

CASE STUDY 5

Maine Department of Transportation (MDOT) Environmental Management System

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CASE STUDY 5

Maine Department of Transportation (MDOT) *Environmental Management System (EMS)*

STATUS	Implemented.
FOCUS	Maintenance and Operations, State Ferry Service, and Materials Testing Facilities.
DOT's BASIS FOR SELECTION OF FOCUS	<p>MDOT's focus on Maintenance and Operations was based on the need to ensure and enhance compliance in managing waste streams at facilities that fall under the purview of maintenance (including Highway, Traffic, rest areas, moveable bridges, etc).</p> <p>EMS efforts were then expanded to MDOT's testing and chemistry labs following identification of problems with safety and environmental compliance,</p> <p>The EMS was expanded to include Ferry Terminals in 2002. These facilities were the only remaining facilities operated by MDOT without an EMS. The EMS procedures and processes developed for Maintenance could be readily applied to them. Inclusion of Ferry Terminals demonstrates that EMS concepts and processes can be applied to a wide variety of facilities..</p>
RELEVANCE TO THE EMS PROCESS ROADMAP	MDOT's EMS efforts are based upon the Plan – Do – Check – Act process and incorporate all of the EMS processes roadmap steps.
ACCOMPLISHMENTS AND BENEFITS	<ul style="list-style-type: none">• As a result of using a structured, consistent audit program the level of compliance in operations and maintenance has been substantially improved AND MAINTAINED.• In 2000, EPA enforcement staff conducted compliance inspections at several MDOT maintenance facilities and testing labs. Although minor problems were pointed out (and immediately addressed by MDOT) <u>no</u> major problems were found and <u>no</u> fines were imposed.• Employee "ownership" of and pride in their facilities and actions has been greatly improved. In turn, the level of compliance achieved is much higher than with prior initiatives. <p><i>"Our EMS has been remarkably successful in avoiding environmental penalties and fines. In most cases, the violations just don't exist when enforcement agencies visit our facilities. In cases where violations are found, we have found that the best possible response to the violation is to tighten up our EMS to make sure that similar incidents never happen in the future. Enforcement agencies have been quick to agree that tighter policies or tighter protocols are a more lasting solution than punitive fines." John Dority, Chief Engineer, MDOT.</i></p> <ul style="list-style-type: none">• The EMS processes and procedures have enabled MDOT managers/supervisors to more efficiently manage their materials (by sharing among facilities) and waste. These actions have provided costs savings.

CASE STUDY 5

Maine Department of Transportation (MDOT) *Environmental Management System (EMS)*

ACCOMPLISHMENTS AND BENEFITS (cont'd)

- More efficient management of materials and control of facility operations lead to reductions in the space/area needed to conduct/support maintenance activities. From an immediate perspective, less space means less opportunity for noncompliance and a reduction in the costs and environmental impacts associated with noncompliance. From a long term perspective, a need for less space could lead to savings in land maintenance and acquisition costs.

IMPLEMENTATION NEEDS

- Employees participated in the efforts to develop relevant, easily understood procedures, processes, and tools for each EMS. These efforts each occurred over more than a year and required periodic meetings and/or contacts.
- The audit program requires the ongoing, periodic participation of a small group of internal auditors (employees) to conduct the audits, and review and confirm completion of corrective actions.

KEYS TO SUCCESS

- Commitment of senior management at the very beginning of the EMS efforts ensured that:
 - Resources needed for implementation were available,
 - All involved in or affected by an EMS stayed focused on the implementation activities and schedule, and
 - All affected employees understood that all employees are stewards of the environment.
- Make sure that all employees understand that their day-to-day actions can have a positive or negative effect on the environment.
- Ensure that training, communications, guidance, procedures, etc. is easily understood and can be applied and related to day-to-day actions of employees.

