation exercise, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.

(iii) For a combined licensee issued under part 52 of this chapter, if the applicant currently has an operating reactor at the site, an exercise, either full or partial participation,<sup>5</sup> shall be conducted for each subsequent reactor constructed on the site. This exercise may be incorporated in the exercise requirements of Sections IV.F.2.b. and c. in this appendix. If DHS identifies one or more deficiencies in the state of offsite emergency preparedness as the result of this exercise for the new reactor, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.

b. Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decisionmaking, and plant system repair and corrective actions. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems

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(success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.

c. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period. If two different licensees whose licensed facilities are located either on the same site or on adjacent, contiguous sites, and that share most of the elements defining co-located licensees, each licensee shall:

- (1) Conduct an exercise biennially of its onsite emergency plan; and
- (2) Participate quadrennially in an offsite biennial full or partial participation exercise; and
- (3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected State and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises.

d. A State should fully participate in the ingestion pathway portion of exercises at least once every six years. In States with more than one site, the State should rotate this participation from site to site.

e. Licensees shall enable any State or local Government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such State or local Government.

f. Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot find reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. The extent of State and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises.

g. All training, including exercises, shall provide for formal critiques in order to identify weak or deficient areas that need correction. Any weaknesses or deficiencies that are identified shall be corrected.

h. The participation of State and local governments in an emergency exercise is not required to the extent that the applicant has identified those governments as refusing to participate further in emergency planning activities, pursuant to 10 CFR 50.479(c)(1). In such cases, an exercise shall be held with the applicant or licensee and such governmental entities as elect to participate in the emergency planning process.

Each NRC licensee that transports licensed material outside the site of usage or on public highways shall comply with the applicable requires of the U.S. Department of Transportation regulations in 49 CFR Parts 107, 171–180, and 390–397, appropriate to the mode of transport.

**Question No:** 187

**Module 10: Emergency Preparedness and Response**

## Question

How is this reviewed and by whom? (For example to identify any practice or event that could necessitate an emergency intervention)

## Response

Training, drills, and exercises are observed and reviewed at all levels by the NRC and FEMA. The NRC evaluates onsite processes, whereas FEMA evaluates the offsite component of the emergency plan. The NRC has final authority to determine the overall acceptability of the emergency preparedness program for a licensee. An important component of the NRC reactor oversight program is the ability of the licensee to self-critique. Licensee critique failures are documented. If a licensee fails to identify a failure to successfully implement a risk-significant planning standard during a drill or exercise, then the NRC will evaluate the severity and take appropriate actions. Details of the review process are located in NRC Inspection Procedure 71114.01, "Exercise Evaluation," dated June 29, 2006.

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<b>Question No:</b>	<b>188</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How is an assessment of the radiological threat conducted and by whom?		
<b>Response</b>		
<p>The ability of a licensee to correctly evaluate and classify an emergency condition that could lead to a radiological release offsite is an integral part of the NRC's overall evaluation of the emergency preparedness program. Both the licensee and NRC monitor and evaluate plant conditions to anticipate, and reduce the risk of, possible radiological releases that may occur as a result of an accident or other incident at a nuclear power plant. The NRC evaluates the licensee's ability to correctly classify an event and make the appropriate notifications offsite. These are part of the risk-significant planning standards that the NRC has identified and as such are monitored closely. The NRC staff at the NRC's Incident Response Center monitors the plant conditions from the licensee's emergency response data system line, which feeds certain plant parameters by modem directly to the NRC. The NRC staff reviews the data and monitors the licensee's decisions to ensure that it is taking the appropriate actions to protect public health and safety.</p> <p>Security-based threat assessments are made by either the Federal Government based on intelligence or by the licensee based on actions and events occurring on or near to the site. There are procedures in place for such assessments.</p> <p>Should there be a release, radiological assessments are performed by the licensee, the NRC, experts at a Federal Radiological Monitoring and Assessment Center established near the site of an accident, and some U.S. States. Different plume models may be used for diversity and assurance.</p>		

