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May 30, 2023

Ms. Kathryn Brock  
Director, Division of Preparedness and Response  
Office of Nuclear Security and Incident Response  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**Subject:** Request for NRC Staff Feedback on Proposed Metrics for a Performance-Based Emergency Preparedness Program

**Project Number: 689**

Dear Ms. Brock:

As you are aware, many private sector companies are presently engaged in the development and deployment of advanced reactor technologies for both power and non-power uses. Several of these companies are developing an application to the U.S. Nuclear Regulatory Commission (NRC) for a license to build and operate an advanced reactor facility. This work includes development of the portions of an application related to emergency preparedness (EP).

With respect to EP, there will be applications making use of the performance-based framework described in SECY-22-0001, "Final Rule: Emergency Preparedness for Small Modular Reactors and Other New Technologies (RIN 3150-AJ68; NRC-2015-0225)," including the requirements in 10 CFR 50.160, "Emergency preparedness for small modular reactors, non-light-water reactors, and non-power production or utilization facilities." Most of the companies working on these applications are members of the Nuclear Energy Institute<sup>1</sup> (NEI) and they have requested that NEI coordinate the development of a generic set of metrics (performance indicators) that applicants could use to meet the metrics requirement in 10 CFR 50.160 (b)(1)(ii)(B). Although the Staff Requirements Memorandum for SECY-22-0001 is pending, it is necessary to propose a set of EP program performance metrics now to help support the development of applications.

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<sup>1</sup> The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

Some considerations that informed the creation of the proposed metrics were:

- Keeping the framework aligned with the topics specified in 10 CFR 50.160 (b)(1)(iii).
- Ensuring that the performance objectives and evaluation criteria reflected the applicable statements of consideration in SECY-22-0001, Enclosure 1, pages 46-49.
- Addressing the fact that since these metrics are based on drill and exercise objectives, there will be less data than typically found for the current EP performance indicators;<sup>2</sup> therefore, percentages may not be suitable as performance thresholds.

The proposed set of EP program performance metrics is attached, and we request that a public meeting be conducted to discuss it and obtain NRC staff feedback. Because applicants will likely modify the metrics to address technology- and site-specific considerations and submit them for NRC review as part of a license application process, we do not plan to seek NRC endorsement of the metrics.

With respect to the requested review and public meeting, we understand that NEI will not incur a bill for these activities; therefore, we are not requesting a fee waiver.<sup>3</sup> Please advise me if this understanding is incorrect and we will submit a request for a fee waiver to the NRC Chief Financial Officer.

If you have questions or require additional information, please contact me at (202) 739-8127 or [dly@nei.org](mailto:dly@nei.org).

Sincerely,



David Young

Attachment

c: James Anderson, NSIR/DPR/POB, NRC  
Michael McCoppin, NSIR/DPR/POB, NRC  
Jessie Quichocho, NSIR/DPR/RLB, NRC  
Siva Lingam, NRR/DORL/LPL4, NRC

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<sup>2</sup> The current EP performance indicators are described in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7 (ML23010A157).

<sup>3</sup> This statement notwithstanding, NEI believes these activities do meet the criteria under 10 CFR 170.11(a)(1)(ii) in that the development of a standard set of EP performance metrics will assist the NRC in generic regulatory improvements or efforts. Standardized metrics will promote consistency in applications and NRC reviews, thus promoting regulatory efficiency.

## Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program

### EP Program Performance Objective #1

Objective Metric	EVENT CLASSIFICATION AND MITIGATION
<b>Purpose</b>	This indicator measures the ability to assess, classify, monitor, and repair facility malfunctions in accordance with the emergency plan to return the facility to safe conditions.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability to recognize emergency initiating conditions and correctly classify the emergency. <ul style="list-style-type: none"> <li>• The appropriate emergency classification level is declared within [site-specific timeframe].</li> <li>• Potential emergency classification level escalation paths are recognized and tracked.</li> </ul> </li> <li>2. Demonstrate the ability of the emergency response organization (ERO) to understand the status of the facility, implement mitigation and/or repair actions, and place the affected unit(s) in a safe condition. <ul style="list-style-type: none"> <li>• The ERO monitors the parameter indications and field reports necessary to assess facility conditions.</li> <li>• The ERO implements appropriate procedures and guidelines to mitigate the accident or event.</li> <li>• In cases where procedural guidance is not effective or sufficient, the ERO develops and implements ad hoc mitigation and/or repair actions in a timely manner.</li> <li>• The affected unit(s) is restored to a radiologically safe and stable condition.</li> </ul> </li> </ol>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.
<b>Performance Thresholds</b>	<p>Green: <math>\leq 1</math></p> <p>Yellow: <math>\geq 2</math></p>

## Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program

### Clarifying Notes

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

The *site-specific timeframe* referenced above should reflect the associated commitment in the site emergency plan.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

**Proposed Performance Objectives and Associated Metrics  
for a Performance-Based EP Program**

**EP Program Performance Objective #2**

Objective Metric	PROTECTIVE ACTIONS
<b>Purpose</b>	This indicator measures the ability to implement and maintain protective actions for onsite personnel for emergency conditions, and recommend protective actions to offsite authorities as conditions warrant.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability to implement and maintain protective actions for onsite personnel during the emergency. <ul style="list-style-type: none"> <li>• Individuals on-site and within public access areas of the owner-controlled area are alerted to the emergency and provided with instructions.</li> <li>• As appropriate, individuals on-site and within public access areas of the owner-controlled area are relocated to designated assembly points and/or evacuated from the site.</li> <li>• Radiological monitoring and decontamination of evacuated personnel and/or assembled personnel are performed, as required.</li> <li>• Personnel within <i>[site-specific area]</i> are accounted for within <i>[site-specific time]</i>.</li> <li>• Radiological dose extensions are identified and approved as needed.</li> <li>• Habitability monitoring and controls are implemented when appropriate.</li> </ul> </li> <li>2. Demonstrate the ability to recommend protective actions to offsite authorities as conditions warrant. <i>[See Clarifying Note below on this objective.]</i> <ul style="list-style-type: none"> <li>• Appropriate Protective Action Recommendations (PARs) are developed within <i>[site-specific timeframe]</i>.</li> <li>• PARs are transmitted to offsite authorities within <i>[site-specific timeframe]</i>.</li> </ul> </li> </ol>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>

## Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program

<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.
<b>Performance Thresholds</b>	Green: $\leq 1$ Yellow: $\geq 2$

### Clarifying Notes

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

The *site-specific area, time, and timeframes* referenced above should reflect the associated commitments in the site emergency plan.

Demonstration of Objective #1 should include the actions that would be taken to protect members of the public within the Owner Controlled Area, as described in the site emergency plan.

Demonstration of Objective #2 is required only if a site has responsibility to make pre-planned offsite protective action recommendations to offsite authorities, as described in the emergency plan. This would typically be the case if the plume exposure pathway encompasses offsite areas.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

## **Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program**

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

**Proposed Performance Objectives and Associated Metrics  
for a Performance-Based EP Program**

**EP Program Performance Objective #3**

Objective Metric	COMMUNICATIONS
<b>Purpose</b>	This indicator measures the ability to establish and maintain effective communications with the emergency response organization, and make notifications to response personnel and organizations who may have responsibilities for responding during emergencies.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability to establish and maintain effective communications with the emergency response organization (ERO). <ul style="list-style-type: none"> <li>• The Control Room staff is proficient in using communications systems (e.g., collaboration applications, voice, data, etc.) to obtain and exchange information with the ERO.</li> </ul> </li> <li>2. Demonstrate the ability to make notifications to response personnel and organizations who may have responsibilities for responding during emergencies. <ul style="list-style-type: none"> <li>• The following agencies and organizations are notified of the emergency as described in the site emergency plan. <ul style="list-style-type: none"> <li>○ The ERO</li> <li>○ Appropriate state, local and tribal authorities</li> <li>○ The NRC and other federal authorities</li> <li>○ Support agencies and organizations [see <i>Clarifying Notes below</i>]</li> </ul> </li> <li>• Communications with offsite authorities and support agencies and organizations are maintained as described in the site emergency plan.</li> </ul> </li> </ol>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.



