



**The Secretary of Energy**  
Washington, DC 20585

July 20, 2016

The Honorable Joyce L. Connery  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue NW, Suite 700  
Washington, DC 20004

Dear Madam Chairman:

Thank you for your letter of June 3 regarding planned improvements and updates to the Department of Energy's (DOE) Implementation Plan addressing Defense Nuclear Facilities Safety Board Recommendation 2014-1, *Emergency Preparedness and Response*.

Enclosed is Revision 1 to the Department's Implementation Plan (IP). DOE remains committed to achieving an effective and self-sustaining Emergency Management Enterprise, and, more specifically, improving the integration of its emergency preparedness and response capabilities across its defense nuclear facilities. This revised IP provides DOE's approach for addressing the sub-recommendations contained in Recommendation 2014-1, including causal analysis, requisite actions, and milestones necessary to achieve successful implementation.

The actions outlined in this revised IP also link to ongoing efforts that enhance the Department's overall Emergency Management Enterprise. We look forward to continued positive interactions with you and your staff. DOE will provide updates and deliverables to the Board as requested in your June 3 letter, as well as outlined in the revised IP.

If you have any questions, please contact me or Mr. A. J. Gipson, Acting Associate Administrator, Office of Emergency Operations, at (202) 586-9892.

Sincerely,

A handwritten signature in black ink, appearing to read "Ernest J. Moniz", with a long, sweeping underline that extends to the right.

Ernest J. Moniz

Enclosure



# U. S. Department of Energy

## Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2014-1 Revision 1

*Emergency Preparedness and Response*



Washington, DC 20585

July 2016

## EXECUTIVE SUMMARY

This implementation plan (IP) is directed and endorsed by the Secretary of the Department of Energy (DOE) in response to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2014-1, *Emergency Preparedness and Response*. It addresses challenges and opportunities for improvement concerning the Department's emergency management program. This IP was conceived and built with a bottom-up-approach through complex-wide subject matter expert and senior management collaboration to ensure actions taken do not conflict with other Departmental directives or strategic objectives. This revision updates and addresses weaknesses of the original IP, noted by internal and external stakeholders, including: 1) clarification of deliverables and the alignment of internal milestones, 2) revision of deliverable dates to account for the challenges of an inclusive bottom-up-build, and 3) clarification of how the individual actions, taken in parallel to meet timeliness goals, will synchronize and fuse to comprehensively address stakeholder recommendations and concerns.

This IP revision provides the detailed blueprint for an achievable Department-wide performance improvement process, including defense nuclear facilities (DNF), designed to strengthen the fundamental attributes that comprise an adequate emergency management program. This effort will result in a structured set of process improvements and common methodologies, which will close the capability gaps and inconsistencies identified in the DNFSB Recommendation 2014-1 and in other correspondence with internal and external stakeholders. The actions described in this IP will enhance and compliment the DOE's oversight capability and management accountability. Additionally, the actions will improve DNF, as well as complex-wide, readiness assurance and emergency response to maintain reasonable assurance of providing adequate protection of public and worker health and safety during an emergency.

The Department remains fully committed to continuous improvement within its enterprise. The DOE recognizes that the actions detailed in this IP are necessary to meet its strategic mission, and are vital to maintaining the health and safety of employees and the public. Responsibility and accountability for implementing the directives resulting from actions described herein, as interpreted by the Office of Primary Interest under the supervision of the Deputy Secretary, will reside with the program secretarial office line-managers. DOE line-management will maintain situational awareness and ensure operational effectiveness of the DOE emergency management program while these IP actions are in progress. Line-managers will also identify actions and best practices to improve overall management performance in the following major areas of concern:

- ineffective implementation of existing DNF Emergency Management Enterprise requirements due to lack of specificity of expectations,
- inadequate processes to address lessons learned and needed improvements to site programs, and
- weaknesses in the DOE verification and validation of readiness due to inconsistent conduct of oversight and enforcement of emergency management preparedness and response requirements.

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## 1.0 PURPOSE

This implementation plan (IP) is directed and endorsed by the Secretary of the Department of Energy (DOE) in response to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2014-1, *Emergency Preparedness and Response*. It addresses challenges and opportunities for improvement concerning the Department's emergency management program. This IP was conceived and built with a bottom-up-approach through complex-wide subject matter expert and senior management collaboration to ensure actions taken do not conflict with other Departmental directives or strategic objectives. This revision updates and addresses weaknesses of the original IP, noted by internal and external stakeholders, including: 1) clarification of deliverables and the alignment of internal milestones, 2) revision of deliverable dates to account for the challenges of an inclusive bottom-up-build, and 3) clarification of how the individual actions, taken in parallel to meet timeliness goals, will synchronize and fuse to comprehensively address stakeholder recommendations and concerns.

The Department remains fully committed to continuous improvement within its enterprise. The DOE recognizes that the actions detailed in this IP are necessary to meet its strategic mission, and are vital to maintaining the health and safety of employees and the public.

This revision of the IP will effectively achieve the objectives of DNFSB Recommendation 2014-1, "Emergency Preparedness and Response." Specifically, it provides the detailed blueprint for an achievable Department-wide performance improvement process, including defense nuclear facilities (DNF), designed to strengthen the fundamental attributes that comprise an adequate emergency management program. This effort will result in a structured set of process improvements and common methodologies, which will close the capability gaps and inconsistencies identified by the DNFSB and other external and internal stakeholders (e.g., the DOE Office of the Inspector General, Office of Enterprise Assessment (EA), Chief of Defense Nuclear Safety, the U.S. Government Accountability Office, etc.). The actions described in this IP will enhance and compliment the DOE's oversight capability and management accountability. Additionally, the actions will improve DNF, as well as complex-wide, readiness assurance and emergency response to maintain reasonable assurance of providing adequate protection of worker and public health and safety during an emergency.

## 2.0 BACKGROUND

On September 2, 2014, the DNFSB approved Recommendation 2014-1, "Emergency Preparedness and Response." In response to the Board's recommendations, DOE leadership approved an IP, dated April 24, 2015. In the IP, the Department leadership committed to providing progress reports on the IP to the Board every six months.

The DOE provided the first progress report to the DNFSB on November 23, 2015, and received immediate verbal feedback on the Board's concerns. In December 2015, the DOE leadership met, considered the Board's concerns, as well as the DOE's current understanding of the implementation challenges, and reached consensus to revise the IP. On February 8, 2016, the Board formally transmitted their concerns regarding the first progress report, and requested a meeting with the Associate Administrator for Emergency Operations (NA-40) and the Director,

Office of Plans and Policy (NA-41). This meeting was held on April 6, 2016, at which NA-40 reaffirmed the Department's commitment to the original IP. The Board offered their staff's technical expertise in support of an open collaboration between DOE leadership and the Board staff on any planned revision to the IP to address noted weaknesses.

