

STATUS OF FUKUSHIMA INCIDENT RESPONSE CORRECTIVE ACTIONS

<b>After Action Report Category</b>	<b>After Action Report Observation</b>	<b>Action</b>
2.1.1 Role and Mission	The U.S. Nuclear Regulatory Commission's (NRC's) response role in an international event is not well defined, and the agency's mission of ensuring adequate protection of public health and safety to U.S. citizens abroad was not well communicated to the staff throughout the event.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> The NRC has participated in a White House-led working group that produced an international response protocol document outlining Federal agency roles and responsibilities during response to an international event.</li> <li>- <b>(Ongoing)</b> Incorporate new international protocol requirements into existing procedures, processes, and training.</li> </ul>
2.1.2 Federal Coordination in an International Response	The NRC lacks formal guidance for integrating into the overall Federal response to an international nuclear incident.	<ul style="list-style-type: none"> <li>- See 2.1.1.</li> <li>- <b>(Complete)</b> A Federal Coordination Team (FCT) has been created and incorporated into the response program to manage the NRC and Federal interface during both domestic and international events.</li> </ul>
2.2.1 Task Management	The absence of a formal task management process led to difficulty in tracking and prioritizing tasks. The existing informal process also lacks a means for assigning tasks to the various NRC line organizations.	<ul style="list-style-type: none"> <li>- <b>(Ongoing)</b> Integrate external tasking from response into normal office processes (e.g., the Office of the Executive Director for Operations (OEDO) ticket system).</li> <li>- <b>(Ongoing)</b> Proposed Executive Team (ET) reorganization will provide more direct OEDO oversight of response operations, including the organizational capability to direct and track agency tasking within and outside of the response effort.</li> </ul>
2.2.1 Task Management	The WebEOC® Task Tracker was beneficial for capturing assigned mission tasks, but the limited usability of the software resulted in ineffective use of the tool.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Updated WebEOC® software.</li> <li>- <b>(Complete)</b> Created board user guide.</li> <li>- <b>(Ongoing)</b> Task tracking protocol will be created as part of Incident Response Manual Chapter (IRMC) improvements.</li> </ul>

2.2.2 Leadership Continuity	The response structure does not establish long-term command and control or continuity of leadership.	<ul style="list-style-type: none"> <li>- <b>(Ongoing)</b> Proposed ET reorganization will change structure to improve leadership continuity, command and control, and to better align with real-world roles and responsibilities.</li> <li>- <b>(Complete)</b> Conducted tabletop exercise of proposed ET reorganization.</li> <li>- <b>(Ongoing)</b> Determine viability of proposed structure in full response exercises.</li> </ul>
2.2.3 Shift Turnover and Continuity	Individual response team directors did not consistently conduct turnover briefings, which complicated shift continuity and task completion.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Made improvements to WebEOC<sup>®</sup> that have simplified and quickened shift turnover.</li> <li>- <b>(Ongoing)</b> Proposed ET reorganization will improve senior-level continuity.</li> <li>- <b>(Ongoing)</b> IRMC upgrades propose 12-hour versus 8-hour shifts (minimizing turnovers).</li> </ul>
2.2.4 Protracted and Multiunit Events	The NRC Incident Response (IR) Program does not train or exercise responders for protracted or multiunit events.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> The series of functional exercises used to certify the new Three White Flint North (3WFN) Headquarters Operations Center (HOC), in which all responders participated, made use of multiple event scenarios.</li> <li>- <b>(Ongoing)</b> An upcoming fiscal year (FY) 15 exercise will potentially use a multiple event scenario.</li> <li>- <b>(Ongoing)</b> An upcoming FY 15 exercise will require a response of significantly longer duration than that seen in historical exercises.</li> <li>- <b>(Ongoing)</b> In-progress IRMC upgrades will integrate and update multiple event and protracted response guidance.</li> </ul>

