

EDO Principal Correspondence Control

FROM: DUE: 03/09/09

EDO CONTROL: G20090067

DOC DT: 02/11/09

FINAL REPLY:

Stephen D. Dingbaum, OIG

TO:

Borchardt, EDO

FOR SIGNATURE OF :

** GRN **

CRC NO:

Ash, DEDCM

DESC:

ROUTING:

Audit of NRC's Occupant Emergency Program
(OIG-09-A-07) (EDATS: OEDO-2009-0051)

Borchardt
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Arildsen, OEDO
OIG File

DATE: 02/11/09

ASSIGNED TO:

CONTACT:

ADM

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Template: EDO-001

E-RIDS: EDO-01

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Electronic Document and Action Tracking System

EDATS Number: OEDO-2009-0051

Source: OEDO

General Information

Assigned To: ADM

OEDO Due Date: 3/9/2009 5:00 PM

Other Assignees:

SECY Due Date: NONE

Subject: Audit of NRC's Occupant Emergency Program (OIG-09-A-07)

Description:

CC Routing: NONE

ADAMS Accession Numbers - Incoming: NONE

Response/Package: NONE

Other Information

Cross Reference Number: G20090067, OIG-09-A-07

Staff Initiated: NO

Related Task:

Recurring Item: NO

File Routing: OIG

Agency Lesson Learned: NO

Roadmap Item: NO

Process Information

Action Type: Memo

Priority: Medium

Signature Level: DEDCM

Sensitivity: None

Urgency: NO

OEDO Concurrence: NO

OCM Concurrence: NO

OCA Concurrence: NO

Special Instructions: Use attached format to respond. Add the Commission and SECY as cc's. Due to OIG: 3/11/09.

Document Information

Originator Name: Stephen D. Dingbaum

Date of Incoming: 2/11/2009

Originating Organization: OIG

Document Received by OEDO Date: 2/11/2009

Addressee: R. William Borchardt, EDO

Date Response Requested by Originator: 3/11/2009

Incoming Task Received: Memo



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

OFFICE OF THE
INSPECTOR GENERAL

February 11, 2009

MEMORANDUM TO: R. William Borchardt
Executive Director for Operations

FROM: Stephen D. Dingbaum /RA/
Assistant Inspector General for Audits

SUBJECT: AUDIT OF NRC'S OCCUPANT EMERGENCY PROGRAM
(OIG-09-A-07)

Attached is the Office of the Inspector General's (OIG) audit report titled, *Audit of NRC's Occupant Emergency Program*. The objective of this audit was to evaluate the degree to which NRC is in compliance with Federal regulations and standards.

OIG identified weaknesses pertaining to staff awareness of emergency procedures, maintenance of emergency equipment, and evacuation signage in the White Flint complex.

The report contains recommendations intended to improve the NRC's Occupant Emergency Program. Instructions for responding to OIG recommendations are attached.

If you have any questions, please contact me at 415-5915 or Beth Serepca, Team Leader, at 415-5911.

Attachments: As stated

cc: V. Ordaz, OEDO
J. Arildsen, OEDO
P. Shea, OEDO

Instructions for Responding to OIG Report Recommendations

Instructions for Action Offices

Action offices should provide a written response on each recommendation within 30 days of the date of the transmittal memorandum or letter accompanying the report. The concurrence or clearance of appropriate offices should be shown on the response. After the initial response, responses to subsequent OIG correspondence should be sent on a schedule agreed to with OIG.

Please ensure the response includes:

1. The report number and title, followed by each recommendation. List the recommendations by number, repeating its text verbatim.
2. A management decision for each recommendation indicating agreement or disagreement with the recommended action.
 - a. For agreement, include corrective actions taken or planned, and actual or target dates for completion.
 - b. For disagreement, include reasons for disagreement, and any alternative proposals for corrective action.
 - c. If questioned or unsupported costs are identified, state the amount that is determined to be disallowed and the plan to collect the disallowed funds.
 - d. If funds put to better use are identified, then state the amount that can be put to better use (if these amounts differ from OIG's, state the reasons).

OIG Evaluation of Responses

If OIG concurs with a response to a recommendation, it will (1) note that a management decision has been made, (2) identify the recommendation as resolved, and (3) track the action office's implementation measures until final action is accomplished and the recommendation is closed.

If OIG does not concur with the action office's proposed corrective action, or if the action office fails to respond to a recommendation or rejects it, OIG will identify the recommendation as unresolved (no management decision). OIG will attempt to resolve the disagreement at the action office level. However, if OIG determines that an impasse has been reached, it will refer the matter for adjudication to the Chairman.

Semiannual Report to Congress

In accordance with the Inspector General Act of 1978, as amended, OIG is required to report to Congress semiannually on April 1 and October 1 of each year, a summary of each OIG report issued for which no management decision was made during the previous 6-month period. Heads of agencies are required to report to Congress on significant recommendations from previous OIG reports where final action has not been taken for more than one year from the date of management decision, together with an explanation of delays.

AUDIT REPORT

Audit of NRC's Occupant Emergency
Program

OIG-09-A-07 February 11, 2009



All publicly available OIG reports (including this report) are accessible through
NRC's Web site at:
<http://www.nrc.gov/reading-rm/doc-collections/insp-gen/>



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(OIG-09-A-07)

Attached is the Office of the Inspector General's (OIG) audit report titled, *Audit of NRC's Occupant Emergency Program*.

The report presents the results of the subject audit. Agency management comments provided after the January 26, 2009, exit conference have been incorporated into this report.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG follow up as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the audit. If you have any questions or comments about our report, please contact me at 415-5915 or Beth Serepca, Team Leader, Security and Information Management Audit Team, at 415-5911.

