CASE STUDY 6
Massachusetts Highway Department (Mass Highway)
Environmental Management System
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**CASE STUDY 6**

**Massachusetts Highway Department (MassHighway)**  
*Environmental Management System*

**STATUS**  
Implemented.

**FOCUS**  
Operation and maintenance activities at depot facilities.

**DOT’s BASIS FOR SELECTION OF FOCUS**  
In 1994, in response to an Administrative Consent Order (remediation costs >$50 million) with the Department of Environmental Protection, MassHighway began a comprehensive environmental compliance initiative at its maintenance facilities. Six major compliance programs were identified and EMS procedures, processes, and tools developed for: Hazardous Waste, Wetlands, Hazardous Materials, Underground Storage Tanks, Water Quality, and Solid Waste.

**RELEVANCE TO THE EMS PROCESS ROADMAP**  
MassHighway uses the Plan – Do – Check – Act process (and, in turn, many of the steps presented in the Process Roadmap) in developing and implementing their EMS.

**ACCOMPLISHMENTS AND BENEFITS**

- MassHighway managers have noticed an increased environmental awareness in the substantial majority of maintenance employees. This awareness, coupled with environmental procedures, responsibilities, training, and assessments, helps Mass High way prevent environmental problems and makes it easier to correct such problems when they do occur. This, in turn, reduces costs of compliance (including potential fines) and corrective actions.
- The EMS has led to improved relations with regulatory authorities (thus easing oversight and permitting burdens and delays) and has helped MassHighway preserve its mission.

**KEYS to SUCCESS**

- Efforts to develop this system were supported by the Secretary of the Executive Office of Transportation and Construction (EOTC), the Commissioner of MassHighway, and senior management by declaring the EMS as a goal through the Massachusetts Managing for Results Initiative Program.
- While considerable time has been invested in planning how the system should work, the Agency recognizes that the EMS must be dynamic and adaptive to regulatory and operational changes.
- The Agency also recognized that continued environmental compliance is dependent upon the development of clear lines of authority, responsibility and accountability for environmental management and identification and allocation of adequate funding.
- Involved personnel (including managers and staff) from across the organization and the state in efforts.
- Communication of expectations, goals, requirements, and procedures to all involved employees ensures that personnel know what is expected and builds consistency. “You cannot communicate enough…”
- Use existing methods and procedures, as much as possible with minor modifications as needed, to accomplish what you want to do – this builds acceptance and reduces the need to create new processes. Most people do not accept change readily.
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Environmental Management System

KEYS to SUCCESS (cont’d)

• MassHighway elected to develop programs to achieve compliance in advance of adopting the formal EMS. This was in part due to regulatory pressure but also allowed the EMS to encompass already existing programs that employees had been using.

IMPLEMENTATION NEEDS

• Needed to identify expected costs and benefits to obtain resources and commitment with the development of an Implementation Plan.
• Consultant support was needed to assist in EMS development and implementation.
• Training and other communications were needed to raise the environmental awareness of employees and are still needed to maintain awareness.
• The EMS efforts required the support of approximately 10 Central Office and Field staff.
• Consultant resources are currently needed to inventory all permits to be logged into a web-based tracking database "EnviroTrac", and to support other special projects such Spill Prevention Countermeasure and Control Plan development at selected Facilities.

BACKGROUND, ADDITIONAL INFO

By assessing its facilities MassHighway established that there were many issues relative to environmental compliance one of the most visible was the improper storage of hazardous waste. The Governor and the Executive Office of Environmental Affairs further required that all agencies perform environmental audits of their respective facilities. It became clear that it made sense to keep the facilities in proper order and develop sustainable methods of operation. The EMS was created sustain environmental compliance with respective its depot facilities.

• In the mid-90s, MassHighway performed a gap analysis to evaluate MassHighway’s management structure and to determine the level of environmental compliance. 600 aspects were reduced to 6 compliance priority areas.
• The gap analysis concluded that a significant financial and personnel investment was needed to correct violations of regulatory requirements and to provide a method to ensure on-going compliance. EMS became a tool to ensure compliance and realize savings in fines and supplemental environmental projects to preserve mission, while increasing consistency and understanding.
• Separate Management System Improvement and Implementation Plans were prepared. Together these plans outlined the programs and funding needed to achieve environmental compliance. During the development of these plans it was determined that the majority of the funding for environmental compliance would be directed toward "cleaning up" the previously accumulated wastes located at the facilities.
  o Under the Hazardous Waste and Solid Waste Programs, these wastes were removed and either properly disposed of or recycled. New waste/material storage areas and equipment for spill management were also provided through the Hazardous Material Program.
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Massachusetts Department of Transportation (Mass Highway)
Environmental Management System

BACKGROUND, ADDITIONAL INFO (cont’d)

- The Water Quality Program provided for facility improvements such as septic system upgrades/installation, sewer connections, floor drain upgrades and the installation of wash water recycling systems.
- The Wetland Program provided for the identification of impacts to wetlands, and the implementation of corrective actions.
- The Tank Program replaced or upgraded all USTs to meet Federal standards.

Subsequent to the development of the management plans, an additional compliance program was instituted for managing asbestos issues and is currently responsible for inspection and abatement of known locations of asbestos and requires the oversight of the Statewide and District Asbestos Coordinators during facility demolition and renovation projects.

