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**OFFICE OF THE STATE AUDITOR'S  
REPORT ON THE EXAMINATION OF  
INFORMATION TECHNOLOGY RELATED CONTROLS  
AT THE STATE RECLAMATION AND MOSQUITO CONTROL BOARD**

**January 1, 2008 through December 11, 2009**

**OFFICIAL AUDIT  
REPORT  
APRIL 14, 2010**

**TABLE OF CONTENTS**

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<b>INTRODUCTION</b>	<b>1</b>
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<b>AUDIT SCOPE, OBJECTIVES, AND METHODOLOGY</b>	<b>2</b>
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<b>AUDIT CONCLUSION</b>	<b>5</b>
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## INTRODUCTION

The State Reclamation and Mosquito Control Board is organized in accordance within Chapter 252, Section 2, of the Massachusetts General Laws. The Board was placed within the purview of the Executive Office of Energy and Environmental Affairs (EEA) under Chapter 21, Section 7, of the General Laws. The Board's mission is to control the population of mosquitoes and greenhead flies to prevent the spread of related diseases.

The Board is comprised of three members representing the Department of Agricultural Resources (DAR), Department of Conservation and Recreation (DCR), and Department of Environmental Protection (DEP). The Board also has a staff of three employees. The administration of IT programs and services for the Board is provided by EEA. The Board, which has its headquarters located at 251 Causeway Street Boston, Massachusetts, received a state appropriation of approximately \$10.7 million for fiscal year 2009.

The State Reclamation and Mosquito Control Board's business operations are supported by an IT configuration of an EEA file server and three workstations. The EEA file server, designated to support the Board, is connected to MAGNet which is the Commonwealth of Massachusetts wide area network that provides access to the Commonwealth's Human Resources/Compensation Management System (HR/CMS) and the Massachusetts Management Accounting Reporting System (MMARS). The primary software product used by the Board to support its business processes is Microsoft Office, which is used for correspondence, spreadsheet and data base analysis, and administrative documentation.

According to the Board's website, all mosquito control activities and work are performed pursuant to the provisions of Chapter 252 of the General Laws and special legislation that established nine regional mosquito control projects/districts throughout the state. There are 193 municipalities that are included as member communities within the nine regional mosquito control projects. Each regional mosquito control project, which is overseen by Commissioners who are appointed by the Board, employs a director or superintendent to manage the day-to-day operations. The Board also manages through a project administrator and staff all accounting and fiscal transactions for the nine mosquito control projects and districts. The nine regional mosquito control projects employed approximately 140 full-time and seasonal employees in fiscal year 2009.

Mosquito control projects or districts use a comprehensive strategy known as Integrated Pest Management, or IPM, to control the number of mosquitoes. The major objective of IPM is to achieve desired levels of pest control in an environmentally responsible manner. The Office of the State Auditor's examination focused on evaluation and review of certain IT-related general controls.

## **AUDIT SCOPE, OBJECTIVES, AND METHODOLOGY**

### **Audit Scope**

In accordance with Chapter 11, Section 12, of the Massachusetts General Laws, we performed an information technology (IT) general controls examination of IT-related activities at the State Reclamation and Mosquito Control Board for the period of January 1, 2008 through December 11, 2009. The audit was conducted from July 2, 2009 through September 30, 2009 and from December 1, 2009 to December 11, 2009. Our audit scope included an examination of IT-related general controls pertaining to physical security, systems access security, inventory control over computer equipment, and business continuity planning.

### **Audit Objectives**

Our audit objective regarding physical security controls was to determine whether adequate controls were in place and in effect to provide reasonable assurance that the Board's IT resources would be protected against unauthorized physical access, unauthorized use, damage, or loss. Our objective regarding system access security for software applications was to determine whether adequate controls had been implemented to provide reasonable assurance that only authorized users were granted access to the Board's application systems and data files. Our objective regarding inventory control of computer equipment was to determine whether controls were in place and in effect to provide reasonable assurance that computer equipment was properly recorded and accounted for. Regarding business continuity planning, we sought to determine whether IT operations could be regained within an acceptable period of time through a comprehensive business continuity strategy should systems be rendered inoperable or inaccessible.