Attachment: As stated

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EXECUTIVE SUMMARY

BACKGROUND

An Occupant Emergency Program (OEP) is defined as, "...a short-term emergency response program [that] establishes procedures for safeguarding lives and property during emergencies...." Effective OEPs include an overview of the roles and responsibilities of involved parties, address a wide range of hazards and threats, involve coordination with local emergency responders, and consider safety codes and regulations.

An occupant emergency plan is a fundamental part of an OEP. An occupant emergency plan contains a set of procedures to protect life and property in a specific Federally occupied space under defined emergency conditions. Federal Management Regulations require every facility owned or leased by the Federal Government to have an occupant emergency plan. These regulations contain detailed information on how an occupant emergency plan should be developed and implemented.

In accordance with the regulations, the Nuclear Regulatory Commission (NRC) issued Management Directive 10.130, *Safety and Health Program Under the Occupational Safety and Health Act*. This directive provides criteria for developing and implementing individualized occupant emergency plans for each of the NRC-owned or leased buildings. Responsibility for the development, implementation, and maintenance of NRC's OEP is shared between the Office of Administration and Office of Human Resources. Together, both offices have an overall responsibility for familiarizing agency staff with the agency OEP so that proper procedures are followed during an emergency, thereby minimizing risk to NRC staff and property.

PURPOSE

The audit objective was to evaluate the extent to which the agency's Occupant Emergency Program complies with Federal regulations and standards.

RESULTS IN BRIEF

Although NRC's Occupant Emergency Program meets Federal requirements and standards, weaknesses pertaining to the implementation of the agency's Occupant Emergency Program were identified. Specifically,

- Staff lack awareness of emergency procedures.
- Emergency equipment is inadequate and poorly maintained.
- Signage in the White Flint complex is inadequate and inconsistent.

Staff Lack Awareness of Emergency Procedures

NRC has not adequately prepared its employees for emergencies, thereby potentially endangering staff safety and well-being. A recent Office of the Inspector General survey found that many NRC staff were unaware of what to do in an emergency. For example, approximately one-third of employees surveyed had not read their building's occupant emergency plan and did not know the location of their designated assembly area or who to report to upon arrival at the designated spot. In addition, more than one-third of surveyed employees who have assigned duties during an emergency (e.g., floor monitors, stairwell monitors) had not been trained on those duties. Staff are unfamiliar with procedures and untrained on duties because NRC has not provided staff with training on emergency procedures or conducted full-scale, annual evacuation drills. As a result, NRC staff and other building occupants may not know how to respond appropriately during an emergency, thereby putting their safety and that of their colleagues at risk.

Emergency Equipment Is Inadequate and Poorly Maintained

Federal agencies have published guidelines governing the placement and maintenance of lifesaving equipment such as Automatic External Defibrillators (AEDs) and Personal Emergency Kits (PEKs) for staff use during an emergency. NRC's AED program is inadequate, and agency PEKs are inconsistently provided and maintained. Some of the agency's AEDs and PEKs may not be adequate because the agency does not require that such equipment be routinely maintained. Without conducting routine maintenance or consistently issuing emergency equipment, NRC lacks assurance that lifesaving emergency equipment will be available and ready to use when needed.

Signage in the White Flint Complex Is Inadequate and Inconsistent

While the agency has posted signage denoting exit routes, some of the signage does not meet Federal guidelines and industry standards. Specifically, current signage, including evacuation maps and stairwell routing in the White Flint complex, is inadequate and inconsistently designed and posted. These deficiencies exist because management was unfamiliar with applicable guidance and standards. Without upgrading existing signage to meet Federal guidance and industry standards, NRC staff in the White Flint complex may be unable to evacuate the complex safely and expediently during an emergency.

RECOMMENDATIONS

This report makes recommendations to improve the agency's implementation of its Occupant Emergency Program. A consolidated list of these recommendations appears in Section IV of this report.

AGENCY COMMENTS

At the exit conference on January 26, 2009, agency management stated their agreement with the findings and recommendations in this report. However, management also wanted to provide written comments to provide further insight into the actions the agency is taking to improve the Occupant Emergency Program. Specifically, management wished to include agency actions that resulted from a lessons learned report pertaining to a June 25, 2008, medical event. The agency's comments are provided in Appendix B of this report.

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ABBREVIATIONS AND ACRONYMS

AED	Automatic External Defibrillator
NRC	Nuclear Regulatory Commission
OEP	Occupant Emergency Program
OIG	Office of the Inspector General
PEK	Personal Emergency Kit

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I. BACKGROUND

An Occupant Emergency Program (OEP) is defined as, "...a short-term emergency response program [that] establishes procedures for safeguarding lives and property during emergencies...." Effective OEPs include an overview of the roles and responsibilities of involved parties, address a wide range of hazards and threats, involve coordination with local emergency responders, and consider safety codes and regulations.

Federal Management Regulations require every facility owned or leased by the Federal Government to have an occupant emergency plan. In accordance with the regulations, the Nuclear Regulatory Commission (NRC) issued Management Directive 10.130, *Safety and Health Program Under the Occupational Safety and Health Act*. This directive provides criteria for developing and implementing occupant emergency plans for NRC-owned or leased buildings.¹ An occupant emergency plan is a fundamental part of an OEP. An occupant emergency plan contains a set of procedures to protect life and property in a specific Federally occupied space under defined emergency conditions.