- MassHighway published a Facility Environmental Handbook particular to each facility. This handbook is a reference document that provides guidance on conducting operations in compliance with environmental requirements. It contains standard operating procedures and maps to identify structures and environmentally sensitive areas such as wetlands. The handbook is used to train MassHighway personnel on an annual basis and raise the level of environmental awareness. The department also has an EMS manual and 20 operating procedures and is developing a website.
- A committee with District Maintenance Engineers was established to define roles, which are reviewed annually during training events for all facility personnel (training in off season time). MassHighway’s Standard Operating Procedures references these roles and responsibilities.
- In developing the EMS, MassHighway used existing methods and procedures to accomplish wants with minimum (/) modifications.

CONTACT(S)

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EXAMPLE TOOLS, PROCEDURES

A key to the success of any EMS is the commitment of senior management. Exhibit 1, A Commitment to the Environment, demonstrates this commitment in MassHighway and explains the significance of the EMS.

Mass Highway has prepared an EMS Manual which captures its EMS procedures, processes, and tools. Following are descriptions of excerpts from this Manual.

- Exhibit 2 provides the Table of Contents.
- Exhibit 3 presents the EMS Manual’s Executive Summary. This section provides background on the EMS and explains EMS goals, procedures, processes, and tools. PLEASE NOTE: the Executive Summary embodies the Plan – Do – Check – Act process described in the AASHTO EMS Process Roadmap.
- Exhibit 4 provides an excerpt that identifies District Roles and Responsibilities. This excerpt illustrates the need to clearly identify and communicate environmental roles and responsibilities.
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Massachusetts Department of Transportation (Mass Highway)

Environmental Management System

EXAMPLE TOOLS, PROCEDURES (cont’d)

• Exhibit 5 presents an excerpt describing training requirements. Training is a key to understanding and implementing environmental requirements and EMS procedures.
• Exhibit 6 provides an excerpt that describes another key element of a successful EMS – self auditing.

Following are excerpts of procedures and tools that MassHighway uses to implement its EMS.

• Exhibit 7 shows the Self Audit Checklist used during the annual facility self audit. This checklist is provided in the Self Audit Procedure Fieldbook.
• Exhibit 8 presents an excerpt of the Regular Inspection Checklist which is used to periodically inspect for compliance violations and initiate corrective actions if needed.
• Exhibits 9 through 12 provide examples of Standard Operating Procedures which are used by field personal as a tool to support compliance and Agency goals. There are 24 such procedures.
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Exhibit 1

A COMMITMENT TO THE ENVIRONMENT

As the Massachusetts state transportation agencies carry out their mission to provide efficient, safe, clean and cost effective transportation systems and services for the Commonwealth, the Executive Office of Transportation and Construction remains committed to being responsible stewards of the environment. Our actions can have a broad and visible impact on the communities we serve. When routine maintenance activities are conducted at our transportation maintenance facilities we incur certain responsibilities to safeguard the environment. Therefore we must remain accountable for our actions and exercise good judgment while employing sound housekeeping practices to avoid and otherwise minimize impacts to the environment.

MassHighway is one agency that has taken a leadership role in supporting EOTC’s overall environmental commitment by developing a formal Environmental Management System (EMS) that will ensure continual compliance with all environmental requirements that apply to its facility operations. All MassHighway employees are expected to conduct their job responsibilities in accordance with the EMS and its supporting programs. Although this EMS is specific to MassHighway, each agency should use the framework of the EMS as a model to establish formal programs and procedures that promote sustainable practices within their own agency. Understanding the importance of an EMS and following the established procedures will result in increased efficiency, better community relations and a safer and cleaner environment.

Please join me in promoting and strengthening our environmental ethic by making all EOTC Agencies a part of this commonwealth’s environmental solution through effective management of our facility operations, working as “good neighbors” and good stewards of the environment.

Daniel A. Grabauskas
Secretary of Transportation

John Cogliano
Commissioner, MassHighway

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Telefax (617) 523-6454

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Executive Summary

Background

In 1994, in response to an Administrative Consent Order with the Department of Environmental Protection, MassHighway began a comprehensive environmental compliance initiative at its maintenance facilities. At the outset, the department performed a gap analysis to evaluate MassHighway’s management structure and to determine the level of environmental compliance. The gap analysis concluded that a significant financial and personnel investment was needed to correct violations of regulatory requirements and to provide a method to ensure on-going compliance. The need to develop and institutionalize a formal Environmental Management System to support environmental compliance was thus identified. The efforts to develop this system were supported by senior management at MassHighway and the Executive Office of Transportation and Construction (EOTC). As a result, separate Management System Improvement and Implementation Plans were prepared. Together these plans outlined the programs and funding needed to achieve environmental compliance. During the development of these plans it was determined that the majority of the funding for environmental compliance would be directed toward “cleaning up” the previously accumulated wastes located at the facilities. Six major compliance programs were immediately created: Hazardous Waste, Wetlands, Hazardous Materials, Underground Storage Tanks, Water Quality and Solid Waste. Under the Hazardous Waste and Solid Waste Programs, these wastes were removed and either properly disposed of or recycled. New waste/material storage areas and equipment for spill management were also provided through the Hazardous Material Program. The Water Quality Program provided for facility improvements such as septic system upgrades/installation, sewer connections, floor drain upgrades and the installation of wash water recycling systems. The Wetland Program provided for the identification of impacts to wetlands and the development and implementation of corrective actions. The Tank Program replaced or upgraded all USTs to meet Federal standards. Subsequent to the development of the management plans, an additional compliance program was instituted for managing MassHighway’s asbestos issues. MassHighway further published a Facility Environmental Handbook particular to each facility. This handbook is a reference document that provides guidance on conducting operations in compliance with environmental requirements. It contains standard operating procedures and maps to identify structures and environmentally sensitive areas such as wetlands. The handbook is used to train MassHighway personnel on an annual basis and raise the level of environmental awareness.