BACKGROUND, ADDITIONAL INFO

MDOT's EMS is based on and provides the means to ensure environmental stewardship for all employees. MDOT is using the ISO 14001 EMS Standard as the basic framework/model for its EMS. However, there are no current plans to seek ISO 14001 certification.

"Our EMS is a foundation for future initiatives. Each new regulation or new goal of sustainability can be addressed by building on the framework or system we have in place with our EMS. We are building on our successful M&O EMS into a larger departmental EMS, adding policies and protocols piece by piece based on management needs and management capacity." Alan Stearns, Director, Environmental Office.

- The MDOT EMS audit procedures follow the criteria presented in: the ISO 14001 EMS Standard, the ISO EMS internal audit standards, and American Society for Quality guidelines.
- Maine has developed environmental and safety audits for all of its facilities.
- The audit systematically documents and verifies whether the facilities and processes are in conformance or compliance with legal requirements, internal policies, adopted standards, and defined procedures.

CASE STUDY 5

Maine Department of Transportation (MDOT) *Environmental Management System (EMS)*

BACKGROUND, ADDITIONAL INFO (cont'd)

- Gaps are determined and strategies developed to continually improve environmental and safety performance. Corrective actions are tracked and timely closure of audit findings is a MDOT priority.
- Regulations and agency environmental commitments are used to develop priority areas and the annual audit plan.
- The audits are conducted with cross-functional teams of MDOT employees who report their findings to local management and to an Environmental Management Committee.
- Audit protocols consist of written policies and procedures, checklists, and guides used to define the audit scope.
- Completion of the corrective actions in the Corrective Action Plan is monitored by the audit team leader and the Environmental Management Committee on a quarterly basis, and follow-up reviews are performed.

Various guides and procedures have been developed to fulfill the EMS objectives of consistency, repeatability, integration of environment into day-to-day activities, measure performance, and ease of understanding.

- Erosion and Sediment Control Plans are required for all MDOT projects. Pursuant to a MOA and MDOT specifications (see Tools below) all Plans are reviewed and approved by Environmental Office staff before construction can commence.
- Maintenance and Construction projects are inspected by Environmental Office staff who, along with the MDOT Construction manager, are authorized to require changes to address environmental deficiencies on projects.
- All employees are required to be familiar with MDOT's environmental policies and procedures that affect their work, as documented in MDOT's Environmental Policies and Procedures Manuals.
- Management is proactive in all follow-up measures, particularly those that require department-wide policy changes and dedicated funding.
- Tracking and benchmarking problems and successes through an integrated database.

CONTACT(S)

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To discuss benefits of EMS: Mark Guimont, Director of BOMO, 202/624-3600; Bruce Yeaton, Director, Testing and Exploration, 202/624-3400; Ron Roy, Director, Maine State Ferry Service, 202/624-3250.

EXAMPLE TOOLS, PROCEDURES

- Exhibit 1 provides an excerpt of Best Management Practices (BMPs) for Erosion and Sediment Control, April 1999. This document includes: BMPs for both routine maintenance operations and major projects, discussions of when and where to use the BMPs, and design standards for structural BMPs.
- Exhibit 2 presents an excerpt of the Environmental and Safety Policies and Procedures for the Bureau of Maintenance and Operations. This document establishes procedures for audit program and developing new procedures. It also defines objective, applicability, target audience, responsible parties, requirements of each policy and procedure, and training requirements.