<b>Question No:</b>	<b>189</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
Do these preparations clearly include the actions to be taken both in and after an emergency?		
<b>Response</b>		
<p>The focus of the emergency drills and exercises is typically on short-term response to emergency conditions, including interdiction of food and recommending use of stored feed to livestock. Other Federal agencies, as prescribed in the NRF, take the lead for long-term protective actions (such as impounding crops and other food-chain protections), for evacuations (a U.S. State responsibility), and for environmental cleanup. The Protective Action Manual, EPA 400, is a multiagency guidance document that addresses short, intermediate, and longer term actions. A proposed revision to EPA 400, will address some long-term recovery issues. This proposed revision by the U.S. Environmental Protection Agency (EPA) will include the Department of Homeland Security (DHS) PAGs for radiological dispersion devices and improvised nuclear devices, published in August 2008, which focuses on longer term recovery issues.</p>		

<b>Question No:</b>	<b>190</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
What role does the Regulatory Body have in this preparedness?		
<b>Response</b>		
<p>The NRC performs the following actions:</p> <ul style="list-style-type: none"><li>-approves requirements and plans for licensee preparedness</li><li>-maintains resident inspectors at each plant with fuel on site</li><li>-requires and assesses regular exercises</li><li>-requires reporting of abnormal events involving licensed activities</li><li>-evaluates and follows up on licensee reports</li><li>-maintains an all-hours operations center to receive and document reports</li></ul>		

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Question No: 191

Module 10: Emergency Preparedness and Response

## Question

What role do other bodies have in this preparedness?

## Response

State and local officials must be involved in offsite emergency response. Under NRC regulations in 10 CFR 50.47,a)(1), except as provided in paragraph (d) of this section, no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. No finding under this section is necessary for issuance of a renewed nuclear power reactor operating license. The NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and whether or not there is reasonable assurance that they can be implemented, and on the NRC's assessment as to whether or not the applicant's onsite emergency plans are adequate and whether or not there is reasonable assurance that they can be implemented. A FEMA finding will primarily be based on a review of the plans. Any other information already available to FEMA may be considered in assessing whether there is reasonable assurance that the plans can be implemented. In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability.

The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards: 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 organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Question No: 192

Module 10: Emergency Preparedness and Response

## Question

How is the allocation of responsibilities for the management of interventions in emergency exposure situations between the Regulatory Body and other bodies determined in advance?

## Response

NRC regulations have provisions for exposure control in emergency conditions for occupational workers. Nonoccupational workers fall under the authority of the U.S. Occupational Safety and Health Agency. Additional information on emergency exposure planning guidelines is contained within EPA Section 400 as well as NUREG 0654/FEMA REP 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The NRC provisions contained in 10 CFR 20.1206, "Planned Special Exposures," are as follows.

A licensee may authorize an adult worker to receive doses in addition to and accounted for separately from the doses received under the limits specified in § 20.1201 provided that each of the following conditions is satisfied—

- (a) The licensee authorizes a planned special exposure only in an exceptional situation when alternatives that might avoid the dose estimated to result from the planned special exposure are unavailable or impractical.
- (b) The licensee (and employer if the employer is not the licensee) specifically authorizes the planned special exposure, in writing, before the exposure occurs.
- (c) Before a planned special exposure, the licensee ensures that the individuals involved are—
  - (1) Informed of the purpose of the planned operation;
  - (2) Informed of the estimated doses and associated potential risks and specific radiation levels or other conditions that might be involved in performing the task; and
  - (3) Instructed in the measures to be taken to keep the dose ALARA considering other risks that may be present.
- (d) Prior to permitting an individual to participate in a planned special exposure, the licensee ascertains prior doses as required by § 20.2104(b) during the lifetime of the individual for each individual involved.
- (e) Subject to § 20.1201(b), the licensee does not authorize a planned special exposure that would cause an individual to receive a dose from all planned special exposures and all doses in excess of the limits to exceed—
  - (1) The numerical values of any of the dose limits in § 20.1201(a) in any year; and
  - (2) Five times the annual dose limits in § 20.1201(a) during the individual's lifetime.
- (f) The licensee maintains records of the conduct of a planned special exposure in accordance with § 20.2105 and submits a written report in accordance with § 20.2204.
- (g) The licensee records the best estimate of the dose resulting from the planned special exposure in the individual's record and informs the individual, in writing, of the dose within 30 days from the date of the planned special exposure. The dose from planned special exposures is not to be considered in controlling future occupational dose of the individual under § 20.1201(a) but is to be included in evaluations required by § 20.1206 (d) and (e).