Environmental Compliance and the EMS Manual

While providing facility staff with the appropriate tools and upgrading the facility infrastructure were important first steps, the Department also recognized that continued environmental compliance is dependent upon the development of clear lines of authority, responsibility and accountability for environmental management and identification and allocation of adequate funding. This Environmental Management System (EMS) manual serves that purpose in that it documents the lines of authority and the respective roles and responsibilities within the department. This manual also provides the framework to instill an operating awareness at all organizational levels of the importance of integrating sound environmental management practices into the operations of the Department.

MassHighway has designed the EMS in accordance with a Plan, Do, Check, Act improvement cycle. While considerable time has been invested in planning how the system should work, the Department recognizes that the EMS must be dynamic and adaptive to regulatory and operational changes. To meet this need a regular review process will be in effect to ensure that the system can be modified and continually improved to meet the Department’s objectives.
Continuous Improvement Cycle

Environmental roles and responsibilities have been assigned to all levels of MassHighway. A general description of roles and responsibilities of each Division, Section, and District is provided in Section I of this manual. Procedures for implementing each component of the system as well as a description of an employee’s specific role and responsibility is described in further detail in Section II of the manual.

MassHighway’s EMS consists of specific components which serve separate and distinct purposes but are integrated to become part of the overall system. An overview of these components is provided below.
# Environmental Management System Manual Overview

<table>
<thead>
<tr>
<th>EMS Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding</td>
<td>Identifies the process and responsibilities for allocating adequate funding for environmental compliance at MassHighway Facilities.</td>
</tr>
<tr>
<td>Environmental Requirements</td>
<td>Discusses the environmental laws and regulations that apply to operations at maintenance facilities, and the procedures for identifying proposed and new regulatory changes that affect operations at maintenance facilities.</td>
</tr>
<tr>
<td>Emergency Preparedness</td>
<td>Identifies the MassHighway procedures for planning and responding to spills at MassHighway facilities.</td>
</tr>
<tr>
<td>Standard Operating Procedures</td>
<td>Describes the methods for identifying the need for environmental standard operating procedures (SOPs) as well as the development, review, revision and, endorsement of environmental SOPs to guide facility staff on environmental management requirements.</td>
</tr>
<tr>
<td>Facility Environmental Handbook and Maps</td>
<td>Identifies the purpose of the Facility Environmental Handbook and Maps and, provides for the identification of the roles and responsibilities for updating the handbook.</td>
</tr>
<tr>
<td>Training</td>
<td>Documents the procedures for planning, delivering and tracking environmental training of MassHighway personnel that support environmental compliance.</td>
</tr>
<tr>
<td>Compliance Tracking</td>
<td>Defines the procedure MassHighway uses to identify, correct, and track compliance issues.</td>
</tr>
<tr>
<td>Self-Auditing</td>
<td>Describes the procedures for conduct of MassHighway’s program for evaluating the status and return to environmental compliance at MassHighway Facilities.</td>
</tr>
<tr>
<td>Pollution Prevention</td>
<td>Describes the activities MassHighway conducts to prevent pollution through conservation and reduction programs.</td>
</tr>
<tr>
<td>EMS Review and Evaluation</td>
<td>Describes the procedures and schedules for review and update of MassHighway’s EMS and its associated Manual.</td>
</tr>
</tbody>
</table>
### District Roles and Responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District Highway Director</strong></td>
<td>The District Highway Director is responsible for being familiar with and overseeing the implementation of the provisions of the EMS such that the District's roles and responsibilities are carried out in such a manner so as to maintain environmental compliance.</td>
</tr>
<tr>
<td><strong>District Maintenance Engineer</strong></td>
<td>The District Maintenance Engineer (DME) must maintain an awareness of the EMS and is responsible for coordinating facility maintenance activities in accordance with procedures of the EMS Manual. This includes ensuring that facility personnel are allotted sufficient time to perform housekeeping tasks that support environmental compliance and notifying appropriate MassHighway personnel of an emergency situation at facilities in accordance with MassHighway's Emergency Response Plan (ERP) and Spill Prevention Control and Countermeasure (SPCC) Plans at specific facilities. Obtains and ensures compliance with all applicable permits for District facilities.</td>
</tr>
<tr>
<td><strong>Contract Specialist III/Area Supervisor</strong></td>
<td>The Contract Specialist III/Area Supervisor (CS III/AS) ensures that: all personnel within the Area receive yearly Annual Environmental Awareness Training; facility inspections are conducted and that corrective actions are completed as required; EMS and Environmental Program documentation (generated by Facility Foreman and personnel) such as regular inspection checklists, Stage II Vapor recovery system checklists, Hazardous Waste area inspections checklists and oil/water separator inspection reports are forwarded to the District Maintenance Engineer. Responsibilities also include: review and submittal of the facility inspection reports/self-audit findings to the DME and initiating corrections as required; scheduling work as needed at facilities to maintain compliance including: septic system pump-outs, septic system inspections, vehicle washing recycling system maintenance and holding tank and oil/water separator pump-outs. The CS III/AS is also the designated Primary Emergency Coordinator as defined by MassHighway's Emergency Response Spill Plan.</td>
</tr>
<tr>
<td><strong>Contract Specialist II/Facility Foreman</strong></td>
<td>The Contract Specialist II/Facility Foreman (CSII/FF) is responsible for ensuring that all operational activities that impact environmental compliance at District Facilities are conducted in accordance with the EMS and specifically with the provisions of the Facility Environmental Handbook. This includes maintaining proper areas for material and hazardous waste storage; using the emergency response call down procedures; adhering to guidelines presented in the Annual Environmental Awareness Training; staying current with the Environmental Standard Operating Procedures and being familiar with the location of wetlands, buffer zones and other areas of environmental concern.</td>
</tr>
<tr>
<td><strong>Facility Personnel</strong></td>
<td>The Facility Personnel are responsible for keeping work areas clean and materials and wastes stored properly, performing inspections on the Hazardous Material and Hazardous Waste storage areas, maintaining labels on material and waste containers, reporting spills of hazardous materials from machinery and heavy equipment and, attending annual refresher training related to environmental compliance.</td>
</tr>
</tbody>
</table>
# CASE STUDY 6  
## Exhibit 5