CASE STUDY 5

Maine Department of Transportation (MDOT) *Environmental Management System (EMS)*

EXAMPLE TOOLS, PROCEDURES (cont'd)

- Exhibit 3 presents an excerpt from the Safety and Environmental Management Manual for the MDOT Materials Testing Laboratories. This Manual contains: a Chemical Hygiene Plan, Hazardous Assessments for all lab procedures, Environmental & Safety Procedures, relevant MDOT Administrative Policy Memoranda, training requirements and inspection and auditing requirements.
- Exhibit 4 provides an excerpt of the Laboratory Safety Inspection Report Form. This checklist is used for quarterly inspections of: lab practices, personal protection requirements, hazard communication, chemical handling and storage, waste handling and disposal, emergency management, ventilation, safety equipment, and housekeeping.
- Exhibit 5 is an excerpt of the Safety and Environmental Management Manual for the State Ferry Service. This Manual includes the Health & Safety and Environmental Policy for the ferry service, audit and inspection requirements, environmental & safety procedures (similar to Maintenance manual), and training requirements.
- Exhibit 6 presents an excerpt of the M&O Greenbook: An Environmental Practices Guide. This Guide is a small, laminated field guide for handling and disposal of hazardous materials, hazardous wastes, oil and equipment maintenance wastes, materials management, and spill prevention and response. It also includes a quick reference waste disposal guide.
- Exhibit 7 is an excerpt from Supplemental Specification 656: Temporary Soil Erosion and Water Pollution Control. To ensure that erosion and sedimentation control is incorporated in all MDOT activities, this specification is included in all project contracts.

CASE STUDY 5

Exhibit 1

Excerpt from BMPs for Erosion and Sediment Control

A. WHY THIS MANUAL?

This manual has been written in response to water quality laws, regulations, and the recognized need to accomplish erosion and sedimentation control with consistency and focus. The objective is to provide guidance to Maine Department of Transportation (MDOT) personnel, consultants, municipalities and contractors for incorporating Best Management Practices (BMPs) for Erosion and Sedimentation Control into design, construction and maintenance activities. The guidance provided in this manual will serve as a basis for the Contractor's Erosion and Sedimentation Control Plan.

The BMPs are structured in the following format:

- A text describing "What is it?", "When and where to use it", and "What to consider" when selecting the BMP;
- When appropriate, Design Standards will be included in the narrative;
- When appropriate, a Standard Detail for the BMP will follow the narrative.

The BMPs included in this manual were developed after careful review of the existing 1992 BMP Manual, BMP Manuals from other states, and standards from other agencies and municipalities. Additional BMPs were developed for those practices unique to MDOT, using MDOT's Plans and Specifications. This manual provides a compilation of structural and non-structural BMPs that have been found to work when properly selected, designed and installed.

This BMP Manual **is not** a specification. It **is** a guide to the Best Management Practices for Erosion and Sedimentation Control. It is a dynamic document that will change as new practices, new laws, and new technologies are developed. One of the goals of the Department's Strategic Plan is "to insure a transportation system that meets the social, economic, and environmental needs of the public." Minimal impact to water quality certainly is important to the people of Maine and in alignment with the Strategic Plan.

It is the Department's goal that this document remain current by reviewing and incorporating new ideas, at a minimum, on an annual basis. As you gain experience in applying the practices put forth in this manual, you will undoubtedly find ways to accomplish the intended goals in a more efficient and effective manner. Ideas should be submitted to the standing BMP committee, whenever they arise, for the review process.

To summarize, the purpose of the BMP manual is to keep Maine's waters clean.

CASE STUDY 5

Exhibit 2

Excerpt from M&O Environmental and Safety Policies and Procedures

MDOT Bureau of Maintenance & Operations
April 3, 2002

Environmental & Safety Auditing Procedure
Version 1.4/Page 1 of 6

ENVIRONMENTAL AND SAFETY AUDITING POLICY AND PROCEDURE

1.0 OBJECTIVE

This policy establishes a procedure to implement an effective environmental auditing program in the Bureau of Maintenance & Operations (M&O), including an auditing plan, auditing program, and auditor training. M&O's goal is to maintain a safe workplace, protect the environment, and have no violations in conducting regulated activities. M&O's objective is to close all non-conformances within time limits set by management at the time audit findings are reviewed. Other important benefits of auditing are cross-training, increased awareness of environmental requirements among its staff, and continuous improvement.

