



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

Inspection Report

Emergency Medical Coordination
Memorandum of Agreement at
Brookhaven National Laboratory

DOE/IG-0594

March 2003



Department of Energy

Washington, DC 20585

March 31, 2003

MEMORANDUM FOR THE SECRETARY

FROM:

Greg Friedman
Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Report on Inspection of "Emergency Medical Coordination Memorandum of Agreement at Brookhaven National Laboratory"

BACKGROUND

Because of possible exposure to radioactive and hazardous materials and the potential for industrial accidents at Department of Energy (DOE) sites, the Department has established formalized agreements with local emergency medical providers. These arrangements are generally documented through memoranda of agreements (MOAs). These documents detail the mutual understanding between DOE and the offsite emergency medical provider with respect to capabilities, specific support, and procedures for ensuring an integrated and effective response, including specific procedures for receipt of victims of radiation accidents.

The objective of this inspection was to determine if the Brookhaven National Laboratory (Brookhaven) effectively implemented and adequately managed its emergency medical response agreement with Stony Brook University Hospital (Stony Brook) as documented in an MOA, dated May 11, 1999.

RESULTS OF INSPECTION

Despite the potential impact on worker and community safety, Brookhaven had not fully implemented the terms of its MOA with Stony Brook. Brookhaven was obligated under the MOA to provide Stony Brook with annual training and decontamination equipment and supplies needed for the care of victims of radiation accidents. Brookhaven did not provide annual radiological training to Stony Brook personnel in Fiscal Year 2001, and had not provided the training for Fiscal Year 2002 as of the time of our site visit in June 2002. Also, of greatest concern was the fact that as of the time of our site visit, Brookhaven officials had not met with hospital officials to determine what type of decontamination equipment and supplies should be provided to Stony Brook for the care of victims of radiation accidents.

We found the MOA had not been updated or reviewed since it was signed in May 1999. The MOA contained incomplete and outdated information. We also found that key emergency response management documents, including Brookhaven's Emergency Plan, Hazard



Assessment, and MOA, had not been reviewed or approved by DOE because Brookhaven Science Associates had not routed the documents to DOE for review and approval.

We recommended that the Department take appropriate steps to:

- ensure that the Brookhaven MOA is fully implemented;
- ensure that the MOA is periodically reviewed and appropriately updated; and,
- ensure that DOE has the opportunity to review/approve the MOA and other emergency management documents.

MANAGEMENT REACTION

Management concurred with the recommendations.

Attachment

cc: Deputy Secretary

Acting Administrator, National Nuclear Security Administration

Director, Office of Science

Manager, Chicago Operations Office

Manager, Brookhaven Operations Office

Acting Director, Office of Emergency Management, Office of Emergency Operations

Manager, Policy and Internal Controls Management (NA-66)

Team Leader, Audit Liaison Team (ME-1.1)

EMERGENCY MEDICAL COORDINATION MEMORANDUM OF AGREEMENT AT BROOKHAVEN NATIONAL LABORATORY

TABLE OF CONTENTS

OVERVIEW

Introduction and Objective.....	1
Conclusions and Observations.....	3

DETAILS OF FINDINGS..... 4

Training and Equipment.....	4
MOA Information and Review.....	5
Emergency Plan and MOA Not Approved by DOE.....	6
Emergency Standard Operating Procedure.....	7

RECOMMENDATIONS..... 7

MANAGEMENT COMMENTS..... 8

INSPECTOR COMMENTS..... 8

APPENDIX

Scope and Methodology.....	10
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Overview

INTRODUCTION AND OBJECTIVE

Brookhaven National Laboratory (Brookhaven) occupies 5,300 acres in Suffolk County on Long Island, New York. It has several accelerators, a facility for processing radioactive waste, and a variety of research support buildings containing various radioactive materials. In addition, Brookhaven has nuclear reactors that are no longer operational, and are in various states of decommissioning. Given these radiological activities at Brookhaven, there is a potential for radiological emergencies requiring off-site assistance.

Department of Energy (DOE) Order 151.1A, "Comprehensive Emergency Management System," provides a framework for DOE sites and facilities to develop and coordinate all emergency planning and response, including coordination of offsite emergency medical support. When a site identifies the need for support from offsite medical facilities, DOE Order 151.1A requires documented arrangements with offsite facilities to accept and treat victims of radiation accidents.