Responsibility for the development, implementation, and maintenance of NRC's OEP is shared between the Office of Administration and Office of Human Resources. Specifically, the Office of Administration has responsibility for the following OEP-related activities: (1) developing and implementing the agency's occupant emergency plan and assisting the regional offices in developing their own occupant emergency plans; (2) providing emergency preparedness training to headquarters staff, including the scheduling and execution of fire drills; (3) ensuring that necessary resources are available to respond to emergencies in accordance with the occupant emergency plans; and (4) coordinating and obtaining approval for significant changes to the agency's occupant emergency plan. The Office of Human Resources has responsibility for assigning its personnel to perform staff accountability functions² during emergencies requiring evacuation of the headquarters buildings. Together, both offices have an overall responsibility for familiarizing agency staff with the agency OEP so that proper procedures are followed during an emergency, thereby minimizing risk to NRC staff or property.

¹ Management Directive 10.130 refers to occupant emergency plans as emergency protection plans.

² "Accountability functions" refers to accountability activities performed by designated personnel from the Office of Human Resources who have responsibility for accounting for each employee from their assigned office during a full-evacuation drill.

NRC headquarters includes six buildings located throughout Rockville and the Bethesda areas of Maryland, including the One and Two White Flint high-rises (White Flint complex) as well as the Church Street, Twinbrook, Executive Boulevard, and Gateway office buildings. Most headquarters staff work in the White Flint complex.³ Each building has its own unique occupant emergency plan with details specific to its location and facility.

II. PURPOSE

The audit objective was to evaluate the extent to which the agency's Occupant Emergency Program complies with Federal regulations and standards. Appendix A contains information on the audit scope and methodology.

³ Approximately 2,800 staff are stationed at the White Flint complex.

III. FINDINGS

By having an Occupant Emergency Program and also an occupant emergency plan for every building, NRC generally complies with Federal regulations. However, the Office of the Inspector General (OIG) identified opportunities for improvement. Specifically:

- A. Staff lack awareness of emergency procedures.
- B. Emergency equipment is inadequate and poorly maintained.
- C. Signage in White Flint complex is inadequate and inconsistent.

Addressing these issues will strengthen the agency's OEP.

A. Staff Lack Awareness of Emergency Procedures

NRC has not adequately prepared its employees for emergencies, thereby potentially endangering staff safety and well-being. A recent OIG survey found that many NRC staff were unaware of what to do in an emergency. For example, approximately one-third of employees surveyed had not read their building's occupant emergency plan and did not know the location of their designated assembly area or who to report to upon arrival at the designated spot. In addition, more than one-third of surveyed employees who have assigned duties during an emergency (e.g., floor monitors, stairwell monitors) had not been trained on those duties. Staff are unfamiliar with procedures and untrained on duties because NRC has not provided staff with training on emergency procedures or conducted full-scale, annual evacuation drills. As a result, NRC staff and other building occupants may not know how to respond appropriately during an emergency, thereby putting their safety and that of their colleagues at risk.

Agency Occupant Emergency Plans

NRC headquarters occupant emergency plans state that agency management has responsibility for ensuring that building occupants are provided with and aware of their building's occupant emergency plan. The plans state that training will be provided to all staff on their building's emergency procedures, including specific training for those staff with assigned duties during an emergency, and that such training is imperative to ensure the maximum effectiveness of the occupant emergency plans.

Recent tragedies, such as the September 11, 2001, terrorist attacks, underscore the importance of training staff in emergency procedures. A National Institute of Standards and Technology report examining staff emergency response during the collapse of the World Trade Center noted

that an effective means for training staff on emergency procedures is to conduct regular, full-scale evacuation drills. According to the report, such drills helped a significant number of personnel stationed in World Trade Center Tower Two survive the collapse of the building.⁴

Staff Awareness of Emergency Procedures Lacking

OIG conducted a survey of 159 headquarters employees assigned to the six headquarters locations. The survey results, listed below, revealed that staff were unaware of emergency response procedures as described in the headquarters occupant emergency plans.

- 34 percent had not read the occupant emergency plan for their facility.
- 66 percent did not know the NRC emergency number.
- 30 percent did not know the location of their designated assembly area.
- 28 percent did not know who to report to upon reaching the designated assembly area.
- 72 percent were not instructed on accountability procedures if there is an emergency at work and they are out of the office.

⁴ Morgan Stanley Dean Witter, an investment firm, occupied 22 floors of Tower Two in the World Trade Center. As a result of the 1993 terrorist attack on the World Trade Center, Morgan Stanley's head of security organized frequent, surprise evacuation drills that required all personnel to immediately leave their desks and proceed two by two down the stairwells to a pre-designated floor. Each drill, which pulled the firm's brokers off their phones and away from their computers, cost the company money. However, when the tower collapsed on September 11, 2001, only 13 Morgan Stanley employees were trapped, while 2,687 employees were able to evacuate safely.