In addition, the EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents provides protective action emergency worker exposure guidelines.

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Question No: 193

Module 10: Emergency Preparedness and Response

## Question

How are responsibilities for preparedness and response for a nuclear or radiological emergency clearly allocated in legislation?

## Response

The NRC has statutory responsibility for licensing and regulating the civilian use of byproduct, source, and special nuclear materials to ensure protection of public health and safety, to promote common defense and security, and to protect the environment. Presidential Executive Order 12148 allocates the responsibility for offsite emergency preparedness to FEMA. Agency regulations and guidance, and memoranda of understanding among agencies, fill out the allocation of responsibilities.

Question No: 194

Module 10: Emergency Preparedness and Response

## Question

Does the legislation establish or identify an existing governmental body to act as a national coordinating authority, whose function, among others, is to resolve differences and incompatible arrangements between the various participating parties?

## Response

The national coordinating authority is established not in legislation but rather in Presidential Executive Order 12148, which, in 1979, soon after the nuclear accident at Three Mile Island, assigned to the new FEMA the principal role in coordinating emergency planning at nuclear power plants. Further direction came from the President on December 7, 1979, when he directed that FEMA assume lead responsibility for all offsite nuclear emergency planning and response. Soon thereafter, the NRC and FEMA entered into a memorandum of understanding (MOU) about their respective roles. The current text of that MOU was signed in 1993 and may be found at Appendix A, "Memorandum of Understanding between Federal Emergency Management Agency and Nuclear Regulatory Commission," to 44 CFR Part 353, "Fee for Services in Support, Review and Approval of State and Local Government or Licensee Radiological Emergency Plans and Preparedness." It could be argued that these roles should be spelled out in statute rather than in Executive Branch documents, but nearly 30 years of practice have demonstrated the sufficiency of the current legal bases of coordination and resolution of differences.

From the beginning, as sought for under the Executive Order, State and local governments have played a large part in emergency planning, and in most existing plans are in fact the ultimate decisionmakers in the course of an emergency, with the power to decide, for example, whether to evacuate or shelter, and whether to extend measures beyond the planning zone. The respective State, Federal, and local roles in existing plans are regularly exercised and judged under Federal standards. However, emergency planning at nuclear power plants does not require the participation of State and local governments, and the Federal Government does not have legal authority to force State and local governments to participate in emergency planning. Nonetheless, in those cases where State or local governments refuse to participate, the licensee must take up the slack in planning and implementation of the plans in an emergency (see 10 CFR 50.47(c)(1)).

Question No: 195

Module 10: Emergency Preparedness and Response

## Question

How does this national coordinating authority ensure that functions and responsibilities of operators and response organizations are clearly assigned and understood? Are there clearly defined lines of communication?

## Response

Responsibilities assigned by the NRF have been tested for a number of years. DHS is a relatively new agency with newly defined responsibilities. There have been some exercises conducted since the formation of DHS, which have included DHS participation. Lessons learned from these exercises as well as from real events such as the Federal response to Hurricane Katrina prompted a rewrite to parts of the plan to capture the lessons learned and improve overall Federal response. The agencies that are involved in radiological preparedness are part of the Federal Radiological Preparedness Coordinating Committee and meet quarterly or more frequently to discuss problems and concerns and to develop strategies for success. Frequent meetings among the affected agencies, along with MOUs and other such letters of cooperation, detail the expectations and modes of cooperation of the agencies as well as between Federal agencies, States, and local communities. Federal and State statutes spell out to some extent the authorities of the Federal and State governments; other legal instruments fill in the details.

