



Independent Assessment of the Emergency Management Program at the National Energy Technology Laboratory

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Acronyms

AAR	After-action Report
CATS	Corrective and Preventive Action Tracking System
CFR	Code of Federal Regulations
CRAD	Criteria and Review Approach Document
DOE	U.S. Department of Energy
EA	Office of Enterprise Assessments
EOC	Emergency Operations Center
EPHA	Emergency Planning Hazards Assessment
ERAP	Emergency Readiness Assurance Plan
ERO	Emergency Response Organization
FAQ	Frequently Asked Question
FERPM	Federal Emergency Response Program Manager
FY	Fiscal Year
GHS	Globally Harmonized System
ISO	International Organization for Standardization
MAA	Mutual Aid Agreement
MOU	Memorandum of Understanding
NETL	National Energy Technology Laboratory
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NOS	NETL Operations Section
NPS	NETL Planning Section
OFI	Opportunity for Improvement

INDEPENDENT ASSESSMENT OF THE EMERGENCY MANAGEMENT PROGRAM AT THE NATIONAL ENERGY TECHNOLOGY LABORATORY

Executive Summary

The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) conducted an independent assessment of the emergency management program at the National Energy Technology Laboratory's (NETL's) sites in Pittsburgh, Pennsylvania, and Morgantown, West Virginia. This programmatic assessment evaluated the effectiveness of NETL and its support contractor, Amentum, in managing and maintaining the emergency management program, as required by DOE Order 151.1D, *Comprehensive Emergency Management System*. The assessment was conducted between November 2023 and February 2024.

EA identified the following strength:

- NETL's primary emergency operations center at the Pittsburgh site was renovated to enhance response capabilities, and its alternate emergency operations center was strategically located to ensure that capabilities are available in the event of travel restrictions associated with a hazardous material release.

EA also identified several significant weaknesses with the emergency management program, including four findings that warrant a high level of attention from management:

- NETL has not implemented some aspects of its emergency management program effectively, including approvals of the emergency plan, hazards surveys, and implementing procedures every three years or when significant changes occur, as well as development of procedures that fully implement DOE policies. (Finding)
- NETL has not adequately identified and analyzed specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency and require further planning beyond the emergency management core program requirements. (Finding)
- NETL does not ensure that all DOE emergency management program elements are validated in exercises over a five-year period or perform comprehensive self-assessments that evaluate both readiness and effectiveness for some portion of all program elements annually. (Finding)
- NETL does not ensure that issues are properly categorized, that disposition of accepted issues is timely and rejected issues are documented in action logs, and that corrective action plans are comprehensive. (Finding)
- NETL has not developed hazards surveys that effectively address the hazardous material screening requirements of DOE Order 151.1D and associated policy interpretation from the DOE Office of Emergency Management Policy.
- The NETL emergency response organization is not staffed with a primary and at least one alternate for each position.

In summary, NETL has established and maintains an emergency management program that complies with many core program requirements at its Pittsburgh and Morgantown sites. However, EA identified weaknesses in program administration, technical planning basis, emergency response organization, and readiness assurance that could impact NETL's ability to ensure an effective and efficient response to emergency incidents. None of these weaknesses indicate that risks from a hazardous material release at NETL would be greater than the risks from hazardous material releases initiated by an offsite entity. Resolution of the concerns identified in this report would further enhance the NETL emergency

management program. EA will monitor corrective action implementation, as appropriate, and seek opportunities to evaluate future exercises and performance tests.

INDEPENDENT ASSESSMENT OF THE EMERGENCY MANAGEMENT PROGRAM AT THE NATIONAL ENERGY TECHNOLOGY LABORATORY

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) Office of Emergency Management Assessments, within the independent Office of Enterprise Assessments (EA), conducted a programmatic assessment of the DOE Office of Fossil Energy and Carbon Management's emergency management program at the National Energy Technology Laboratory (NETL). This assessment evaluated the effectiveness of NETL and its support contractor, Amentum, in managing and maintaining the NETL emergency management program at the Morgantown, West Virginia, and Pittsburgh, Pennsylvania sites. The elements of the emergency management program selected for evaluation were program administration, the technical planning basis, the emergency response organization (ERO), training and drills, offsite response interfaces, and readiness assurance. The scope and scheduling of this assessment were coordinated with NETL personnel. This assessment was conducted in accordance with the *Plan for the Independent Assessment of the Emergency Management at the National Energy Technology Laboratory, December 2023 - January 2024*. Assessment activities were conducted November 2023 to February 2024.

NETL is DOE's only government-owned, government-operated laboratory. NETL personnel manage the emergency management program, with contracted support from Amentum, to implement the emergency management core program requirements in DOE Order 151.1D, *Comprehensive Emergency Management System*. These include monthly reviews of chemical inventories and maintenance of hazards surveys; development and maintenance of emergency plans and procedures; maintenance and support of emergency facilities and equipment; conduct of training, drills, and exercises; and development of the annual emergency readiness assurance plan (ERAP).

2.0 METHODOLOGY

The DOE independent oversight program is described in and governed by DOE Order 227.1A, *Independent Oversight Program*, which EA implements through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. This report uses the terms "best practices, deficiencies, findings, and opportunities for improvement (OFIs)" as defined in the order.

As identified in the assessment plan, this assessment considered requirements related to DOE Order 151.1D. EA used portions of the following sections of EA CRAD 33-09, Revision 0, *DOE O 151.1D Emergency Management Program*, in its evaluation of the NETL emergency management program:

- 4.1 Program Administration
- 4.2 All Hazards Planning Basis
- 4.3 Emergency Response Organization
- 4.4 Emergency Operations System
- 4.5 Training and Drills
- 4.6 Offsite Response Interface
- 4.14 Readiness Assurance
- 4.15 Exercises.

EA examined key documents, such as hazards surveys, the site emergency plan and related implementing procedures, exercise plans, after-action reports (AARs), self-assessments, job aids, and other relevant programmatic documentation. EA also reviewed relevant supporting documentation, including manuals

that NETL personnel use to develop hazards surveys. To evaluate the accuracy and effectiveness of NETL's hazards surveys (one for each site) in arriving at the determination that NETL required a core program that complies with all-hazards planning basis requirements and not a hazardous material program, EA conducted walkdowns of the Morgantown and Pittsburgh facilities. The walkdown results were used to sample how some of the many chemicals in NETL inventories were screened from further quantitative analysis in an emergency planning hazards assessment (EPHA). Additionally, EA interviewed key personnel responsible for developing and executing the emergency management program, focusing on response processes. Finally, EA investigated the causes of discovered adverse conditions, such as insufficient training, ambiguous procedural guidance, or a lack of practice during drills. The members of the assessment team, the Quality Review Board, and the management responsible for this assessment are listed in appendix A.

There were no previous findings for follow-up addressed during this assessment.

3.0 RESULTS

3.1 Program Administration

This portion of the assessment evaluated whether NETL has established an emergency management program that (1) has the authorities and resources necessary to plan, develop, implement, and maintain a viable, integrated, and coordinated comprehensive emergency management system, and (2) complies with core program requirements.