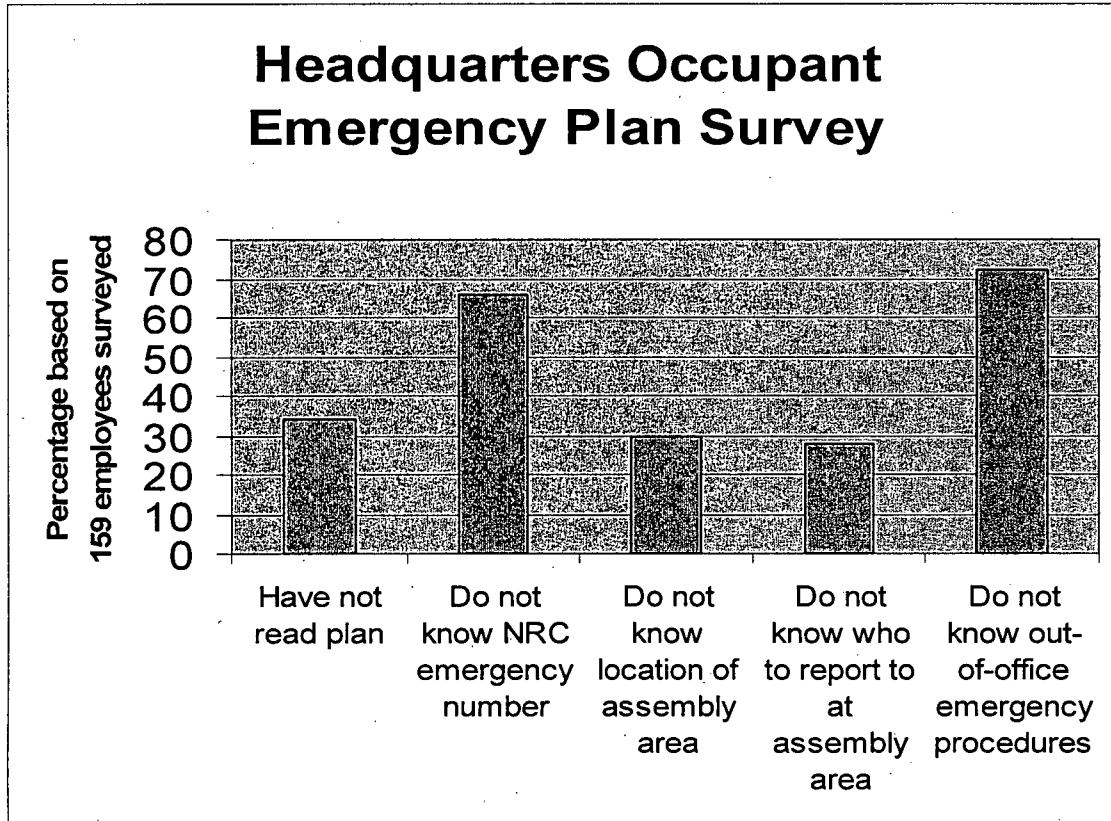


Figure 1 - Results of survey regarding staff awareness of headquarters occupant emergency plans

Additionally, 24 out of the 159 employees interviewed were assigned responsibilities during an emergency. Of those, 42 percent (10 employees) indicated they had not been trained on their emergency duties. Although the agency routinely conducts fire drills as required by Federal regulations, these exercises are limited in scope and do not involve several key features of a full-scale evacuation such as mustering⁵ and accountability assessments.⁶

Lack of Management Emphasis

Staff are unfamiliar with emergency procedures because the agency has not mandated that regular training be provided to staff or that annual full-scale evacuation drills are conducted at all headquarters buildings.

⁵ Mustering refers to the assembly of employees in a pre-designated space.

⁶ The term "accountability assessment" refers to the act of physically accounting for all employees during a full-scale evacuation.

Training

NRC's headquarters occupant emergency plans state that regular training is necessary to ensure the maximum effectiveness of the occupant emergency plans during an emergency. However, staff, including those with assigned responsibilities during an emergency, have not received periodic training on emergency procedures because there is no agency policy requiring that such training occur. Rather, it is left up to staff to familiarize themselves with emergency procedures, and any revisions thereof, noted in their building's occupant emergency plan.

Full-Scale Evacuation Drills

Although the agency conducts regular fire drills,⁷ agency policy does not require annual full-scale evacuation drills, which include complete building evacuation, mustering, and staff accountability assessments. For example, the last full-scale evacuation drill was held in October 2004 – more than 4 years ago. Since the previous full-scale evacuation drill there have been several office moves, space reconfigurations, and 1,588⁸ new employees hired. This has resulted in a large percentage of staff being unfamiliar with emergency procedures.

Safety of Agency Staff at Greater Risk

Because the agency has not formalized a policy requiring that regular training be provided to staff and full-scale evacuation drills be held annually, staff may not know how to respond appropriately during an emergency. Regular training and practical experience as provided by a full-scale evacuation drill could help reduce the fear, panic, and mass confusion that could arise during an actual emergency evacuation. Without regular training and annual full-scale evacuation drills, the safety and well being of agency staff are put at greater risk.

Recommendations

OIG recommends that the Executive Director for Operations:

1. Require annual training for those with responsibilities, such as floor and stair monitors, during an emergency.

⁷ "Regular fire drills" refers to those exercises in which an alarm is sounded and evacuation is limited to a three-floor area. These drills often involve relocating to another floor and not evacuating the building.

⁸ This figure was provided by the Office of Human Resources.

2. Require annual, unannounced, full-scale evacuation drills, including mustering and accountability assessments, at all headquarters and regional complexes.
3. Provide employees with periodic guidance reinforcing key points of the agency's occupant emergency plans and emergency procedures.

B. Emergency Equipment Inadequate and Poorly Maintained

Federal agencies have published guidelines governing the placement and maintenance of lifesaving equipment such as Automatic External Defibrillators (AEDs) and Personal Emergency Kits (PEKs) for staff use during an emergency. NRC's AED program is inadequate, and agency PEKs are inconsistently provided and maintained. Some of the agency's AEDs and PEKs may not be adequate because the agency does not require that such equipment be routinely maintained. Without conducting routine maintenance or consistently issuing emergency equipment, NRC lacks assurance that lifesaving emergency equipment will be available and ready to use when needed.