<table>
<thead>
<tr>
<th>Training</th>
<th>Regulation</th>
<th>Regulatory Requirement</th>
<th>Participants</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Waste Awareness Training</td>
<td>310 CMR 30.351(9)(g)</td>
<td>Employees having responsibility for handling/managing hazardous waste at SQG facilities must be properly trained so they know how to perform their duties and so that hazardous waste handling practices and emergency procedures are performed properly and in compliance with all applicable requirements. Employees are provided initial training to a competency level with refresher training as necessary.</td>
<td>District Structures Maintenance Engineer, CSIII/Area Foreman, HOV Facility Personnel, CSII/Facility Foremen, Facility Personnel District HazMat Coordinators</td>
<td>Training provided during annual Environmental Awareness Training by DHCs</td>
</tr>
<tr>
<td>Universal Waste Training</td>
<td>310 CMR 30.1035</td>
<td>Employees having the responsibility for handling or managing universal waste shall be informed of the proper handling and emergency procedures appropriate to the types of universal waste handled at the facility. Employees are provided initial training to a competency level with refresher training as necessary.</td>
<td>District Structures Maintenance Engineer, CSIII/Area Foreman, HOV Facility Personnel, CSII/ Facility Foremen, Facility Personnel, District HazMat Coordinators.</td>
<td>Training provided during annual Environmental Awareness Training by DHCs</td>
</tr>
</tbody>
</table>
| Department of Transportation/General Awareness, Manifest, and Safety Training Programs | 49 CFR 172.704(a)  
310 CMR 30.409 | Each hazmat employee* shall be provided 1) general awareness training designed to provide familiarity with the requirements of this subchapter, and to enable the employee to recognize and identify hazardous materials consistent with OSHA Hazard Communication Standard (29 CFR 1910.1200). OSHA or EPA training may be used to satisfy the requirements of 49 CFR 172.704(a) to avoid duplication of training efforts. 2) function specific training concerning the requirements of the DOT hazardous waste regulations specific to the function the employee performs. 3) safety training concerning emergency response information, measures for protection from the hazards associated with hazardous materials, and methods and procedures for avoiding accidents. Employees are provided initial training to a competency level with refresher training every 3 years thereafter. | District HazMat Coordinators, CSII/Facility Foreman | Training coordinated by Environmental Division and conducted through a consultant contract |
| Stage II Vapor Recovery System Inspection Training | 310 CMR 7.24 | Persons performing Stage II systems weekly inspections must be trained to inspect equipment including, but not limited to, nozzle boots and splash/vapor guards, hoses, hose retractors, coaxial adapters, dry breaks, fill caps, vapor recovery caps, spill containment boxes and drain valves. Employees are provided initial training to a competency level with refresher training as necessary. | CSIII, Foremen, Laborers | Training is provided by the DHCs. |
| Spill Prevention Control and Countermeasure (SPCC) | 40 CFR 112.7(e)(10) (iii) | Employees shall be trained in the use of the SPCC, applicable pollution control laws and the operation and maintenance of equipment to prevent the discharges of oil. Employees are provided initial training to a competency level with annual refresher training. | Employees having a role in the SPCC plan for a facility | Training provided during annual Environmental Awareness Training by DHCs |

*Note: The term “hazmat employee” as it relates to MassHighway operations, includes only personnel responsible for shipping (packaging, labeling, manifesting) a RCRA hazardous waste and/or those employees who offer a DOT hazardous material to a private transporter (contractor}
Self-Auditing

This EMS component describes the procedures used by MassHighway during the implementation of its Self-Audit Program including conducting of the self audits, post audit reporting and follow up, and revising and updating the Self-Audit Protocol. The Self-Audit Program is intended to evaluate environmental compliance at MassHighway Maintenance Facilities and track a facility’s return to compliance through corrective action implementation. The Protocol is designed to reflect the compliance themes contained in the Facility Environmental Handbook across eight major compliance areas covering multi-media federal and state environmental regulatory programs, MassHighway SOPs, and best management practices (BMPs). Because it is designed to discover and correct environmental compliance matters, the Self-Audit Program is an integral component of MassHighway’s EMS.

MassHighway is committed to keeping the Self-Audit Protocol current. The Self-Audit Program and Protocol is reviewed at least annually to identify areas where updates and/or revisions are needed due to either regulatory or operational changes. Review of the Program is necessary to ensure continual improvement and ensure that the Protocol reflects current regulations, SOPs, and facility operations.

Procedure

This section presents an overview of the procedures and roles and responsibilities for conduct of MassHighway Self-Audits. The actual MassHighway Self-Audit Protocol Handbook is available for a detailed discussion of the procedures and roles and responsibilities. The procedures discussed below generally involve five MassHighway staff members; the Audit Coordinator, the Lead Auditor, District Maintenance Engineer, the Facility Forman and the District HazMat Coordinator. There are three Phases to a MassHighway Self-Audit; the Pre-audit Preparation, the Audit Site Visit and the Post Audit Phase. The process is described below.