### **Audit Methodology**

To determine the scope of the audit, we performed pre-audit survey work regarding the Board's overall mission and IT environment. Regarding our review of IT policies and procedures, we interviewed senior management and staff, completed questionnaires and obtained and reviewed existing IT-related policies and procedures. We interviewed the Board's staff regarding the extent to which IT policies and procedures were documented and formalized. We also reviewed the DAR internal control plan, which also addresses the Board's operations, to determine whether IT controls were appropriate, sufficiently detailed and current.

To assess physical security, we interviewed management, conducted walk-throughs, and reviewed procedures for documenting and addressing security violations or incidents. Physical security was reviewed for the Board's administrative offices. Through observation, we determined the adequacy of

physical security controls over areas housing IT equipment. We examined the existence of controls, such as door locks, remote cameras, and intrusion alarms.

To obtain an understanding of access security controls, we reviewed the Board's access security policies and procedures designed to grant access to authorized users and to prevent unauthorized access to the application systems and data files accessible through the Board's workstations. We also reviewed password administration controls, such as user account activation and deactivation, password length and composition, and the frequency of password changes.

To determine whether adequate controls were in place and in effect to properly account for the Board's computer equipment, we reviewed relevant inventory control procedures, interviewed individuals responsible for inventory control, and obtained and tested the inventory record of computer equipment. We examined policies and procedures regarding IT inventory to determine whether the Board was in compliance with the Office of the State Comptroller's regulations regarding IT asset control. We determined whether appropriate data fields were contained in the Board's inventory record and verified inventory data for asset identification, description, tag number, and location.

To determine whether the Board complied with Commonwealth of Massachusetts regulations for accounting for assets, we reviewed evidence supporting the Board's performance of an annual physical inventory of IT assets. Our review of inventory control included assets held in the selected projects and the means the projects used to report changes in inventory to the Board. Finally, to determine whether the Board's staff were aware of, and in compliance with, Chapter 647 of the Acts of 1989 reporting requirements for missing or stolen assets, we reviewed documented inventory control policies and procedures, interviewed senior management to determine whether the Board had had any incidences of missing or stolen IT-related equipment during the audit period, and verified whether any incidents were reported to the Office of the State Auditor.

To assess the adequacy of business continuity planning, we determined whether the Board, in conjunction with EEA, its governing body, had formal documented plans or strategies to resume computer operations should the network application systems be rendered inoperable or inaccessible. In addition, we determined whether the criticality of application systems had been assessed, and whether risks and exposures to computer operations had been evaluated. Furthermore, to evaluate the adequacy of controls to protect data files through the generation and on-site and off-site storage of backup copies of magnetic media, we interviewed the Board's staff and selected regional staff regarding the generation and storage of backup copies of computer-related media.

We evaluated the extent to which the Board had plans that could be activated to resume IT-supported operations should the network and the server be rendered inoperable or inaccessible. We interviewed

senior management to determine whether the Board had formally documented procedures for the development and maintenance of appropriate business continuity plans. We also determined the extent to which the Board had performed a risk analysis with regard to the loss of IT-enabled business operations under different disaster scenarios.

Our audit was conducted in accordance with generally accepted government auditing standards issued by the Comptroller General of the United States through the Government Accountability Office and generally accepted industry practices. Audit criteria used for our audit included the Office of the State Comptroller's regulations and the Information Systems Audit and Control Association's management control practices and guidelines outlined in Control Objectives for Information and Related Technology (CobiT), issued in 2007.

### AUDIT CONCLUSION

Based on our audit of the State Reclamation and Mosquito Control Board, we found that internal controls in place provided reasonable assurance that IT-related control objectives would be met with respect to physical security, system access security, inventory control of computer equipment at the Boston office, and business continuity planning. However, we found that the Board needed to strengthen and formalize IT policies and procedures to provide reasonable assurance that IT systems can be restored and that business operations can be regained within an acceptable period of time. In addition, inventory control of computer equipment needed to be enhanced at regional projects. Inventory records of equipment at the regional projects were not being forwarded to the Board for reconciliation and reporting to the Office of the State Comptroller. A review of selected regional projects indicated that although the projects were maintaining backup copies of magnetic media, the backup copies were also not being stored at secure off-site locations.

We found that physical security controls provided reasonable assurance that the Board's IT resources were safeguarded from unauthorized access. We also found adequate physical security controls in place in the administrative offices housing the Board's workstations. The building housing the Board's office space has alarms to the local police station. Our examination also disclosed that the Board's administrative offices had restricted access through the use of physical access "swipe" cards and was kept locked after business hours at all times. However, we determined that physical security policies and procedures lacked sufficient detail.