Federal Guidance

In response to recent terrorist acts and catastrophic natural disasters, the Government has published guidelines pertaining to the placement and maintenance of lifesaving equipment and supplies in Federal buildings. Guidelines pertain to the placement and maintenance of AED devices in Federal buildings and recommend that Federal employees are supplied with PEKs.

Automatic External Defibrillators

The Department of Health and Human Services issued the Federal Occupational Health Public Access Defibrillation Guidelines, which address the placement and maintenance of AEDs in Federal buildings. The Guidelines state that AEDs should be (1) routinely maintained and checked for operability, (2) placed near a telephone, and (3) referenced in the agency occupant emergency plan. Additionally, the agency issued Management Directive 10.122, *Employee Assistance and Wellness Services Program*, which states that the names of AED-trained employees located at the respective site should be posted near the AEDs. Lastly, industry best practice states that AEDs should be placed in areas where people may regularly gather.

Personal Emergency Kits

The Federal Protective Service issued the *Secure Facilities, Safe Occupants* document which provides instructions on developing an effective PEK program. The guidance lists items that should be included in the kits and recommends how the kits should be maintained. For

example, the guidance recommends that these kits contain a mask, water, a flashlight and batteries, and a first aid kit. Additionally, the guidance stresses the importance of maintaining the kits so they are ready to use when needed.

OIG Inspection

Automatic External Defibrillators Program Weaknesses

Auditors inspected 40 AEDs located in the White Flint complex and Twinbrook, Executive Boulevard, and Gateway office buildings in addition to interviewing staff involved in the placement and maintenance of agency AEDs. Auditor's found that the AEDs are not routinely maintained or checked for operability. Further, AEDs are not always placed in locations where people gather, e.g., the auditorium or parking garage levels. The inspection results, listed below, revealed that there are opportunities for improving agency management of AEDs. Figure 2 shows the inspection results.

- 100 percent of AEDs do not have a telephone in the immediate vicinity.
- 100 percent of AEDs do not have a contact list posted nearby.
- 7.5 percent of AED cabinets have stickers indicating that the alarm batteries are not operational.⁹

Auditors also found that AEDs are not specifically referenced in the headquarters occupant emergency plans.

⁹ AED cabinets are equipped to sound an alarm when the cabinet is opened. Without batteries, however, the alarm will not sound.

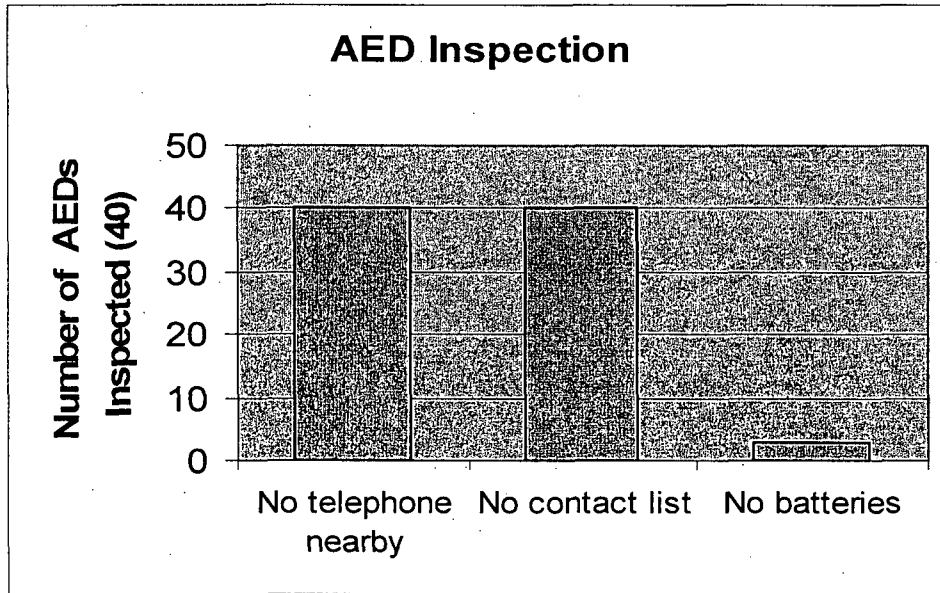
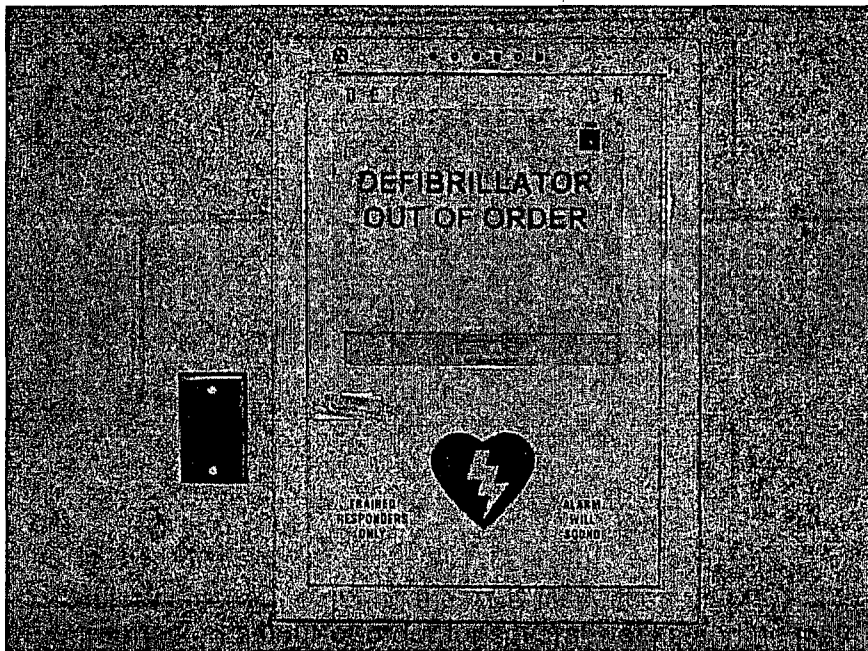


Figure 2 – Results of AED inspection

Auditors also found during the AED inspection that two of the devices were marked as out-of-order for several weeks and no instructions were provided to locate alternative devices.¹⁰



Out-of-order defibrillator on P2 parking level of One White Flint

¹⁰ The AEDs, located on P2 and P3 of One White Flint building, have since been repaired.