<p>2.2.5 Expertise and Training</p>	<p>The HOC used trained volunteer responders to fill team positions. As the response period lengthened, it became necessary to use untrained volunteers to supplement the response teams. Untrained responders lacked the necessary response training and knowledge of HOC operations, while trained responders indicated a need for more drills with an increased focus on HOC procedures and tools.</p>	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Conducted concerted recruiting efforts since the Fukushima response to deepen the available pool of trained and qualified responders.</li> <li>- <b>(Complete)</b> Developed just-in-time training programs for general response and for key positions to provide rapid training to new responders should they become necessary during response.</li> <li>- See 2.2.3 for shift length and turnover improvements.</li> <li>- <b>(Complete)</b> Updated the IR program processes and structure for watchstander scheduling and watchbill generation to make better use of qualified responders.</li> <li>- <b>(Ongoing)</b> Meet with Office of the Chief Human Capital Officer (OCHCO) and National Treasury Employees Union (NTEU) to explore the benefit of modifying responder position descriptions to reflect their duties or revisit the nature of staffing the IR teams.</li> </ul>
<p>2.2.6 Roster of Subject Matter Experts</p>	<p>Subject matter experts (SMEs) were a valuable resource throughout the response, not only supporting internal objectives, but also supporting other Federal stakeholders. However, during the response, responders were not readily able to access an agency-wide SME database.</p>	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Expanded pre-existing IR program-internal lists of SMEs since the Fukushima response. These are periodically updated.</li> <li>- <b>(Future)</b> Work with OCHCO to determine the most effective way to find SMEs outside of the IR program.</li> </ul>
<p>2.2.7 Conflicts with Regular Duties</p>	<p>Many responders who volunteered for response duty were also expected by their supervisors to continue their normal work duties. Response team leaders had no direct control over the voluntary responders' schedules or the duration of their service.</p>	<ul style="list-style-type: none"> <li>- <b>(Ongoing)</b> Proposed ET reorganization to provide more direct OEDO oversight of response operations, including the organizational authority, procedures, and processes to direct agency resources toward the response effort.</li> <li>- <b>(Ongoing)</b> This observation may also be partially addressed by the OCHCO/NTEU outreach effort in 2.2.5.</li> </ul>

2.2.8 Team Management/ Team Mission	The NRC's lack of international response experience, coupled with limited team cross-training, caused uncertainties and confusion among responders regarding their team-specific mission assignments and the roles of other teams.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Team training and guidance about team functions have been provided to responder references.</li> <li>- <b>(Ongoing)</b> Addressed in 2.1.1 and 2.2.2.</li> </ul>
2.2.9 International Response Considerations	The NRC IR program lacks a comprehensive international structure.	<ul style="list-style-type: none"> <li>- This observation relates to a lack of corporate support for the NRC personnel who traveled to, and responded from, Japan during the event.</li> <li>- <b>(Complete)</b> The NRC established a response coordination group and wrote procedures to handle logistics and planning aspects of the NRC response, including support to deployed headquarters (HQ) personnel. This group, in part, will handle deployment, whether domestic or international, of HQ and/or regional personnel.</li> </ul>
2.3.1 Records	Response teams had an insufficient protocol for recordkeeping, leading to inefficient information management. This caused duplicative efforts, limited capture of lessons-learned documentation, and inefficient management of requests for information.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> The NRC established a records management group as part of response coordination. This group is responsible for managing electronic files during response and transfer of information during potential Freedom of Information Act (FOIA) requests.</li> <li>- <b>(Complete)</b> Intentionally designed the 3WFN HOC to focus on electronic medium, resulting in fewer hard copies.</li> </ul>
2.3.2 FOIA Requests	During the response, the NRC received a large number of FOIA requests. This caused already limited resources to be re-directed to mandatory FOIA work rather than IR activities.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> See 2.3.1.</li> </ul>
2.3.3 Reports and Procedures	Most response procedures and protocols are not adequate for protracted, multiunit or international events. Additionally, no process currently exists to formalize HOC protocols throughout the response.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Staff has performed a program-wide review of response procedures and has initiated a comprehensive restructure and upgrade.</li> <li>- <b>(Ongoing)</b> As part of the procedure upgrade (IRMC-100), the process for generating and approving new procedures has been streamlined and moved to lower operational levels, where appropriate.</li> </ul>

2.4.1 Staffing and Scheduling	The voluntary nature of the current response program presented many challenges in supplying fully qualified responders to staff the HOC for the duration of the response.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> The NRC has improved scheduling tools and process and developed guidance for longer shifts.</li> <li>- <b>(Ongoing)</b> Responder commitments are being addressed in 2.2.5.</li> </ul>
2.4.2 Human Limitations and Human Capital	The limited size of the qualified responder pool, coupled with the length and complexity of the event, led to fatigue and stress issues.	- <b>(Ongoing)</b> See 2.2.5.
2.4.3 Equipment	The Japan team dispatched from HQ had difficulty securing the necessary emergency response equipment since most equipment is provided for region-based site teams. Regional offices had concerns about replacement and reimbursement of equipment used during the response.	- <b>(Complete)</b> See 2.2.9.
2.4.4 Facilities	The responders identified many operational improvements during the response that should enhance the HOC facility.	- <b>(Complete)</b> Included all design elements in buildout of 3WFN HOC.
2.4.5 Security	The Japan team established and maintained communications with the HOC; however, secure communications capabilities were limited because of the unavailability of secure equipment on site and requisite information access of ET members.	- <b>(Complete)</b> Included improved secure communications elements in the buildout of 3WFN HOC.
2.5.1 Internal Communications	Responders identified several challenges with interteam communications.	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Incorporated recommendations into team trainings and practiced during exercises, including the following: <ul style="list-style-type: none"> <li>- creation of HOC-wide phone directory and conference bridge directory.</li> <li>- training and procedure upgrades to incorporate regular team briefings.</li> <li>- incorporation of a common priorities board in WebEOC®.</li> <li>- incorporation of an event summary board in WebEOC® to communicate event milestones.</li> </ul> </li> </ul>