Concurrently with the timeline above, the DOE gained increased operational awareness and understanding of the resource requirements needed to achieve the commitments made in the original IP in an effective and timely manner. Specifically, the plan needed to evolve to account for the unprecedented and complex-wide nature of the synchronization and coordination of improvement efforts. Consequently, this revision was conceived, developed and approved to: 1) clarify deliverables and the alignment of internal milestones, 2) revise deliverable dates to account for the challenges of an inclusive bottom-up-build, and 3) clarify how the actions will synchronize and fuse to comprehensively address stakeholder recommendations and concerns. On May 26, 2016, the Secretary formally notified the DNFSB of the DOE's intent to revise the IP for Board Recommendation 2014-1, with an expected issuance date of June 30, 2016.

### 3.0 UNDERLYING CAUSES

Evaluations of the DOE's emergency management program, including those at DNFs, yielded clearly defined challenges and opportunities for improvement. The DNFSB suggested three underlying causes for their findings.

1. *"ineffective implementation of existing requirements"* - The Department accepts the DNFSB observation and takes ownership of this issue. Sections 5.0, 6.0, and 6.1 specifically address the DOE plan to correct this cause.
2. *"inadequate revision of requirements [to address lessons learned, needed improvements to site programs, new information from accidents]"* - The Department accepts the DNFSB observation and takes ownership of this issue. Sections 5.0 and 6.2 specifically address the DOE plan to correct this cause.
3. *"weaknesses in DOE verification and validation of readiness of its sites with defense nuclear facilities"* - The Department accepts the DNFSB observation and takes ownership of this issue. Sections 5.0, 6.0, 6.1, and 6.2 specifically address the DOE plan to correct this cause.

Common to the DNFSB identified underlying causes was the limited line-management involvement in, oversight of, and accountability for, the DOE's emergency management program, which initially appeared contrary to the current Order. However, a review of the delegated responsibility, authority and accountability in DOE O 151.1C, *Comprehensive Emergency Management System*, revealed that these essential organization elements were ambiguously defined. This led to small programmatic oversights and confusion at each organizational level, which built up over time into systemic issues requiring equally systemic corrective actions.

Another common underlying cause was the lack of consistency in risk-informing or performance-basing the use of Departmental resources for the administration of the emergency management program. The current requirements for readiness assurance and oversight of emergency management programs direct that all programs are similarly assessed, without differentiation. Using this inefficient method, there can be duplication in the objectives and areas of attention of the three oversight organizations: the field element, program secretarial office (PSO) and EA. In the current oversight system, resources may not be concentrated on problem areas with the most significant risk to worker and public health and safety. This issue, and the programmatic changes associated with it, are specifically addressed in IP Sections 5, 6.1.1 and 6.1.1.1.

The final common underlying cause relates to a systemic perception of a lack of available impartial technical assistance to provide meaningful support to DNFs addressing internally and externally identified findings and opportunities for improvement. In some cases DNFs may avoid officially identifying or reporting emergency management-related issues due to a perceived threat of adverse action on future evaluations or contract awards. This perception is due, in part, to our history of administering the emergency management program mostly through assessments, creating an unnecessary adversarial relationship within the Department. Since 2011, the Department has issued several directives regarding the promotion and maintenance of a healthy safety culture, through the use of safety conscious work environment principles. The directives show a definitive recognition of this vital program administrative component, and provide the necessary tools to implement it in the emergency management program to maintain reasonable assurance of adequate protection of worker and public health and safety. One major change, discussed in IP Sections 6.0 and 6.1.2, is a renewed focus on internal customer service, in which we apply the DOE's safety culture to emergency management programs to encourage self-identification of issues, mitigate the concern of adverse action, and build collegial relationships by providing meaningful and timely support for the identification and correction of issues.

The common underlying causes were identified after thorough discussions with emergency management stakeholders and a review of all available internal and external assessment reports and recommendations. Section 6.0 addresses the Department's plan to correct these issues through the enforcement of accountability measures for clearly defined line-management delegated authority and responsibility.

Responsibility for implementing the directives resulting from actions described herein, as interpreted by the Office of Primary Interest under the supervision of the Deputy Secretary, resides with the PSO line-managers. DOE line-management will maintain situational awareness, and ensure operational effectiveness of the DNFs and complex-wide emergency management program while these IP actions are in progress.

#### **4.0 BASELINE ASSUMPTIONS**

- New regulations or executive direction will be reviewed for significant impacts to the Department's mission.
- The DOE will secure the resources needed to execute this IP.

- The actions in this IP will be fully implemented for DNFs.
- This IP incorporates an “all hazards” approach to emergency management that is compatible with the National Incident Management System (NIMS) and the National Response Framework (NRF) as required by executive direction.
- The execution of this IP will not negatively disrupt the day-to-day operations of the defense nuclear complex.

## **5.0 RISK-INFORMED AND PERFORMANCE-BASED FRAMEWORK**

This IP requires the DOE implementation of a risk-informed and performance-based approach to improve consistency and oversight of the emergency management program for DNFs as well as complex-wide. The approach is comprised of two primary components: DOE Order 151.1D, and a Baseline Emergency Management Criteria Review and Approach Document (CRAD) for DNFs. This approach will be supported by a corrective actions program in accordance with DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*. For sites with significant hazards, the corrective action program will include, but is not limited to: (1) causal analysis; (2) development and implementation of effective corrective actions; and (3) evaluating the effectiveness of these actions. Each line-manager will take ownership of, and be held accountable for, the effective implementation of DOE Order 151.1D to support site readiness assurance and complex-wide consistency.

The revised order was conceived under the premise that although each site is unique, a set of generic base-program requirements can be established that apply to all sites, and then scaled up, as necessary, at each site to account for the site-specific hazards. A Department-wide effort was established to create the base-program requirements. These requirements were then supplemented with additional requirements within situational appendices. The appendices contain requirements commensurate with the specific hazard risks identified at each site. The base-program requirements, combined with risk-informed use of the situational appendices, allows for a user-friendly and consistent, complex-wide, “all-hazards” approach to emergency management program development, implementation and oversight.

Maintaining compliance at a site does not necessarily imply that the emergency management program is effective at accomplishing the mission. Therefore, another Department-wide effort was established (i.e., the CRAD working group) to develop a Baseline (i.e., single & unified) Emergency Management CRAD for DNFs, in parallel with the Order revision. Once a site fully implements the revised Order, the CRAD will provide a common tool to assess the effectiveness of a DNF at maintaining a reasonable assurance of providing adequate protection of worker and public health and safety in the event of an emergency. The CRAD includes separate subsections to assess each element of an emergency management program, established in accordance with DOE O 151.1, comprehensively. Emergency management programs for DNFs, including response by the contractor, the cognizant field offices and PSO, as appropriate, are addressed in separate sections in the CRAD.