Personal Emergency Kit Weaknesses

Auditors inspected 139 NRC-supplied PEKs, and interviewed their respective owners to determine their familiarity with kit contents. Auditors identified two weaknesses related to the issuance and maintenance of the kits. Specifically, the PEKs are distributed inconsistently and some of the kit contents are outdated and possibly inadequate.

The agency has not been consistent in issuing the kits to headquarters staff and has not actively maintained the kits by refreshing perishable items. OIG inspection results, listed below, revealed that there are opportunities for improving agency management of PEKs.

- 86 percent contained expired water.
- 75 percent did not contain a first aid emergency kit.
- 88 percent contained flashlights with batteries that had never been replaced.

Headquarters PEK Inspection

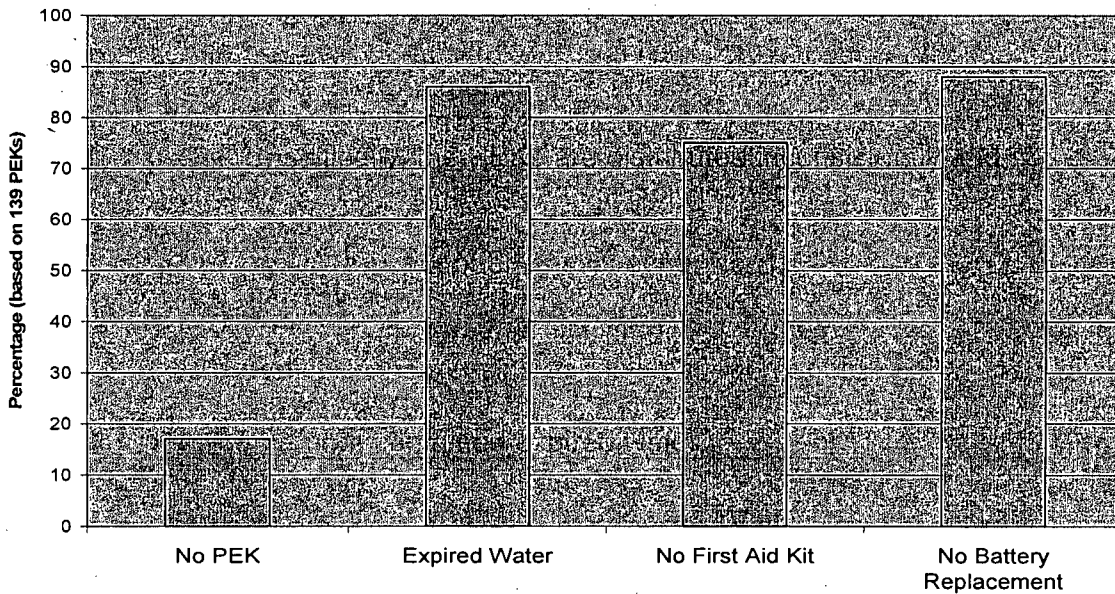


Figure 3-PEK inspection results

During interviews with staff, OIG found that PEKs are not regularly provided to consultants or contractors. In fact, auditors noted that 17 percent of staff interviewed did not have a PEK.¹¹

Lack of Policies and Procedures

The agency AED and PEK programs are inadequate because agency management has not adequately maintained emergency equipment or taken into consideration industry best practices for emergency equipment.

Staff Unprepared for Emergency

Because the agency's basic lifesaving equipment and emergency supplies are not adequately maintained or consistently issued, employees may be at risk during an emergency.

Recommendations

OIG recommends that the Executive Director for Operations:

4. Develop procedures for ensuring that AEDs are routinely maintained and checked for operability.
5. Post contact information and, where necessary, a telephone in the immediate vicinity of all AED devices.
6. Publicize the location of each AED (e.g., on the internal Web site or in the agency's occupant emergency plan).
7. Include information on the AED program in the agency's occupant emergency plan.
8. Develop procedures for consistently issuing PEKs.
9. Develop procedures for properly maintaining PEKs.

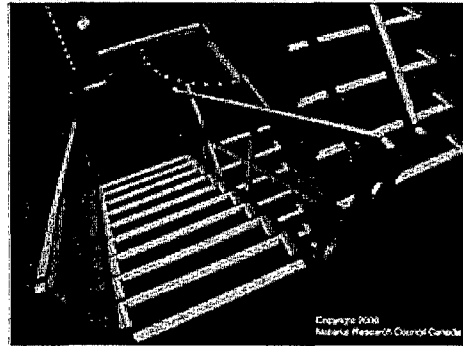
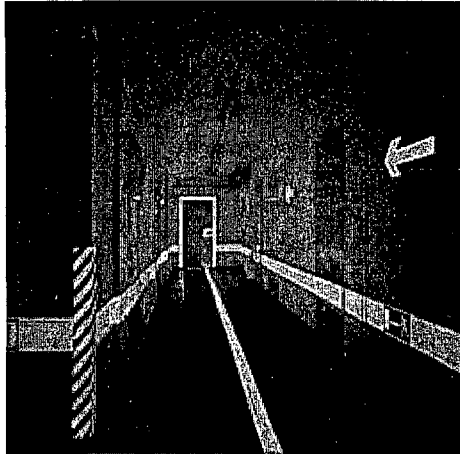
¹¹ 17 percent is based on our initial survey of 168 employees of which 29 did not have a PEK.