NETL has designated the Federal Emergency Response Program Manager (FERPM) to serve as the program administrator for the emergency management program. The administrator is responsible for the overall execution of the emergency management program, ensuring that an all-hazards emergency management plan and implementing procedures are developed and maintained in a current, usable, and accessible state. Administrator duties include day-to-day emergency operations; maintaining access to personnel with authority for site and facility resources and operations; keeping senior leadership informed about the emergency management program and their expected roles during an emergency; ensuring that plans are integrated with other site-level programs and documents; and keeping the ERO and emergency facilities available and prepared to address potential emergencies. Finally, for emergencies that exceed the capabilities of the NETL ERO, the FERPM has entered into formal agreements with jurisdictional response agencies to ensure adequate support for such incidents as responses to fires beyond the incipient stage, security incidents, and severe incidents with regional impacts.

NETL formalizes program administrative requirements through sets of manuals and implementing procedures. With some exceptions noted in this section, the documents are generally adequate. The overarching document is Manual 151.1-01H, *Comprehensive Emergency Management System*, which addresses all the program elements of an emergency management core program as delineated in DOE Order 151.1D. Other implementing manuals and procedures for program execution include:

- 151.1-01.01, *Emergency Preparedness Drills and Exercises*
- 151.1-01.02, *Emergency Categorization, Classification, and Notification*
- 151.1-01.03, *Emergency Response Organization Position Specific Procedures for Morgantown and Pittsburgh*
- 151.1-01.08, *Emergency Preparedness Training and Appointment of Emergency Responders*
- 151.1-01.11, *Employee Emergency Response Actions*
- 151.1-01.13, *All Hazards Planning Basis*.

To facilitate consistent and timely incident response actions, NETL has appropriately designed and institutionalized forms that are used for performing personnel accountability, offsite notifications, incident action plans, news releases, and incident recovery and reentry planning. NETL manuals, implementing procedures, and forms are appropriately stored electronically in a controlled document system to ensure that emergency responders have prompt access to the latest document versions, and current hard copies are maintained for responders at each emergency operations center (EOC) and in incident command vehicles.

Although NETL has established and maintains an emergency management program that complies with many core program requirements, some aspects of program administration are not effectively implemented in accordance with DOE Order 151.1D, attachment 3, paragraphs 1, 8, 10, 11, and 13. These aspects include: (1) a plan or procedure that fully describes program administration requirements; (2) recorded approvals of the emergency plan, program documents, and procedures every three years or when significant changes occur; and (3) development of procedures that fully implement DOE requirements. (See **Finding F-NETL-1**.) Ineffective program administration reduces the ability to plan, prepare, and maintain a viable, integrated, and coordinated comprehensive emergency management system. Three aspects of program administration that are not effectively administered are explained below.

First, while some program administration information is included in the emergency plan, not all NETL program implementing mechanisms are sufficiently detailed to effectively implement all DOE order requirements. For example, NETL does not have a program administration procedure that clearly defines how the program will be administered. Missing details include the identification of key documents requiring approval, the manager approval authority, the method of recording approvals, and the frequency of document reviews and approvals. (See **OFI-NETL-1**.) DOE Order 151.1D identifies hazards surveys, the emergency plan, the annual exercise plan and schedule, AARs, and ERAPs as significant documents requiring approval by the field element or an appropriate Federal manager. NETL personnel stated that they are working to determine the appropriate approval level for important emergency management documents. As a result, NETL does not ensure that key documents are reviewed and updated in accordance with DOE Order 151.1D requirements.

Second, NETL's informal reviews of key emergency management program documents have not resulted in them being up-to-date and being recorded per DOE requirements. Significantly, although NETL ERAPs indicate that NETL has had a core emergency management program at both sites for the past five years, the emergency plan, which is reviewed annually, indicates that a hazardous material program has been in effect during the same period. Unlike core programs, hazardous material programs require the development of emergency action levels, pre-determined action levels, and a site emergency planning zone. Furthermore, there is no record of approval of the emergency plan within the three-year period as required by DOE Order 151.1D. NETL's document control records show that the emergency plan was last approved in 2017, although the plan's cover page is dated 2021, and the 2022 ERAP indicates that the plan was reviewed and approved in June 2022. Additionally, some NETL documents do not have either scanned or electronic signature approvals. (See **OFI-NETL-2**.) Similarly, NETL does not keep triennial review and approval records for hazards surveys, as required. NETL began revising the emergency plan and some procedures in November 2023 to remove references to a hazardous material program; these documents were still in a draft state at the time of this assessment. However, other implementing manuals, procedures, and checklists have not been updated in the past seven years, and they are designed to implement a hazardous material program, with references to offsite protective action recommendations for consequences beyond the site boundary, instructions for emergency notifications of offsite businesses and agencies, and references on how to coordinate a community evacuation during a catastrophic NETL incident.

Finally, some DOE order requirements are not fully addressed in plans or implementing documents, and some position-specific procedures implement policies that are contrary to those described in DOE Order 151.1D. (See **OFI-NETL-3**.) For example:

- Manual 151.1-01.02 requires the categorization of Operational Emergencies within 30 minutes, contrary to DOE Order 151.1D, attachment 3, paragraph 8.b, which requires sites to categorize emergencies as promptly as possible, but no later than 15 minutes after identification by the predetermined decision-maker for the categorization, and no more than 30 minutes from initial discovery.
- The emergency plan and its implementing manuals, procedures, and checklists do not require notification of affected employees no later than 10 minutes after the protective actions have been identified, contrary to DOE Order 151.1D, attachment 3, paragraph 10.b.
- The emergency plan and its implementing manuals, procedures, and checklists direct termination of incidents after event stabilization but prior to the development of a draft recovery plan that includes the identification of the recovery organization, contrary to DOE Order 151.1D, attachment 3, paragraph 13.b.

Program Administration Conclusions

Overall, NETL has established an emergency management program that complies with many core program requirements. The FERPM has been designated as the responsible position for emergency operations, including development and maintenance of an emergency plan and procedures that enable NETL to respond to Operational Emergencies. However, the emergency management program has not always been effectively implemented. Further, program implementing documents are not always sufficiently detailed so that they effectively identify implementing methodologies and roles for document approval, resulting in some DOE program administration requirements not being implemented at the required frequency and some key program documents not being updated when order requirements were revised and NETL program changes occurred.

3.2 Technical Planning Basis

This portion of the assessment determined whether (1) NETL has established a technical planning basis for the emergency management program, and (2) the hazards survey identifies all applicable hazards and contains a hazardous material screening process that identifies specific hazardous materials that, if released, could produce impacts consistent with an Operational Emergency.

