



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

Improvements Needed in the
Department's Emergency
Preparedness and Continuity of
Operations Planning



Department of Energy
Washington, DC 20585

January 3, 2011

MEMORANDUM FOR THE SECRETARY

FROM: 
Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "Improvements Needed in the Department's Emergency Preparedness and Continuity of Operations Planning"

BACKGROUND

The Department of Energy's diverse mission is directly related to helping resolve many of the energy, environmental, and nuclear security challenges that face the Nation. As a consequence, the Department's operations involve dangerous substances such as nuclear and hazardous materials. In this context, the Department must: (i) ensure that it can quickly and effectively respond to emergencies at its facilities; and, (ii) be prepared to maintain or resume mission-related work following an emergency. The National Nuclear Security Administration (NNSA) has responsibility for developing the Department's overall emergency preparedness and continuity planning policy. Individual Department elements, including NNSA, are responsible for implementing those requirements.

Effective emergency preparedness, response, and recovery require coordinated planning and actions by many parties. As part of this overall preparedness strategy, comprehensive Continuity of Operations (COOP) planning ensures that essential Department, program, and site functions continue during and following a major disruption. An Office of Inspector General report on *The Department's Continuity Planning and Emergency Preparedness* (DOE/IG-0657, August 2004) found that the Department had not implemented effective continuity of operations and emergency preparedness programs. The Department agreed to correct the problems addressed in the 2004 report.

Because of the significance of the issues involved here, we initiated this audit to determine whether the Department had corrected previously reported problems and implemented an effective and comprehensive emergency preparedness program.

RESULTS OF AUDIT

Our review disclosed significant weaknesses in the Department's emergency preparedness and COOP programs. These programs are closely related but individually managed. For this reason, we have addressed these issues in this report separately.

Emergency Preparedness

Despite various corrective actions, the Department had not fully resolved problems in emergency preparedness planning. For instance, at the four sites included in our review, we found that:

- Sites had not completed all required emergency planning. Notably, our review of 2009 emergency readiness reports disclosed that programs and sites had not finally approved 105 of the 140 Hazards Surveys and 39 of the 74 Emergency Planning Hazards Assessments (EPHA) that were required – actions necessary to accurately assess and respond to hazards;
- At three of the four sites we visited, we found that officials were not always adequately resolving emergency management issues. Some of these issues included the inability to communicate via established emergency networks, the lack of hazard identification planning, and inaccurate hazardous chemical tracking systems. These problems were identified over a multi-year period through drills, exercises, and assessments; and,
- Sites did not always share lessons learned and track performance metrics, as required, to augment corrective action processes. Officials also routinely failed to take advantage of the Department's Corporate Lessons Learned system when developing or modifying existing action plans. Furthermore, none of the field sites had adopted and implemented performance measures that covered the four key emergency management activities.

Weaknesses continued to exist because program emergency management coordinators and cognizant field elements did not provide sufficient oversight or ensure contractor compliance with existing requirements. Although we observed that the Department's requirements and the implementing guidance were well defined, the effort to ensure full implementation was less than adequate. For example, site offices had not always performed or effectively administered the contracts for which they were responsible to ensure actions designed to correct previously identified problems worked as planned. The process employed to validate the completion of corrective actions and verify their effectiveness was insufficient. Without a robust review process, including reviewing drill and exercise reports, validating the completion of corrective actions and verifying their effectiveness, emergency management issues may not be fully addressed. Additionally, as noted, site and program offices had not promoted the sharing of lessons learned as a means of improving the Department's emergency preparedness performed on a corporate basis.

Insufficient emergency preparedness planning, including hazard identification, could result in loss of life and/or the destruction of Government property. For instance, the planning scenarios identified in EPHAs are used to tailor emergency response and ensure sufficient resources are available to emergency responders. While management informed us it had taken action to address the weaknesses we had reported, an important example of weaknesses in emergency planning was outlined in our Inspection Report on *Fire Suppression and Related Services at Los Alamos National Laboratory* (DOE/IG-0821,

September 2009). In that situation, we found that contingency plans lacked the information necessary for effective response to incidents and that fire fighters did not have the knowledge of Los Alamos National Laboratory facilities necessary to effectively respond in the event of an emergency, specifically, and perhaps most alarmingly, nuclear facilities. Hazards Surveys and EPHAs drive emergency response by identifying potential emergency conditions and analyzing potential consequences of a hazardous material release. Because Hazards Surveys and EPHAs had not been completed, we could not determine, and sites could not affirmatively demonstrate, that all significant hazards at these sites had been identified and plans developed to guide emergency response efforts. The nature of the Department's mission, including working with dangerous and sometimes volatile materials, such as radioactive substances and hazardous wastes, makes clear the need for "best-in-class" emergency preparedness efforts throughout the complex.

To put this matter in context, we found that the Department had made progress in creating and disseminating emergency preparedness policy requirements, and that some sites had partially implemented those requirements. Sites had made incremental progress toward completing required hazard planning and expressed their awareness of the need to complete Hazards Surveys and EPHAs as expeditiously as possible. Based on the work and advice of the Department-wide Performance Indicator Working Group, the Office of Emergency Management and Policy issued new emergency preparedness guidance requiring sites to begin tracking specific performance measures in 2010, such as the percentage of completed Hazards Surveys, completed hazards assessments, and validated corrective actions. Additionally, certain sites were sharing lessons learned locally and nationally through the Department's Emergency Management Issues Special Interest Group meetings. To ensure visibility and accountability for high priority findings, one site had implemented policies and procedures requiring the use of the Department's Corrective Action Tracking System for its own reviews. As evidenced by our findings, however, more needs to be done to ensure full implementation of these requirements. Therefore, this report includes a number of recommendations intended to promote effective and comprehensive emergency management programs throughout the Department.