Timely correction and trending of non-compliance and ineffective performance are vital to the success of the DOE's emergency management program. If findings, deficiencies or opportunities for improvement are identified during site operations or assessments, it is important to document and correct these issues from both a practical and a risk-informed perspective. Failure to correct issues will, in general, raise the risk (i.e., probability of occurrence and consequence severity) of an emergency or decrease resiliency and the ability to mitigate and recover from emergencies. In practical terms, maintaining an effective corrective actions program to ensure Order compliance and emergency management program effectiveness saves lives, protects vital assets and reduces operating costs. Therefore, this IP promotes the execution of a robust corrective actions program for the emergency management program in accordance with DOE O 226.1B, commensurate with the hazards at each site (i.e., DNFs and other sites with significant hazards are expected to have a more vigorous program than those only required to maintain base-program requirements). If a DOE element's corrective actions program shows signs of ineffectiveness, line-management will be notified, and oversight of that program will increase commensurate with the severity and risk of deficiencies present.

The risk-informed and performance-based approach, with its two primary directive components and corrective actions program, will ensure the DOE complex effectively uses its limited resources where they are needed most to ensure reasonable assurance of providing adequate protection of worker and public health and safety. This includes the ability to appropriately respond to severe events through the resiliency, reliability and habitability of emergency response facilities and support equipment; prescriptive criteria for training, drills and exercises; and mitigation of identified vulnerabilities. As specified in Section 6, DOE Order 151.1D and the Baseline Emergency Management CRAD for DNFs will standardize and improve implementation of the DOE's criteria and oversight approach to ensure that all DNFs have a robust response infrastructure, a competent training and drill program, exercise programs that challenge existing capabilities, identify and correct deficiencies, and an effective readiness assurance program.

## **6.0 STRUCTURING PROCESS IMPROVEMENT TO THE EMERGENCY MANAGEMENT ENTERPRISE**

The success of any continuous improvement effort begins with an assessment of the current delegation of responsibility across the Department for a specific program. A review of the delegated responsibility, authority and accountability in DOE O 151.1C revealed that these essential organization elements were ambiguously defined. This lack of clarity led to small programmatic oversights at each organizational level, which built up over time. Offices dealt with the handicap of having only one or two of the necessary delegated responsibilities, authority, and accountability; whereas having all three is vital to ensuring proper ownership and effectiveness of the program. DOE senior leadership undertook several initiatives to address this issue.

- Established an Emergency and Incident Management Council (EIMC), chaired by the Deputy Secretary, to increase cooperation and coordination across the Department to prepare for, mitigate, respond to, and recover from emergencies.

- Clarified and redefined, where appropriate, specific organization lines of responsibility, authority and accountability in the revised DOE O 151.1.
- Placed new emphasis on internal customer service, utilizing the DOE's safety culture (i.e., safety conscious work environment principles), to complement the periodic assessment cycle; to provide program improvement technical assistance to facilities, sites and activities that may lack the level of expertise and coordination available at the headquarters (HQ) level. Whereas assessments will maintain a prominent role in readiness assurance, ensuring programmatic consistency and the longevity of high performance depends on a sustainable open collaborative effort between HQ subject matter experts, field element managers and DNF staff, in the form of internal customer service and promotion of a healthy safety culture.

These initiatives provide reasonable assurance, through comprehensive administrative and management controls, that DOE leadership will maintain direct involvement and continuous engagement in the emergency management program. The Department's effort to strengthen the Emergency Management Enterprise, with a risk-informed and performance-based "all-hazards" approach, will also enhance effectiveness at DNFs. Programmatic consistency across the Emergency Management Enterprise will allow for efficient and effective use of limited resources with an emphasis on the concentration of resources where risk to the health and safety of DOE workers and the public is greatest.

Continuous improvement of the DOE emergency management program is a Department-wide effort requiring a Department-wide commitment of resources and expertise. At the direction of the Deputy Secretary, and in consultation with the PSOs, NA-40 established multiple working groups with representatives from across the DOE, including HQ and field element personnel. These groups were set on parallel efforts to address the DNFSB recommendations in a timely manner with a "bottom-up" approach to encompass the diverse views from across the complex in an inclusive manner. This approach also ensured early buy-in and ownership of the process within each DOE HQ office and field element.

Through a risk-informed and performance-based framework, the working groups built consensus and revised DOE Order 151.1 and the Baseline Emergency Management CRAD for DNFs. The revised documents are administrative tools that, if implemented properly, will provide reasonable assurance of the continued protection of the health and safety of DOE workers and the public in the event of an emergency. Implementation of the Order ensures the appropriate level of risk-informed requirements are used at each site, while use of the CRAD, (i.e., by suitably trained individuals), informs decision makers of the site-specific and complex-wide effectiveness of the Order's implementation at providing a reasonable assurance of adequate protection of worker and public health and safety in the event of an emergency.

In addition to the Order and the Baseline Emergency Management CRAD for DNFs, a comprehensive corrective action program (i.e., a program that meets the requirements of DOE O 226.1B) will emphasize, commensurate with the site-specific hazards, the use of technically justifiable and consistent quantitative and qualitative methods to conduct causal analysis and corrective action development. The culmination of the directives and associated programs will

result in the identification and resolution of issues in a timely manner and prevent the recurrence of significant issues. This feedback loop will include trending analysis at the HQ level to ensure generic issues are appropriately addressed through policy and guidance, and site-specific issues are appropriately addressed through performance-based oversight. Significant emergency management issues will be reported to the appropriate level of management to ensure corrective actions are appropriately resourced and completed in a timely manner.

In order to support process improvements in a consistent and timely manner across the Department, DOE will leverage the existing training capabilities and lines-of-communication. Although many DOE elements were involved in the development of the revised Order and Baseline Emergency Management CRAD for DNFs, NA-40 will continue to use venues such as the Emergency Management Issues Special Interest Group (EMI SIG) to promulgate guidance, solicit feedback, and achieve buy-in from federal staff and contractors complex-wide. Utilizing existing training development and delivery capabilities, DOE will reduce the overall courseware development timeline and minimize cost to educate the workforce. NA-40, in consultation and coordination with the PSOs, will be responsible for synchronizing the overall training and communications program to eliminate unnecessary duplication, and to ensure training consistency throughout the DOE Emergency Management Enterprise.

Completion of the major milestones listed in Section 7 (e.g., “Final DOE O 151.1D”, “Secretarial Direction to implement the revised Corrective Action Procedures”, “Secretarial Direction to implement the Risk-Based Approach”, and “Final Baseline Emergency Management CRAD for DNFs”) will be reported to the Emergency Management Advisory Committee (EMAC) by NA-40 with supporting documents, as applicable. The EMAC will evaluate whether or not the completed item will facilitate the appropriate implementation of the DNFSB recommendations as stated in this IP. The EMAC will make recommendations to NA-40 if further action is necessary.