The hazards survey serves as the foundation of NETL's emergency management program; consequently, its accuracy is key in developing effective emergency response procedures and other elements of the program. The degree to which the hazards survey effectively serves this function depends primarily on the effectiveness of the initial screening process for hazardous materials and the completeness and accuracy of the processes for developing the hazards survey. Manuals 151.1-01H and 151.1-01.13A, *All Hazards Planning Basis*, establish the site requirements and standard methods for developing and maintaining a hazards survey. The manuals outline the process and requirements for maintaining a hazards survey and identify the hazardous material screening process and requirements. NETL has prepared hazard surveys covering all NETL facilities/operations at Morgantown and Pittsburgh that provide accurate technical descriptions of the NETL facilities and areas; describe emergency incidents and conditions; and identify all the hazards applicable to the operation of NETL facilities, including chemical, radiological, explosive, and biological agents and toxins.

While manuals establish the site requirements and standard methods for developing and maintaining a hazards survey, NETL has not developed hazards surveys that effectively incorporate the hazardous material screening process requirements of DOE Order 151.1D and policy interpretation published by the DOE Office of Emergency Management Policy in frequently asked question (FAQ) 2105030001, dated May 3, 2021. The order requires the use of a hazardous material screening process to identify specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency. The order identifies specific sources for exclusions to be used as the basis for eliminating certain chemicals from further analysis in an EPHA. The sources include both (1) the health hazard ratings in National Fire Protection Association (NFPA) 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, and (2) the hazard category ratings for acute toxicity and corrosion/irritation (skin or eye) in the globally harmonized system (GHS). However, the DOE FAQ 2105030001 states that a site may use either NFPA 704 or GHS but cannot mix the two approaches. NETL's hazards surveys use both NFPA and GHS exclusions for screening hazardous materials, contrary to the FAQ policy interpretation. As a result, hazardous materials such as anhydrous ammonia have been inappropriately excluded from further analysis in the NETL hazards surveys.

In addition, some hazardous materials, such as nitrogen dioxide, do not meet the NFPA or GHS exclusion criteria but were inappropriately screened from further analysis, resulting in the potential need to develop and maintain an Operational Emergency hazardous material program. A hazardous material program would necessitate the development of emergency action levels, pre-determined protective actions, and a site emergency planning zone. Therefore, contrary to the requirements of DOE Order 151.1D, NETL has not implemented a screening process that identifies specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency. (See **Deficiency D-NETL-1** and **OFI-NETL-4**.)

Furthermore, a review of the hazards survey for the Pittsburgh site identified the presence of at least two hazardous materials, anhydrous ammonia and nitrogen dioxide, that do not meet the NFPA or GHS exclusion criteria. During a site walkdown, two cylinders of anhydrous ammonia were observed in the cylinder storage area at the Pittsburgh site. The NETL hazards survey identifies both anhydrous ammonia and nitrogen dioxide as being present in greater than laboratory scale quantities and having an NFPA health hazard rating of 3. Anhydrous ammonia has a GHS skin corrosion rating of 1 and nitrogen dioxide has an acute toxicity rating of 1, so neither chemical meets the exclusion criteria of NFPA 704 or GHS. Consequently, contrary to DOE Order 151.1D, attachment 3, paragraph 2.e, NETL has not adequately identified and analyzed specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency and would require further planning and preparedness beyond the emergency management core program requirements, including development of an EPHA, emergency action levels, pre-determined protective actions, and a site emergency planning zone. (See **Finding F-NETL-2**.) As a result, NETL has not developed thorough, order-compliant hazards surveys that provide a valid technical foundation commensurate with the sites' hazards. Although a NETL release of specific hazardous materials may result in Operational Emergency response actions, there is no evidence to indicate that risks from a hazardous material release at NETL would be greater than the risks from hazardous material releases initiated by an offsite entity.

Technical Planning Basis Conclusions

Overall, NETL has developed detailed manuals that establish the site requirements and standard methods for developing and maintaining a hazards survey; however, NETL has not appropriately developed hazards surveys that incorporate the relevant requirements of DOE Order 151.1D and the provisions of Manuals 151.1-01H and 151.1-01.13A. Consequently, NETL has not identified all appropriate hazards

and the potential consequences of unplanned releases of all appropriate hazardous materials to minimize emergency-related consequences and maximize life safety and health.

3.3 Emergency Response Organization

This portion of the assessment determined whether NETL has established an ERO with overall responsibility for initial and ongoing emergency response, consistent with a DOE emergency management core program and the National Incident Management System (NIMS).

NETL identifies ERO positions, roles and responsibilities, functions, and task instructions in two manuals. Manual 151.1-01H adequately describes the organization, functions, and responsibilities of the NETL ERO, and Manual 151.1-01.03, *Emergency Response Organization Position Specific Procedures for Morgantown and Pittsburgh*, provides detailed instructions for all ERO members at the Morgantown and Pittsburgh sites, including those who perform rescue duties and fire wardens who are responsible for ensuring that facility evacuation, sheltering, and personnel accountability are performed. Manual 151.1-01.03 includes a NETL ERO position-specific procedures handbook that includes adequate procedures for each ERO position and ERO forms for use during an emergency at NETL.

The NETL manuals consistently describe the ERO and its functions for an emergency management core program. The ERO is consistent with NIMS and primarily comprises a NETL Planning Section (NPS) in the EOC, led by the Emergency Director, and the incident command staff and a NETL Operations Section (NOS) in the field. The Emergency Director is the designated authority to implement the site's emergency management plan, categorize emergency incidents, and manage all aspects of emergency response. The Incident Commander has the responsibility for establishing control at the incident scene and directing response operations on site. The NPS and NOS consist of several specialized, trained, and equipped branches and groups to support the response to site emergencies.

The NPS occupies the EOC and supports the efforts of the NOS at the scene, interfaces with the public and external agencies, solves technical problems, performs required external notifications, keeps emergency records, and provides support and other resources to the affected facilities. NETL maintains dedicated EOC facilities at each site. Recently, Pittsburgh's primary EOC was renovated to enhance response capabilities, and its alternate EOC was strategically located to ensure that capabilities are available in the event of travel restrictions associated with a hazardous material release. In addition, the Morgantown and Pittsburgh EOCs use videoconferencing software during emergencies to help maintain situational awareness and ensure that all emergency responders have a common operating picture.

The NOS is equipped to mitigate all-hazard emergencies, including limited emergency medical, fire, hazardous material, and applicable rescue emergencies. The NOS Hazardous Materials and Rescue Branch is responsible for performing search and rescue operations and securing critical equipment in a hazardous environment. NETL has formal agreements in place with local offsite response organizations to supplement its limited resources, as described in section 3.5 of this report.

Despite the robust documentation associated with the ERO, NETL is experiencing difficulties in maintaining an effective ERO capability due to staffing shortages. Challenges associated with previous pandemic-related restrictions that increased the telework/remote work employee population have impacted NETL's ability to maintain a fully staffed ERO. As a result, the NETL ERO is not currently staffed with a primary and at least one alternate for each ERO position, as required by DOE Order 151.1D, attachment 3, paragraph 3.d. (See **Deficiency D-NETL-2.**) Without a fully staffed ERO, NETL's ability to effectively respond to emergencies cannot be ensured. The NETL ERO for all three sites currently has 128 vacancies out of 212 positions, and NETL has determined that ERO position changes are necessary to effectively staff the ERO. The recommended changes are documented in a

NETL position paper, *Emergency Response Organization (ERO) Consolidation Assessment*, which recommends eliminating some positions and transferring responsibilities to existing positions or to a newly created Logistics Section position.