Continuity of Operations

Although the Department issued its updated, overarching COOP plan subsequent to our review, 55 percent of Department elements had not submitted their individual, updated plans in accordance with DOE Order 150.1, *Continuity Programs*. With regard to those plans that had been submitted, a number had not included full consideration of all planning requirements. As a consequence, significant requirements under the directive that were designed to address known program weaknesses, such as pandemic planning and demonstrating the ability to respond to a COOP event through training, testing, and exercising, had yet to be implemented.

Program COOP coordinators and field element managers did not provide adequate oversight or ensure contractor compliance with key program requirements. As with the emergency preparedness program, we observed that while the Department's requirements and the implementing guidance were adequately defined, management had not effectively ensured their implementation. Furthermore, program offices had not always verified

whether COOP planning was complete; site offices had not always ensured that COOP requirements had been incorporated in contracts; nor, had they ensured that contractors had developed and implemented complete COOP plans, as was their responsibility under the terms of the directive. Symptomatic of this lack of emphasis, program officials indicated that they were often provided inadequate resources to support COOP planning.

The Department's ability to meet its primary national security mission-essential functions after a catastrophic event or disruption could be diminished if COOP planning is ineffective. Recent events, such as attempted domestic terrorism strikes and weather-related crises demonstrate the need for comprehensive Department emergency preparedness. Our review confirmed that the Department had made progress in creating and disseminating COOP policy requirements to both program offices and field sites, and some sites have partially implemented those requirements. As evidenced by the results of our testing, however, additional effort is necessary to ensure full implementation of these requirements. Therefore, we made a number of recommendations intended to promote effective and comprehensive Continuity of Operations programs throughout the Department.

MANAGEMENT REACTION

The Department and NNSA generally agreed with our recommendations and stated that they had already taken action or would take action to address each of them. However, management, in responding to a draft of the report and the recommendations, raised a number of important concerns, including reservations about our characterization of various aspects of the status of emergency preparedness. We have addressed management's concerns in the body of the report.

Management's comments and our response are more thoroughly discussed in the body of the report. Management's consolidated comments are included in Appendix 3.

Attachment

cc: Deputy Secretary
Acting Under Secretary of Energy
Under Secretary for Science
Administrator, National Nuclear Security Administration
Chief of Staff
Chief Health, Safety, and Security Officer, Office of Health, Safety, and Security

**REPORT ON IMPROVEMENTS NEEDED IN THE DEPARTMENT'S
EMERGENCY PREPAREDNESS AND CONTINUITY OF OPERATIONS
PLANNING**

**TABLE OF
CONTENTS**

Emergency Preparedness Planning

Details of Finding 1

Recommendations 6

Comments 7

Continuity of Operations Planning

Details of Finding 9

Recommendations and Comments 12

Appendices

1. Objective, Scope, and Methodology 14

2. Prior Audit Reports 16

3. Management Comments 18

EMERGENCY PREPAREDNESS PLANNING

The Department of Energy (Department) is responsible for maintaining the safety and security of nuclear materials, responding to nuclear incidents, and monitoring and managing the energy infrastructure. Many of these responsibilities involve the use of hazardous chemicals and special nuclear materials. As such, comprehensive emergency planning is required to ensure the protection of human lives and Government property; and continuity planning is essential to ensure that these vital functions continue in all circumstances. Our review disclosed significant weaknesses in the Department's Emergency Preparedness and Continuity of Operations Programs (COOP). Because these programs are closely related but individually managed, we have addressed these issues separately.

Emergency Preparedness

Although the Department had made progress toward completing its emergency preparedness planning, our review of Department Headquarters and four field sites disclosed that the Department had not fully implemented the recommendations made in the Office of Inspector General (OIG) report on *The Department's Continuity Planning and Emergency Preparedness* (DOE/IG-0657, August 2004). Also, sites had not conducted all required emergency preparedness planning. Specifically, sites had not accurately assessed hazards, including completing all required Hazards Surveys and Emergency Planning Hazards Assessments (EPHAs) and effectively addressed emergency management issues identified through drills, exercises, and assessments. In addition, sites did not consistently use the Department's Corporate Lessons Learned System for sharing lessons learned across the Department.

Hazard Identification Activities

Two of the three hazardous material sites we visited – Argonne National Laboratory (Argonne) and Los Alamos National Laboratory (Los Alamos) – had not yet submitted and/or received site office approval of all initial Hazards Surveys and EPHAs, as required by Department Order 151.1C, *Comprehensive Emergency Management System*. In fact, at the time of our review, the Argonne Site Office had not approved any Hazards Surveys or EPHAs for the site. In contrast, the third hazardous materials site, the Hanford Site (Hanford), had Hazards Surveys and EPHAs in place for all facilities; and two of these EPHAs were pending site office review as part of the normal review cycle. Hazards Surveys, based largely on hazardous chemical inventories, are used to identify potential emergency conditions, while EPHAs analyze the potential consequences of a hazardous materials release. Site offices review and approve Hazards Surveys and EPHAs to ensure

that they are adequately performed and documented. These efforts, a key element of the hazard identification process, drive emergency response. Sites were required to complete Hazards Surveys and assessments by November 2006, and update them every 3 years or prior to new hazards being introduced at the site. Exacerbating these problems, contractor officials at two of the sites expressed concerns that hazardous chemical inventories used to identify and quantify hazardous chemicals within each facility may not have been updated timely and accurately. The table below illustrates the number of Hazards Surveys and EPHAs required, submitted, and approved by each of the sites, as stated in their Fiscal Year 2009 Emergency Readiness Assurance Plan (ERAP) reports.