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<b>Performance Thresholds</b>	Green: $\leq 1$
	Yellow: $\geq 2$

### Clarifying Notes

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

Support agencies and organizations may include the onsite fire brigade; offsite fire departments, rescue squad, or medical dispatch; and local law enforcement. The wording of the evaluation criterion for a given drill or exercise should reflect the agreements contained in the site emergency plan and the support expected for the postulated scenario events. For example, a scenario with no fire would not require demonstration of contacts to the fire brigade or an offsite fire department.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve

## **Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program**

performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

**Proposed Performance Objectives and Associated Metrics  
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**EP Program Performance Objective #4**

Objective Metric	COMMAND AND CONTROL
<b>Purpose</b>	This indicator measures the ability to establish and maintain effective command and control for emergencies by using a supporting organizational structure with defined roles, responsibilities, and authorities for directing and performing emergency response functions.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability of the [site-specific titles(s)] to provide effective overall direction (command and control) of the emergency response. <ul style="list-style-type: none"> <li>• Actions and associated priorities are effectively established, communicated, executed, and revised as needed.</li> <li>• Briefings and updates are focused and concise, and conducted periodically or as significant events occur.</li> <li>• Distractions and noise levels within the emergency facilities are properly controlled.</li> <li>• Changes to established work or emergency processes are authorized when needed and clearly communicated to affected personnel.</li> </ul> </li> <li>2. Demonstrate continuity of operations through at least one shift change of emergency response personnel. <ul style="list-style-type: none"> <li>• Key ERO functions (e.g., communications, command and control of operations, notification of Offsite Response Organizations (OROs), accident/incident assessment, information dissemination to OROs and media, radiological monitoring, protective response, security) can be maintained around the clock throughout the emergency.</li> </ul> </li> </ol>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.

## Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program

<b>Performance Thresholds</b>	Green: $\leq 1$
	Yellow: $\geq 2$

### Clarifying Notes

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

The *site-specific titles(s)* should be taken from the site emergency plan.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

Recognizing work-hour limitations and other challenges associated with demonstration of an actual shift change, the second objective may be demonstrated by players developing a shift relief roster (i.e., list of ERO personnel on the next shift). Following the drill or exercise, controllers should verify that all personnel listed on the roster would have been available at the designated reporting time and are qualified for the positions to which they were assigned.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

## **Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program**

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

**Proposed Performance Objectives and Associated Metrics  
for a Performance-Based EP Program**

**EP Program Performance Objective #5**

Objective Metric	STAFFING AND OPERATIONS
<b>Purpose</b>	This indicator measures the ability to establish staffing for the facility necessary to implement the roles and responsibilities defined in the emergency plan.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability of on-shift personnel to perform their assigned response duties as described in the site emergency plan. <ul style="list-style-type: none"> <li>• There is sufficient on-shift staff to perform the roles, responsibilities, and task described in the site emergency plan until augmenting staff arrive to provide assistance.</li> </ul> </li> <li>2. Demonstrate the ability to staff ERO positions and activate emergency response facilities within timeframes required by the site emergency plan. <ul style="list-style-type: none"> <li>• The following personnel staffing and/or facility activation goals described in the site emergency plan are met: <ul style="list-style-type: none"> <li>○ <i>[List site-specific staffing goals for ERO positions or functions, and/or activation goals for ERO facilities.]</i></li> </ul> </li> </ul> </li> </ol>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.
<b>Performance Thresholds</b>	<p>Green: <math>\leq 1</math></p> <p>Yellow: <math>\geq 2</math></p>

**Clarifying Notes**

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

The list of *site-specific staffing goals for ERO positions or functions, and/or activation goals for ERO facilities* should be taken from the site emergency plan.