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<b>Question No:</b>	<b>196</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
What mechanisms are in place for enforcing compliance?		
<b>Response</b>		
The NRC has statutory responsibility for licensing and regulating the civilian use of byproduct, source, and special nuclear materials to ensure protection of public health and safety, to promote common defense and security, and to protect the environment. Presidential Executive Order 12148 allocates the responsibility for offsite emergency preparedness to FEMA. Agency regulations and guidance, and MOUs among agencies, fill out the allocation of responsibilities. The States have the authority and responsibility for emergency preparedness and response for their citizens. In some States the authority and responsibility for protection of its citizens is the responsibility of the local or county authority. Disputes can be discussed and decided in coordinating bodies in the NRC, DHS, and the Office of the President as well as with State authorities. Compliance can be ensured by attaching provisions for such compliance to Federal funding to State and local authorities.		
<b>Question No:</b>	<b>197</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does this national coordinating authority foster the implementation by other States of measures designed to fulfill the relevant obligations for emergency preparedness and co-operation?		
<b>Response</b>		
DHS does not have that authority. International coordination on civilian nuclear energy emergencies is a function of the NRC, working through the Department of State. Other U.S. organizations may assist as their expertise is needed.		
<b>Question No:</b>	<b>198</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Regulatory Body train and exercise its own staff for their roles in emergency preparedness? What is the frequency of this training and exercise? Are there adequate resources allocated?		
<b>Response</b>		
The NRC selects response team members from throughout the agency, maintains qualification requirements and training programs, and exercises at least four times per year with reactors. In addition, response personnel exercise with other licensed activities and in a range of exercises conducted by other Federal agencies. There are adequate resources allocated to the incident response center for maintenance of the center and operating staff as well as for training and testing the emergency response team members.		
<b>Question No:</b>	<b>199</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
Does the Regulatory Body have its own emergency plan?		
<b>Response</b>		
The NRC has emergency preparedness plans for its own facilities. There are Occupant Emergency Plans (OEPs) for each NRC building to reduce the possibility of personal injury and facility damage in the event of an emergency that affects the NRC facility. The OEPs address what to do in the event of fire, bomb threat, explosion, high wind, electrical power outage, medical emergency, hazardous chemical spill, violent criminal act, civil demonstration, and other conditions that could harm or threaten occupants in NRC buildings. Each OEP assigns responsibility to various staff to ensure that emergency directives are implemented, to include (1) procedures to follow in the event occupants need to evacuate in an emergency situation and (2) procedures to follow in the event of a medical emergency. The OEPs are tested annually.		
The NRC program for oversight of response to an emergency at one of its licensees is detailed in Management Directive 8.2, "NRC Incident Response Program," dated June 16, 2006.		

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Question No: 200

Module 10: Emergency Preparedness and Response

## Question

How does the Regulatory Body require that emergency plans be prepared for the on-site area for any practice or source that could necessitate an emergency intervention?

## Response

A functional emergency plan is a condition of the license for nuclear power plants. As stated in 10 CFR 50.47, "Emergency Plans":

Except as provided in paragraph (d) of this section, "no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. No finding under this section is necessary for issuance of a renewed nuclear power reactor operating license.

The emergency plan is reviewed periodically by NRC emergency preparedness inspectors, NRC resident inspectors, and during the full-participation exercises that occur every other year. The full-participation exercises involve both onsite and offsite emergency response. The offsite emergency response is evaluated by FEMA, while the onsite response is evaluated by the NRC. The spectrum of response actions that are less than adequate are typically referred to as findings. Findings by the licensee or regulatory body are captured in the corrective actions plan, while offsite findings are typically identified as an area requiring corrective action. These corrective action plans are periodically reviewed to ensure that the identified findings are corrected.

There are regularly scheduled drills and exercises for nuclear power plant licensees that are designed to test key components of the plans for both onsite and offsite response. In addition, there is training that is required to be conducted on a routine basis. There are scheduled Federal exercises as well as limited-objective exercises. In 10 CFR Part 50, Appendix E, the NRC details the requirements:

The program to provide for: (a) The training of employees and exercising, by periodic drills, of radiation emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and (b) The participation in the training and drills by other persons whose assistance may be needed in the event of a radiation emergency shall be described. This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:

- i. Directors and/or coordinators of the plant emergency organization;
- ii. Personnel responsible for accident assessment, including control room shift personnel;
- iii. Radiological monitoring teams;
- iv. Fire control teams (fire brigades);
- v. Repair and damage control teams;
- vi. First aid and rescue teams;
- vii. Medical support personnel;
- viii. Licensee's headquarters support personnel;
- ix. Security personnel.