Arrangements for offsite emergency medical support are commonly documented through memoranda of agreements (MOAs). MOAs detail the mutual understanding between the site and offsite emergency medical provider with respect to capabilities, specific support, and procedures for ensuring an integrated and effective response, including specific procedures for receipt of victims of radiation accidents.

MOAs that address offsite emergency assistance are part of a site's required Emergency Plan. Such plans provide detailed procedures for responding to emergencies. The basis of the Emergency Plan is the site Hazard Assessment, which lists all the hazards at the facility. The Hazard Assessment provides the technical basis from which the Site can plan and develop its site-wide response to emergencies.

Stony Brook University Hospital (Stony Brook) provides emergency medical services to Brookhaven. Brookhaven Science Associates, Brookhaven's management and operating contractor, and Stony Brook signed an "Affiliation Agreement" dated May 11, 1999, for emergency medical services (hereinafter referred to as the MOA). The MOA obligates Brookhaven to provide annual training to the Emergency Department and other staff at Stony Brook and to provide mutually agreed upon

decontamination equipment and supplies necessary to establish a designated treatment area at Stony Brook for the care of victims of radiation accidents. Reciprocally, the MOA obligates Stony Brook to accept victims of radiological accidents from Brookhaven.

The objective of the inspection was to determine whether Brookhaven implemented and adequately managed the MOA with Stony Brook. In addition, because the MOA is part of Brookhaven's Emergency Plan, which correlates to the site Hazard Assessment, our inspection included a review and analysis of those documents.

**CONCLUSIONS
AND OBSERVATIONS**

We concluded that Brookhaven has not fully implemented its MOA with Stony Brook. Although Brookhaven provided annual radiological training to Stony Brook during Fiscal Years 1999 and 2000, Brookhaven did not provide annual radiological training to Stony Brook personnel in Fiscal Year 2001 per the MOA, and had not provided the training for Fiscal Year 2002 as of the time of our site visit in June 2002. Consequently, some medical personnel may have lacked the training to appropriately treat victims of radiation accidents during an emergency. Also, as of the time of our site visit, Brookhaven officials had not met with Stony Brook officials to determine what type of decontamination equipment and supplies should be provided to Stony Brook for the care of victims of radiation accidents, and no equipment or supplies had been provided.

We found the MOA had not been updated or reviewed since it was signed in May 1999, was incomplete and contained outdated information. We also found that key emergency response management documents, including the site Emergency Plan, the site Hazard Assessment, and the MOA with Stony Brook, had not been reviewed or approved by DOE. DOE Order 151.1A requires DOE Operations/Field Managers to approve site Emergency Plans, which should include copies of agreements, such as MOAs, and ensure that they are reviewed annually and updated as necessary.

Details of Findings

Training and Equipment

The MOA between Brookhaven and Stony Brook requires Brookhaven's Radiation Monitoring Dosimetry staff and Occupational Medicine professionals to provide annual training for the Emergency Department and others at Stony Brook, with respect to the proper care and treatment of victims of radiation accidents.

We interviewed key Brookhaven Science Associates officials to determine whether Brookhaven had been providing Stony Brook annual training as required by the MOA. In order to provide a thorough response, one of these Brookhaven officials also consulted with a senior Stony Brook faculty member.

During our on-site inspection, we found that Brookhaven had not provided Stony Brook with any training in Fiscal Year 2001, nor had any been provided for Fiscal Year 2002. The Emergency Services Division had provided training to Stony Brook personnel during Fiscal Years 1999 and 2000, and the Occupational Medicine Clinic had provided training to Stony Brook personnel during Fiscal Year 2000. After discussions with us regarding this issue during June 2002, an Occupational Medicine Clinic official advised that training would be arranged.

We discussed our findings regarding the MOA implementation with a key official at Stony Brook. He said that while he was aware of the MOA, he was not familiar with the obligations listed in the MOA. He said that in light of the September 11, 2001, terrorist attacks, implementation of the MOA should ensure that all of his staff were trained in the procedures for the handling and treatment of victims of radiation accidents.

Subsequent to the issuance of our draft report, the Brookhaven Area Office informed us that in September 2002, two Stony Brook emergency medical personnel participated in training partially funded by the Brookhaven Radiological Assistance Program and in December 2002, Brookhaven and Stony Brook conducted the required training for Fiscal Year 2003.