Once the completed major milestones are achieved, and not to exceed 4 months of the completion date, NA-40 will provide the EMAC with a preliminary assessment of the effectiveness of that item at meeting the DNFSB recommendation. The EMAC will make a timely recommendation to the EIMC on whether or not further action is necessary by the Department to meet the DNFSB recommendation. The EIMC, chaired by the Deputy Secretary, will make the final determination on the adequacy of the completed major milestone and direct further action, as necessary.

Upon completion of all IP milestones, NA-40 will provide the EMAC with a report to include: (1) lessons learned from the IP administrative process; (2) measured achievements from implementing completed milestones; (3) a plan for continuing the integrated performance measurement of items implemented in accordance with this IP; and (4) propose additional actions and milestones to address issues discovered during the implementation period. The EMAC will report to the EIMC with the final verification and recommendation, at which time the EIMC will determine whether or not successful completion of the IP has been demonstrated. If closure is warranted, the Secretary will provide notification to the Board with the EMIC recommendation attached.

## **6.1 IMPROVE READINESS OF THE DEPARTMENT'S EMERGENCY MANAGEMENT ENTERPRISE**

The DOE is implementing initiatives to address the DNFSB Recommendation 2014-1 in a holistic manner, addressing its two sub-recommendations. The holistic, "bottom-up" approach ensures direct and inclusive stakeholder involvement to allow for consistent implementation and oversight complex-wide. Many improvement actions being taken by the Department are generically applicable across the complex; however, specifically for DNFs, the Department is working to standardize and improve implementation of the DOE criteria and review approach to confirm all DNFs accomplish the following.

- Address survivability, habitability and maintained functionality of infrastructure during emergencies, including severe events that can impact multiple facilities and overwhelm emergency response resources. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new infrastructure resiliency requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Implement a training and drill program that ensures that emergency response personnel are fully competent in accordance with the expectations delineated in DOE's directives. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new drill and training program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Ensure that exercises are conducted in a way that fully demonstrates a DNF's emergency response is capable of responding to scenarios that challenge existing capability, including response during severe events. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new exercise program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Ensure that DNFs are identifying deficiencies with emergency preparedness and response, conducting causal analysis, developing and implementing effective corrective actions to address these deficiencies, and evaluating the effectiveness of these actions. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to

address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new corrective action program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner. As an interim compensatory measure, DNFs are reporting the status of emergency management deficiencies in their corrective action program quarterly to the cognizant PSO for official review and operational awareness. NA-40 will provide technical assistance to the PSOs as requested, and support decision making for emergency management policy, guidance and training purposes.

- Implement an effective Readiness Assurance Program consistent with DOE O 151.1. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new readiness assurance program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner. This will provide reasonable assurance adequate protection of worker and public health and safety during an emergency.

Actions taken by the DOE are also improving the management and oversight process, improving the corrective actions process, and establishing a reporting process that shares challenges, successes and opportunities for improvement with DOE leadership.

At the direction of the Deputy Secretary, and in consultation with the PSOs, NA-40 established multiple working groups with representatives from across the DOE, each chaired by an NA-40 staff member, to address components of the DNFSB Recommendations 2014-1. The CRAD Working Group will improve the management and oversight process by developing a new comprehensive assessment tool. The CRAD Working Group includes members from: Livermore Field Office, Lawrence Livermore National Laboratory (LLNL), NNSA Production Office (NPO), Consolidated Nuclear Security/Y-12 Nuclear Security Complex (Y-12), Richland Operations Office, Argonne Site Office, Integrated Service Center – Chicago, Berkeley Site Office, EA, Office of Environmental Management, Office of Science, Emergency Operations Training Academy, and NA-41. The DOE Order 151.1 Working Group determined reliability and habitability criteria, determined conduct-of-operations and emergency management interface requirements, and updated DOE Order 151. The DOE O 151 Working Group consisted of two teams, one for the base-program and one for DNFs (i.e., hazardous materials programs). The base-program writing group included members from: NA-41, Office of Environment, Health, Safety, and Security, Office of Nuclear Energy, Pacific Northwest Site Office, Hanford, Office of Fossil Energy, Office of Energy Efficiency & Renewable Energy, Pacific Northwest National Laboratory, Office of Secure Transport, Nevada Site Technology (NSTec), Office of Environmental Management, NNSA Field Management Council, National Lab Directors Council, Office of Electricity Delivery & Energy Reliability, and LLNL. The DNF writing group included members from: Nevada Field Office, Pantex Plant, NSTec, Y-12, NPO, Savannah River Site, Sandia National Laboratories, and Lawrence Berkeley National Laboratory. Additionally, a Corrective Action/Reporting Working Group will be formed that

seeks to improve the emergency management corrective action and reporting systems complex-wide. This group will include experts from throughout the complex.

Synchronization of the separate working groups, as their projects reach fruition, is critical because the complex and multifaceted efforts, done in parallel, rely on each other for consistency of information and effective implementation. Each working group is chaired by an NA-40 staff member, who meets with other project chairs to synchronize efforts and de-conflict issues as necessary. The Director, NA-41, holds meetings with the working group chairpersons and de-conflicts any issues that lack group consensus. As necessary, the Director, NA-41, will report time sensitive issues and major conflicting viewpoints to the Associate Administrator, NA-40, for further resolution.

### ***6.1.1 IMPROVE THE MANAGEMENT AND OVERSIGHT PROCESS***

The management and oversight processes were improved in the draft Order through a risk-informed, “all-hazards” model. This model reinforces line-management delegated authority and accountability, a common oversight standard to conduct assessments, and provides an improved site-by-site and complex-wide performance trending capability. A risk-informed and performance-based approach was chosen to ensure the efficiency and effectiveness of limited oversight and technical assistance resources available to each DNF. As risk increases (i.e., through the addition of hazards, or a downward trend in performance), line-management oversight increases, as well as technical assistance from field offices emergency managers and HQ subject matter experts, such as NA-40 staff members.

#### ***6.1.1.1 REVISE OVERSIGHT STRUCTURE AND APPROACH***

The current requirements for readiness assurance and oversight of emergency management programs direct that all programs are similarly assessed, without differentiation. Using this inefficient method, there can be duplication in the objectives and areas of attention of the three oversight organizations: the Field Element, PSO and EA. Additionally, resources may not be concentrated on problem areas with the most significant risk to worker and public health and safety.

To improve the effectiveness of emergency management oversight and identification of performance issues, the DOE shifted to an approach that links the degree of oversight to the level of risk and performance present at the DNF, while ensuring complex-wide consistency. Additionally, the Department is working to build open collaborative relationships between subject matter experts at sites, field elements and HQ to ensure decision making on generic issues is inclusive and consistent complex-wide.

