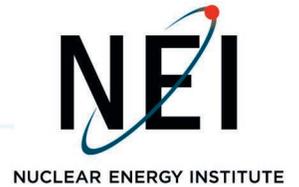**ZACH SMITH**
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NEI

NUCLEAR ENERGY INSTITUTE

July 12, 2021

Mr. Jessie Quichocho
Chief, Reactor Licensing Branch
Division of Preparedness and Response
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI White Paper, "Enabling Remote Response for Members of an Emergency Response Organization"

Dear Mr. Quichocho:

The Nuclear Energy Institute[1] and representatives of member companies have developed the attached white paper to provide guidance that may be used by a licensee to enable members of an Emergency Response Organization to respond to an emergency remotely.

We request a review of the white paper by the U.S. Nuclear Regulatory Commission (NRC) staff followed by a discussion of any comments in a public meeting. The white paper will be revised to address the comments and then submitted for endorsement as Revision 0.

If you have questions or require additional information, please contact me at (570) 640-7795 or zas@nei.org.

Sincerely,

Zachary Smith

Attachment

c: Mr. Ray Hoffman, NSIR/DPR/RLB, NRC

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[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting its members, 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/engineering firms, fuel cycle facilities, suppliers and nuclear materials licensees, nuclear medicine and radiopharmaceutical companies, companies using nuclear technologies in the agricultural, food, and industrial sectors, universities and research laboratories, law firms, labor unions, and international electric utilities.

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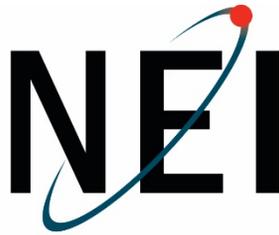
WHITE PAPER

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

REV. C

JULY 2021

This document was prepared by the Nuclear Energy Institute (NEI)[1] and representatives of member companies.

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ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

<u>Purpose</u>

This white paper provides guidance that may be used by a licensee to enable members of an Emergency Response Organization (ERO) to respond remotely to an emergency. The guidance provides recommended actions to maintain effectiveness of an ERO and compliance with the requirements in U.S. Nuclear Regulatory Commission (NRC) regulations and a site emergency plan.

<u>Background</u>

As used in this white paper, a "remote response" is defined as an ERO member responding to an emergency from a location other than the physical Emergency Response Facility (ERF) to which the position is assigned. Remote response ERO members must remain capable of completing all assigned functions and tasks, including supporting other ERO members, as described in site emergency plan implementing procedures. Enabling a remote response capability can improve the ability of a licensee to protect the health and safety of the public through:

- Quicker response times by ERO members since travel to an ERF is not necessary.
- Expanding the pool of potential ERO members with individuals possessing desirable expertise but who cannot currently be assigned because their travel time does not support required position augmentation or ERF activations times.
- Allowing a larger ERO response since multiple ERO members in a position can respond and provide support; this type of response may currently be prohibited due to the physical facility space and occupancy limits.

Implementation of a remote response capability for ERO members does not mean that physical ERFs can be eliminated. Each licensee will still maintain their physical Technical Support Center (TSC), Operational Support Center (OSC), Emergency Operations Facility (EOF), and Joint Information Center (JIC), as described in the site emergency plan. A specific ERO position will be a candidate for remote response only if it can be shown that all functions can be adequately fulfilled in this manner.

<u>Regulatory Review</u>

Title 10 of the Code of Federal Regulations (10 CFR) 50.47 (b)(2) requires that an onsite emergency plan meet the following standard:

"On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response

capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified."

Additional requirements related to a site ERO are found in, 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

The NRC staff determines compliance with the requirements in 10 CFR 50.47 and 10 CFR 50, Appendix E, through a review of a licensee's emergency plan commitments and capabilities against the criteria specified in:

- NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, or
- NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 2.

The applicable criteria are presented in Section II, "Planning Standards and Evaluation Criteria," under Planning Standard B.

A review of the applicable requirements and guidance did not identify any obstacle to implementing a remote response capability; however, each licensee will need to assess potential changes to their site emergency plan in accordance with the requirements of 10 CFR 50.54(q), "Emergency plans." In some cases, the changes necessary to implement a remote response capability could require prior NRC approval through a license amendment request (LAR). Licensees are encouraged to engage their regional emergency preparedness (EP) inspectors on plans for implementing a remote response capability and, in cases where an LAR will be submitted, request a pre-submittal conference call through the site's NRC Project Manager.

General Approach

The recommendations in this white paper are intended to address two key considerations when implementing a remote response capability:

- There will be no reduction in the effectiveness of the ERO to respond to an emergency.
- Compliance with regulatory requirements will be maintained.