Emergency Response Organization Conclusions

NETL manuals describe an ERO consistent with a DOE emergency management core program and NIMS. The manuals adequately describe the organization, functions, and responsibilities of the NETL ERO and provide detailed instructions for all ERO members at the Morgantown and Pittsburgh sites, including those who perform rescue duties and fire wardens who are responsible for ensuring that facility evacuation, sheltering, and personnel accountability are performed. However, previous pandemic-related restrictions that increased the telework/remote work employee population have impacted NETL's ability to maintain a fully staffed ERO, with a primary and an alternate for each ERO position.

3.4 Training and Drills

This portion of the assessment determined whether NETL has established a comprehensive, coordinated, and documented program of training and drills as an integral part of the emergency management program to ensure that program-specific emergency response capabilities are present and maintained.

NETL Manual 151.1-01.08 establishes the framework for an adequate training program to prepare and maintain ERO members' knowledge, skills, and abilities for responding to site emergencies. The manual includes a framework for appointing emergency responders and provides guidance for initial training courses, and annual refresher training requirements including drill and exercise participation, for each ERO position. The manual appropriately requires annual review and update of lesson plans, as needed. NETL also provides general employee emergency response training to all onsite workers who may be required to take protective actions. This training, which is updated annually, is administered annually via a computer-based training module to employees, and to new employees as part of their orientation. Initial ERO training includes computer-based training courses for ICS 100, *Introduction to the Incident Command System [ICS]*, and ICS 700, *An Introduction to the NIMS*, as well as foundational information about the site's emergency response concept of operations and appropriate position-specific information about roles and responsibilities, including the plans, procedures, job aids, and emergency equipment and systems applicable to each position.

Based on a review of the training curriculum and qualification requirements and attendance records, NETL has adequately implemented the ERO training program. Prerequisite training and certifications for some ERO positions at the incident command post require a degree, certification by a national or a state organization, or professional standing and accepted experience. Additional just-in-time training forms are in place for specialized skill training of incident command post members. Likewise, ERO members in the Hazardous Materials and Rescue Branch take appropriate computer-based training in hazardous waste operations (HAZWOPER). The training curriculum is further defined in adequate lesson plans for ERO members, consisting of slide presentations with instructor notes and a lessons-learned component derived from drills and exercises. To demonstrate mastery of the training material, ERO members must satisfactorily complete a written examination and participate in a drill or exercise in their position before they are determined to be fully qualified. To maintain acquired skills, position-specific refresher training is required annually.

Also, for ERO members assigned to the Hazardous Materials and Rescue Branch, attendance at monthly position-specific operations training is required to meet 29 CFR 1910.120(q), *Emergency response to hazardous substance releases*, requirements in addition to medical examination requirements. Training course offerings, which include a description of all monthly training topics for members of the Hazardous

Materials and Rescue Branch of the ERO, are appropriately identified in an annual training plan. Attendance at training sessions is documented using formal training attendance forms. At the end of December 2023, NETL records indicated that ERO position-specific training at both sites was 100% complete; however, 14 ERO members from the Morgantown and Pittsburgh sites were delinquent in incident command training, and 5 ERO members had not completed their annual drill participation requirement. (See **OFI-NETL-5**.) First responders from offsite agencies who may support emergency response efforts at NETL sites are offered training, drills, and exercises annually, as described appropriately in Manual 151.1-01.08 and Manual 151.1-01.01H, *Emergency Preparedness Drills and Exercises*.

NETL conducts an adequate drill program in accordance with a drill and exercise plan that is published annually. Per Manual 151.1-01.08, the FERPM reviews the results of drills and exercises from the preceding year to determine whether there are corrective actions that can be resolved by training, to highlight findings and OFIs, and to determine whether any corrective actions have changed operational instructions for the ERO. In addition to Manual 151.1-01.08 drill requirements, Manual 151.1-01.01H also describes emergency drill and exercise requirements for NETL employees and ERO members. NETL ensures that employees in each building with personnel assigned to it participate in at least one fire evacuation drill each year. During those drills, fire wardens are required to check all workspaces for personnel who may be unable to evacuate the area, perform personnel accountability at the assigned assembly area, and report results to the designated fire warden branch director or designated environment, safety, and health staff representative. Also, NETL conducts quarterly communication drills to ensure the operability of required emergency communication devices. Finally, full-scale exercises, functional drills, and tabletop exercises are conducted annually, which provides most ERO members with an opportunity to demonstrate proficiency in at least one drill or exercise annually. Lessons learned from drills and exercises are included in the next annual ERO refresher training for the benefit of the entire ERO.

Although NETL maintains a compliant emergency management training program for employees and ERO members, the following weaknesses were identified:

- NETL does not conduct regular recall communication drills with ERO members to verify that all ERO positions can be staffed in a timely manner. (See **OFI-NETL-6**.)
- Several key ERO positions have more than three personnel assigned to them, so some personnel may not have the opportunity to perform their assigned roles annually in a drill or exercise. However, NETL personnel indicated that ERO members who do not have an opportunity to perform their assigned roles annually are asked to observe their assigned position being performed in drills each year, and that ERO members self-regulate to ensure that the same people do not observe every year. Although drill attendance records do not distinguish between ERO members who observe a drill or exercise and those who perform their assigned role, NETL was confident that ERO members perform their assigned role at least every other year. No role-play drills or other methods to demonstrate competency are conducted to demonstrate the proficiency of ERO members who do not have an opportunity to demonstrate proficiency in their assigned ERO position annually. (See **OFI-NETL-7**.)
- NETL could not demonstrate that lessons learned, best practices, and deficiencies are incorporated into training documents annually because NETL lesson plans are not formally managed via a document control system. Lesson plan slides do not have document control numbers or revision dates, and no previous versions of lesson plans were available for review. (See **OFI-NETL-8**.)

Training and Drills Conclusions

Overall, NETL maintains a training and drill program that complies with DOE requirements. Annual emergency training is provided to all employees, and ERO members receive appropriate position-specific

and incident command training, pass qualification exams, and complete annual exercise participation requirements. However, NETL does not conduct recall communication drills with ERO members to verify that key positions can be staffed in a timely manner; some key ERO positions with more than three members do not have an opportunity to demonstrate proficiency annually; and lesson plans are not formally managed using a document control system to ensure that regular updates occur and revisions are tracked.

3.5 Offsite Response Interfaces

This portion of the assessment determined whether NETL has established and maintained interfaces with local, state, tribal, and Federal organizations responsible for emergency response or that may be called on to supplement response capabilities based on threats/hazards identified in the all-hazards planning basis, including planning for severe events.