In addition, a radiological orientation training program shall be made available to local services personnel; e.g., local emergency services/Civil Defense, local law enforcement personnel, local news media persons.

2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties.

a. A full participation exercise which tests as much of the licensee, State and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. This exercise shall be conducted within two years before the issuance of the first operating license for full power (one authorizing operation above 5% of rated power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than one year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans shall be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation.

b. Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decision-making, and plant system repair and corrective actions. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.

c. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every 2 years and shall, at least,

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partially participate<sup>5</sup> in other offsite plan exercises in this period. If two different licensees whose licensed facilities are located either on the same site or on adjacent, contiguous sites, and that share most of the elements defining co-located licensees,<sup>6</sup> each licensee shall: (1) Conduct an exercise biennially of its onsite emergency plan;

(2) Participate quadrennially in an offsite biennial full or partial participation exercise; and

(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected state and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises.

**Question No:** 201

**Module 10: Emergency Preparedness and Response**

## Question

How does the Regulatory Body ensure that these plans are integrated with those of other response organizations as appropriate before the commencement of operation?

## Response

Emergency plans are required to meet the 16 planning standards of 10 CFR 50.47(b). Three of those 16 standards relate to integration with offsite response organizations. In addition, before a license to operate is granted, these planning standards must be met. Failure to meet the applicable standards set forth in paragraph (b) of this section may result in the Commission declining to issue an operating license; however, the applicant will have an opportunity to demonstrate to the satisfaction of the Commission that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operations.

**Question No:** 202

**Module 10: Emergency Preparedness and Response**

## Question

How do these plans integrate with those existing or conventional emergencies?

## Response

The FSAR must address natural emergencies (e.g., wildfires, floods, hurricanes, earthquakes) and must be approved by the NRC. The emergency action level scheme adopted by the licensee for its facility also includes emergency action levels for natural events that are associated with emergency classification levels. In the event of a weather-related emergency, the appropriate classification is declared and plant actions taken accordingly. In addition, licensees are required to have a Memorandum of Agreement (MOA) or MOU with local offsite emergency response departments such as ambulance service, hospitals, and fire and rescue departments.

The NRC also has an integrated agency continuity of operations plan for response to a wide range of abnormal circumstances. There are periodic exercises to test the continuity of operations.

**Question No:** 203

**Module 10: Emergency Preparedness and Response**

## Question

How does the Regulatory Body ensure that such coordinating agreements are implemented adequately by the licensees?

## Response

The NRC periodically inspects the emergency preparedness program and ensures that MOUs with applicable offsite response organizations exist and are current. In addition, offsite response entities are routinely evaluated by FEMA, and coordinating agreements among offsite response entities and among these entities and the licensee are reviewed at that time. The NRC has regulatory authority over its licensees. If an emergency plan is found to be deficient such that there no longer exists reasonable assurance that adequate measures can and will be taken in the event of an emergency, then the NRC Commission may order a nuclear power plant licensee to shut down the facility until the deficiencies are corrected or a plan to correct such deficiencies is developed.