C Signage in White Flint Complex Inadequate and Inconsistent

While the agency has posted signage denoting exit routes, some of the signage does not meet Federal guidelines and industry standards. Specifically, current signage, including evacuation maps and stairwell routing in the White Flint complex, is inadequate and inconsistently designed and posted. These deficiencies exist because management was unfamiliar with applicable guidance and standards. Without upgrading existing signage to meet Federal guidance and industry standards, NRC staff in the White Flint complex may be unable to evacuate the complex safely and expediently during an emergency.

Federal Regulations and Best Practice

The Code of Federal Regulations states that if the route to an exit "is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit..." It further states, "the line-of-sight to an exit sign must be clearly visible at all times." These general requirements are supplemented by best practices for the design and deployment of floor maps and other visual aids, such as photo luminescent signage. For example, best practices suggested by floor map manufacturers state that evacuation maps should be photo luminescent (i.e., "glow-in-the-dark"); be strategically placed; and include specific features such as primary and alternate evacuation routes, the location of emergency equipment (i.e., AEDs, first aid kits, and fire extinguishers), instructions for reporting an emergency (e.g., calling 911 and building address), and the assembly area location where occupants should gather after an evacuation. Additionally, a Department of State audit report on emergency preparedness recommended that exit routes should also be marked with photo luminescent tape at floor and eye level so that occupants can make out the exit route even if interior lighting is inoperable.



Examples of photo luminescent tape used in darkened areas denoting exit routes

Headquarters Emergency Signage Inadequate

Auditors inspected the White Flint complex and found that evacuation maps do not comply with Federal guidance. First, during a walkthrough of the White Flint complex, auditors noted that the maps are not posted on 7 of 22 floors in One White Flint or 10 of 15 floors in Two White Flint. Second, auditors' inspection of maps in the White Flint complex revealed that they lack many of the best practice features such as being photo luminescent, noting primary and secondary evacuation routes, and the location of emergency equipment, emergency reporting information, and assembly areas.

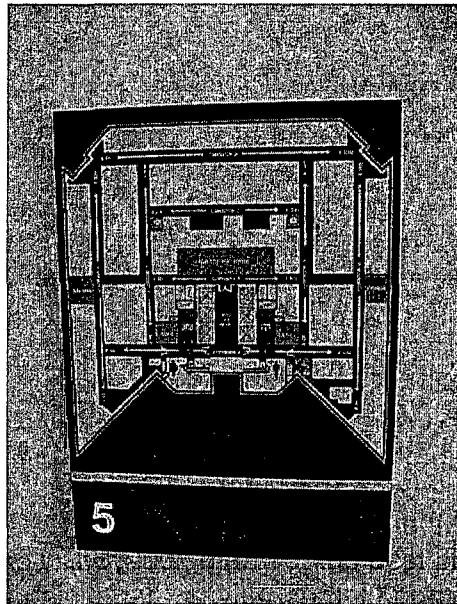


Photo showing a map in One White Flint

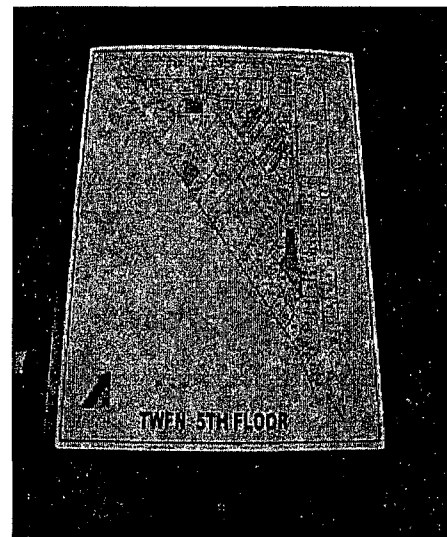


Photo showing a map in Two White Flint

Third, as illustrated in the photos above, neither map from the White Flint complex is adequately marked to use in emergencies. Lastly, the maps are not consistently placed in the same location on each floor in the White Flint complex. Essentially, in their current form, the diagrams function as floor maps rather than evacuation tools and are therefore not helpful for staff use during an emergency.

In addition, exit routes in stairwells are not marked to indicate the direction of travel to the nearest exit. Further, stairways in the White Flint complex do not have photo luminescent tape at floor and eye levels to indicate the direction of travel in an emergency.

NRC Management Unaware

Auditors met with senior staff to present their observations, and learned that management was unaware of requirements for exit signs and was unfamiliar with best-practice guidance for emergency signage. Without awareness of these standards, agency management has no basis for judging the adequacy of existing exit and emergency signage in NRC headquarters buildings and making necessary upgrades.

Increased Risk to Building Occupants

Auditors did not identify cases in which substandard exit and emergency signage at the White Flint complex had resulted in injury or loss of life. Nevertheless, non-compliance with Federal regulations and best-practice standards increases the risk that NRC employees, visitors, or other occupants of the White Flint complex will not be capable of safe and timely evacuation in the event of an emergency. This risk is present for common emergencies, such as fire, and is arguably higher for incidents such as a catastrophic terrorist attack. NRC could mitigate this risk and improve occupant safety at its White Flint complex with relatively minor investment in emergency signage upgrades to meet Federal requirements, and by incorporating best-practices that are becoming common among businesses and other Federal Government agencies.