M&O recognizes that environmental and safety auditing is necessary to reduce the risk of noncompliance, and to provide assurance that regulations, Department requirements, policies and procedures are being followed. M&O's environmental auditing program will focus on prioritizing compliance issues, managing environmental risks, improving operations, reducing costs, and verifying the effectiveness of management systems that will ensure compliance. M&O will identify and prioritize audit issues, develop annual audit plans, and develop standard audit protocols or methods.

CASE STUDY 5

Exhibit 3

Excerpt from Safety and Environmental Management Manual

1.0 INTRODUCTION AND GENERAL INFORMATION

1.1 Overview and Purpose of Manual

Operations within the Maine Department of Transportation (MDOT) Ferry Service have the potential to impact personnel safety and the environment. The Ferry Service handles a number of petroleum products in proximity to the marine environment, and generates a variety of wastes including, but not limited to, bilge oil, oily rags, scrap metal, batteries, and fluorescent light tubes. It is the responsibility of all personnel within the Ferry Service to prevent, whenever possible, harm to human health and the environment.

This Safety and Environmental Management Manual is designed to provide the Ferry Service guidance to conduct their work in a safe, and environmentally responsible manner. The guidance includes environmentally related Administrative Policy Memoranda (APMs) and Environmental Policies and Procedures. This manual is inherently “dynamic,” and must be continually reviewed and updated as operations within the Ferry Service evolve.

An important aspect of implementing these procedures is the commitment of the Ferry Service to conduct periodic self-inspections, and to be included in MDOT’s department-wide health & safety and environmental audit program. The audit program will provide a systematic review of the effectiveness of the environmental management program and the degree of conformance by the Ferry Service staff. Corrective measures identified during audits will be tracked and closed in a timely manner.

CASE STUDY 5

Exhibit 4

Excerpt from Laboratory Safety Inspection Report Form

Maine DOT Laboratory Safety Inspection Report

Page 2 of 6

Facility Inspected: _____

Date Inspected: _____

	SAFETY REQUIREMENT	COMPLIANCE			
		YES	NO	N/A	COMMENTS
2. Personal Protection	i. Personnel are instructed in the location and use of all safety equipment				
	j. Goggles are worn when working with glass used in combustion or other high temperature operations involving glassware				
	k. A container of neutralizer is available in labs where acids or bases are used				
	l. Apparatus and glass tubing does not project beyond the front of shelves				
3. Hazard Communication	a. Primary and secondary chemical containers are labeled with identity, appropriate hazard warnings and, when necessary, expiration dates				
	b. Signs on storage areas (e.g., refrigerators) and laboratories are consistent with hazards within				
	c. MSDS sheets are available for all chemicals used or stored on site				
	d. Satellite MSDS collections are complete and easily accessible at all times to all laboratories				
	e. Chemical handling and storage information on new or unfamiliar chemicals are read before proceeding to use them				
	f. Contents of unlabeled containers are always properly disposed				
	g. Chemicals are never removed from the laboratory, except under specific instructions from the chemical hygiene officer				
4. Chemical Storage	a. Incompatible materials are properly segregated				
	b. Volatile liquids are kept away from heat, sun and other sources of ignition				
	c. Corrosives and flammables are stored below eye level				
	d. Hazardous materials used/stored in the laboratory are limited to small quantities				
	e. Unnecessary, unused or outdated chemicals are not kept in laboratories or chemical storage areas				
	f. Safety carriers are available for bottles				
	g. Flammable solvents amounting to more than 1-pint are kept in safety cans				

CASE STUDY 5

Exhibit 5

Excerpt from Safety and Environmental Management Manual for the State Ferry Service

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CASE STUDY 5

Exhibit 6

Excerpt from M&O Greenbook: An Environmental Practices Guide

QUICK REFERENCE WASTE DISPOSAL GUIDE

Quick
Reference

Absorbents

Source: Used absorbent pads, absorbent socks, booms, rags and granular absorbents.