Pre-audit Preparation. The Audit Coordinator prepares a schedule for facility audits. Once the schedule has been prepared, the Audit Coordinator will designate a DHC as the District Lead Auditor. The Lead Auditor will be a DHC from a District other than the one being audited. The Lead Auditors are provided with facility and District contact information needed to complete the self-audit notifications, site visit, and follow up reporting. The Lead Auditor will notify the DHC and DME in the District of the scheduled audit at least two weeks in advance of the audit. The DHC and DME will ensure pre audit questionnaires are completed, Facility foremen are contacted, and that facility records are made available at the time of the audit.

Audit Site Visit. The Lead Auditor will conduct a pre-audit briefing with facility personnel to 1) inform facility personnel of the purpose of the audit; 2) inform facility personnel of their audit responsibilities and required participation in the audit; and 3) answer any preliminary questions the facility personnel may have regarding the audit. After the briefing, the Lead Auditor conducts a facility walkthrough, recording any environmental compliance findings in field notes and facility plans. The Lead Auditor also performs a record review of applicable compliance documents, such as manifests and environmental permits. During the walkthrough and records review, the Lead Auditor completes the Audit Protocol Checklist. Findings that may be immediately corrected should be completed during the walkthrough and documented by the auditor. The Lead Auditor then conducts exit briefings and submits the draft findings list to the Facility Foreman at the completion of each audit. The list is provided so facility personnel may initiate corrective actions in advance of receiving a Corrective Action Report (CAR).

Post Audit Phase. Following the audit site visit, the Lead Auditor prepares a CAR, which summarizes the audit findings. An electronic version is forwarded to the Audit Coordinator and the DME. Upon receipt of the CAR, the DME coordinates with the facility foreman to ensure facility personnel conduct the necessary corrective actions. DHCs are responsible for correcting or managing corrective actions that fall outside operational responsibility of the Facility Foreman or DME.
The Facility Foreman ensures that the corrective actions have been completed and documents corrective actions in the space provided on the CAR. The completed CAR is forwarded to the Lead Auditor for review and confirms that the completed actions adequately address the findings on the CAR. The completed CAR is forwarded to the Audit Coordinator along with a memo that summarizes the completed self-audit.

For each unresolved regulatory finding, the Lead Auditor completes a Clean State Matter Report (CSMR). If a completed CAR has not been received within 14 days of the audit a CSMR is completed for all regulatory findings identified on the original CAR. Within two days of receiving the completed CAR, the Lead Auditor forwards all audit field notes, checklists, completed CAR, and CSMRs to the Audit Coordinator for archiving in the Environmental Division’s Self-Audit Program files. The Audit Coordinator will enter all unresolved regulatory findings documented on the CSMRs into the EOE’s Clean State Database.

The Audit Coordinator provides the audit findings to the DHC. The DHC will complete and transmit to the Audit Coordinator and DME a Corrective Action Plan (CAP) for each unresolved regulatory finding on the completed CAR. The DHC will provide quarterly CAP progress reports to the Audit Coordinator until the CAP has been completely resolved. The Audit Coordinator will enter the updates into the Clean State database. Once a CAP has been completely resolved, the Audit Coordinator will complete and submit a request for de-listing of a regulatory finding from the EOE’s Clean State Coordinator and the Clean State database.

A summary of the timelines described in the preceding sections for conducting Self-Audits and audit follow-up activities is provided below.

### Self-Audit Process Timelines

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible Person</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assign Audit Team and Lead Auditor</td>
<td>Audit Coordinator</td>
<td>According to Annual Schedule</td>
</tr>
<tr>
<td>Notify DHC, DME, and Facility foreman of impending Self-Audit</td>
<td>Lead Auditor</td>
<td>At least two weeks before audit site visit date</td>
</tr>
<tr>
<td>Complete and submit CAR to DHC, DME, and Foreman</td>
<td>Lead Auditor</td>
<td>Within two days after audit site visit.</td>
</tr>
<tr>
<td>Complete and submit CAR and CCAR to Lead Auditor</td>
<td>Foreman/DHC</td>
<td>Within 14 days of the date the audit was conducted</td>
</tr>
<tr>
<td>Complete audit summary memo and CSMRs and submit to Audit Coordinator</td>
<td>Lead Auditor</td>
<td>Within 2 days after receipt of CCAR or within 2 days of CCAR due date</td>
</tr>
<tr>
<td>Enter audit results into Clean State database and submit final CAR to DHC</td>
<td>Audit Coordinator</td>
<td>Within 2 days after receipt of CCAR from Lead Auditor</td>
</tr>
<tr>
<td>Complete Corrective Action Plan</td>
<td>DHC</td>
<td>Within 21 days after receipt of final CCAR from Audit Coordinator</td>
</tr>
<tr>
<td>Complete CAP Progress Reports</td>
<td>DHC</td>
<td>Quarterly – ongoing until Final CAP Completion Report issued</td>
</tr>
<tr>
<td>Update of Clean State database</td>
<td>Audit Coordinator</td>
<td>Quarterly – ongoing until Final CAP Completion Report issued</td>
</tr>
</tbody>
</table>
## Audit Checklist

### Facility Information

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>Facility Representative:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>City, State, Zip:</td>
<td>Title:</td>
</tr>
<tr>
<td>Type of Facility:</td>
<td>Telephone:</td>
</tr>
<tr>
<td></td>
<td>Fax:</td>
</tr>
</tbody>
</table>