Site	Hazards Surveys			EPHAs		
	Required	Number Submitted	Number Approved	Required	Number Submitted	Number Approved
Argonne	76	0	0	6	2	0
Los Alamos	58	44	29	42	33	11
Hanford ¹	5	5	5	26	26	24
Fermi	1	1	1	0	0	0
Totals	140	50	35	74	61	35

While we noted delays in the submission and approval of Hazards Surveys and EPHAs, sites have made incremental progress toward completing required hazard planning. To their credit, sites are aware of the need to complete Hazards Surveys and EPHAs as expeditiously as possible. In addition, officials indicated that they had implemented certain items even though they had not yet been approved by the site. For instance, Los Alamos had not received approval for any Hazards Surveys or EPHAs as of the 2007 Office of Emergency Management Oversight review. Since developing a targeted action plan, however, the site has significantly reduced the number of outstanding Hazards Surveys and EPHAs. Further, Argonne officials indicated that they have hired a third party contractor to complete EPHAs, all of which have since been submitted for review.

Recurrent Emergency Management Issues

Three of the four sites visited identified emergency preparedness weaknesses that recurred over a multi-year period. These issues,

¹ The Hanford ERAP report lists 27 required EPHAs with 3 EPHAs pending site office review. Since the publication of the ERAP, however, one facility requiring an EPHA has been decontaminated and no longer requires this additional analysis.

identified during drills, exercises, and assessments, tend to demonstrate that site corrective actions were not always effective. Additionally, sites did not always share lessons learned and track performance metrics to augment corrective action processes, as required by Department regulations.

For example, recurring emergency preparedness weaknesses included:

- All three Hanford hazardous materials contractors experienced drill communication equipment malfunctions. During multiple exercises, emergency personnel had to resort to alternate communication equipment, such as personally owned cellular phones, to communicate during the drills;
- At Argonne, where none of the Hazards Surveys and EPHAs had been approved, exercises conducted over a multi-year period indicated that the lack of hazard identification planning and needed protective actions had impeded emergency response; and,
- The need for an accurate hazardous chemical tracking system, as the basis for site Hazards Surveys and EPHAs, had been noted in multiple Emergency Management Oversight (EMO) and Los Alamos reviews since 2007.

Recurring findings indicate weaknesses in the policies, procedures, and practices for correcting emergency management issues, particularly a lack of validation and verification. While site office management indicated that they already review and validate corrective actions, our audit and EMO reviews in 2007 and 2009, noted that tracking and resolution of corrective actions was not always effective. Furthermore, officials at Fermi National Accelerator Laboratory stated that emergency management weaknesses were addressed immediately following drills and exercises without generating a formal corrective action plan. Without evidence of actions taken, however, management cannot validate the completion of corrective actions or verify their effectiveness.

In addition, the sites did not consistently utilize the Corporate Lessons Learned System to share lessons learned across the Department. Los Alamos and Argonne were the only sites with formal policies and procedures related to the tracking and sharing of lessons learned, and only Los Alamos used a site-wide lessons

learned system. Hanford contractors prepared lessons learned reports for internal use and stated that they routinely shared these with other contractors at the site. Although Hanford generated 23 lessons learned from a sample of drills and exercises conducted between December 2007 and December 2009, only 5 lessons learned were shared through the Department's Corporate Lessons Learned System between 2004 and 2010. Since 2004, Argonne generated at least 12 lessons learned and did not share any of these in the Department's Corporate Lessons Learned System. In fact, only 24 emergency management lessons learned had been submitted to the Department's Corporate Lessons Learned System since 2004. While operations vary from site-to-site, we noted that contractors had identified similar emergency management issues, such as deployment of the emergency response organization, notification and communication processes, and adequacy of policies and procedures. The sharing of lessons learned, such as how a particular issue occurred and how it was resolved, enables the implementation of site best practices and could help other sites avoid similar adverse experiences.

Although specifically required by DOE Order 151.1C, none of the four field sites visited adopted performance measures to capture and track objective data regarding the performance of four key emergency management activities: Planning, Preparedness, Readiness Assurance, and Response. All four sites had performance-based goals as part of their Performance Evaluation and Measurement Plans, such as performing a certain number of emergency management drills or assessments, and considered these to be performance metrics. However, evaluation of whether or not a site met these goals did not provide the Office of Emergency Operations a consistent view of emergency management performance across the Department. We did note that the Office of Emergency Management and Policy will require sites to track specific performance measures and include results in the 2010 Emergency Readiness Assurance Plan. These measures, which were selected based on the work and advice of the Department-wide Performance Indicator Working Group, will include things such as qualifications of emergency response organization personnel, timeliness of annual emergency management program self-assessments, and timeliness of initial response decisions. When fully implemented, these measures should permit the Department to measure the percentage of completed Hazards Surveys, completed hazards assessments, and validated corrective actions.

Management Review and Oversight

The emergency preparedness issues we identified were due at least in part to insufficient program and site office review and oversight. Program emergency management coordinators and cognizant field elements did not always provide effective oversight or enforce contractor requirements. Although the Department's requirements and the implementing guidance were adequately defined, management did not fully oversee and enforce their implementation. For example, site offices had not always performed the oversight required to ensure contractor corrective actions generated from drill and exercises were adequate, especially validating the completion of corrective actions and verifying their effectiveness. Argonne site office staff had not performed a validation of contractor corrective actions since 2002. Additionally, we noted that site and program offices had not promoted the sharing of lessons learned through formal documentation and distribution throughout the complex.