# IRRS Question and Response Report

<b>Question No:</b>	<b>204</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Regulatory Body ensure that these plans provide reasonable assurance of effective response in the event of a nuclear or radiological emergency?		
<b>Response</b>		
Licensee onsite emergency plans are required to meet the 16 planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50. The NRC reviews the emergency plan to ensure that all standards are met and that reasonable assurance exists for the onsite plan.		
DHS reviews and evaluates offsite organization emergency plans against their requirements and standards. DHS provides the NRC with a finding of reasonable assurance for the offsite planning.		
The NRC can then make a final determination that reasonable assurance exists both onsite and offsite and a license can be granted.		
<b>Question No:</b>	<b>205</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Regulatory Body ensure that operators train and exercise for their roles in emergency preparedness? What is the frequency of this training and exercise?		
<b>Response</b>		
Appendix E to 10 CFR Part 50 requires that an exercise of the onsite emergency plan be conducted every 2 years. In addition, Appendix E also requires “provisions for a training program for employees of the licensee, including those who are assigned specific authority and responsibility in the event of an emergency, and for other persons who are not employees of the licensee but whose assistance may be needed in the event of a radiological emergency.”		
It also requires that offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the plan.		
These exercises can be combined into the same exercise.		
The NRC also has a program that uses performance indicators to monitor success rate and participation during drills and exercises conducted between the biennial evaluated exercises. If the level of success or participation drops below thresholds, additional inspections are conducted.		
<b>Question No:</b>	<b>206</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How is the scenario for an exercise determined and by whom? at the local level? at the national level?		
<b>Response</b>		
For emergency exercises at a power plant, the exercise scenarios are developed by the licensee. Scenarios must be adequate to exercise all required portions of the emergency plan. Typically, a committee comprised of the licensee staff, local and State representatives, and FEMA staff determine the objectives to be tested; for example, all objectives must be tested within the 6 year exercise cycle, and the distribution of objectives within the 6 year exercise cycle is the subject of discussion and negotiation. If a scenario proves not to be sufficiently challenging, the NRC may require the licensee to conduct a repeat exercise with a more challenging scenario.		
<b>Question No:</b>	<b>207</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Regulatory Body establish, promote or adopt emergency preparedness regulations and guides upon which its regulatory actions are based?		
<b>Response</b>		
NRC regulations are required to be implemented by NRC licensees. The NRC publishes guidance documents that state acceptable options for implementation or it allows the licensee to develop its own method—subject to NRC review and approval. The NRC sponsors studies to investigate new methods, technologies, and data. The NRC ensures that its staff reviews technical documents from organizations such as IAEA, the International Commission on Radiological Protection, and the National Council on Radiation Protection and Measurements, and supports these types of organizations with qualified NRC staff.		

# IRRS Question and Response Report

<b>Question No:</b>	<b>208</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Regulatory Body provide for the issuing, amending, suspending or revoking of authorizations that are clear and unambiguous and which specify the requirements for incident reporting and emergency preparedness arrangements?		
<b>Response</b>		
The NRC process for its regulations (including reporting of incidents) is a multistep, interrelated process that is designed to ensure the regulations (requirements) for effective emergency preparedness and incident reporting are clear and unambiguous. The following diagram illustrates the typical process used at NRC to issue rules and modify rules as necessary.		
In addition, 10 CFR 50.47, as supported by Appendix E to 10 CFR Part 50 requirements list the minimum requirements for emergency plans for use in attaining an acceptable state of emergency preparedness. Meeting the regulations ensures that there is an adequate level of preparedness both in the onsite as well as offsite emergency preparedness. The 10 CFR 50.47 and Appendix E requirements are supported by NUREG 0654/FEMA REP 1 as well as other related NUREGS and other regulatory guides.		
<b>Question No:</b>	<b>209</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the Government ensure that: the competent authorities have the necessary resources? the competent authorities make preparations and arrangements to deal with any consequences of accidents in the public domain, whether the accident		
<b>Response</b>		
This question is partly answered by the responses to other questions, especially:  -Questions 184–185 (on the overall system of emergency preparedness, including the local, national, and international components) -Question 189 (on planning for actions both during and after an emergency) -Questions 190 and 107 (on the role of the NRC, and on its system or regulations and guidance)		
The financial resources for ongoing emergency preparedness regulation, equipment, training, exercises, and to some extent response, are provided by the annual budgets of NRC reactor licensees and of the various preparedness authorities in Federal, State, and local government. (See the response to Question 3, on the adequacy of the NRC's financial resources.)		
Moreover, additional funds would become available outside these annual budgets in the event of a major emergency, to help with response and recovery. Most notably, the Price-Anderson Act, which is Section 170 of the Atomic Energy Act, as amended (AEA), provides, through assessments on licensees, funds to cover public liability, including, for example, bodily injury, property damage, and a State's costs in responding to the emergency. Though the funds available are limited by the size and duration of the assessments, the AEA also says that if damages are “in excess of the amount of aggregate liability, the Congress will thoroughly review the particular incident and will take whatever action is determined necessary and appropriate to protect the public from the consequences of a disaster of such magnitude.” (See Section 170.e(2) of the AEA.) Additional funds would also be available under the Convention on Supplementary Compensation for Nuclear Damage (CSC), ratified by the United States last year. The CSC creates a global legal framework that, like the national framework created by the Price-Anderson Act, allocates responsibility for compensating for nuclear damage resulting from a nuclear incident and assures, in the unlikely event of such an incident, prompt availability of meaningful compensation with a minimum of litigation. (A grandfather clause in the CSC allowed the United States to join the CSC without being required to change certain aspects of the Price-Anderson system that would otherwise be inconsistent with the requirements of the CSC.)		
Disaster relief is also available to State and local governments under the Robert T. Stafford Disaster Relief and Emergency Assistance Act if a nuclear accident is declared an emergency or major disaster by the President. The Act is designed to provide early assistance to accident victims. Under a cost-sharing provision, State governments pay 25 percent of the cost of temporary housing for up to 18 months, home repair, temporary mortgage or rental payments, and other “unmet needs” of disaster victims; the Federal Government pays the balance.		
<b>Question No:</b>	<b>210</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How does the regulatory body ensure that the nature and extent of the emergency arrangements are commensurate with the potential magnitude and nature of the hazard associated with the facility or activity?		
<b>Response</b>		
In 10 CFR 50.47(b)(4), the NRC requires that, “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.”		
Emergency action levels define the thresholds that must be crossed to place the facility into one of four predetermined emergency classifications: Unusual Event, Alert, Site Area Emergency, or General Emergency. Offsite organizations have their own procedures that define the level of offsite response based on the classification level onsite. The level of offsite response is commensurate with the magnitude of the onsite event.		