To establish this oversight and technical assistance structure, an HQ working group defined the framework of the risk-informed and performance-based approach. The group socialized the concepts at conferences and meetings and gained significant feedback. The approach will be piloted in fiscal year 2016. Some of the ideas and feedback that were universally accepted as best practices were included in the revised Order and the draft Baseline Emergency Management

CRAD for DNFs. NA-40 will issue a report with further recommendations to the Deputy Secretary for decision on inclusion into the next update of the emergency management directive.

#### **6.1.1.2 NEW ASSESSMENT PROTOCOL**

The DOE formed a working group, chaired by NA-40 with representatives from across the relevant HQ and field elements, to develop the Baseline Emergency Management CRAD for DNFs. The CRAD, currently in draft form, was submitted to the Board on April 20, 2016, with an expected final implementation date of January 1, 2018. The baseline portion of the CRAD was presented at the EMI SIG 2016 Conference, at which multiple program managers from across the complex committed to piloting the CRAD, and to providing detailed feedback to NA-41. Furthermore, a training course for the use of the CRAD was developed to improve consistent and timely implementation, and is expected to be taken by personnel prior to use of the CRAD during the pilot stage. The course, CRAD201DW, is currently available online; NA-41 continues to monitor the training system to ensure all personnel using the CRAD during the pilot stage have completed the training.

The Baseline Emergency Management CRAD for DNFs breaks down the requirements of DOE Order 151.1 into objectives and criteria, and uses best practices, lessons learned and engineering judgment to build additional lines of inquiry to increase the efficiency and effectiveness of emergency management personnel supporting DNFs. A Baseline Emergency Management CRAD for DNFs also facilitate, through consistent application, better trend analysis at the PSO and defense nuclear complex level. Trends will indicate generic issues where requirements and guidance need to be clarified or revised, or where additional training needs to be developed and promulgated.

The Baseline Emergency Management CRAD for DNFs, currently based on DOE O 151.1C requirements, will continue to be piloted during calendar year 2016, while sites are still using DOE O 151.1C. Areas of improvement that are needed in the CRAD will be noted and reported to the Deputy Secretary. This will include current lessons learned from the application of all sub-parts of DNFSB recommendations 1 and 2. Following the Deputy Secretary's review, NA-40 will update the CRAD, as appropriate, for DOE O 151.1D in anticipation of the defense nuclear complex's final implementation of the revised Order.

Once revised for DOE Order 151.1D requirements, the Baseline Emergency Management CRAD for DNFs will be prepared for review through the DOE Directive System, with the objective of entering formal coordination on, or about, August 1, 2017. The final CRAD will be delivered by December 1, 2017, four months after beginning formal coordination. As other areas of improvement are noted or new requirements or standards emerge, they will be submitted to the NA-40 so that the CRAD is up-to-date and appropriately maintained. The CRAD will be controlled through the DOE Directives Program as a living document.

#### **6.1.2 IMPROVE THE CORRECTIVE ACTIONS PROCESS**

Once performance is measured, it is vital that the problems (e.g., inefficiencies, ineffectiveness, nonconformance, etc.) are subjected to formal scrutiny to ensure that the cause(s) of the

shortcoming is accurately identified, and that the responsibility of correcting the shortcoming within an established schedule is assigned. As the Board noted, the Department's emergency management corrective action process lacks the formality of requiring a causal analysis piece to the overall process.

Effective corrective action systems, which comprehensively address internal and external findings, currently require vigorous line-management organization oversight to provide reasonable assurance of program integrity and the closure of risk significant findings; there must be independent oversight to verify the work was actually performed and validate that the corrective action resolved the issue. Line-management confidence in the effectiveness of a site's corrective actions program is essential to maintaining a healthy and efficient program. Currently, for portions of the DOE, this confidence in emergency management corrective action programs is low due to many examples of ineffective performance noted in internal and external emergency management program assessments. Consequently, this requires significant resources to be dedicated to continuously monitor program performance. As confidence in a site's corrective action program builds, line-management may allow for a less transactional oversight regimen.

Sites will be encouraged to promote a healthy emergency management safety culture, consistent with the Department's policies and directives on safety conscious work environment (e.g., DOE Policies 420.1 and 450.4A; DOE Orders 442.1A, 442.2, 450.2 and 420.1C). A healthy emergency management safety culture plays a major role in ensuring issues are identified, reported and adequately corrected. Until site-specific programmatic performance is determined to be acceptable, the DOE will continue utilizing existing program line-oversight and independent oversight in a more direct manner. This will provide reasonable assurance that deficiencies are adequately analyzed and corrected in a timely manner commensurate with the risk significance of the deficiency. PSO and EA assessments will validate, as appropriate, corrective actions for the most serious findings (e.g., such as deficiencies<sup>1</sup>) and for those findings that are recurring. This is necessary because emergency management is the last line of defense for protecting the health and safety of workers, the public and the environment.

As part of its clarified responsibility and delegated authority, as directed in the revised DOE O 151.1, NA-40 will review, as appropriate, PSO and EA assessments involving emergency management to interpret and trend issues while providing direct technical assistance to the sites, as requested, for development and execution of corrective actions. NA-40 will evaluate the trends and make recommendations to line-managers regarding site-specific assessment frequency, and will promulgate best practices and lessons learned complex-wide. Additionally, NA-40 will periodically use the trending analysis, best practices and lessons learned to make recommendations on emergency management policy, guidance and training revisions to address generic or complex-wide opportunities for improvement. NA-40 will work with other DOE offices to review and make recommendations on directives, in which NA-40 is not the office of

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<sup>1</sup> A Deficiency is an actual or projected failure to meet an evaluation criterion, thereby directly impacting the associated basic emergency management activity. (See DOE Guide 151.1-3, Chapter 4.)



primary interest, that may directly or indirectly affect the DOE Emergency Management Enterprise.

To monitor improvements to emergency management programs through corrective actions, a working group comprised of representatives from DOE HQ and Field elements will be created. The working group will revise procedures for tracking and ensuring the closure of corrective actions, including incorporating best practices across the Department. This group will revise existing protocols, as appropriate, to drive consistency and excellence in emergency management. This group will provide, as appropriate, the revised procedures and protocols to the Deputy Secretary for consideration. The draft procedures will be tested by PSO and field element oversight officials throughout calendar year 2016.

### **6.1.3 REINVIGORATE THE REPORTING PROCESS**

Recommendation 2014-1, and subsequent discussions with DNFSB staff, indicate a concern regarding DOE senior managers' awareness of the existing deficiencies in emergency management programs and performance identified through reviews conducted by the DNFSB staff, EA and line-managers.