### Auditing Information

<table>
<thead>
<tr>
<th>Date of Audit:</th>
<th>Lead Auditor:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>District Hazmat Coordinator:</td>
</tr>
<tr>
<td>Persons Interviewed:</td>
<td></td>
</tr>
<tr>
<td>Inaccessible Areas:</td>
<td></td>
</tr>
<tr>
<td>General Comments:</td>
<td></td>
</tr>
</tbody>
</table>

### Regulated Activities

- [ ] Vehicle Fueling
- [ ] Vehicle Washing
- [ ] Wastewater Recycling System
- [ ] Industrial Wastewater Discharge
- [ ] Oil Water Separator
- [ ] Industrial Wastewater Holding Tank
- [ ] Waste Oil Generation
- [ ] RCRA Hazardous Waste Generation
- [ ] Universal Waste Generation
- [ ] Hazardous Materials Use/Storage
- [ ] Solid Waste Accumulation
- [ ] On-Site Sewage Disposal
- [ ] On-Site Drinking Water Well
- [ ] Natural Resources: [ ] wetlands  [ ] waterways
- [ ] USTs  [ ] ASTs
- [ ] MCP Site
- [ ] Pre-Existing Clean State Matters
- [ ] Other: __________________________

### Facility Operations

- [ ] Vehicle/Equipment Maintenance
- [ ] Snow/Ice Operations
- [ ] Stockroom
- [ ] District Offices
- [ ] Other: __________________________
**Regulatory Areas and Compliance Checklists**

**Section 1: HAZARDOUS WASTE**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
<th>Verification of Generator Status: ([310 CMR 30.060 &amp; 30.303])</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Has the facility registered as a Generator of Hazardous Waste and/or Waste Oil? Generator ID No:</td>
</tr>
</tbody>
</table>

**Facility Hazardous Waste Generator Status:** [VSQG] [SQG]

**Facility Waste Oil Generator Status:** [VSQG] [SQG]

**Is the registered generator status appropriate?** (VSQG <100 kg/mo.; SQG <1,000 kg/mo. - review manifests)

**Have appropriate hazardous waste determinations been made for wastes generated at the facility?**

*IF VSQG: ([310 CMR 30.253 & 30.353])*

**Are there less than three 55-gallon drums of hazardous waste/waste oil at the facility?**

*IF SQG: ([310 CMR 30.253 & 30.351])*

**Are there less than ten 55-gallon drums of hazardous waste/waste oil at the facility?**

*IF DUAL STATUS* (e.g. VSQG of hazardous waste and SQG of waste oil):

**Are the quantities of hazardous waste and waste oil stored at the facility below the maximum allowed for each status?** (e.g. <3 drums of hazardous waste and <10 drums of waste oil)

**Waste Container Management: ([310 CMR 30.253; 30.351; 30.353])**

- Are all hazardous waste containers in good condition? (Note any dents, rust, or damage)
- Are all hazardous waste containers tightly closed (bungs sealed and bolt ring secured, except when adding/removing waste)?
- Are all hazardous waste containers labeled?
- Do the labels include the name of the waste (waste oil, waste paint, etc.)?
- Is the waste Hazard Type (toxic, ignitable, corrosive, and/or reactive) included on each label?
- If the facility is a Small Quantity Generator, is the date when accumulation began clearly marked on the container label?
- Is the accumulation time within regulatory limits? (180-days SQG)
- Are containers compatible with the waste being accumulated?
- Are containers of hazardous waste stored in the designated accumulation area?

**Hazardous Waste Accumulation Areas: ([310 CMR 30.253; 30.351; 30.353; 30.322])**

*If the facility maintains a Hazardous Waste Accumulation Area:*

- Is the accumulation area locked/secured to prevent unknowing entry?
- Is the accumulation area adequately demarcated? (e.g., visible yellow line on floor and only HW stored therein)
- Is the accumulation area located on a surface free of cracks and, if not on containment, away from floor drains?
- Is the accumulation area labeled as “HAZARDOUS WASTE” with lettering at least 1-inch high?
- Is Emergency Information/Contact List posted at the accumulation area?
- Is emergency equipment (spill, fire, etc.) located at the accumulation areas?
- Is secondary containment in use where required/warranted? (e.g., if located outside or near floor drains, etc.)
- Is the accumulation area in good order (clean and neat, free of spills)?
- Does the area have adequate aisle space between drums to allow for inspections of the containers?

*If the facility does NOT maintain a Hazardous Waste Accumulation Area:*

- Is the waste transported to a designated facility on the day of generation or within 3 days of filling a Satellite Drum?
MASSACHUSETTS HIGHWAY DEPARTMENT
FACILITY ENVIRONMENTAL COMPLIANCE INSPECTION REPORT

Routing of Completed Inspection Report: Date

<table>
<thead>
<tr>
<th>Facility Foreman</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Maintenance Engineer</td>
<td></td>
</tr>
<tr>
<td>District HazMat Coordinator</td>
<td></td>
</tr>
</tbody>
</table>

INSPECTOR: DATE/TIME: 

<table>
<thead>
<tr>
<th>FACILITY NAME &amp; FACILITY NUMBER:</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITY FOREMAN IN CHARGE:</td>
</tr>
</tbody>
</table>

HAZARDOUS WASTE GENERATOR ID. NUMBER:

PLEASE INDICATE THE QUANTITIES OF WASTE THAT HAVE ACCUMULATED AT THIS FACILITY.