Hazard: Absorbed materials may contain petroleum or chemicals that are flammable and/or toxic to humans or the environment.

Waste Storage: Spent absorbent material should be stored in doubled plastic bags in a labeled, sealed drum or other protective container. Do not mix oily absorbent wastes from those used to clean up other chemical spills.

Store separately oily rags that are recycled (*i.e.*, cleaned by an outside contractor).

Disposal/Recycling: Contact MTS to arrange for transport/disposal of used absorbent materials.

Adjuvant (pesticide additives)

Source: Used to enhance performance and handling of herbicides. Waste from leaks, spills or dated products.

Hazard: Frequent or prolonged contact may cause irritation to eyes, throat, nose and skin. Combustible. (Refer to "Herbicides" for related hazards).

Waste Storage: Whenever possible, use product for its intended purpose until

container is empty. If material must be disposed, store in a sealed, labeled and dated container away from flame. Do not mix with other wastes.

Disposal/Recycling: Contact MTS to arrange for liquid waste disposal.

Aerosol (Spray) Cans

Source: Wet sprays including pesticides, insecticides, lubricants, paints and cleansers; foam products such as cleaners and degreasers; and dry sprays such as graphite lubricant.

Hazard: Pressurized propellants pose hazard of explosion and/or fire when exposed to heat or when punctured. Propellants or contents may be toxic to human health and the environment.

Waste Storage: Utilize all of the product if possible. Segregate waste aerosol containers from other trash. Store in a cool area, away from direct sunlight and flame.

Disposal/Recycling: If aerosol cans are empty of free liquid and are no longer under pressure, dispose of with other solid waste or recycle empty metal cans as scrap metal. If cans are not emptied and depressurized, aerosol cans must be disposed of as hazardous waste. Contact MTS to arrange for transport/disposal of waste aerosol containers classified as hazardous waste (*i.e.*, not empty and depressurized).

Version 1.0, March 12, 1999 | 23

CASE STUDY 5

Exhibit 7

Excerpt from MDOT Supplemental Specification 656

SECTION 656 –TEMPORARY EROSION AND WATER POLLUTION CONTROL

656.1 Responsibility of the Contractor-Prepare and Follow Plan The Contractor shall provide continuous and effective temporary soil erosion and water pollution control for the Project that is appropriate to the construction means, methods and sequencing allowed by the Contract and selected by the Contractor. To do so, the Contractor shall prepare and submit a Soil Erosion and Water Pollution Control Plan (SEWPCP) and properly implement its approved SEWPCP. The Contractor shall have its SEWPCP approved, perform a preconstruction field review, and install and certify initial controls before commencing any Work, which could disturb soils or impact water quality.

If the Contractor properly implements its approved SEWPCP, then (1) any Work required in excess of that required by the SEWPCP will be Extra Work, (2) any Delay resulting from any such excess Work will be analyzed in accordance with Section 109.5 -Adjustments for Delay, and (3) the Contractor will not be responsible for damages relating to insufficient soil erosion and water pollution control including the cost of all environmental enforcement actions, penalties, or monetary settlements assessed any environmental regulatory entity and all costs incurred by or through the Department.

If the Contractor fails to prepare, submit, or seek approval of a SEWPCP or fails to properly implement its approved SEWPCP, then (1) the Department may suspend all Work, (2) the Department may withhold all Progress Payments or any portion thereof until the Contractor remedies all deficiencies; (3) the Department may remedy deficiencies with Departmental or contracted forces and deduct the cost thereof from payments otherwise due the Contractor; (4) any delay resulting from such failure or non-compliance will be a Non-excusable Delay; and (5) the Contractor will be responsible for all damages arising from or related to such failure or non-compliance including the cost of all environmental enforcement actions, penalties, or monetary settlements assessed by any environmental regulatory entity and all costs incurred by or through the Department including legal and consulting fees.