The FERPM is the NETL liaison with community response agencies and is the representative to the local emergency planning committee (LEPC). NETL actively participates on the LEPC, and the FERPM also verbally invites and provides annual briefings to all offsite first responder agencies who may respond to events at NETL sites and invites offsite agencies to participate in relevant drills and exercises annually, as required. However, briefings on site hazards are made informally at LEPC meetings or via phone calls, and invitations to participate in site drills and exercises annually are made informally as well. NETL provided no written documentation to show that briefings to offsite agencies and invitations to participate in drills or exercises are given annually. (See **OFI-NETL-9**.)

NETL has developed formal mutual aid agreements (MAAs) and memoranda of understanding (MOUs) with the following offsite emergency response agencies for support of emergencies at the Morgantown and Pittsburgh sites:

- Broughton Fire Department
- Monongalia County Health Department
- Monongalia Emergency Centralized Communications Agency
- Monongalia Emergency Medical Services
- Morgantown Fire Department
- Monongalia General Hospital
- Morgantown Police Department
- Ruby Memorial Hospital
- South Park Police Department
- U.S. Department of Health and Human Services Centers for Disease Control and Prevention National Institute for Occupational Safety and Health.

In addition, NETL has worked with the Pennsylvania Department of Health to document a Point-of-Dispensing (POD) that could be implemented if circumstances warranted. According to the emergency plan, the Morgantown Fire Department will respond to the Morgantown site when requested, direct and conduct firefighting and fire control activities, conduct search and rescue operations, and coordinate its response with NETL's response. The Monongalia Emergency Medical Services will supply medical support to the Morgantown site, including triage, patient stabilization, and patient transport from a triage area to a fixed medical facility. At the Pittsburgh site, the Broughton Fire Department will respond when requested and perform structural firefighting, vehicle rescue, and hazardous materials response. Tri-Community South Emergency Medical Services will provide medical support to the Pittsburgh site as needed, including triage, patient stabilization, and patient transport to a medical facility. NETL has developed a services contract with Tri-Community instead of an MAA. (See **OFI-NETL-10**.)

NETL self-identified that many MAAs are not current and need updating. All NETL MAAs are currently under review and are being converted to MOUs; some have been completed, and others are in draft status. The new MOUs are expected to contain additional clauses enhancing NETL's relationships with offsite responders.

Offsite Response Interfaces Conclusions

Overall, NETL has appropriate and effective interfaces with offsite agencies and is updating its MOUs and MAAs. The FERPM indicated that annual briefings on hazards and invitations to participate in drills and exercises are offered to offsite agencies annually. However, NETL has no formal records to show that annual briefings are provided to offsite first responders or that invitations to participate in drills and exercises are sent to offsite agencies.

3.6 Readiness Assurance

This portion of the assessment determined whether NETL has established a framework and associated mechanisms for ensuring that emergency management is effective on a programmatic and performance level, through critical self-assessments, while promoting a culture of continuous improvement through effective corrective actions.

3.6.1 Evaluations

This portion of the assessment determined whether NETL's emergency management program includes evaluations consisting of exercises, assessments, and performance indicators that validate site plans and procedures and promote program improvement, as required by DOE Order 151.1D.

Exercises

NETL has established the framework for an adequate exercise program to test and validate emergency plans and procedures for responding to site emergencies. NETL documents exercise requirements in Manual 151.1-01.01H, which provides adequate direction for planning, developing, conducting, and evaluating exercises, including evaluated drills, for an emergency management core program. NETL implements the requirements in accordance with an annual drill and exercise plan published for each fiscal year (FY). Each plan, in the past three years, was consistent with the Department of Homeland Security Exercise and Evaluation Program (HSEEP), as required, and scenarios for annual exercises have rotated among the hazards and risks identified in the all-hazards planning basis. NETL invites offsite first responders to participate in a relevant full-scale exercise at least annually but does not formally document the invitations, as discussed in section 3.5. AARs developed over the past three years validated many capabilities of NETL's emergency management program. AARs were formatted per the approved HSEEP template, and improvement areas identified in the reports were appropriate and insightful. In addition, exercise planners ensure that scenarios are rotated to test various response capabilities and include objectives to test capabilities and DOE program elements.

While NETL's framework for an exercise program is adequate, NETL's exercise program does not ensure that all program elements and response capabilities are periodically and adequately evaluated. Manual 151.1-01.01H does not reference a list of emergency response capabilities or the frequency for testing the various response capabilities to ensure proficiency. Additionally, in the reviewed exercise plans and AARs, most objectives were written to assess only small portions of DOE program elements, without ensuring full validation. (See **OFI-NETL-11**.) Exercise packages average between four and six objectives, which is insufficient to ensure that ERO response is effective and that all programmatic

elements are validated over a five-year period as required. Each exercise package contained an objective related to EOC response, but most of these objectives were written to test whether responders had “adequate knowledge” of a particular hazard, not whether ERO members could perform each of their assigned functions in a manner that effectively mitigates an emergency and protects personnel. For example, an objective pertaining to emergency public information was written for a 2023 exercise, but it only tested whether the public information team could establish a media briefing area, not whether the NETL public information team could provide accurate and timely information to the media, the public, and employees, or monitor and correct misinformation. NETL indicated that during the five-year period evaluated, the exercise program was severely impacted by pandemic-related restrictions. The program is still recovering from those impacts.

Similarly, several emergency categorization objectives were tested over the past five-year period to ensure that incidents were categorized “promptly,” but none of them were written to ensure that emergencies were categorized no later than 15 minutes after identification and no more than 30 minutes from initial discovery, and the 2023 exercise evaluation guides did not include criteria pertaining to time requirements for categorization. Furthermore, while a 2023 exercise evaluation guide included a reference to termination, no objectives related to termination were tested during the five-year review period, and no aspects of the recovery program element were validated. Consequently, contrary to DOE Order 151.1D, attachment 3, paragraph 14.a.(1)(a), NETL’s emergency management program does not ensure that all DOE program elements are fully assessed or validated through exercises over a five-year period. (See **Finding F-NETL-3.**) Without regular validation of program elements, the ERO’s ability to respond to emergencies effectively cannot be ensured.

AARs identified several important issues even though they could not be associated with any of the objectives included in exercise packages. However, NETL personnel stated that some issues included in AARs are inaccurate, and AARs are approved without verifying that the issues described are accurate. (See **OFI-NETL-12.**) NETL rejected some of the corrective actions identified in AARs after concluding that the issues as described in the AARs were inaccurate, but the AARs had not been corrected at the time of this assessment.