Recommendations

10. Update maps so they are compliant with industry best practices and can function as evacuation tools.
11. Consistently place maps in the same location on every floor of the White Flint complex.

12. Post photo luminescent signs and markings at both eye and floor levels, along all exit accesses indicating the direction of travel to the nearest exit.

IV. CONSOLIDATED LIST OF RECOMMENDATIONS

OIG recommends that the Executive Director for Operations:

1. Require annual training for those with responsibilities, such as floor and stair monitors, during an emergency.
2. Require annual, unannounced, full-scale evacuation drills, including mustering and accountability assessments, at all headquarters and regional complexes.
3. Provide employees with periodic guidance reinforcing key points of the agency's occupant emergency plans and emergency procedures.
4. Develop procedures for ensuring that AEDs are routinely maintained and checked for operability.
5. Post contact information and, where necessary, a telephone in the immediate vicinity of all AED devices.
6. Publicize the location of each AED (e.g., on the internal Web site or in the agency's occupant emergency plan).
7. Include information on the AED program in the agency's occupant emergency plan.
8. Develop procedures for consistently issuing PEKs.
9. Develop procedures for properly maintaining PEKs.
10. Update maps so they are compliant with industry best practices and can function as evacuation tools.
11. Consistently place maps in the same location on every floor of the White Flint complex.
12. Post photo luminescent signs and markings at both eye and floor levels, along all exit accesses indicating the direction of travel to the nearest exit.

V. AGENCY COMMENTS

At the exit conference on January 26, 2009, agency management stated their agreement with the findings and recommendations in this report. However, management also wanted to provide written comments to provide further insight into the actions the agency is taking to improve the Occupant Emergency Program. Specifically, management wished to include agency actions that resulted from a lessons learned report pertaining to a June 25, 2008, medical event. The agency's comments are provided in Appendix B of this report.

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SCOPE AND METHODOLOGY

Auditors evaluated the extent to which NRC's Occupant Emergency Program complies with Federal regulations and standards. This audit resulted from an FY 2008 audit, *Audit of the Agency's Continuity of Operations Plan*, which was issued in FY 2008.

The OIG audit team reviewed relevant Governmentwide criteria, including Federal requirements and standards governing the development and implementation of Occupant Emergency Plans as noted in the Code of Federal Regulations, Chapters 29 and 41, and the Federal Protective Services Occupant Emergency Plan guide. Auditors also reviewed agency-specific guidance, including Management Directives 10.122, *Employee Assistance and Wellness Services Program*, and 10.130, *Safety and Health Program Under the Occupational Safety and Health Act*. Independent reports pertaining to emergency preparedness were also consulted, including a Department of State audit report and a National Institute of Standards and Technology independent evaluation.

Auditors randomly surveyed a total of 159 headquarters staff to determine their familiarity with their occupant emergency plan. Auditors also randomly inspected 139 PEKs located at headquarters to determine consistency in PEK contents and how they are maintained. The survey results were recorded on an OIG-created checklist, which was developed in accordance with Federal and agency requirements, standards, and best practices pertaining to emergency preparedness. Additionally, auditors inspected several pieces of emergency equipment located in headquarters buildings for placement and operability. These devices included AEDs, floor maps, and emergency lighting located in stairwells. Auditors analyzed the survey results to determine whether NRC is adequately maintaining emergency equipment.

This work was conducted from June 2008 through October 2008 in accordance with generally accepted Government auditing standards. Those standards require that the audit is planned and performed with the objective of obtaining sufficient, appropriate evidence to provide a reasonable basis for any findings and conclusions based on the stated audit objectives. OIG believes that the evidence obtained provides a reasonable basis for the report findings and conclusions based on the audit objective. The audit work was conducted by Beth Serepca, Team Leader; Terri Cooper, Audit Manager; and Jaclyn Storch, Senior Management Analyst.

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AGENCY COMMENTS

From: Jesse Arildsen
Sent: Wednesday, February 04, 2009 9:30 AM
To: Jaclyn Storch
Cc: Martin Virgilio; Vonna Ordaz; Karen Olive; David Holley; Kathleen Blake; Darren Ash; Terri Cooper; Beth Serepca; Anthony Lipuma; Stephen Dingbaum; Georgette Price
Subject: Forwarding OEP Audit Report Management Comment

Jaclyn,

Thank you for the opportunity to provide a Management Comment for inclusion in the OIG audit report on NRC's Occupant Emergency Plan. The Comment is provided below.
Jesse

The Agency Lessons-Learned Oversight Board (LLOB) recently reviewed the November 10, 2008, Lessons Learned report of the medical event which resulted in the death of a staff member at the Executive Boulevard Building (EBB) on June 25, 2008 (ML082970070). The Lessons Learned report was prepared by the Medical Event Working Group (MEWG) that was formed to review existing materials pertaining to the June 25th event. The MEWG and the Executive Steering Committee that oversaw the MEWG assessment concluded that while appropriate action was taken in a timely manner, further effort is required to clarify and or expand on Agency procedures. Immediate action was taken to address and close many of the recommendations of the MEWG, and action on others is nearing completion. The Agency's response was consistent with the recommendations in the OIG report, and in fact, six of the eleven recommendations in the MEWG document are similar to and complement recommendations four through nine of the OIG report. Furthermore, the agency has now taken a broader approach in assuring employee health and safety by looking at all of its facilities and related programs and by building on the lessons learned from the EBB medical event.