The MOA also required Brookhaven to provide mutually agreed upon decontamination equipment and supplies to Stony Brook. Through interviews and e-mail correspondence with key DOE and Brookhaven contractor officials, we found that no decontamination equipment or supplies had been provided to Stony Brook and that

Brookhaven had not coordinated with Stony Brook to develop a list of required equipment and supplies.

During our field visit, responsible Brookhaven Science Associates officials were unaware of any discussions with Stony Brook regarding radiological equipment and could provide no details why this aspect of the MOA was not implemented. Subsequent to the issuance of our draft report, the Brookhaven Area Office informed us that the Emergency Services Division consulted with Stony Brook and determined that Stony Brook has all of the equipment needed to care for victims of radiation accidents.

MOA Information and Review

We found that the MOA had not been reviewed and updated since it was signed in May 1999, and that it contained outdated and incomplete information. For example, we noted that information included in the MOA concerning communications was not current. While the outdated and incomplete information could be easily corrected, it was clear to us that in an emergency the ability to facilitate prompt and effective communications between the laboratory and the hospital is essential. Thus, any impediment in this area was of concern.

Key Brookhaven Science Associates officials responsible for the review/updating of the MOA said that they had not reviewed/updated the MOA since it was signed in May 1999. This suggested to us that the MOA, important as it was to the safety and health of laboratory workers, was simply not treated as a priority. Also, the MOA states that it is automatically renewed each year unless either party gives written notice that it does not want to renew. We believe that the automatic renewal process contributed to the MOA not being reviewed and updated on an annual basis.

We also observed that Brookhaven's site Emergency Plan requires the inclusion of applicable MOAs as attachments for reference. At the time of our fieldwork, we found that Brookhaven officials were not aware that the MOA was not attached to the site Emergency Plan. Officials speculated that this oversight must have occurred when Brookhaven went to a "paperless" system. Subsequently, when the required annual reviews of the site Emergency Plan were conducted, the MOA was inadvertently excluded.

A key Brookhaven Science Associates official, after reviewing the MOA with us, concurred that the MOA contained incomplete and outdated information regarding the method of communication with

Stony Brook and the Brookhaven organization responsible for providing the radiological training to Stony Brook. The official indicated that the MOA should be updated.

The official also confirmed that the MOA should be included with the site Emergency Plan. The official concurred that the failure to include the MOA with the site Emergency Plan could have contributed to the failure to review the MOA since 1999.

**Emergency Plan and
MOA Not Approved
by DOE**

We found that Brookhaven Science Associates had not included DOE in the approval/concurrence or courtesy copy process regarding the annual review of the site Emergency Plan, which should have included the MOA as an attachment. We also found that Brookhaven Science Associates had not included DOE in the approval/concurrence or courtesy copy process in the annual review of the site Hazard Assessment, the document upon which the site Emergency Plan and MOA were based. In addition, DOE had not taken the initiative to ensure that Brookhaven Science Associates routed the documents for their review/approval.

A key DOE official responsible for reviewing site emergency management documents said Brookhaven Science Associates developed the MOA without including DOE “in the loop.” The official acknowledged being unaware of the MOA because DOE was not involved in its development and was not provided a copy for concurrence. The official further said that although Brookhaven Science Associates was required to route the site Emergency Plan, which should have included the MOA as an attachment, through DOE for approval/concurrence during the annual review, Brookhaven had not done so.

The DOE official said that although DOE Order 151.1A requires that the Hazard Assessment be reviewed at least annually, it does not specify whether DOE or the contractor is responsible for conducting the review, and does not state that DOE must approve, concur or be provided a copy. The official said that Brookhaven Science Associates had not routed the site Hazard Assessment to DOE for approval/concurrence.

DOE Order 151.1A requires DOE Operations/Field Managers to approve the site Emergency Plan and the site Emergency Planning Zones. The DOE official opined that Brookhaven Science Associates should have routed the site Hazard Assessment through DOE for review and approval/concurrence because the Hazard

Assessment was the basis for the development of other emergency documents, including the site Emergency Plan and site Emergency Planning Zones. Inspectors noted during this review that DOE Order 151.1A was under revision and that the proposed revision, DOE Order 151.1B, addressed the issue and required Operations/Field Office Managers to approve Hazard Assessments.