Assessments

The emergency plan incorporates the required DOE provisions for conducting assessments, although implementing manuals are not sufficiently detailed. The emergency plan states that NETL will conduct annual, internal readiness assurance assessments of its emergency management programs, and that NETL is self-assessed through drills, exercises, manual reviews, and targeted assessments against externally developed criteria. Implementing procedures are provided by Manual 450.4-01.02, *ES&H [environment, safety, and health] Assessments Process*. The manual requires annual self-assessments but does not detail how they are to be conducted. (See **OFI-NETL-13.**)

NETL’s process for conducting assessments is ineffective because it does not ensure that all program elements are assessed rigorously. NETL conducts annual reviews of emergency plans and procedures and conducts self-assessments of the emergency management program using the International Organization for Standardization (ISO) and Occupational Health and Safety Assessment Series certification program. Assessments result in findings or OFIs that are resolved as discussed in section 3.6.2. The 2021 ISO report, which included a review of Manual 151.1-01.02, did not have any findings or OFIs pertaining to emergency management. The 2022 ISO report contained several OFIs pertaining to the corrective action process at NETL, including an OFI stating that some issues were not being tracked properly in the Corrective and Preventive Action Tracking System (CATS). The 2023 ISO report contained a strength related to the hazards identification and assessment process, as well as an OFI related to emergency response roles and responsibilities. However, while ISO assessments cover some DOE program

elements, NETL does not use a CRAD with NETL-specific programmatic and performance-based assessment criteria to ensure a rigorous annual self-assessment of both readiness and effectiveness for all program elements. ISO self-assessments do not currently ensure an in-depth assessment of all programmatic requirements. For example, the 2023 self-assessment states that hazard screening is a program strength, even though the Pittsburgh hazards survey contains contradictions, as described in section 3.2 of this report.

Because NETL's self-assessment reports are not comprehensive in assessing both readiness and effectiveness for some portion of all program elements annually, NETL has not established a readiness assurance program that serves to ensure the readiness and effectiveness of its emergency management program on both programmatic and performance levels, contrary to DOE Order 151.1D, attachment 3, paragraph 14. (See **Deficiency D-NETL-3.**) Comprehensive assessments of emergency management programs are necessary to ensure that emergency plans, procedures, emergency response activities, and resources are adequately implemented, periodically validated, and sufficiently maintained.

Performance Indicators

NETL is compliant with DOE Order 151.1D requirements for participating in a performance indicator program. NETL emergency management participates in a metrics program managed by the NETL Environmental, Health, and Safety and Emergency Management Directorate. Metrics are analyzed quarterly to identify where underperformance may be occurring. Emergency management metrics in this system measure drill and exercise completion and participation rates at each site, including participation in an off-hours building evacuation drill. In addition, NETL maintains emergency management program metrics required for inclusion in the ERAP. While compliant, the performance indicator program could not be linked to specific program improvements. (See **OFI-NETL-14.**)

Evaluations Conclusions

Overall, NETL's exercise, self-assessment, and performance indicator programs are ineffective in identifying areas needing improvement. Exercise evaluation guides are not required or used by exercise evaluators, and not all program elements are fully validated in exercises. In addition, self-assessments conducted by NETL do not evaluate some portion of all program elements annually, nor do they evaluate program effectiveness. NETL conducts self-assessments for emergency management using various sections of the ISO standards but does not conduct adequate annual programmatic and performance-based self-assessments of some portion of all DOE program elements as required. The performance indicator program consists of the ERAP reports but cannot be linked to program improvements.

3.6.2 Program Improvements

This portion of the assessment determined whether NETL makes appropriate and timely improvements, consisting of corrective actions and lessons learned, when issues are identified, as required by DOE Order 151.1D.

Corrective Actions

NETL meets DOE requirements by developing corrective actions for findings identified during evaluations, assessments, drills, exercises, and actual emergencies, and uses a formal system to track the completion of corrective actions. The FERPM approves corrective actions and tracks the completion of corrective actions for findings and OFIs using Manual 450.1-01.04K, *Corrective and Preventive Management*. The manual requires all issues identified at NETL to be categorized as a finding, an OFI, or a best management practice. The manual indicates that a Federal NETL gatekeeper determines which

issues will be entered into CATS but does not identify what level of management must approve corrective action plans. The FERPM approves all corrective action plans, including those for external assessments.

A senior-level manager typically approves corrective action plans for issues from both external assessments and contractor-led full-scale exercises. If an issue is identified as a finding, Manual 450.1-01.04K requires further designation as either a non-compliance or a non-conformance. The procedure does not include a category for deficiencies; however, the 2023 NETL ERAP described NETL OFIs as deficiencies, as explained later in section 3.6.3. Manual 450.1-01.04K requires that NETL enter corrective actions for issues categorized as both findings and OFIs into CATS, unless the issue is rejected or has been fully addressed and can be immediately closed. It also requires that OFIs be treated no differently from findings, including root cause analysis, verification of proper closure, and auditing to ensure that root causes were addressed and corrective actions are effective. AARs include an improvement plan that is attached as an appendix. After the FERPM approves AARs, proposed corrective actions in the improvement plan are accepted or rejected. Once proposed corrective actions are accepted, the FERPM categorizes issues as findings or OFIs and enters them into CATS. If the proposed corrective action for an issue is rejected, an entry must be made in an action log that explains the reason for rejection. In 2023, issues for all exercises conducted during the year were entered into a single action log, indicating that exercise issues were not dispositioned for entry into CATS in a timely manner after the completion of each exercise. (See **OFI-NETL-15.**)

The NETL site manual complies with the corrective action requirements described in DOE Order 151.1D, attachment 3, paragraph 14.b.(1). However, while NETL's corrective action process is compliant with DOE Order 151.1D, the emergency management program does not effectively ensure that: (1) issues identified during programmatic assessments and exercise evaluations are accurately categorized, (2) accepted issues are entered into CATS in a timely manner and rejected issues are dispositioned in action logs, or (3) corrective action plans are comprehensive, as required by Manual 450.1-01.04K. (See **Finding F-NETL-4.**) Proper and timely identification, categorization, documentation, and disposition of corrective actions are necessary for continuous improvement.

First, the FERPM does not ensure that issues are accurately categorized, as required by Manual 450.1-01.04K. None of the emergency management issues identified by NETL in the last three years were categorized as findings, even though some issues involved non-compliances or non-conformances with requirements. For example, the proposed corrective action for a significant unified command issue identified in the 2023 full-scale exercise at Morgantown was rejected, and no revised corrective action was developed. The AAR states that "unified command dissolved and joint decision-making was lost," resulting in problems with hazardous materials response and patient rescue. DOE Order 151.1D requires sites to ensure a common operating picture during emergencies, which the AAR states that the site did not have. However, the corrective action for this issue was rejected on the basis that the issue was simply a "communication breakdown" between the Morgantown Police Department and NETL. Consequently, the issue was not entered into CATS, and no further action was taken. When asked during an interview why none of several significant issues over the past several years were identified as findings, NETL personnel indicated that leniency in issue categorization is sometimes reasonable and appropriate. In 2023, the FERPM recognized that field play restrictions caused by the pandemic affected responder proficiency but decided that players would have viewed categorization of issues as findings in 2023 as unfair or unnecessarily harsh.