A Los Alamos official acknowledged that, in the past, the site had not always prioritized the submission and approval of Hazards Surveys and EPHAs required for emergency preparation. He noted, however, that since a 2007 Office of Emergency Management Oversight review, the site had completed Hazards Surveys for predetermined nuclear, high risk, and moderate risk facilities and, as such, he believed that the buildings with the highest risk of hazards had been addressed. According to Argonne officials, the time necessary to acquire subcontractor services to perform Hazards Surveys and EPHAs and obtain site office approval of subcontractor methodology, as well as the site office backlog in approving final Hazards Surveys and EPHAs, delayed the completion of these activities. While we recognize the efforts of both of these sites, we note that because Hazards Surveys and EPHAs had not been completed, we could not determine, and the sites could not affirmatively demonstrate, that all significant hazards at these sites had been identified and plans developed to guide emergency response efforts.

Increased Risk

Insufficient emergency preparedness planning, to include hazard identification, could result in loss of life and/or the destruction of Government property. For instance, the planning scenarios identified in EPHAs are used to develop Emergency Action Levels (EALs), which enable emergency responders to immediately deploy predetermined emergency responses. During a 2007 no-notice exercise, Argonne staged a response to a tornado touchdown at one of their hazardous facilities. While most of the exercise objectives were met, exercise evaluators noted that Emergency Operations Center staff provided the Incident Commander with

inconsistent information on the quantity of hazardous materials containers. Argonne did not have completed hazards assessments or specific EALs at the 2007 exercise and, at the time of our review, was still in the process of completing and approving these assessments. Evaluators noted that the proper actions were taken during the exercise; however, establishment of EALs, based on postulated releases of identified hazardous materials inventories and a comprehensive hazards assessment, would provide added assurance that correct onsite and offsite protective actions were being taken.

Without stringent review and monitoring – including reviewing drill and exercise reports, validating the completion of corrective actions, and verifying their effectiveness – emergency management issues may not be completely resolved. The importance of these planning elements was emphasized in a report from the Defense Nuclear Facilities Safety Board regarding the Savannah River Site in which it noted a gradual lapse in efforts to prepare for responses to tornadoes, hurricanes, and earthquakes since 1999. Board inspectors also noted that with multiple new contractors working at the site, there is an increased need for integrated drills that focus on the interfaces between contractors during a site-wide event. The identification of corrective actions through an effective system of drills and exercises mitigates the potential harmful effects to both employees and the public.

RECOMMENDATIONS

To promote effective and comprehensive emergency management programs throughout the Department, we recommend that the Administrator, National Nuclear Security Administration (NNSA), the Acting Under Secretary of Energy, and the Under Secretary for Science strengthen the management review and oversight process by requiring their respective emergency management coordinators to:

1. Validate the effectiveness of actions taken to correct deficiencies identified during emergency management drills and exercises;
2. Require contractors to formally share emergency management related lessons learned through the Department's Corporate Lessons Learned System; and,
3. Ensure that Hazards Surveys and Emergency Planning Hazards Assessments are completed expeditiously.

**MANAGEMENT
REACTION**

The Department and NNSA generally agreed with our recommendations pertaining to emergency preparedness planning and stated that they had already taken action or would take action to address each of them. Management partially concurred with Recommendation 1, noting that program and site offices currently validate the effectiveness of emergency management corrective actions required by DOE Order 151.1C. Management partially concurred with Recommendation 2, stating that it will evaluate the extent of sharing of emergency management lessons learned through the Department's Corporate Lessons Learned System and encourage their submission where significant benefit may be achieved. Management concurred with Recommendation 3 and stated it will take steps to emphasize and ensure the completion of hazard identification activities.

However, management expressed concerns over our characterization of various aspects of the remaining hazard identification planning work. Specifically, management was concerned that our report incorrectly implied that a lack of approved Hazards Surveys and EPHAs indicated an inability to respond during an emergency, even though the site had established and implemented an emergency planning basis and response procedures while awaiting site office approval.

**AUDITOR
COMMENTS**

Management's comments and planned actions were generally responsive to our recommendations. With regard to management's comments on Hazards Surveys and EPHAs, because these documents form the basis for all subsequent emergency planning and because many of these hazard planning documents had not been approved, the Department and NNSA cannot confirm whether all hazards have been assessed and whether appropriate response strategies have been designed. We considered hazard identification planning to be complete once it received required site office approval. Accordingly, our report distinguishes between hazard identification planning that has been completed versus those lacking site office approval.

In its comments, management notes that DOE Order 151.1C already requires the validation of effectiveness of actions taken to correct deficiencies identified during emergency management drills and exercises, as well as the sharing of lessons learned through the Department's Corporate Lessons Learned System. However, we found that these requirements had not been fully implemented in the field. For instance, multiple EMO reviews noted that tracking and resolution of corrective actions was not

always effective. Additionally, since our 2004 audit report on emergency preparedness, only 24 lessons learned had been submitted to the Corporate Lessons Learned System.

Similar to the COOP section of this report, various Department elements provided attachments to management's consolidated comments containing additional information that they believed would help clarify or improve portions of the report pertaining to emergency planning. While we did not include these attachments because of their volume, we took them into consideration and made changes where appropriate. Management's consolidated comments are included in Appendix 3.

CONTINUITY OF OPERATIONS PLANNING

Continuity of Operations

Since our 2004 effort, the Department has made progress toward completing its COOP planning. Specifically, the Department issued interim guidance in 2005, issued its first overarching COOP plan in 2006, and issued formal COOP implementation requirements in 2008. Despite this progress, our review of Department Headquarters and four field sites disclosed that the Department had not fully implemented the recommendations made in the OIG report on *The Department's Continuity Planning and Emergency Preparedness* (DOE/IG-0657, August 2004). Also, programs and sites had not conducted all COOP planning required by DOE Order 150.1, *Continuity Programs*. Subsequent to our review, the Department published its updated overarching COOP plan; however, many Department elements had not submitted their individual updated COOP plans.