Personnel staffing ERO positions enabled for a remote response are still ERO members and will continue to adhere to all site requirements for ERO members. An individual assigned to a remote response position must be capable of performing their assigned position functions and tasks as if they were physically present in an ERF.

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

The following sections present recommendations for consideration by a site when implementing a remote response-enabled ERO position.

Recommended Positions for a Remote Response

It is recognized that some ERO positions could not be conducted remotely. For example, a remote response would not be suitable for a position required to physically manipulate plant equipment or take other physical actions at the site. Likewise, positions responsible for ERO or ERF command and control are also not candidates for a remote response. There are, however, several positions for which a remote response capability could be appropriate. The most likely candidate positions are:

1. Site Radiation Protection Coordinator (TSC)
2. Radiation Protection Manager (EOF)
3. Dose Assessment/Projection Staff (TSC/EOF)
4. Engineering Support Positions (TSC/EOF)
5. Security Liaison (TSC)
6. IT Lead (TSC/EOF/JIC)
7. JIC/JIS Staff

A site may evaluate the feasibility of establishing a remote response capability for one or more of these positions with due consideration of their site-specific emergency plan commitments and implementing procedure instructions. Many sites also utilize additional ERO support positions that are not described in NUREG-0654/FEMA-REP-1 such as State/County Liaisons. A site may determine that one or more of these positions are also suitable for remote response.

Remote Collaboration Platform

One of the most important elements of an effective emergency response is communications. To this end, a site should have a collaboration platform or other methods that permit a remotely responding individual to effectively communicate with ERO members located in ERFs as well as other responders at other remote locations. The platform or method used by a given responder should permit a quality of communications that is reasonably similar to the face-to-face interactions occurring in an ERF, or between ERFs.

The determination of which collaboration tools are suitable is dependent on a position's assigned functions and tasks. Some positions may require a platform with a full suite of audio/visual capabilities while others with limited responsibilities may need only a phone capability. Each position's capability requirements should be evaluated on a case-by-case basis.

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ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

The full-feature platform used to support an emergency response should allow for:

- audio/visual communication between responders,
- phone communication capabilities (as a backup to audio/visual capabilities), and
- the ability to screenshare and document share.

The selection of a collaboration platform should also consider reliability, and connection and data transfer capacity (i.e., have the ability to handle all reasonably expected communications needs). The platform should also be consistent with company information technology policies.

Sites should consider using existing collaboration platforms/tools that are employed by ERO members in their normal job roles. This will promote greater proficiency during emergency operations.

While not required, it is suggested that sites also install video equipment in their ERFs that allow remote ERO members to view their physical facility during an event. This will promote greater situational awareness, communication, and better interaction and engagement of remote responders during an emergency response.

Consideration should also be given to a means to grant access to the collaboration platform by outside agencies and organizations. For example, if TSC engineers are discussing a core damage assessment, it may be beneficial to bring in a fuel specialist from the appropriate owner's group to assist with understanding of the data. Similarly, offsite radiological assessments may benefit from the ability to conduct a group discussion of field measurements between personnel at the EOF, a remote responder, a state emergency operations center, and the Federal Radiological Monitoring and Assessment Center (FRMAC).

Specialized Applications

To respond remotely, certain ERO positions will need the capability to access the computer applications they would use in an ERF to perform their emergency response functions. Such applications may include:

- WebEOC (or an equivalent)
- Plant document management system
- Plant computer system and meteorological data display
- Dose assessment model
- Core damage assessment tool

The needs of each position should be assessed and provisions made for the position-holders to access the applications needed to perform their duties from a remote location.

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

Making an application available can be done in several ways. For example, an application could be installed locally on ERO members' computers or be accessed remotely via a Virtual Private Network (VPN) connection. The licensee will need to determine the best method to use for each application. Whichever method is used, the licensee must ensure that responders can access the necessary applications and have controls in place to ensure that the applications are the correct version. For example, if a site decides to provide access to a dose assessment model by installing the software on each individual's computer, it must have a process is in place to verify that software updates are performed when needed.

Equipment/Hardware

Similar to specialized applications, provisions must be in place to ensure that a remote responder has access to the equipment or hardware needed to perform their emergency response duties. This includes administrative controls to periodically verify that a responder has possession of the necessary equipment or hardware and is performing any required tests and maintenance.

Response Time and Facility Activation

ERO members enabled for a remote response must have the capability to respond within the applicable position and facility activation times described in the site emergency plan. To avoid potential confusion during an activation, the site should establish an expectation that ERO positions enabled for a remote response are always staffed remotely. Subsequent actions to be taken by these individuals in the event that a remote response cannot be achieved are discussed below.

