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**DEFENSE NUCLEAR FACILITIES
SAFETY BOARD**

Washington, DC 20004-2901



November 2, 2021

The Honorable Jennifer Granholm
Secretary of Energy
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Granholm:

The Defense Nuclear Facilities Safety Board (Board) evaluated the emergency management program at the Hanford Site in Richland, Washington, to determine whether the site can adequately respond to an emergency situation to help ensure the safety of nuclear operations at defense nuclear facilities.

The Board determined that the Hanford site emergency management program is mature and adequately prepared to respond to emergency conditions. The Board notes that improvements could be made in the execution of federal oversight processes so that DOE remains fully cognizant of the emergency management program's health. Additionally, DOE should consider implementing additional improvements in communication infrastructure and processes to strengthen onsite emergency response capability. Lastly, the elimination of the use of dress rehearsal drills that practice similar or identical exercise scenarios prior to evaluated exercises would provide a more accurate picture of site proficiency.

The attached enclosure provides further details related to the Board's review. It is provided for DOE's use in executing continuous improvement efforts related to the Hanford Site emergency management program.

Sincerely,

Joyce L. Connery
Chair

Enclosure

c: Mr. Brian Vance
Mr. Joe Olencz

Enclosure

Observations from the Emergency Management Program Review at the Hanford Site

In 2020 and 2021, the Defense Nuclear Facilities Safety Board (Board) reviewed emergency preparedness and response at the Hanford Site's defense nuclear facilities. The review incorporated resident inspector and staff observations of site emergency drill and exercise activities. The staff team identified three key observations.

Federal Oversight. Per DOE Order 151.1D, *Comprehensive Emergency Management System*, DOE field element managers are required to conduct annual self-assessments, as well as assessments of the site, facility, and activity emergency management programs. The Board's staff is concerned that the field office's practice of using Hanford Mission Integration Solutions' (HMIS) assistance in federal assessments and self-assessments may jeopardize the independence of DOE assessments and the ability of the field office to identify programmatic issues that relate to the emergency management integration functions and services provided by HMIS. In addition, the staff team noted cases where the individual that was responsible for managing a specific function also evaluated that function during a site exercise.

The Richland Operations Office uses HMIS to provide and manage site emergency services. HMIS also supports required field element assessments and evaluates the performance of emergency response and management functions. The lack of separation between performance and assessment could limit the visibility of developing problems related to emergency services provided by HMIS.

At Hanford, responsibilities for emergency management program elements are matrixed among three different DOE field offices (Richland Operations Office, Office of River Protection, and Pacific Northwest Site Office) and six contractors (HMIS¹, Washington River Protection Solutions, Central Plateau Cleanup Company, Pacific Northwest National Laboratory, Bechtel National, Inc., HPM Corporation Occupational Medical Services). Of these contractors, HMIS is responsible for providing key site-wide emergency services, including the Hanford Fire Department, Hanford Patrol, and operation of the Hanford Emergency Operations Center. These emergency services are used in most emergency situations and are designed to respond to all Hanford facilities and to integrate with other site contractor response assets. In addition to emergency services, HMIS also provides technical and administrative support to DOE and the site.

At Hanford, DOE field element managers use emergency management subject-matter experts from HMIS to assist in performing federal self-assessments and assessments of other site contractors². This assistance includes development of an assessment plan, performing field work, and identifying findings and opportunities for improvement. This practice is detailed in

¹ At the start of the Board's staff review, the functions performed by HMIS were performed by Mission Support Alliance. For the purposes of this review, all relevant functions and processes transferred directly from Mission Support Alliance to HMIS.

² The Board's staff did not identify any federal evaluations assisted by HMIS in which HMIS' performance was being directly evaluated.

site procedure DOE-0223, RLEP 3.29, *Emergency Management Assessment Program*, under the role of “[Richland Operations Office] Support Contractor.”

Communications. Site communications are essential for effective emergency response and for ensuring the safety of response personnel, particularly for a geographically large site like Hanford. The staff team identified recurring communications problems that detrimentally affect emergency response activities during exercises. The communication problems appear to result from a lack of standardized processes and a high reliance on personal communication devices.