# IRRS Question and Response Report

<b>Question No:</b>	<b>211</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
Do the emergency arrangements include a clear allocation of responsibility for notification and decision making? How is this achieved? What is the allocation of responsibilities?		
<b>Response</b>		
In 10 CFR 50.47(b)(5), the NRC states, "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 followup messages to response organizations and the public have been established; and the means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established."		
In 10 CFR 50.47(b)(6), the NRC requires that the equipment for these notifications is provided and maintained. Per Appendix E to 10 CFR Part 50, the licensee is required have the capability to notify State and local governments within 15 minutes of an emergency classification, and the NRC within 1 hour.		
Event classification (decisionmaking) and notification are closely inspected during emergency exercises and also monitored by the performance indicator program. Classification and notification are considered to be highly risk-significant to protect the public and therefore any violations identified in those areas have greater significance.		
<b>Question No:</b>	<b>212</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How do the arrangements ensure an effective interface between the operator and the competent authorities?		
<b>Response</b>		
See the response to Question 265.		
<b>Question No:</b>	<b>213</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How do the arrangements provide for effective means of communication?		
<b>Response</b>		
The arrangements provide for effective communication by preestablishing the communication links and the expectation for the data that will be transmitted from the licensee to the competent authorities.		
<b>Question No:</b>	<b>214</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How are the arrangements of all parties exercised regularly? How are all staff adequately trained?		
<b>Response</b>		
Appendix E to 10 CFR Part 50 requires that an exercise of the onsite emergency plan be conducted every 2 years. In addition, Appendix E also requires "Provisions for a training program for employees of the licensee, including those who are assigned specific authority and responsibility in the event of an emergency, and for other persons who are not employees of the licensee but whose assistance may be needed in the event of a radiological emergency."		
It also requires that offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the plan.		
These exercises can be combined into the same exercise.		
The NRC Reactor Oversight Program uses performance indicators to monitor success rate and participation during drills and exercises conducted between the biennial evaluated exercises. If the level of success or participation drops below thresholds, additional inspections are conducted.		

# IRRS Question and Response Report

Question No: 215

Module 10: Emergency Preparedness and Response

## Question

How are these exercises witnessed as appropriate by the Regulatory Body?

## Response

The NRC participates in scheduled exercises at Headquarters, at the appropriate regional office, onsite, and at nearby but offsite centers. During full-participation exercises, NRC inspectors are onsite to evaluate the licensee response to the exercise. The inspectors use NRC Inspection Procedure 71114.01. DHS FEMA evaluates the offsite entities' performance during these exercises. The FEMA exercise evaluation manual is used by FEMA. In addition, NRC resident inspectors can review off-year exercises and routine drills.

Question No: 216

Module 10: Emergency Preparedness and Response

## Question

What information is supplied to the public on the emergency planning or during an emergency? Who is responsible for supplying this?