On October 13, 2015, the Deputy Secretary directed the Cognizant Field Element Managers for DNFs to determine the status of existing deficiencies in emergency management programs. As a priority effort, DOE management determined the current status of known deficiencies in emergency management programs at DNFs across the complex and submitted a report to the Deputy Secretary. This effort required the review of existing Independent Oversight reports, PSO and Cognizant Field Element assessment reports, reports required in response to the Operating Experience Level 1 (OE-1) 2013-01, *Improving Department of Energy Capabilities for Mitigating Beyond Design Basis Events*, and Emergency Readiness Assurance Plans (ERAP), starting from the Fukushima events (i.e., from March 2011). The report included the scheduled actions for correcting these deficiencies, and identified the office responsible for validating the corrective action was successful in correcting the cause.

This reporting will continue on a quarterly basis as long as needed to augment the ERAP reporting. Any deficiency that has had all corrective actions completed, and the corrective actions verified and validated, will be removed from reporting, but the data will be maintained for trend analysis. In order to enhance transparency and accountability, the report will continue to be submitted to the PSO for concurrence, and then to NA-40 for consolidation.

The Office of Emergency Operations proposed and developed a systematic approach to provide operational awareness to DOE leadership on the status of emergency management program deficiencies and corrective actions at DNFs. NA-40 further reported on the feasibility of the systematic methods, including automated systems, to the Deputy Secretary. Actions to implement these methods and systems are being considered. Additionally, functions were revised in DOE O 151.1 to facilitate an ongoing shared operational awareness between emergency management stakeholders.

## **6.2 UPDATE THE DOE COMPREHENSIVE EMERGENCY MANAGEMENT ORDER**

The DOE emergency management Order (e.g., DOE Order 151.1C) was last issued on November 2, 2005. The DNFSB, in Recommendation 2014-1, sought to ensure that the Department revised the emergency management Order in a timely manner to address specific identified weaknesses. To implement this recommendation, NA-40 submitted a revised Order (e.g., DOE Order 151.1D) for formal coordination on April 18, 2016. Publication of the revision in the DOE Directives System is anticipated on, or about, July 1, 2016. The need to improve the Order was highlighted by:

- the inconsistent interpretation<sup>2</sup> and implementation of requirements at some DOE sites;
- the need for improvements to site programs; and
- the need to incorporate lessons learned, most notably those from Fukushima.

While the update to DOE Order 151.1 largely involved a restructuring of the Order, the rewrite also includes significant improvements to address the issues listed above and a clear set of base-program emergency management requirements that all DOE facilities must meet within a single attachment. This consolidation of base requirements significantly improves the revised Order's clarity and ease of use. Separate attachments were included with additional requirements only applicable to, and commensurate with, the specific hazards identified on a site-by-site basis, allowing each site to easily identify all of the requirements that are applicable to their program.

Additionally, analyses were performed and requirements were included, as appropriate, in the Order to fully address DNFSB Recommendation 2014-1. Specifically, Section 6.2.1 describes the process used to address issues related to reliability and habitability of emergency response facilities and support equipment. Section 6.2.2 describes coordination of training and testing of the facility operations and emergency operations personnel to achieve safe shutdown of facilities, protecting the health and safety of DOE workers and the public under the full spectrum of emergency conditions. Section 6.2.3 outlines specific updates in the revised DOE Order 151.1.

As the DOE progressed in addressing DNFSB sub-recommendation 1, new requirements were identified to adequately address DNFs within the DOE emergency management program. These new requirements were included in the overall effort to revise DOE Order 151.1, as part of the response to DNFSB sub-recommendation 2. Many improvement actions being taken by the Department are generically applicable across the complex; however, specifically for DNFs, the Department updated its emergency management directive to specifically address the following.

- Severe events, including requirements that address hazards assessments and exercises of “beyond design basis” operational and natural phenomena events. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and

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<sup>2</sup> Since DOE Order 151.1C was published, there have been more than 50 official interpretations of requirements issued.

included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new hazard assessment, exercise program, infrastructure and resiliency requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.

- Reliability and habitability of emergency response facilities and support equipment. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new facility habitability and support equipment reliability requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Criteria for training and drills, including requirements that address facility conduct of operations drill programs and the interface with emergency response organization team drills. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new training and drill program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Criteria for exercises to ensure that they are an adequate demonstration of proficiency. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address it. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new exercise program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.
- Vulnerabilities identified during independent assessments. The DOE 151 Writing Team conducted a review regarding this issue, obtained stakeholder feedback, and included specific requirements in the revised DOE O 151.1 to address the corrective actions program requirements for fixing vulnerabilities in a timely and appropriate manner. Additionally, after completing the pilot testing of the Baseline Emergency Management CRAD concept using DOE O 151.1C, the DOE will modify the CRAD to address the new corrective action program requirements in DOE O 151.1D; in order to aid in assessing the effectiveness of the DNF's performance in a consistent and comprehensive manner.

### **6.2.1 DETERMINE RELIABILITY AND HABITABILITY CRITERIA**

Revitalization of DNF infrastructure has been a major shared concern of the Board and the Department for many years. The recent President's budget submitted to Congress included line item construction requests to address critical facilities. Existing emergency operations centers at LLNL, Y-12, and Sandia National Laboratory are budgeted to be replaced with a robust design, to withstand a greater range of natural phenomena, and provide better working spaces for emergency responders.

The revised DOE Order 151.1 addresses requirements for the reliability and habitability of new emergency response facilities and support equipment. To determine these requirements, the DOE 151 Writing Group, consisting of representatives from DOE HQ and Field Elements, analyzed the criteria necessary to provide a reliability and habitability standard for emergency response facilities and support equipment. The group recommended means of measuring the adequacy of these criteria to the Associate Administrator, NA-40 and the relevant PSOs. The recommendations were incorporated into the revised DOE Order 151.1, as appropriate. In general, existing DOE buildings that undergo major renovations will become subject to the new building code requirements, however, absent major renovations, existing DOE buildings are subject to the building codes applicable at the time of their construction or last major renovation.

### **6.2.2 DETERMINE CONDUCT OF OPERATIONS (SAFE SHUTDOWN) AND EMERGENCY MANAGEMENT INTERFACE REQUIREMENTS**

Currently, there are no specific requirements or guidance within the DOE O 151.1C, or its accompanying guides, regarding safe shutdown or the importance of the interface between conduct of operations and emergency response. Actions taken to stop the progression of an accident or to safely shut down a facility during an emergency event may be equally as important as those taken to protect workers and the public from the impact of the accident. During an emergency, steps to limit the progression of the emergency, or to safely shut down a facility so workers can "walk away" from the facility, leaving it in a safe configuration, fall within the purview of the facility safety and conduct-of-operations programs. Because the interface between conduct-of-operations and emergency response is crucial to ensuring the safety of workers, the public, and the environment, specific and consistent requirements are needed to ensure safe shutdown of facilities, and to establish an effective interface between conduct-of-operations drills and emergency response drills and exercises. This coordination is addressed in the revised DOE Order 151.1, as appropriate.