Despite the Department's effort over the past 5 years, opportunities remain to strengthen COOP planning. Beginning in 2007, the President and the Department of Homeland Security issued new directives related to COOP planning. As a result, the Department established its formal COOP planning and implementation requirements in May 2008. As the Department's mission was carried out at both Headquarters and in the field, all elements were required to write and implement updated COOP plans by May 2009, a year after DOE Order 150.1's issuance. However, the Department postponed issuance of its updated overarching COOP plan until its Primary Mission Essential Functions were approved by the National Security Council in June 2009. Subsequent to our review, and 11 months after receiving National Security Council approval, the Department issued its updated overarching COOP plan in May 2010. However, at the time of our review, many Department elements had still not submitted their individual updated COOP plans and updated plans did not always give full consideration to the requirements contained in Department Order 150.1. The table below shows the status of program and field element COOP plans as of March 2010:

COOP Plan Status	Program Elements		Field Elements		All Elements	
	Count	Percentage	Count	Percentage	Count	Percentage
No Plan Submitted	3	9%	1	2%	4	5%
Plan Submitted, but Not Updated	14	41%	29	56%	43	50%
Updated Plan Submitted	17	50%	22	42%	39	45%
Total Plans Required ²	34	100%	52	100%	86	100%

Many program and site COOP plans have not been revised to address critical DOE Order 150.1 requirements. As indicated in the table, 55 percent of all Department elements had not yet

² Source: Continuity Program Manager

submitted updated COOP plans. Furthermore, many of the 39 revised COOP plans submitted had not given full consideration to all 11 planning requirements or did not provide site specific information. For example, not all offices had submitted pandemic plans or described their Continuity Readiness Assurance Program, a program that summarizes a site's ability to respond to a COOP event. In addition, we were unable to establish that COOP plans had been implemented or were effective at any of the four contractor field sites we visited because two of the sites had not yet added the COOP Contractor Requirements Document to their management and operating contracts and the other two sites were still developing their COOP programs. Without adequate COOP planning, Departmental elements lack assurance that they are capable of maintaining mission essential functions and have tested and proved this capability.

Management Attention The COOP issues we identified were due primarily to inadequate program and site office review and oversight. Additionally, Department officials cited a lack of direct funding to support COOP planning.

Management Review and Oversight

Program COOP coordinators and field element managers did not provide adequate oversight or enforce contractor requirements. Although the Department's requirements and the implementing guidance were adequately defined, management did not effectively oversee and enforce their implementation. Finally, program offices had not always verified whether COOP planning was complete and site offices had not always ensured that COOP requirements had been added to contracts. Site offices also had not ensured that contractors had developed and implemented complete plans. We did note that site office officials were working to include the COOP Contractor Requirements Documents into their management and operating contracts and provide assistance to contractors in expeditiously implementing complete COOP plans. While we acknowledge that progress has been made, programs and sites had passed their May 2009 goal of having fully functioning COOP Plans (or Implementation Plans) in place by more than a year.

Resource Allocation

Department officials also stated that continuity planning had not been fully completed because the program did not have dedicated monetary resources. These officials noted that while the

Headquarters COOP program received limited funding from the Department's Emergency Operations Office to develop the Department's COOP plan and assist program and field site development of COOP plans, continuity planning is largely an unfunded mandate. Headquarters did not allocate funding to programs or sites for COOP planning, and program and site officials were reluctant to complete the required planning without additional dedicated funding. Site and contractor negotiations over COOP funding caused delays in completing the contractor impact statements and adding the COOP Contractor Requirements Document to contracts.

Department officials also noted that a lack of dedicated funding had constrained efforts to fully address some of the tactical COOP issues identified through annual implementation exercises of the Department's COOP plan. For instance, Ring Central, the Headquarters' personnel accountability system, can only accommodate 200 voice drops before someone must manually empty the mailbox. To fully accommodate Headquarters program elements, the offices that reported combined Federal and contractor personnel in excess of this number would require the Department to upgrade to a different system or program offices to purchase additional mailboxes. Additionally, the Headquarters' primary telework platform (Citrix Workplace) may be insufficient to fully meet user needs. For example, during a pandemic outbreak, a limited number of personnel would be required to report to work, while all other employees would be directed to utilize telework capabilities, as possible. The Department's COOP plan estimates peak employee absenteeism during a pandemic event could be as high as 40 percent, or approximately 3,000 employees at Headquarters; however, Citrix Workplace can only accommodate 800 concurrent users.

Increased Risk

Failure to effectively complete COOP planning could result in the Department's inability to meet its primary mission essential functions related to national security. Comprehensive COOP planning identifies how the Department will continue to meet its essential functions in the aftermath of a major event by addressing eleven elements, including personnel accountability, pandemic planning, and program readiness through training, testing, and exercising. These essential functions include maintaining the safety and security of nuclear materials in the Department Complex at fixed sites and in transit; responding to a nuclear incident, both domestically and internationally; and, continuously monitoring and managing the National Energy Infrastructure, including the drawdown of the Strategic Petroleum Reserve and/or

the Northeast Home Heating Oil Reserve. The importance of continuity planning at all levels is underscored by recent disruptions caused by major weather events around the country. Non-weather related events such as the Gulf of Mexico oil release or the recent wildfires at the Idaho National Laboratory further reinforce the need for organizations to ensure they are ready to effectively respond to emergencies and resume mission activities as quickly as possible.

RECOMMENDATIONS

To promote an effective and comprehensive COOP program within the Department, we recommend that the Administrator, NNSA, the Acting Under Secretary of Energy, and the Under Secretary for Science:

4. Require site offices at sites that support or perform Departmental Mission Essential Functions or Primary Mission Essential Functions to add the COOP Contractor Requirements Document to contracts; and,
5. Require COOP Program or Field Element Managers, as appropriate, to ensure full implementation of program, site office, and contractor COOP requirements.