The ERO positions enabled for a remote response should be clearly identified in the locations and tools used by the ERO to support facility activation and personnel accountability. In particular, the methods for tracking the staffing of ERO positions during and emergency (e.g., sign-in boards, procedures, computer-based user aids, etc.) should clearly identify which positions are physical response and which are remote response. Duty rosters should also identify the personnel staffing remote response-enabled ERO positions.

Fitness-for-Duty

Individuals filling remote response positions must adhere to the same Fitness-for-Duty (FFD) requirements as the rest of the ERO. Sites should develop a method for remote responders to certify they are fit-for-duty prior to assuming their emergency response duties. For example, a site could use an electronic sign-in board with language stating that, by signing-in, the member certifies they are fit-for-duty. This method offers the added benefit of allowing facility managers to see when a position is filled and the position-holder.

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

Cybersecurity

A remote responder may require access to telecommunications systems, networked systems, and computer workstations in order to perform their assigned functions and tasks.

When establishing a remote response capability, the licensee must consider the cyber security requirements in the 10 CFR 73.54, "Protection of digital computer and communication systems and networks," and the commitments in their NRC approved cyber security plan. The regulations and the plan cover digital computer and communication systems and networks associated with emergence preparedness functions, including offsite communications, and support systems and equipment which, if compromised by a cyber-attack, would adversely impact emergency preparedness functions.
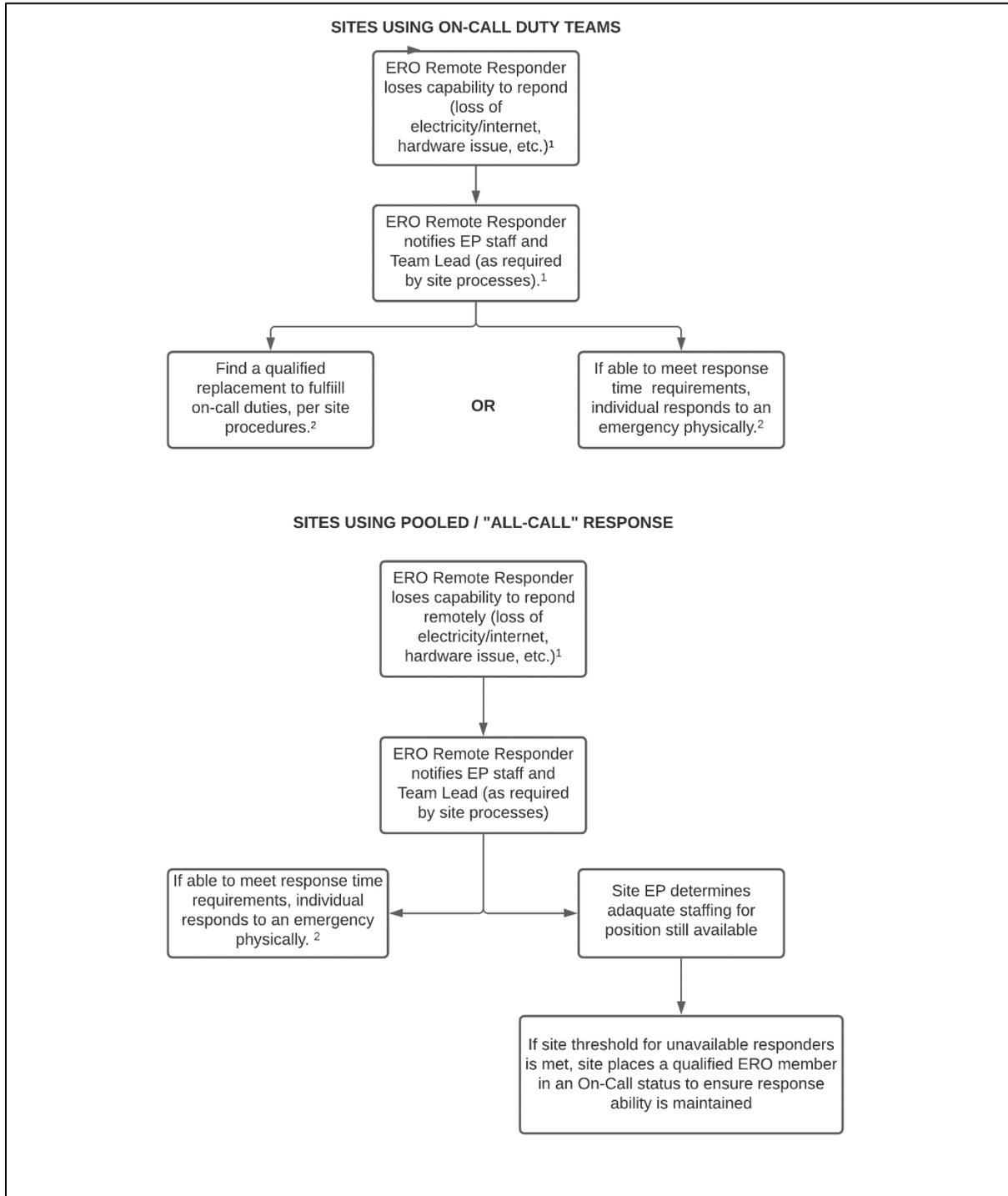
To ensure that new remote response capabilities incorporate site cyber security controls, it is recommended that the site Cyber Security Assessment Team be included early in the planning process.