## Response

In 10 CFR 50.47(b)(7), the NRC states, "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, the principal points of contact with the news media for dissemination of information during an emergency are established in advance, and procedures for coordinated dissemination of information to the public are established."

Licensees annually provide the population within 10 miles of a plant with pamphlets, calendars, and other sources of information on what to do during an emergency.

During an emergency, the NRC participates in a Joint Information Center, established by the licensee to be the central location for dissemination of information to the public. The licensee, State, local officials, NRC, and other Federal agencies use this facility to provide information, such as press releases, about the emergency. State and local officials are responsible for providing information and instructions regarding protective actions.

The NRC is committed to maintain communication and share information with external stakeholders during normal operations or while responding to an incident. For most incidents, the notification to other Federal organizations is routine when the NRC is not in a response mode. However, these notifications proceed expeditiously as time allows, especially when the agency changes its response posture. The agencies or departments routinely notified are DHS, FEMA, the U.S. Department of Energy, EPA, the U.S. Department of Agriculture, the U.S. Department of Health and Human Services, and the U.S. Department of Transportation for transportation incidents. Other external stakeholders are State, Tribal, and local agencies. A liaison team in the NRC's Operations Center communicates with counterparts in State and congressional offices, as well as Canada and Mexico if necessary, during a response to an incident.

The Headquarters-level Office of Public Affairs staffs the agency's Operations Center during an event and is responsible for relating the executive team's actions to the press and public. The NRC public affairs staff also coordinates the release of information with public affairs staff at other Federal agencies. Using prewritten disaster communication templates and following an extensive crisis communication response plan, the NRC intends to communicate effectively with key audiences during a crisis to provide accurate, timely, and reliable information. These communications should serve to do the following:

- Convey the status of the crisis and NRC actions to protect people and the environment.
- Reduce uncertainty and dispel rumors in order to minimize public panic.
- Underscore NRC professionalism and credibility and reassure employees, Congress, the public, and stakeholders that the situation is being handled appropriately.

# IRRS Question and Response Report

<b>Question No:</b>	<b>217</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
Does the Regulatory Body act as an advisor to the Government or other competent authorities in respect of planning for and in the event of emergencies in respect of nuclear safety and radiation protection? How is this achieved?		
<b>Response</b>		
<p>The NRC is assigned the responsibility as the lead Federal agency for events involving its licensees by the NRF, Nuclear /Radiological Annex. Planning for exercises involving top government officials is done by other Federal agencies, such as DHS, the U.S. Department of Energy, EPA, and the U.S. Department of Defense. The responsibilities assigned by the NRF have been tested for a number of years.</p> <p>DHS is a relatively new agency with newly defined responsibilities. There have been exercises conducted since the formation of DHS that have included DHS participation. Lessons learned from these exercises as well as from real events such as the Federal response to Hurricane Katrina prompted a rewrite to parts of the plan to capture the lessons learned and improve overall Federal response.</p> <p>The agencies that are involved in radiological preparedness are part of the Federal Radiological Preparedness Coordinating Committee and meet quarterly or more frequently to discuss problems, concerns, etc. and develop strategies for success. Frequent meetings among the affected agencies, MOUs, and other such letters of cooperation detail the expectations and cooperation of the agencies as well as between States and communities. There are specific statutes that spell out the authority of the Federal and State Governments.</p>		

<b>Question No:</b>	<b>218</b>	<b>Module 10: Emergency Preparedness and Response</b>
<b>Question</b>		
How has the regulatory body met or satisfied the requirements in IAEA Safety Standards Series GS-R-2 on “Preparedness and Response for a Nuclear Radiological Emergency”?		
<b>Response</b>		
<p>The NRC regulations provide for robust emergency preparedness and response programs. The elements of such programs share many common elements with the IAEA Safety Standards Series GS R-2, “Preparedness and Response for a Nuclear Radiological Emergency.” There are some areas that are necessarily a bit different from GS R 2 due to the governmental structure of the United States. However, the IAEA Safety Standards Series GS R 2 is used as guidance and reference.</p> <p>The NRC's regulatory framework for emergency preparedness has been in place for almost 30 years and is well tested.</p>		