To make certain the Department can properly restore functionality promptly following a continuity event, we further recommend that the Administrator, NNSA, the Acting Under Secretary of Energy, and the Under Secretary for Science:

6. Review the allocation of resources toward Continuity of Operations Planning to determine if funding levels are appropriate.

MANAGEMENT REACTION

The Department and the NNSA generally agreed with our recommendations pertaining to COOP and stated they were already addressing the recommendations or agreed to address them. Management partially concurred with Recommendation 4, but stated that they believed the recommendation was overly broad and that the COOP Contractor Requirements Document should only apply to those contractors with Primary Mission Essential Functions responsibilities. Management concurred with Recommendations 5 and 6, but requested that these recommendations be revised to direct corrective actions to the appropriate Departmental officials.

**AUDITOR
COMMENTS**

As a whole, we consider management's comments and planned actions to be responsive. We recognize that site COOP planning contributes to the successful implementation of the Department's overarching COOP plan and that the COOP Contractor Requirements Document may not be applicable to some contracts. Therefore, we modified Recommendation 4 to focus only on applicable contracts. We revised our fifth and sixth recommendations to direct these actions to those officials with corrective action responsibility.

Similar to the Emergency Preparedness Planning portion of this report, various Department elements provided attachments to management's consolidated comments containing additional information that they believed would help clarify or improve portions of the report pertaining to COOP planning. While we did not include these attachments because of their volume, we took them into consideration and made changes where appropriate. Management's consolidated comments are included in Appendix 3.

OBJECTIVE

The objective of this audit was to determine whether the Department of Energy (Department) had corrected previously reported problems and implemented an effective and comprehensive emergency preparedness program.

SCOPE

The audit was performed between July 2009 and September 2010 at Department Headquarters in Washington, DC; the Los Alamos National Laboratory (Los Alamos) in Los Alamos, New Mexico; the National Nuclear Security Administration (NNSA) Service Center in Albuquerque, New Mexico; the Argonne National Laboratory (Argonne) in Argonne, Illinois; the Fermi National Accelerator Laboratory (Fermi) in Batavia, Illinois; and, the Hanford Site (Hanford) in Richland, Washington.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable Federal laws and regulations, Department orders, and implementing procedures and practices;
- Reviewed prior Office of Inspector General, Government Accountability Office, and Emergency Management Oversight reports;
- Evaluated the Department's actions taken in response to our previous report;
- Held discussions with Headquarters officials regarding the Department's Continuity of Operations (COOP) planning and emergency management;
- Reviewed program/staff and field/site office COOP plans;
- Reviewed and analyzed drill, exercise, and assessment reports at selected sites;
- Reviewed and analyzed information pertaining to corrective action plans for drill, exercise and/or assessment findings;
- Reviewed Hazards Surveys and Emergency Planning Hazards Assessments from selected sites; and,

- Interviewed officials from Los Alamos, Argonne, and Fermi, as well as the NNSA Service Center and Hanford regarding the Department's emergency management and COOP planning.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The audit included tests of controls and compliance with laws and regulations necessary to satisfy the audit objective. We also assessed compliance with the Government Performance Results Act of 1993. We examined performance metrics related to emergency management and found that the Department had established performance measures at various stages, but that these performance metrics were not widely used. Because our review was limited, it would not have necessarily disclosed all internal control deficiencies that may have existed at the time of our audit. We did not rely on computer processed information to achieve our audit objective.

The Department and NNSA waived an exit conference.

PRIOR AUDIT REPORTS

Office of Inspector General Related Reports:

- *Fire Suppression and Related Services at Los Alamos National Laboratory* (DOE/IG-0821, September 2009). The Department of Energy's (Department) Los Alamos National Laboratory (Los Alamos) operates in unique hazard environments, to include special nuclear materials, explosives, and hazardous chemicals, that create special fire suppression and emergency management challenges. The Office of Inspector General initiated an inspection to determine if fire suppression and related services at Los Alamos are assured through contractual arrangements with the county. The report noted that fire fighters did not receive the necessary and required training for fighting fires at Los Alamos, including facility specific training; that pre-incident plans lacked the information necessary for fire fighters to effectively respond to incidents; and that Los Alamos's fire fighting capability had not been sufficiently demonstrated through exercises and documented assessments.
- *The Department of Energy's Pandemic Influenza Planning* (DOE/IG-0784, December 2007). Pandemic planning is required of all Federal agencies that perform mission-critical functions. Only 50 percent of the seventy-two (72) organizations required to submit pandemic plans by June 1, 2007, had submitted plans. At the time of the inspection, no Department order required elements to implement a pandemic influenza plan within their Continuity of Operations (COOP) plan. The audit also disclosed that during a 2007 COOP exercise, the Department could not account for all Federal and contractor employees.
- *Continuity of Operations at Bonneville Power Administration* (DOE/IG-0781, November 2007). The audit concluded that the Bonneville Power Administration's (Bonneville) continuity of operations capability was not fully compliant with Federal Preparedness Circular 65 for all of its essential functions. Bonneville's primary and alternate facilities for power scheduling were interdependent as well as in close proximity and, therefore, were subject to the same hazards. Additionally, Bonneville's plan to recover transmission scheduling from disruptions to its primary automated system relied in part on a manual process rather than a fully automated system as required.
- *The Department of Energy's Use of the Strategic Petroleum Reserve in Response to Hurricanes Katrina and Rita* (DOE/IG-0747, December 2006). After Hurricanes Katrina and Rita impacted the Strategic Petroleum Reserve (SPR), an audit was initiated to determine whether the SPR met its energy security mission in response to Hurricanes Katrina and Rita. The SPR was generally effective at meeting the emergency requirements; however, the SPR alternate operating facility was also impacted by Hurricane Katrina, which interrupted mission essential computer networks.