The DOE O 151.1 revision working group, consisted of representatives from DOE HQ and Field elements, was assigned to address the issues concerning safe shutdown or "walk away" procedures. To address the procedural issue, the working group developed and incorporated requirements in the expected revised Order to ensure safe shutdown of DNFs. In addition, the new requirements address improvements needed to ensure an adequate interface exists between conduct-of-operations drills and emergency response organization drills and exercises. To effectively measure proficiency in meeting these changes, the requirements for drills and exercises were also changed, as well as their periodicity, as appropriate.

### 6.2.3 UPDATE DOE ORDER 151.1

The DOE evaluated and updated DOE Order 151.1 to address issues identified in Board Recommendation 2014-1. The results obtained from addressing sub-recommendation 1, including its subparts, are incorporated into the revision to the Order, as appropriate.

Numerous changes were made throughout the draft revision to DOE O 151.1C to address DNFSB Recommendation 2014-1 concerns for DNFs. The approach taken to revise the Order, develop the content of the final draft, and progress through formal review, were appropriate for implementing the overall intent of the DNFSB Recommendation 2014-1 in a measured and prudent fashion. NA-40 adapted to the accelerated time schedule agreed to by the Secretary, using the resources available through the writing teams. The resulting DOE O 151.1D strengthens the Emergency Preparedness and Response Program, and provides reasonable assurance of adequate protection of worker and public health and safety for DNFs, as well as the rest of the DOE complex, during an emergency.

The restructured Order mirrors the approach used in communities across the nation to conduct a tiered “all-hazards” response, such as that used in NIMS and the NRF. Additional requirements to those in NIMS and NRF were considered, as necessary. The Order revision was conducted in accordance with the DOE Directive Review Board requirements based in DOE Order 251, *Departmental Directives Program*.

The revised Order 151.1D is scalable, flexible, and adaptable for all facilities, aligning key roles, responsibilities, authorities and accountability across the DOE DNF complex. It links oversight at the appropriate levels across the Department, and includes the participation of DNF contractors. The minimum emergency management requirements are outlined for base-programs and may be scaled up according to risk using hazard specific attachments addressing, for example, nuclear and hazardous material (e.g., biological, chemical, and radiological) facilities. The restructured revised Order brings ease of application and consistency to emergency management programs across the complex. It is also flexible enough to respond to incidents ranging from single facility local events to multiple facility regional events.

To promote consistency, the guidance contained in the DOE Guide 151.1-series was evaluated for potential incorporation into the Order. The revised Order also formalizes the severe event approach, which served as the basis for Attachment 1 to the OE-1 2013-01. Incorporation of the results of Section 6.2.1 and 6.2.2 of this IP into the revision of DOE Order 151.1 also addresses related prior commitments made relative to *A Report to the Secretary of Energy: Review of Requirements and Capabilities for Analyzing and Responding to Beyond Design Basis Events*, dated August 2011; and *A Report to the Secretary of Energy: Beyond Design Basis Event Pilot Evaluations*, dated January 2013 – post Fukushima.

DOE subject matter experts worked to ensure that emergency response training at DNFs is focused on response proficiency, and that exercises test a true representation of the risks, hazards, and challenges posed by those facilities. Specific changes were made to ensure a consistent approach to the development of position specific training and successful demonstration of Emergency Response tasks at DNFs.

The revised DOE emergency management Order defines the scope of exercises required to be performed at a DNF to meet requirements, including challenging scenarios. Specifically, challenging exercises will be expected to involve high consequence scenarios, multiple response elements, and offsite effects. In order to improve the oversight process and avoid excessive overlap of exercise dates, NA-40 will maintain operational awareness of scheduled exercises complex-wide. The revised Order includes a requirement specifying the frequency of challenging exercises to ensure proficiency.

## 7.0 MILESTONES

This table represents the deliverables to the DNFSB (i.e., items in bold), and a summary of the supporting internal milestones to achieve those deliverables. Deliverables will be provided to the DNFSB upon final issuance by the DOE approving authority. Draft deliverables and intermediary milestone documents will be provided to the Board's staff at their request. Other supporting documents associated with internal milestones and deliverables will be provide to the DNFSB upon request. The DNFSB staff received all items listed as "Complete" prior to issuance of this revised IP.

**Table 1 – Recommendation 2014-1, Milestone Deliverables and Intermediary Milestones**

Links to DNFSB Rec.	IP Section	Responsible Authority	Milestone Deliverables and Intermediary Milestones	Form of Milestone Deliverable	Anticipated Delivery Date
	<b>9.0</b>	<b>Office of Emergency Operations / NA-40</b>	<b>Update DNFSB</b>	<b>Formal Briefing</b>	<b>Every 6 months</b>
<b>2</b>	<b>6.2.3</b>	<b>Office of Emergency Operations / NA-40</b>	<b>Final DOE O 151.1D</b>	<b>Copy of issued Order</b>	<b>7-1-16</b>
		Office of Emergency Operations / NA-41	Formal Coordination draft DOE O151.1D into RevCom		Complete
		Office of Emergency Operations / NA-41	Informal Coordination draft of DOE O 151.1D		Complete
		Office of Emergency Operations / NA-41	Justification Memo for change to DOE Order 151.1C		Complete
	6.2.2	Office of Emergency Operations / NA-41	Draft criteria for safe facility shutdown and requirements for testing readiness to implement the criteria		Complete
	6.2.1	Office of Emergency Operations / NA-41	Draft criteria for reliability and habitability		Complete

Links to DNFSB Rec.	IP Section	Responsible Authority	Milestone Deliverables and Intermediary Milestones	Form of Milestone Deliverable	Anticipated Delivery Date
<b>1</b>	<b>6.1.2</b>	<b>Office of Emergency Operations / NA-40</b>	<b>Secretarial Direction to implement the revised Corrective Action Procedures</b>	<b>Copy of the Secretarial Directive</b>	<b>2-1-17</b>
		Office of Emergency Operations / NA-41	Report on pilot of the draft corrective action procedures		
		Office of Emergency Operations / NA-41	Draft revised corrective action procedures		
	6.1.3	DOE CIO	Report on the feasibility of an automated system		Complete
		Office of Emergency Operations / NA-41	Report of the current deficiencies		
		Office of Emergency Operations / NA-41	Memo for Deputy Secretary to PSOs on status of known deficiencies		Complete
<b>1</b>	<b>6.1.1.1</b>	<b>Office of Emergency Operations / NA-40</b>	<b>Secretarial Direction to implement the Risk Based Approach</b>	<b>Copy of the Secretarial Directive</b>	<b>5-2-17</b>
		Office of Emergency Operations / NA-41	Report on lessons learned from the Risk Based Oversight Approach pilot		
		Office of Emergency Operations / NA-41	Draft Risk Based Oversight Approach		
<b>1</b>	<b>6.1.1.2</b>	<b>Office of Emergency Operations / NA-40</b>	<b>Final Baseline Emergency Management CRAD for DNFs</b>	<b>Copy of issued CRAD</b>	<b>12-1-17</b>