Emergency Standard Operating Procedure

A key Brookhaven Science Associates official said that the lack of implementation of the MOA was not a concern because of Brookhaven's development of its Emergency Services Division Standard Operating Procedure (SOP), Number FR-EMS-3.0.1. The official added that the SOP accurately describes the way emergencies will be handled by Brookhaven. The official explained that in the event of an emergency, two of Brookhaven's trained radiological specialists would go with the ambulance to Stony Brook to provide expertise to Stony Brook's medical staff. The official further explained that the Brookhaven radiation specialists are issued all of the emergency equipment necessary to treat the victims of radiation accidents and will bring the equipment with them to Stony Brook.

We reviewed Brookhaven's Emergency Services Division SOP. As indicated by the Brookhaven official, the SOP is a site document addressing Brookhaven actions in an emergency. We determined that the SOP describes the process for treating and transporting victims of radiation accidents up to the point of delivery of the victims to Stony Brook. The SOP does not address what will happen once the victims arrive at Stony Brook. The MOA addresses the agreement between Brookhaven and Stony Brook, stipulating that Stony Brook will accept and treat victims of radiation accidents.

Accordingly, the SOP does not ameliorate the failure to implement the requirements of the MOA. Rather, the two documents appear complementary and serve to address the process of providing on-site response and off-site treatment for victims of radiation accidents.

RECOMMENDATIONS

We found that Brookhaven had not fully implemented its MOA with Stony Brook and that it had not reviewed or updated it since 1999. Further, key emergency response management documents, including the site Emergency Plan, the site Hazard Assessment, and the MOA, had not been coordinated with DOE. The MOA is a critical part of Brookhaven's site safety preparedness. Site

preparedness is diminished if the MOA is not fully implemented, the results of which could mean potential health and safety shortfalls affecting the workplace.

We recommend that the Manager, Brookhaven Area Office take appropriate steps to:

1. Identify the Brookhaven Science Associates divisions responsible for implementing the MOA, and ensure that the MOA is fully implemented.
2. Ensure that the MOA is periodically reviewed and appropriately updated.
3. Include DOE in the review/approval process of the MOA and other emergency management documents.

We recommend that the National Nuclear Security Administration, Office of Emergency Management ensure that:

4. DOE Order 151.1B, when finalized, contains language similar to the draft language that requires the Operations/Field Office Managers to approve hazard surveys and hazard assessments.

MANAGEMENT COMMENTS

In written comments dated December 24, 2002, the Manager, Brookhaven Area Office, agreed that there are issues related to the MOA that require Brookhaven's attention and corrective action. The Manager concurred with recommendations 1, 2, and 3, but said that recommendation 4 should be eliminated or modified because the revision to DOE Order 151.B has been cancelled and will not be implemented. The Manager stated that Brookhaven conducted a training exercise with Stony Brook on December 4, 2002, which constitutes the required training for Fiscal Year 2003. In written comments dated January 24, 2003, the Manager provided additional details regarding this training. The Manager also stated that we should ensure that certain statements in the report are factually accurate.

INSPECTOR COMMENTS

Management's comments were responsive to the recommendations. General comments provided by management have been incorporated into the report where appropriate. All statements in the report have been verified as factually accurate. Regarding recommendation 4, the Office of Emergency

Management, which is responsible for DOE Order 151.B, advised that the proposed revision was removed from the Review and Comment System after the Office of Emergency Management was transferred from DOE, Office of Security, to the National Nuclear Security Administration (NNSA) and will not be revised until issues regarding the emergency management roles and responsibilities within DOE and NNSA are resolved. Nevertheless, the Office of Emergency Management concurred with the recommendation and advised that it would ensure that the order, when finalized, would contain language similar to the draft language that requires the Operations/Field Office Managers to approve hazard surveys and hazard assessments. Accordingly, we re-directed the recommendation from the DOE, Office of Security, to the NNSA, Office of Emergency Management, and recommendation 4 remains unchanged.

Appendix

SCOPE AND METHODOLOGY

Fieldwork for this inspection was completed in September 2002. We reviewed the memorandum of agreement between Brookhaven National Laboratory and Stony Brook University Hospital, as well as related emergency management documents.

To accomplish our inspection objectives, we conducted an entrance and exit conference at Brookhaven National Laboratory, and interviewed key DOE and contractor officials. We also reviewed reports, related DOE orders and guides, Brookhaven's Standard Operating Procedure, and other related documents concerning Brookhaven's management of the MOA.

This inspection was conducted in accordance with the "Quality Standards for Inspections" issued by the President's Council on Integrity and Efficiency.

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