Call-out and Response

Sites are encouraged to utilize a pooled (i.e., all-called/all report) approach for remote ERO positions to provide greater staffing depth and maximize the availability of responders. This approach also minimizes the chance that a single offsite event would prevent an adequate response since responders are geographically separated. The site should implement reasonable control to ensure the availability of remote responders (e.g., using methods applied to other ERO positions) and identify (pre-plan) compensatory measures in the event of a loss of capability to respond. The compensatory measures should be described in controlled documents.

The following flowchart demonstrates acceptable methods to ensure a remote response is maintained at all times:

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

SITES USING ON-CALL DUTY TEAMS

ERO Remote Responder loses capability to repond (loss of electricity/internet, hardware issue, etc.)[1]

↓

ERO Remote Responder notifies EP staff and Team Lead (as required by site processes).[1]

Find a qualified replacement to fulfiill on-call duties, per site procedures.[2]

OR

If able to meet response time requirements, individual responds to an emergency physically.[2]

SITES USING POOLED / "ALL-CALL" RESPONSE

ERO Remote Responder loses capability to repond remotely (loss of electricity/internet, hardware issue, etc.)[1]

↓

ERO Remote Responder notifies EP staff and Team Lead (as required by site processes)

If able to meet response time requirements, individual responds to an emergency physically. [2]

Site EP determines adaquate staffing for position still available

If site threshold for unavailable responders is met, site places a qualified ERO member in an On-Call status to ensure response ability is maintained

Notes:
1: Backup hardware such as Uninterruptible Power Supplies and cellular hotspots may be beneficial for ensuring response capabilities. Sites may also consider use of GETS cards for remote responders.
2. Sites should maintain sufficient space and equipment (workspace, power supplies, etc.) for remote responders in their respective facility. This does not require dedicated workspace for remote positions be maintained, only enough space and equipment to be utilized as a backup method.

ENABLING A REMOTE RESPONSE BY MEMBERS OF AN EMERGENCY RESPONSE ORGANIZATION

<u>Training and Qualification</u>

Individuals assigned to remote response-enabled ERO positions should adhere to the same training and qualification requirements as other individuals filling these positions. A site should conduct a training needs analysis to determine if additional training requirements are necessary to ensure an effective remote response. Areas that may require additional training include the use of a collaboration platform and methods for accessing plant data and documents remotely. The needs analysis should also consider whether some training is necessary for responders in physical ERFs on ways to interface with remote responders. New training requirements should be described in the documents that control the ERO training program and addressed in appropriate training materials (e.g., lesson plans, qualification guides, job performance measures, etc.).

It is expected that routinely used collaboration tools (e.g., a company standard audio-visual platform) will introduce minimal training impact.

<u>Testing and Maintenance</u>

A site should establish methods for periodically testing the technologies that support a remote response and verifying the capability of assigned personnel to respond. A suggested method is to require individuals filling remote ERO positions to verify their response capability when taking the on-call duty. For positions filled by pooled response, a standard routine testing regime should be implemented.

<u>Changes to Emergency Plan and Implementing Procedures</u>

A site will need to review their emergency plan and implementing procedures to ensure compatibility with implementation of a remote response capability (e.g., no commitment for a physical response). If needed changes are identified, they should be evaluated in accordance with the site's 10 CFR 50.54(q) process. The guidance in Regulatory Guide 1.219, "Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors," should also be considered. It is recommended that the site conduct a drill to demonstrate the capability of remote response positions to effectively perform their assigned EP functions and tasks, including documentation of this demonstration in a drill report. The drill report can then be used to help support the conclusion that the change will not reduce the effectiveness of the emergency plan.

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