Second, accepted issues are not always entered into CATS in a timely manner and rejected issues are not always dispositioned in action logs, contrary to Manual 450.1-01.04K. Numerous issues from exercise and self-assessment reports between 2021 and 2023 were not entered into CATS, with no documented explanation for these omissions. The 2022 ISO self-assessment report contained several OFIs pertaining to the corrective action process at NETL, including an OFI stating that some issues were not being

tracked properly in CATS. Although the assessment indicated that the problem could be systemic, an OFI was recommended, instead of a non-conformance, based on an assumption that pending improvements to CATS would resolve the problem, and the recommended OFI was never entered into CATS. The FERPM stated that NETL currently has a backlog of corrective actions that have not yet been entered into CATS. NETL processes allow the FERPM to approve reports considered inaccurate, as explained in section 3.6.1, and then reject the associated corrective actions that were developed by evaluators; however, the reasons for rejection must be documented in an action log. For each of the full-scale exercises conducted in 2023, an action log was appropriately created to identify which corrective actions were accepted or rejected and to state the rationale for rejections. However, no action logs were created for the corrective actions identified in tabletop exercise AARs, full-scale exercise AARs prior to 2023, or for any of the self-assessment reports reviewed during the assessment, contrary to Manual 450.1-01.04K. Closing issues before they are entered into a tracking system, as NETL policies allow, eliminates audit trails and hampers NETL's ability to identify issue trends.

Finally, the FERPM does not ensure that corrective action plans are comprehensive, as Manual 450.1-01.04K requires. None of the reviewed corrective actions included the action steps required by NETL policies, including documenting the required process, procedure, and system changes; identifying controls necessary to prevent recurrence; identifying employee training requirements; and documenting anticipated resource requirements. For example, when NETL self-identified that a significant number of ERO members had resigned and that NETL was unable to attract new volunteers to fill open positions, as explained in section 3.3, a single corrective action stating that the ERO required restructuring was identified. Although Manual 450.1-01.04K requires identification of root and contributing causes for findings and OFIs, the corrective action plan does not address all root and contributing causes. A restructuring plan was developed to address the issue, but no corrective action steps were developed to ensure that the ERO can adequately respond to emergencies until restructuring occurs; that emergency plans, manuals, procedures, checklists, and lesson plans are revised to describe the restructuring; that the ERO is trained on new processes; or that drills and exercises are conducted to validate the effectiveness of restructuring. During interviews, NETL management stated that interim compensatory measures are not needed for this issue because key ERO positions are fully staffed. NETL management also stated that multiple corrective action steps can be entered into CATS, but the responsible persons must ensure that individual action owners stay on track because the system is not capable of tracking action steps separately. (See **OFI-NETL-15**.)

Lessons Learned

In 2023, NETL began participating in the DOE corporate lessons-learned program, issuing bulletins with lessons learned from other DOE sites that it determined were applicable to NETL employees. However, no lessons learned pertaining to emergency management issues from other DOE sites had been issued at the time of this assessment.

Program Improvements Conclusions

Overall, NETL has developed a DOE-compliant program manual for an emergency management improvement program that includes direction related to corrective actions and lessons learned. NETL is required to identify issues as findings and OFIs that are tracked to closure using an issues management system. In addition, NETL includes lessons learned in most ERO lesson plans for review during annual position-specific training. However, NETL does not always adhere to site manual requirements to ensure that issues identified during programmatic assessments and exercise evaluations are adequately categorized, that entry and disposition of issues in CATS are timely and properly documented, or that corrective actions are comprehensive and address all root and contributing causes.

3.6.3 Emergency Readiness Assurance Plans

This portion of the assessment determined whether NETL issues adequate ERAPs using the format and content guidelines provided by the Program Secretarial Officer.

The contents of NETL ERAPs adhere to Program Secretarial Officer requests for information. NETL submits an annual ERAP that summarizes readiness assurance activities and achievements, provides results of metrics, and highlights significant changes in emergency management programs, as well as onsite hazards. NETL ERAPs in FY 2021 and FY 2022 were submitted and approved following the approved format designed to help verify that emergency plans, implementing procedures, and resources are adequate, sufficiently maintained, and exercised. NETL ERAPs highlight significant changes in emergency management programs and compare actual achievements to goals, milestones, and objectives. The FY 2021 and FY 2022 ERAPs appropriately documented progress made during the FY, including assessments conducted and corrective actions closed, and presented proposed program enhancements for the upcoming FY. Although a 2023 ERAP was drafted in November 2023, an extension to the deadline was submitted on November 21 and NETL did not submit the ERAP to DOE Headquarters until January 23, 2024. NETL stated that problems with DOE-HQ's new ERAP system made it difficult to accurately complete the ERAP, causing the delay in ERAP submission as well as some inaccurately reported data. For example, even though all NETL issues identified during 2023 exercises were considered OFIs, they were intentionally entered into the system as deficiencies. NETL stated there was no option to enter the issues as OFIs but wanted DOE-HQ to be aware of the issues identified. One OFI that was identified in the 2023 ISO self-assessment report should have been reported in the self-assessments portion of the 2023 ERAP but was inadvertently omitted.

Emergency Readiness Assurance Plans Conclusions

Overall, NETL submits ERAPs that contain appropriate information and summarize readiness assurance activities and achievements.

4.0 BEST PRACTICES

No best practices were identified during this assessment.

5.0 FINDINGS

Findings are deficiencies that warrant a high level of attention from management. If left uncorrected, findings could adversely affect the DOE mission, the environment, the safety or health of workers and the public, or national security. DOE line management and/or contractor organizations must develop and implement corrective action plans for findings. Cognizant DOE managers must use site- and program-specific issues management processes and systems developed in accordance with DOE Order 226.1, *Implementation of Department of Energy Oversight Policy*, to manage the corrective actions and track them to completion.

Finding F-NETL-1: NETL has not administered some aspects of its emergency management program effectively in accordance with DOE requirements, including approvals of the emergency plan, hazards surveys, and implementing procedures every three years or when significant changes occur, and development of procedures that fully implement DOE policies. (DOE Order 151.1D, att. 3, par. 1, 8, 10, and 13)

Finding F-NETL-2: NETL has not adequately identified and analyzed specific hazardous materials and quantities that, if released, could produce impacts consistent with the definition of an Operational Emergency and require further planning beyond the emergency management core program requirements. (DOE Order 151.1D, att. 3, par. 2.e)

Finding F-NETL-3: The NETL emergency management program does not ensure that all DOE program elements are validated in exercises over a five-year period, or that self-assessments are comprehensive, assessing both readiness and effectiveness for some portion of all program elements annually. (DOE Order 151.1D, att. 3, par. 14)

Finding F-NETL-4: NETL does not adequately ensure that issues identified during programmatic assessments and exercise evaluations are properly dispositioned and categorized, that disposition of issues is timely and issue rejections are documented in action logs, and that corrective action plans are comprehensive. (Manual 450.1-01.04K)

6.0 DEFICIENCIES

Deficiencies are inadequacies in the implementation of an applicable requirement or standard. Deficiencies that did not meet the criteria for findings are listed below, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

Deficiency D-NETL-1: NETL has not developed hazards surveys that effectively incorporate hazardous material screening process requirements. (DOE Order 151.1D and policy interpretation published by the DOE Office of Emergency Management Policy in FAQ 2105030001, dated May 3, 2021)

Deficiency D-NETL-2: The NETL ERO is not currently staffed with a primary and at least one alternate for each ERO position. (DOE Order 151.1D, att. 3, par. 3.d)

7.0 OPPORTUNITIES FOR IMPROVEMENT

EA identified the OFIs shown below to assist cognizant managers in improving programs and operations. While OFIs may identify potential solutions to findings and deficiencies identified in assessment reports, they may also address other conditions observed during the assessment process. These OFIs are offered only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions that may assist site management in implementing best practices or provide potential solutions to issues identified during the assessment.