## **Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program**

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

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**EP Program Performance Objective #6**

Objective Metric	RADIOLOGICAL ASSESSMENT
<b>Purpose</b>	This indicator measures the ability to assess radiological conditions in and around the facility during emergencies, including radiological conditions, protective equipment, core or vessel damage, and releases.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objectives and Evaluation Criteria</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability to assess, monitor, and report radiological conditions to the applicable response personnel using installed or portable equipment, including: <ul style="list-style-type: none"> <li>• Room/area radiation monitors</li> <li>• Process radiation monitors</li> <li>• Airborne radiation monitors</li> <li>• Room/area surveys (e.g., use of handheld detectors, air samplers, and contamination smears)</li> </ul> </li> <li>2. Demonstrate the ability to issue and use protective equipment necessary to continue and expand mitigation and protective action strategies. <ul style="list-style-type: none"> <li>• Dosimetry is issued and monitored, as needed</li> <li>• Respiratory protection equipment and protective clothing are used, as needed</li> <li>• Simulated use of potassium iodide (KI) by ERO personnel, if required</li> </ul> </li> <li>3. Demonstrate the ability to assess, monitor, and report to the applicable response personnel the extent and magnitude of damage to the core or other vessel containing irradiated special nuclear material, such as fuel or targets, as applicable. <ul style="list-style-type: none"> <li>• System indications (e.g., temperatures and levels)</li> <li>• Radiation monitors</li> <li>• Liquid or gaseous sampling</li> </ul> </li> <li>4. Demonstrate the ability to assess, monitor, and report to the applicable response personnel the extent and magnitude of all radiological releases, including releases of hazardous chemicals produced from licensed material. <ul style="list-style-type: none"> <li>• Effluent radiation monitors and determination of release path</li> <li>• Field monitoring data (onsite and offsite if applicable)</li> </ul> </li> </ol>



## Proposed Performance Objectives and Associated Metrics for a Performance-Based EP Program

	<ul style="list-style-type: none"><li>• Meteorological data</li><li>• Dose projections (as applicable)</li><li>• Health and safety impact projections associated with a hazardous material (as applicable)</li></ul>
<b>Data Reporting Elements</b>	The following data are required to calculate this indicator: <ul style="list-style-type: none"><li>• The number of times each objective was NOT met in a drill or exercise during the previous eight quarters.</li></ul>
<b>Calculation</b>	Count the number of times that each objective was NOT met in a drill or exercise during the previous eight quarters and sum the numbers.
<b>Performance Thresholds</b>	Green: $\leq 2$ (if two, then must involve two different objectives) Yellow: $\geq 2$ (if the same objective is involved) $\geq 3$ (if different objectives are involved)

### Clarifying Notes

These objectives should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for each objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

Demonstration of Objective #1 entails the use of radiation monitors or surveys described in the site emergency plan or associated implementing procedures, and as applicable to the scenario events.

Demonstration of Objective #4 is applicable if the site emergency plan discusses a hazards analysis related to hazardous chemicals produced from licensed material.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or

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deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objectives are met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

**Proposed Performance Objectives and Associated Metrics  
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**EP Program Performance Objective #7**

Objective Metric	REENTRY
<b>Purpose</b>	This indicator measures the ability to develop and implement reentry plans for accessing the facility after emergencies.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objective and Evaluation Criteria</b>	Demonstrate a general plan for reentry into the site boundary after an emergency. <ul style="list-style-type: none"> <li>• A general reentry plan is developed for the site.</li> <li>• The plan identifies acceptable facility conditions that would permit reentry (e.g., consideration of air and soil sampling and analysis to determine levels of radiological contamination and projected dose).</li> <li>• The actions in the reentry plan are consistent with applicable station requirements (e.g., security), or specific exemptions are identified and authorized.</li> </ul>
<b>Data Reporting Elements</b>	The following data are required to calculate this indicator: <ul style="list-style-type: none"> <li>• The number of times the objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that the objective was NOT met in a drill or exercise during the previous eight quarters.
<b>Performance Thresholds</b>	Green: $\leq 1$ Yellow: $\geq 2$

**Clarifying Notes**

This objective should be scheduled for demonstration at no greater than 12-month intervals, and there should be at least two demonstration attempts for the objective in an 8-quarter period.