The availability of standardized communications equipment and robust network systems is necessary for ensuring adequate emergency response. Incident command posts are a key interface with the event scene during an emergency and are crucial to the site’s ability to achieve situational awareness. At Hanford, individual facility contractors are responsible for maintaining and managing equipment in incident command posts. Based on staff observations during Hanford drills and exercises, land-line phones are not consistently available in incident command posts. In addition, the staff noted that these phones are not being consistently used or tested when they are available.

Typically, radios are a key communications tool for emergency response actions, particularly for responders at the event scenes. The Hanford Site has challenges in providing adequate radio communication capabilities owing to the size of the site, the relatively large distance between facilities, and the hardened construction of its facilities. Radio coverage is also hampered by not having enough repeater stations at the facilities and by the failure to program common frequencies between contractors. As a result, during drills and exercises, the staff observed spotty radio communications and radio coverage dead zones, which forced responders to use other means of communication. The Board’s staff notes that Hanford Site personnel are actively working on radio infrastructure upgrades that will improve sitewide communication capabilities. However, these modifications may not resolve problems that exist at individual facilities because of frequency mismatches or a lack of sufficient onsite repeaters.

Due to a lack of sufficient site-provided communication equipment, personal cell phones are, in practice, the primary method of communication between various members of the emergency response organization. Hanford Site procedures and processes do not adequately account for potential issues stemming from this practice, such as issues due to a lack of spare chargers or batteries to address cell phones’ limited battery life, poor cellular signal (especially inside large defense nuclear facility structures), and spotty wireless coverage, which is dependent on individual service carriers. Additionally, the Board’s staff observed that emergency response organization members frequently do not know the correct phone numbers for other emergency response organization members since there is no complete listing of personal cell phone numbers. This can result in a delay in emergency response communications.

The Board’s staff also notes that satellite phones and government emergency communications service (GETS) cards are available for addressing potentially overwhelmed cell phone networks. However, although satellite phones and GETS cards are tested individually, their use is not incorporated into drill or exercise scenarios. As a result, the site may not have

identified potential problems that result from the use of these tools during emergency response activities and may not be fully proficient with them.

Drills and Exercises. Incorporating focused and timely drills can be beneficial in developing and maintaining emergency response skillsets; however, the use of “dress rehearsal” drills immediately prior to evaluated exercises can lead to flawed indications of emergency readiness and proficiency.

Revision 6 of the Hanford Site Emergency Plan explicitly codified the use of “dress rehearsal” drills³. Dress rehearsal drills are stated to “[provide] an opportunity for the Hanford Site [emergency response organization] to work together as a team” prior to the conduct of an evaluated field exercise. Based on a review of drill and exercise schedules and staff observations of drills at multiple DOE sites, dress rehearsal drills typically share multiple commonalities with the subsequent exercise, including the use of similar or identical emergency scenarios, response personnel, and response assets, and are often conducted in the month prior to the exercise.

Except in some very specific situations, the use of dress rehearsal drills compromises the ability of an evaluated emergency exercise to be an accurate indicator of emergency response proficiency, when response may be required *at any time*. By providing responders an advance opportunity to familiarize themselves with and rehearse protocols that are otherwise not frequently or routinely practiced, dress rehearsal drills inappropriately precondition responders to perform more proficiently during the subsequent evaluated exercise.

The Board’s staff acknowledges that there may be situations in which it may be difficult to avoid the use of dress rehearsal drills; for example, during operational readiness reviews or when a facility only has one classifiable emergency action level. These situations should be explicitly identified by drill and exercise planners and known to programmatic assessors. In most cases, however, sites should take steps to ensure that drills are being provided to all responders, not just those being evaluated, and to ensure that drill scenarios are different from upcoming exercise scenarios.

Based on discussion between the Board’s staff and staff from the Richland Operations Office, the Board’s staff understands that despite the language in the plan, the practice of performing dress rehearsal drills has been discontinued, and the emergency plan language will be revised in the next revision.

³ Revision 7 of the Hanford Site Emergency Plan, issued in June 2020 during the Board’s staff’s review, contains modified but substantially similar language to Revision 6.