Appendix 2 (continued)

- *The Department's Continuity Planning and Emergency Preparedness* (DOE/IG-0657, August 2004). The audit disclosed that the sites visited did not have comprehensive continuity plans in place and that the Department had not implemented guidance specifically requiring sites to have such plans in effect. Requirements for verifying and validating corrective actions, tracking performance measures, and sharing lessons learned were not properly defined.

Government Accountability Office Related Reports:

- *Influenza Pandemic: Increased Agency Accountability Could Help Protect Federal Employees Serving the Public in the Event of a Pandemic* (GAO-09-404, June 2009). The Government Accountability Office (GAO) conducted a study of the 24 Chief Financial Officer Act agencies regarding the readiness of Federal agencies to protect Federal workers and maintain operations in the event of a pandemic influenza event. GAO found that all of the agencies are taking steps to some degree to protect their workers, but the progress is disproportionate between agencies. The Department is one of the 11 agencies that reported testing telework arrangements to a moderate extent.
- *Continuity of Operations: Selected Agencies Tested Various Capabilities during 2006 Governmentwide Exercise* (GAO-08-185, November 2007). The Federal Emergency Management Agency conducted an exercise, titled Forward Challenge 06, to test continuity of operations plans at Federal agencies. GAO was asked to review this exercise and to describe the extent to which agencies tested continuity plans and procedures, personnel, and resources. GAO found that many agencies reported performing necessary activities; however, there was a general lack of documentation of these procedures being followed.
- *Continuity of Operations: Agency Plans Have Improved, but Better Oversight Could Assist Agencies in Preparing for Emergencies* (GAO-05-619T, April 2005). GAO conducted this review as a follow-up to previous work on emergency planning by Federal agencies and found that while there were improvements since their 2002 review, many weaknesses and inconsistencies still existed. They noted that although agencies reported using sound practices, few actually documented these practices. GAO also found inconsistencies in essential functions identified; however this was partially attributed to the lack of specificity in Federal Emergency Management Agency guidance on COOP.

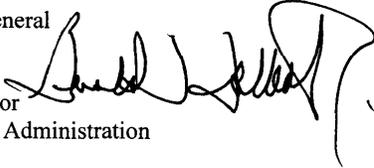


Department of Energy
National Nuclear Security Administration
Washington, DC 20585



November 12, 2010

MEMORANDUM FOR: Rickey R. Hass
Deputy Inspector General
for Audit Services
Office of Inspector General

FROM: Gerald L. Talbot, Jr. 
Associate Administrator
for Management and Administration

SUBJECT: Comments to the IG's Draft Report on Emergency Preparedness
and Continuity of Operations Planning, Project Number
A09GT017

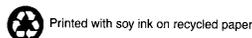
The Department of Energy (Department) and the National Nuclear Security Administration (NNSA) appreciate the opportunity to review the Inspector General's (IG) draft report, *Improvements Needed in the Department's Emergency Preparedness and Continuity of Operations Planning*. We understand that the IG initiated this audit to determine whether the Department had corrected previously reported problems and implemented an effective and comprehensive emergency preparedness program.

Since NNSA is responsible for overseeing the Department's Emergency Preparedness Program and Continuity of Operations Planning, we are responding on behalf of the Department.

Overall the Department agrees with the report and it accurately identifies the purpose and importance of the planning scenarios identified. However, we do have some concerns. For example, the report incorrectly implies that the Los Alamos National Laboratory (LANL) emergency planning basis has not been established or implemented, thus impacting the Site's ability to adequately respond to an event. As identified by the Office of Health, Safety and Security (HSS), the Los Alamos National Security, LLC (LANS) had implemented its hazards survey and Emergency Planning Hazards Assessments (EPHA) along with the associated Emergency Action Levels (EALs) and response procedures, while awaiting EPHA review and approval by the Los Alamo Site Office. In this instance, use of the term "completed" (which is defined by the report authors as including site office approval) will likely mislead the reader into believing that there was no emergency planning basis in place at LANL.

Under the Continuity of Operations Planning (COOP) section, we recommend that the use of the term "COOP coordinators" be changed to "Program or Field Element Managers" as the COOP coordinators are not likely to be managers or have decision-making authority.

Below are responses to the recommendations:



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Emergency Preparedness Planning

To promote effective and comprehensive emergency management programs throughout the Department, we recommend that the Administrator of the National Nuclear Security Administration, the Under Secretary of Energy, and the Under Secretary for Science strengthen the management review and oversight process by requiring their respective emergency management coordinators to:

1. Validate the effectiveness of actions taken to correct deficiencies identified during emergency management drills and exercises.

Response from NNSA: NNSA agrees with this recommendation, as the DOE Order 151.1C already requires validation of corrective actions. NNSA Program and Site Offices performed validation of the effectiveness of actions to correct deficiencies identified during emergency management exercise through reviews performed and during scheduled emergency management assessments. No further action is required.

Response from Under Secretary of Science: Partial Concurrence. Office of Science (SC) does validate the effectiveness of actions to correct deficiencies identified during emergency management exercise through reviews performed **after** the contractors have communicated the completion of the corrective actions, and during periodically scheduled emergency management assessments. No further action is required.

Response from Under Secretary of Energy: Partial Concurrence. The DOE Order 151.1C currently requires validation of corrective actions. Energy Program and Site Offices will ensure validations of the effectiveness of actions are performed in accordance with DOE Order 151.1C. No further action is required.

2. Require contractors to formally share emergency management related lessons learned through the Department's Corporate Lessons Learned System.