An applicant may choose to have this indicator include demonstrations that occur during a response to an actual emergency.

The term “reentry” means the temporary movement of people into an area of actual or potential hazard after an emergency. Certain individuals who have been evacuated or relocated from a restricted area may be allowed to reenter under controlled conditions to perform specified activities.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency

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plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The decision-making aspects of the above objectives should be performed during the drill or exercise. Some scenario inputs or response actions may be simulated; however, the use of simulations should be limited and have a sound basis (e.g., avoid challenges to personnel or equipment safety, actions requiring an excessive amount of time given the available drill window, or use of expensive consumables, etc.). A simulation should not be used if it would reasonably call into question whether the associated response actions could actually be performed in a real emergency.

The determination of whether an objective is passed or failed should consider the totality of all available performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objective is met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.

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**EP Program Performance Objective #8**

Objective Metric	CRITIQUE AND CORRECTIVE ACTIONS
<b>Purpose</b>	This indicator measures the ability to evaluate drills and exercises (or responses to actual emergencies) to identify weaknesses or deficiencies in ERO performance and the EP program.
<b>Metric Assessment Frequency</b>	End of each calendar quarter.
<b>Drill Objective and Evaluation Criteria</b>	<p>Demonstrate the ability to conduct a critique of the performance of emergency response functions in drills and exercises (or responses to actual emergencies), and enter identified weaknesses or deficiencies into the appropriate corrective action process.</p> <ul style="list-style-type: none"> <li>• A critique is conducted at the conclusion of the drill/exercise (or actual emergency) to evaluate the ERO’s performance of emergency response functions.</li> <li>• Performance weaknesses and deficiencies identified at the critique are captured in the appropriate corrective action process.</li> </ul>
<b>Data Reporting Elements</b>	<p>The following data are required to calculate this indicator:</p> <ul style="list-style-type: none"> <li>• The number of times the objective was NOT met in a drill or exercise during the previous eight quarters.</li> </ul>
<b>Calculation</b>	Count the number of times that the objective was NOT met in a drill or exercise during the previous eight quarters.
<b>Performance Thresholds</b>	<p>Green: <math>\leq 1</math>            Yellow: <math>\geq 2</math></p>

**Clarifying Notes**

This objective should be scheduled for demonstration at the completion of each drill, exercise, and actual emergency.

Weaknesses and deficiencies may include items such as errors in the emergency plan or implementing procedures, ERO performance weaknesses, or degraded conditions in emergency response facilities, systems, and equipment resulting in a performance objective not being met.

To support more effective assessments of ERO performance, the generic evaluation criteria shown above may be augmented with site-specific information reflecting the contents of the site emergency plan and implementing procedures. Evaluation criteria may also be informed by the postulated scenario events (e.g., criteria focused on the response to a specific scenario event).

The determination of whether an objective is passed or failed should consider the totality of all available

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performance demonstration opportunities during the drill or exercise. The failure to meet an evaluation criterion in one instance does not necessarily mean the objective is failed, although that weakness or deficiency should be captured in a corrective action process.

The above term “NOT met” means a) an objective was scheduled for demonstration during a drill or exercise, and b) the final conclusion is that the objective was not adequately demonstrated (i.e., the objective was failed).

Concerning the Performance Thresholds:

- a) Green indicates performance within a normally expected range.
- b) Yellow indicates performance outside a normally expected range.

A licensee will conduct a post-activity critique to identify performance weaknesses and deficiencies, and capture these in a corrective action process. Upon this indicator turning yellow, a licensee will need to conduct an activity to demonstrate the effectiveness of the corrective actions taken to improve performance. The activity may be a mini-drill (limited-scope drill), drill, or exercise, and should be conducted within 90 days of the indicator turning yellow. If the corrective actions are confirmed as effective (i.e., the associated objective is met), then the indicator returns to green status at the beginning of the subsequent quarter. A repeated yellow indicator may result in increased NRC oversight.