Links to DNFSB Rec.	IP Section	Responsible Authority	Milestone Deliverables and Intermediary Milestones	Form of Milestone Deliverable	Anticipated Delivery Date
		Office of Emergency Operations / NA-41	Formal coordination draft Baseline Emergency Management CRAD for DNFs into RevCom		
		Office of Emergency Operations / NA-41	Informal coordination draft Baseline Emergency Management CRAD for DNFs		
		Office of Emergency Operations / NA-41	Justification Memo for Baseline Emergency Management CRAD for DNFs		
		Office of Emergency Operations / NA-41	Report on the pilot use of the draft Baseline Emergency Management CRAD for DNFs		
		Office of Emergency Operations / NA-41	Draft a Baseline Emergency Management CRAD for DNFs and lines of inquiry for assessing emergency management program effectiveness		Complete
		Office of Emergency Operations / NA-41	Finalize and promulgate training for use of the Baseline Emergency Management CRAD		Complete
		Office of Emergency Operations / NA-41	Draft and pilot training for use of the Baseline Emergency Management CRAD		Complete

## **8.0 SUMMARY**

The actions identified in this IP demonstrate DOE's commitment to DNFSB Recommendation 2014-1, embracing the performance improvement process for its emergency preparedness and response program. DOE line-management will maintain situational awareness, and ensure operational effectiveness of the complex-wide emergency management program while these IP actions are in progress. The proper and timely execution of these IP actions will ensure the DOE maintains reasonable assurance of adequate protection of worker and public health and safety in the event of an emergency. The IP actions will help strengthen and improve emergency planning and response efficiency and effectiveness of the Emergency Management Enterprise, and will address the intent of the DNFSB Recommendation 2014-1 in a systemic, measured and prudent fashion.

## **9.0 ORGANIZATION AND MANAGEMENT**

Under direction and supervision of the Deputy Secretary, execution of this IP is the responsibility of the Associate Administrator, NA-40, who is assigned as the Responsible Manager. The EIMC, chaired by the Deputy Secretary, will provide strategic direction and executive coordination as necessary for complex-wide IP actions, and make final determinations on the acceptability of completed milestones and the successful completion of the IP. The EIMC provides the forum for executive management decisions related to the adequate resourcing of the Emergency Management Enterprise.

The EMAC, chaired by NA-40, will support development, verification and assessment of the technical products and deliverables committed to in this IP. The cognizant field element members of the EMAC may be supported by contractors from DOE sites and national laboratories. Responsibility and accountability for implementing the directives resulting from actions described herein, as interpreted by the Office of Primary Interest under the supervision of the Deputy Secretary, resides with the PSO line-managers. DOE line-management will maintain situational awareness, and ensure operational effectiveness of the complex-wide emergency management program while these IP actions are in progress.

The Department will engage and consult with the DNFSB staff during the development of the products and deliverables identified in this IP to allow for DNFSB staff input. Supporting documents, briefings and analysis will be provided to the DNFSB staff in a timely manner, upon request, to facilitate informed participation of the DNFSB staff in this process. The Department will provide progress reports to the Board approximately every six months.

**Attachment 1 Acronyms**

Board or DNFSB	Defense Nuclear Facilities Safety Board
CRAD	Criteria and Review Approach Document
DNF	Defense Nuclear Facility
DOE or Department	Department of Energy
EIMC	Emergency and Incident Management Council
EMAC	Emergency Management Advisory Committee
EMI SIG	Emergency Management Issues Special Interest Group
ERAP	Emergency Readiness Assurance Plan
HQ	Headquarters
IP	Implementation Plan
NIMS	National Incident Management System
NRF	National Response Framework
OE-1	Operating Experience Level 1 document
PSO	Program Secretarial Office
Secretary	Secretary of the Department of Energy

## DOE Element Abbreviations:

NA-40	Office of Emergency Operations	NA-41	Office of Plans and Policy
EA	Office of Enterprise Assessments	Y-12	Y-12 National Security Complex
LLNL	Lawrence Livermore National Laboratory	NNSA	National Nuclear Security Administration
NSTec	Nevada Site Technology		

## Attachment 2 References

*DNFSB Letter from Chairman Connery to Secretary Moniz*, regarding acknowledgement of the intent to revise the DNFSB Recommendation 2014-1 Implementation Plan, dated 6-3-2016.

*DOE Letter from Secretary Moniz to Chairman Connery*, regarding the intent to revise the DNFSB Recommendation 2014-1 Implementation Plan, dated 5-26-2016.

*DOE Letter from Associate Administrator Wilber to Chairman Connery*, regarding the proposed revision to DOE Order 151.1C, dated 4-20-2016.

*DNFSB Letter from Chairman Connery to Secretary Moniz*, regarding DNFSB Recommendation 2014-1 implementation concerns, dated 2-8-2016.

DOE Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2014-1, *Emergency Preparedness and Response*, dated April 2015.

*DOE Letter from Secretary Moniz to Chairman Winokur*, dated 11-7-2014, regarding acknowledgement of the DOE receipt of DNFSB Recommendation 2014-1.

DNFSB Recommendation 2014-01, *Emergency Preparedness and Response*, dated 9-2-2014.

*A Report to the Secretary of Energy: Beyond Design Basis Event Pilot Evaluations*, dated January 2013.

*A Report to the Secretary of Energy: Review of Requirements and Capabilities for Analyzing and Responding to Beyond Design Basis Events*, dated August 2011.

DOE-IG-0657, *The Department's Continuity Planning and Emergency Preparedness*, dated 8-11-2004.

DOE IG-0845, *Improvements Needed in the Department's Emergency Preparedness and Continuity of Operations Planning*, dated 1-3-2011.

DOE O 151.1C, *Comprehensive Emergency Management System*, dated 11-2-2005.

DOE G 151.1-3, *Programmatic Elements*, dated 7-11-07.

DOE G 151.1-4, *Response Elements*, dated 7-11-07.

DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, dated 4-25-2011.

DOE O 251.1C, *Departmental Directives Program*, dated 1-15-2009.

DOE P 420.1, *Department of Energy Nuclear Safety Policy*, dated 2-8-2011.

**Attachment 2 References (continued)**

DOE O 420.1C Chg 1, *Facility Safety*, dated 12-4-2012.

DOE O 442.1A, *Department of Energy Employee Concerns Program*, dated 6-6-2001.

DOE O 442.2, *Differing Professional Opinions for Technical Issues Involving Environment, Safety and Health*, dated 7-29-2011.

DOE O 450.2, *Integrated Safety Management*, dated 4-25-2011.

DOE P 450.4A, *Integrated Safety Management Policy*, dated 4-25-2011.

Operating Experience Level 1 (OE-1) 2013-01, *Improving Department of Energy Capabilities for Mitigating Beyond Design Basis Events*, dated April 2013.