<table>
<thead>
<tr>
<th>ACCUMULATED HAZARDOUS WASTE:</th>
<th>ACCUMULATED SOLID WASTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE OF WASTE / ESTIMATED QUANTITY</td>
<td>TYPE OF WASTE / ESTIMATED QUANTITY</td>
</tr>
<tr>
<td>ABC / CY</td>
<td>C&amp;D / CY</td>
</tr>
<tr>
<td>Catchbasin Cleanings / CY</td>
<td>Street Sweepings / CY</td>
</tr>
<tr>
<td>Trash / CY</td>
<td>Scrap Metal / CY</td>
</tr>
<tr>
<td>Tires / CY</td>
<td>Wood Waste / CY</td>
</tr>
<tr>
<td>White Goods / CY</td>
<td>White Goods / CY</td>
</tr>
<tr>
<td>Treated Timbers / CY</td>
<td>Bulky Waste / C</td>
</tr>
<tr>
<td>COMPLIANCE POINT</td>
<td>COMMENTS</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>1. ARE ALL CONTAINERS CLOSED?</td>
<td>Y/N</td>
</tr>
<tr>
<td>2. ARE ALL CONTAINERS LABELED?</td>
<td>Y/N</td>
</tr>
<tr>
<td>3. IS THE WASTE COMPATIBLE WITH THE CONTAINER AND/OR ITS LINER?</td>
<td>Y/N</td>
</tr>
<tr>
<td>4. ARE CONTAINERS HOLDING IGNITABLE OR REACTIVE WASTES LOCATED AT LEAST 50 FEET FROM THE PROPERTY LINE?</td>
<td>Y/N</td>
</tr>
<tr>
<td>5. IS THE ACCUMULATION AREA DELINEATED?</td>
<td>Y/N</td>
</tr>
<tr>
<td>6. IS THE ACCUMULATION AREA POSTED WITH A SIGN?</td>
<td>Y/N</td>
</tr>
<tr>
<td>7. IS SECONDARY CONTAINMENT PROVIDED?</td>
<td>Y/N</td>
</tr>
<tr>
<td>8. ARE MATERIALS OTHER THAN HAZARDOUS WASTE PRESENT IN ACCUMULATION AREAS?</td>
<td>Y/N</td>
</tr>
<tr>
<td>9. IS HAZARDOUS WASTE PRESENT OUTSIDE THE ACCUMULATION AREA?</td>
<td>Y/N</td>
</tr>
<tr>
<td>10. IF PRESENT, ARE SATELLITE ACCUMULATION AREA REQUIREMENTS BEING MET?</td>
<td>Y/N</td>
</tr>
<tr>
<td>11. ARE EMERGENCY CONTACTS POSTED?</td>
<td>Y/N</td>
</tr>
</tbody>
</table>
CASE STUDY 6
Exhibit 9

COMMONWEALTH OF MASSACHUSETTS
MassHighway DEPARTMENT
STANDARD OPERATING PROCEDURES

S.O.P.NO.
ENV-01-03-1-000
Page 1 of 5

SUBJECT: Hazardous Waste Management at MassHighway Facilities

DISTRIBUTION
A

EFFECTIVE

ISSUED

APPROVED

PURPOSE

To ensure that Hazardous Waste is managed consistent with environmental regulations.

RESPONSIBILITY

It is the responsibility of the Facility Foreman to conduct facility Hazardous Waste Management consistent with the appropriate generator status (as defined below), to conduct weekly inspections of Hazardous Waste accumulation areas, and to complete Hazardous Waste Accumulation Logs. It is also the Facility Foreman’s responsibility to maintain a copy of the Emergency Spill Response Plan For MassHighway Facilities.

The District Hazardous Materials Coordinator (DHC) is responsible for ensuring that inspections of each Hazardous Waste Accumulation Area occur on a regular basis, completing a regular inspection report for each facility, and maintaining records of the inspections. It is the DHCs responsibility to inform the Environmental Division’s Compliance Section Supervisor or designee of the need for removal of hazardous waste from each facility. The DHC is also responsible for maintaining a complete file of Very Small Quantity Generator (VSQG) or Small Quantity Generator (SQG) generator registrations for the district and for maintaining manifests, waste profiles and land disposal restrictions for at least three years, or for the duration of any enforcement action by the Department of Environmental Protection (DEP).

The Compliance Section Supervisor or designee is responsible for arranging for the removal and disposal of the Hazardous Waste by a licensed transporter and disposal facility.

POLICY

MassHighway Facilities fall into one of three categories: (1) Not a Hazardous Waste Generator; (2) VSQG; (3) SQG.
Accumulation Areas

Hazardous Waste Accumulation Areas shall be set up in accordance with hazardous waste regulations at generating facilities. The following standards apply to all MassHighway Hazardous Waste Accumulation Areas:

- They will be located indoors, secured against unauthorized entry, separate from points of generation;
- The boundaries will be designated (using tape on floor or painted lines, cones, rope or other appropriate means);
- A HAZARDOUS WASTE sign (all capital letters, one-inch high) shall be prominently posted;
- If hazardous waste containers are not stored on spill pallets the floor surface shall be free from cracks or gaps and impervious to the Hazardous Wastes being stored;
- A minimum of 18 inches of aisle space around the drums shall be maintained;
- The Hazardous Waste Accumulation Area shall contain only Hazardous Waste and associated equipment. No virgin product and/or hazardous materials shall be stored in the Hazardous Waste Accumulation Area;
- Containers shall not be stacked unless separated by a pallet.

Accumulation areas are inspected weekly by the Facility Foreman or designee. A weekly inspection Form is attached as Exhibit A. The Weekly Hazardous Waste Inspection Form is delivered to the respective DHCs office where a file is maintained.