Response from NNSA: NNSA agrees with this recommendation, as the DOE Order 151.1C already requires the sharing of lessons learned by the contractors. NNSA Program and Site Offices evaluate the sharing of relevant emergency management lessons learned by its contractors through the Department's Corporate Lessons Learned system. No further action is required.

Response from Under Secretary of Science: Partial Concurrence. SC will evaluate the extent of sharing relevant emergency management lessons learned by its contractors through the Department's Corporate Lessons

Learned system and take appropriate action to encourage this practice where significant benefit may be achieved. The estimated completion date is December 31, 2011.

Response from Under Secretary of Energy: Concur. DOE Order 151.1C currently requires the sharing of lessons learned by the contractors. Energy Program and Site Office contractors will evaluate current practices and share emergency management lessons learned through the Department's Corporate Lessons Learned System, as appropriate. The estimated completion date is December 31, 2011.

3. Ensure that hazards surveys and Emergency Planning Hazards Assessments are completed expeditiously.

Response from NNSA: NNSA agrees with this recommendation. NNSA Program and Site Offices are aware of this recommendation and are working to implement it. No further action is required. In addition, NNSA's Office of Emergency Operations will emphasize this recommendation at the 2011 meeting of the Emergency Management Issues Special Interest Group (EMI-SIG) in Charleston, SC, May 2011.

Response from Under Secretary of Science: Concur. SC will evaluate the need for hazard surveys and Emergency Planning Hazard Assessments across its laboratories and establish a schedule for completion of any necessary items. The estimated completion date is December 31, 2011.

Response from Under Secretary of Energy: Concur. Energy Programs and Site Offices will ensure the hazards surveys and Emergency Planning Hazards Assessments are completed. The estimated completion date is December 31, 2011.

Continuity of Operations Planning (COOP)

To promote an effective and comprehensive COOP program within the Department, we recommend that the Administrator of the National Nuclear Security Administration, the Under Secretary of Energy, and the Under Secretary for Science:

4. Require site offices to add the COOP Contractor Requirements Document to contracts.

Response from NNSA: NNSA agrees with this recommendation. NNSA's Office of Emergency Operations will issue a memo to the Site Offices to direct the Contractor Officers to ensure that COOP Contract Requirements Document is added to the contracts. The estimated completion date is December 30, 2010.

Response from Under Secretary of Science: Partial Concurrence. SC believes this is a broad-brush approach that may require contractors to take unnecessary steps and produce documentation that is not required. This recommendation should be modified such that only contractors who are required to meet the program office's mission essential functions should have the COOP Order CRD placed in their contracts.

SC will review the placement of the Order 150.1 CRD in its contracts, considering how it must contribute to the successful implementation of the DOE COOP Plan, and make changes if they would significantly enhance its COOP implementation. The estimated completion date is December 31, 2011.

Response from Under Secretary of Energy: Partial Concurrence. Energy Programs and Site Offices will include the CRD in contracts for contractors who are required to meet the programs mission essential functions. The estimated completion date is December 31, 2011.

5. Require COOP coordinators to ensure full implementation of program, site office, and contractor COOP requirements.

Response from NNSA: Concur. NNSA recommends that the term "COOP coordinators" be changed to "Program or Field Element Managers" as the COOP coordinators are not likely to be managers or have decision-making authority.

The DOE Order 150.1 requires all programs/sites to have COOP Plans. NNSA's Office of Emergency Operations has been working with NNSA Programs and Sites to ensure that a COOP plan in place. All NNSA programs/sites have a COOP plan which indicates implementation of the COOP program. No further action required.

Response from Under Secretary of Science: Concur. SC believes that this recommendation should state that the Program management is required to ensure implementation rather than the COOP coordinator. The implementation of COOP Plans is stated in the Order 150.1 as being the responsibility of the Program Secretarial Officers and Staff Office Directors, as they do have the authority and resources to do so.

SC will evaluate the implementation of COOP programs at its sites and establish a schedule for implementation, if the need exists. The estimated completion date is December 31, 2011.

Response from Under Secretary of Energy: Concur. COOP coordinators generally have limited influence resources, schedules, or priorities for their organizations. This recommendation should state that Senior Program and

Field Element Management are required to ensure implementation rather than the COOP coordinator. Energy Programs and Site Offices will evaluate their COOP programs and establish a schedule for implementation, if needed. The estimated completion date is December 31, 2011.

To make certain the Department can properly restore functionality promptly following a continuity event, we further recommend that the Administrator of the National Nuclear Security Administration direct the Associate Administrator for the Office of Emergency Operations to:

6. Review the allocation of resources toward COOP planning to determine if funding levels are appropriate.

Response from NNSA: NNSA agrees with this recommendation, however, the responsibility for the resource and allocation and to ensure full implementation of the programs, site offices and contractor COOP requirements falls under the jurisdiction of the Under Secretaries. This recommendation should be addressed to the Under Secretaries of Energy and Science, and to the NNSA's Administrator.

NNSA's Office of Emergency Operations will review the allocation of resources by surveying program offices and field elements to determine current funding levels for COOP planning and then evaluate the adequacy of funding levels. The estimated completion date is March 31, 2011.

Additionally, attached are comments from the NNSA, Under Secretary of Science, Under Secretary of Energy and Health, Safety and Security Office that we believe will clarify and improve the report in areas that may be confusing or misleading.

If you have any questions concerning this response, please contact JoAnne Parker, Director, Office of Internal Controls at 202-586-1913.

Attachments

cc: Associate Administrator for Emergency Operations, NA-40
Chief Health, Safety, and Security Officer, HSS-1
Under Secretary for Energy
Under Secretary for Science
Manager, Office of Risk Management, CF-80

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