2.5.2 Interagency Communications	Formal protocols and interagency agreements related to roles of external liaisons in the HOC during an international response did not exist.	<p>- <b>(Complete)</b> Established the FCT, which provides:</p> <ul style="list-style-type: none"> <li>- team-level expertise on roles, responsibilities, and information sharing with other Federal agencies and stakeholders.</li> <li>- NRC liaisons to external agencies.</li> <li>- processes for intake, management, and support of external agency liaisons responding at the NRC HOC.</li> </ul>
2.5.2 Interagency Communications	Daily conference calls with international and industry partners greatly enhanced overall communication and mission priorities.	<p>- <b>(Complete)</b> Industry developed a coordinated, consistent approach to response efforts by issuing FLEX response guidelines, establishing FLEX-focused infrastructure (such as the national response centers) and developing mission support priorities with Federal, State, and local agencies.</p> <p>- <b>(Complete)</b> The Reactor Safety Team has trained on the FLEX program and has generated a process to incorporate it into the larger response effort.</p>
2.5.3 Public Communications	The use of scientific figures and numbers in public messaging by the NRC created confusion with the public.	- <b>(Ongoing)</b> A Public Information Desk is being created to appropriately convey important information to the public.
2.5.3 Public Communications	The influx of the calls from the concerned public to the HQ Operations Officer and the regional offices created a significant distraction to the response.	- <b>(Ongoing)</b> The Public Information Desk, discussed above, will alleviate call volume from regional offices.
2.5.4 State/Regional Communications	The international nature of the event challenged communication efforts with State and regional stakeholders.	- <b>(Complete)</b> Modified internal processes and Liaison Team procedures to specifically address provision of information to State and regional stakeholders.
2.5.5 Technical Communications	Technical communication was not consistent and was often confusing.	<p>- <b>(Complete)</b> Discussed this observation, related to the mixed use of metric and English units, in detail and determined it to be a reality of international response.</p> <p>- <b>(Complete)</b> Responder training has already been improved to stress importance of consistent messaging.</p>

2.6.1 RASCAL	RASCAL does not support creation of a single impact plot from multiple source terms, provide impact perspective at distances greater than 50 miles (80 kilometers), and only has a maximum calculation period (release duration) of 48 hours.	- <b>(Complete)</b> RASCAL 4.3 was released in 2013 and incorporated all identified recommendations from Fukushima.
2.6.2 WebEOC®	The full functionality and capabilities of WebEOC® were not used during the response.	- <b>(Complete)</b> Improvements to WebEOC® are an ongoing initiative. The NRC used all feedback from the Fukushima response to improve boards.  - <b>(Complete)</b> Provided training on improvements and created user guides to supplement training.
2.6.3 General Technology Issues	Laptops and computers: Some laptops had issues with software updates and connectivity to printers and other systems that had to be resolved. Also, the computers at the ET table allowed connectivity and productivity throughout the day, but required additional setup and training for use.	- <b>(Complete)</b> Addressed computer issues in the buildout of 3WFN HOC.
2.6.3 General Technology Issues	Agencywide Documents Access and Management System (ADAMS) software was not installed on all HOC workstations, which made it difficult for responders to access and print agency documents needed throughout the response.	- <b>(Complete)</b> Made ADAMS accessible in 3WFN HOC.
2.6.3 General Technology Issues	Credentials: Volunteers without prior HOC experience required login credentials when reporting for their initial shifts. Technical support staff members were very responsive in establishing accounts for the responders, but this created a distraction from other duties. Experienced responders noted that there were no desktop reference guides to assist in accessing the systems.	- <b>(Complete)</b> Created desktop reference guides to provide references for new responders.
2.6.3 General Technology Issues	Workstations: Many responders noted that computer monitors were too small to allow viewing of certain documents, and other responders indicated they would prefer two monitors at their workstations.	- <b>(Complete)</b> Improved workstations during the 3WFN HOC buildout.

<p>2.6.3 General Technology Issues</p>	<p>Recorded Lines: The phones with recorded lines caused confusion in the HOC. There was no clearly defined policy or practice for use of recorded phone lines.</p>	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Limited recorded phone lines to only four pre-established external bridges.</li> <li>- <b>(Complete)</b> Provided phone directories to all response workstations.</li> </ul>
<p>2.6.3 General Technology Issues</p>	<p>E-mail Accounts: Complications with the e-mail system — including size limits for attachments, HOC account names, and difficulty locating and retrieving previous communications, contributed to confusion and miscommunications. Responders regularly monitored the HOC e-mail accounts, but the HOC e-mail addresses only indicated computer station identification and did not indicate names or job titles of individuals. As a result, responders unknowingly sent e-mails to incorrect recipients.</p>	<ul style="list-style-type: none"> <li>- <b>(Complete)</b> Standardized HOC e-mail addresses.</li> <li>- <b>(Complete)</b> Provided an e-mail list to all response workstations.</li> </ul>