OFI-NETL-1: Consider developing a program administration procedure that clearly defines how NETL's emergency management program will be administered, including a list of key documents requiring approval, what level of management must approve each one, and when these documents must be updated or approved. Also, within this procedure, consider assigning some of the oversight duties of the field element manager, as described in DOE Order 151.1D, appendix A, paragraph 10, to a senior level NETL manager, particularly approval of the emergency plan and hazards survey documents.

OFI-NETL-2: Consider ensuring that emergency management documents are maintained in a document control system that requires either scanned or electronic signature approvals.

OFI-NETL-3: Consider revising emergency plans, manuals, procedures, and position-specific checklists to fully address DOE Order 151.1D requirements, including the following revisions:

- Revise Manual 151.1-01.02 to require the categorization of Operational Emergencies as promptly as possible, but no later than 15 minutes after identification by the predetermined decision-maker for the categorization and no more than 30 minutes from initial discovery, in accordance with DOE Order 151.1D, attachment 3, paragraph 8.b.
- Revise the emergency plan and its implementing manuals, procedures, and checklists to require notification of affected employees no later than 10 minutes after the protective actions have been identified in accordance with DOE Order 151.1D, attachment 3, paragraphs 10.b and 11.a.(3).
- Revise the emergency plan and its implementing manuals, procedures, and checklists to require the development of a recovery plan outline that includes the identification of the recovery organization prior to event termination, in accordance with DOE Order 151.1D, attachment 3, paragraph 13.b.

OFI-NETL-4: Consider developing a manual or procedure that describes how hazardous material screening should be conducted. The procedure should include detailed guidance on hazardous material screening, including the application of exclusion criteria, that will ensure appropriate evaluation of all hazardous materials at NETL facilities.

OFI-NETL-5: Consider adding ERO position responsibilities to job descriptions for key positions, such as incident commanders, and including ERO training requirement completion as part of annual performance reviews for those positions. In addition, consider offering incentives to encourage more ERO participation, with the caveat that annual training and drill participation requirements must be met. Finally, ensure personnel are not added to rosters as qualified ERO members until all initial training requirements are completed, including incident command training and drill participation.

OFI-NETL-6: Consider establishing reasonable time limits for the activation of emergency facilities in procedures and then conducting regular communication drills with ERO members to verify that all ERO positions can be staffed in a timely manner.

OFI-NETL-7: Consider conducting one-on-one role-play drills with ERO members who do not have an opportunity to participate in a drill or exercise annually to ensure that they can demonstrate proficiency in their assigned positions.

OFI-NETL-8: Consider managing emergency management lesson plans using NETL's document control system.

OFI-NETL-9: Consider sending formal letters of invitation to offsite agencies for participation in annual exercises and asking offsite emergency responders to sign participation rosters when they attend annual briefings on NETL hazards, in order to document that DOE order requirements have been met.

OFI-NETL-10: Consider coordinating a mutual support agreement with the Allegheny County Hazardous Materials Team.

OFI-NETL-11: Consider developing a comprehensive set of objectives and exercise evaluation criteria designed to fully test all DOE program elements, as well as a complete list of emergency capabilities needed to respond to the full spectrum of potential NETL emergencies, and then assigning a frequency for testing these objectives and capabilities to ensure proficiency so that the information can be used to develop a five-year exercise plan that ensures all DOE elements are fully tested over a five-year period.

OFI-NETL-12: Consider consulting with players as needed to ensure that AARs are accurate prior to approval and distributing approved AARs to players for the purpose of sharing lessons learned.

OFI-NETL-13: Consider developing a manual or procedure that describes how self-assessments should be conducted. The procedure should include or reference a CRAD document for conducting emergency management self-assessments that include appropriate lines of inquiry to ensure that all DOE program elements are fully assessed over a five-year period.

OFI-NETL-14: Consider enhancing NETL's performance indicators for emergency management so that performance trends can be identified over time and program improvements can be made, if necessary. Emergency preparedness metrics could monitor the status of identified problem areas, such as the average number of days needed for entry of identified issues into CATS and the time to complete corrective actions. Emergency response metrics could monitor and track responder performance in emergency drills and exercises, to include time-urgent response times for event categorization, protective action determination, worker notifications, and offsite emergency notifications. Each metric should indicate acceptable and unacceptable performance standards and be periodically presented to management in an easy-to-understand format (e.g., green, yellow, and red ratings).

OFI-NETL-15: To improve corrective actions, consider:

- Revising Manual 450.1-01.04K to require entry of all documented issues into CATS.
- Revising Manual 450.1-01.04K and CATS to define and add a category for deficiencies for consistency with DOE Order 151.1D and so that issues categorized in CATS as OFIs are not described in ERAPs as deficiencies.
- Entering all issues into CATS, including issues from self-assessments and tabletop exercises, and documenting reasons for rejection or immediate closure of all issues in the system, versus an action log, so that an audit trail is created, reasons for closure are documented, and trends can be detected.
- Ensuring that corrective actions from exercises and assessments are entered into CATS promptly.
- Forming a corrective action committee consisting of both Federal employees and contractor support staff to craft comprehensive corrective actions as required by Manual 450.1-01.04K.
- Modifying CATS so that complex corrective actions with multiple steps can be assigned to multiple action owners with different due dates, and so that automatic notifications can be sent to responsible persons and gatekeepers when individual action items are overdue.

Appendix A Supplemental Information

Dates of Assessment

November 13, 2023 to February 1, 2024

Office of Enterprise Assessments (EA) Management

John E. Dupuy, Director, Office of Enterprise Assessments
William F. West, Deputy Director, Office of Enterprise Assessments
Kevin G. Kilp, Director, Office of Environment, Safety and Health Assessments
David A. Young, Deputy Director, Office of Environment, Safety and Health Assessments
Thomas E. Sowinski, Director, Office of Nuclear Safety and Environmental Assessments
Kimberly G. Nelson, Director, Office of Worker Safety and Health Assessments
Jack E. Winston, Director, Office of Emergency Management Assessments
Brent L. Jones, Director, Office of Nuclear Engineering and Safety Basis Assessments

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