Generator Status - Time Limits and Quantity Limits
The following accumulation limits shall not be exceeded:

- Very Small Quantity Generators (VSGs) - 600 kilograms/or 165 gallons/or three 55-gallon drums
- For Small Quantity Generators (SQGs) - 2,000 kilograms/or 550 gallons or ten 55-gallon drums

The time limit for the storage of hazardous waste at SQGs is as follows:
- 180 days from the date the first 100 kilograms have been accumulated. The start date must be marked on the drum.

No time limits for storage of hazardous waste apply to VSGs.
PURPOSE
To provide guidance for the handling and disposal of items, such as fluorescent tubes, which are now designated by the Department of Environmental Protection (DEP) as "Universal Wastes".

RESPONSIBILITY
It is the responsibility of the District Hazardous Materials Coordinator (DHC) or Facility Foreman to ensure that this SOP is adhered to with regard to labeling of materials. The DHC is responsible for arranging for the removal of the waste.

DEFINITION
Universal Wastes are wastes which the Environmental Protection Agency (EPA) and/or the Department of Environmental Protection (DEP) have determined need special management. These include:

- Batteries
  - Used Rechargeable Batteries
  - Rechargeable Alkaline Products
  - Mercury Containing Batteries Banned From Domestic Sale
  - Used Consumer Products Containing Rechargeable Batteries Which Can Not Be Easily Removed.

- Pesticides (Only if unused or recalled by the manufacturer)

- Mercury Containing Devices
  - Thermostats
  - Switches
  - Thermometers
  - Light Bulbs
LABELING:

Clearly label or mark, for example:

UNIVERSAL WASTE
Mercury Containing Device(s)
09/20/98

Be sure to include the date that the accumulation started!

MANAGEMENT:

As a generator of Universal Waste, MassHighway is a handler of this waste stream. In order to comply with the Federal and State regulations regarding this waste MassHighway must take measures to prevent releases of any universal waste, or a component of that waste, into the environment. This means that MassHighway must store the waste in a manner consistent with our hazardous waste practices. The following guidelines will be followed:

- Store the waste in a container that is marked or labeled appropriately,
- Maintain an inventory system, and
- Store the waste in a specific accumulation area.

The Universal Waste can only be stored for one year from the time of generation.

Since this waste stream is not specifically defined as a hazardous waste, no manifest is needed when shipping the waste off-site. MassHighway will track the fact that it was shipped off-site.
PURPOSE

To ensure that Hazardous Materials are managed consistent with environmental regulations.

RESPONSIBILITY

It is the responsibility of the Facility Foreman to store and label Hazardous Materials in accordance with environmental regulations, to ensure that the MSDS Station and Emergency Response Plan are readily available, and to notify the District Hazardous Materials Coordinator (DHC) if situations exist at a facility that prevent adherence to this SOP.

The DHC is responsible for ensuring inspections of each facility regularly for adherence to this SOP, and for submitting his/her findings to the District Maintenance Engineer (DME) and the Environmental Division Compliance Unit Supervisor or designee. The Environmental Division Compliance Unit Supervisor, or designee, is also responsible for filing annual Tier Reports pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA).

The Human Resources/Safety Division is responsible for providing annual Right-to-Know training to appropriate personnel.

POLICY

Hazardous Material containers, sand and salt piles, and sheds shall be labeled with the chemical name written in bold capital letters at least one-inch high on a contrasting background. National Fire Prevention Association (NFPA) labels shall be affixed to containers greater than 5 gallons and on sand and salt piles and sheds. Hazardous Material containers shall be closed when not in use.

Flammable materials shall be stored in flammable storage cabinets. Hazardous Materials shall be stored within areas where containment measures are employed, and away from floor or storm drains, to the extent practical.
Material Safety Data Sheets (MSDSs) shall be maintained at each MassHighway Facility. Refer to SOP “Material Safety Data Sheet Management” for instructions for managing MSDSs.

The Emergency Spill Response Plan For MassHighway Facilities shall be posted in a prominent location at each facility. All facility personnel shall read and acknowledge their understanding of this plan by signing an acknowledgment form.
CASE STUDY 6
Exhibit 12

PURPOSE

To ensure that Solid Waste, accumulated at MassHighway Facilities, is stored and disposed of consistent with environmental regulations.

RESPONSIBILITY

It is the responsibility of the Facility Foreman to ensure that Solid Waste is promptly and appropriately sorted and stored into designated accumulation areas after being received by the facility. It is also the Facility Foreman’s responsibility to notify his/her immediate supervisor and the District Hazardous Materials Coordinator (DHC) if situations exist that prevent adherence to this SOP.

It is the responsibility of the DHC, during regular inspections, to ensure that inspections occur at the Solid Waste accumulation areas, to record the quantities of each waste type, and to report their findings to the District Maintenance Engineer (DME) and Environmental Division’s Compliance Section Supervisor.

It is the responsibility of the Compliance Section Manager, or designee, to arrange for the regular disposal/recycling of solid waste.

POLICY

Solid Waste that is discarded along roadways, or that is generated from roadway maintenance activities, shall be transported to the MassHighway Facilities designated for temporary accumulation. Solid Waste will be stored at these facilities until off-site disposal/reuse may be arranged. Designated and labeled accumulation areas for Solid Waste types shall exist at these facilities.

Separate and properly labeled Solid Waste accumulation areas shall exist for each of the following: scrap metal, tires, construction and demolition debris (asphalt, brick, concrete, curbing, etc.), wood waste (stumps, logs), yard waste (branches, grass cuttings), white goods (appliances), street sweepings, and catchbasin cleanings.
Trash shall be stored temporarily in dumpsters. Wastes of different types shall not be mixed together. Under no circumstances shall Solid Waste other than trash be disposed of in the dumpster (Example: no tires or oil filters in the dumpsters).