We found that controls over access security provided reasonable assurance that access privileges would be deactivated or appropriately modified should the Board's employees terminate employment or incur a change in job requirements. Through observation and interviews, we determined that administrative password composition and changes to passwords were adequately controlled for access through the Board's IT network. However, we determined that systems access security policies and procedures lacked sufficient detail.

With respect to inventory control over computer equipment, we found that the Board was in compliance with fixed assets policies and procedures promulgated by the Office of the State Comptroller and had conducted an annual physical inventory and reconciliation of equipment in Boston. In addition, we found that the Board was maintaining an up-to-date perpetual inventory system of record that included all required asset information. Our inspection of computer equipment items at the Board in Boston disclosed that all items were locatable and had been recorded on the inventory listing of June 30, 2009 with appropriate inventory information, including tag numbers and serial numbers. However, we

determined that policies and procedures relevant to inventory control over computer equipment lacked sufficient detail to be submitted to senior management for review and approval.

Since the mission of the State Reclamation and Mosquito Control Board is to control the population of mosquitoes and greenhead flies to prevent the spread of related diseases, most assets to perform this mission are located at the nine regional projects. According to Board's staff, the inventory of all equipment used by the projects is not maintained at the Board. It is recommended that the annual reporting submitted by the projects to the Board also include an inventory of all assets.

Our audit disclosed that the Board did not have a formal business continuity plan to provide reasonable assurance that business operations could be regained effectively and in a timely manner should a disaster render IT systems inoperable or require that the administrative office needs to be relocated. We found that adequate procedures were in place regarding the generation of backup copies of magnetic media at the Board's administrative office in Boston. However, although the regional projects generated online backup copies of data files, provisions for off-site storage of backup copies were not in effect.

#### **Auditee's Response**

*The State Reclamation and Mosquito Control Board (SRMCB) in conjunction with Department of Agricultural Resources (DAR) and the Executive Office of Energy and Environmental Affairs (EEA) will seek to implement the following recommendations:*

- *Strengthen and formalize IT policies and procedures in conjunction with EEA policies and procedures related to IT Consolidation at the Secretary's Office in accordance with Executive Order No. 510 Enhancing the Efficiency and Effectiveness of the Executive Department's Information Technology Systems. These actions along with the identification of existing statewide contracts that provide IT related goods and services and emergency assistance to the regional mosquito control projects will help to provide assurances that IT systems can be restored in a timely manner so as not to delay business and/or mosquito control operations. Existing internal and inventory controls will be improved, updated and centralized at the SRMCB's Boston Office to include implementation and documentation of computer equipment inventory located at the regional mosquito control projects. Documentation will include any previous or scheduled surplus or disposal of IT related equipment and a schedule for regular updates will also be created. Within the scope of inventory controls reconciliation of IT related equipment will occur along with reporting to the Office of the State Comptroller.*
- *In addition to the aforementioned, SRMCB will conduct a review of all regional mosquito control projects practices regarding maintaining backup copies of magnetic media and current storage locations. Upon conclusion of SRMCB's review updated procedures for best practices will be implemented along with identification of off-site locations for secure storage of back up copies of computer files.*



- *DAR will review its physical security policies and procedures relative to its administrative offices at 251 Causeway Street with the objective of increasing sufficient detail and documentation in its policies and procedures.*
- *SRMCB will review and consider implementing recommendations to include the inventory of all assets in the annual reports of mosquito control equipment used and maintained by the regional mosquito control projects.*
- *SRMCB in conjunction with DAR will review and update as needed business continuity plans to provide assurances that business operations could be regained effectively and in a timely manner in the event of a disaster that could render IT systems inoperable or require administrative offices be relocated. Such a review will include both SRMCB and the regional mosquito control projects administrative offices.*

*In conclusion, SRMCB and DAR appreciate the feedback provided by the State Auditors Office.*

### **Auditor's Reply**

We acknowledge the steps outlined above which are to be implemented by the State Reclamation and Mosquito Control Board in conjunction with Department of Agricultural Resources and the Executive Office of Energy and Environmental Affairs. The procedures listed above for IT consolidation, magnetic media storage, physical security, and business continuity planning appear to be appropriate. We suggest, however, that the inventory at the Boston office and at the projects should include all other assets in addition to IT equipment.