

In support of Presidential Executive Order # 13422, Virginia Tech is pleased to offer Round 3 of Environmental & Sustainability Management System transit training using the ISO 14001 standard. Previous transit agencies have reported:

- significant progress towards sustainability efforts
- dramatic cost reductions in operations
- enhanced level of confidence that operations are in compliance with federal and state environmental standards.



*“This EMS Institute provides LACMTA a methodology and focus to aim for an improved environmental performance. We will use our strong pilot project developed under this program as a template for future agency-wide EMS efforts.”*

– K. N. Murthy, P.E.  
Deputy Chief Capital  
Management Officer

## WHAT IS AN **ems**?

An environmental management system is a set of management processes and procedures that allows an organization to analyze, control and reduce the environmental impact of its activities, products and services and operate with greater efficiency and control. An EMS is appropriate for all kinds of organizations of varying sizes in public and private sectors.

### **The basic elements of an EMS include:**

- Reviewing the organization’s environmental goals
- Analyzing its environmental impacts and legal requirements
- Setting environmental objectives and targets to reduce environmental impacts and comply with legal requirements
- Establishing programs to meet these objectives and targets
- Monitoring and measuring progress in achieving the objectives
- Ensuring employees’ environmental awareness and competence
- Reviewing progress of the EMS and making improvements



**ems**INSTITUTE  
environmental & sustainability management system

*Green solutions  
for sustainable  
communities!*

### **BASELINE ENVIRONMENTAL REVIEW**

Virginia Tech EMS faculty travels to your facility for one day to observe environmental practices at your chosen facility. During the site visit, Virginia Tech will meet with your EMS team to prepare them for the upcoming EMS workshops. Virginia Tech provides environmental debrief at the completion of the day and provides a written assessment of our environmental observations within two weeks of our site visit.

### **TEAM CONFERENCE CALL**

Mid-way between each workshop, Virginia Tech schedules a one hour conference call with your team to review progress and to offer coaching on homework assignments.

### **SENIOR MANAGEMENT CONFERENCE CALL**

EMS Institute involves your senior manager in a conference call prior to Workshops 2, 3 and 4 to gauge team’s progress. Involved senior management is critical to the sustainability of EMS implementation.

### **HOMEWORK REVIEW**

Prior to the start of Workshops 2, 3 and 4, your team is scheduled for an individual one-hour session with one of the EMS classroom faculty to review the completion of the homework assignment. Faculty rotates the EMS teams they review each workshop.

# WHAT ARE THE BENEFITS?

An EMS provides tools to help manage your organization's environmental impacts efficiently and to improve environmental stewardship across the entire organization. Organizations who have implemented an EMS have realized the following benefits:

- Cost savings
- Reduced risk
- Increased operational efficiency
- Positive external relations and public image
- Improved communication
- Greater employee stewardship
- Shared environmental solutions
- Improved public relations

*“The benefits have been considerable. We realized direct savings of over \$1.3 million in our first full year of implementation. Employees at every level work cleaner, more efficiently, and less wastefully.”*

– Jerry Benson  
Chief Operating Officer  
Utah Transit Authority

## workshop 1 | February 7–10, 2011

Your four-member EMS team is taught the EMS development process, compliance management issues, and ISO 14001 EMS requirements. Virginia Tech simplifies the steps of EMS implementation; the work practices of prior successful teams and the role that employees back home play in EMS implementation.

The team defines the facility's fence line and analyses the baseline environmental review conducted by Virginia Tech on its earlier visit. The ISO 14001 elements taught and practiced include:

- Environmental Policy
- Environmental Aspects
- Legal and Other Requirements
- Resources, Roles, Responsibility and Authority
- Control of Documents

EMS team is provided multiple opportunities during workshop to begin an “action plan” for implementation of the homework assignment to be completed prior to Workshop 2.

## workshop 2 | May 23–26, 2011

All EMS teams share completed homework assignments from Workshop 1 with other teams. Additionally, each team has access to Virginia Tech EMS library archives to maximize information sharing. During the second workshop, your team receives intensive training on the following ISO 14001 elements:

- Objectives, Targets and Programs
- EMS Documentation
- Operational Control
- Emergency Preparedness and Response

EMS team is provided multiple opportunities during this workshop to begin an “action plan” for implementation of the homework assignment to be completed prior to Workshop 3.

## Workshop 3 | August 22–25, 2011

As a result of completing homework from Workshop 2, your team identifies actual and potential activities associated with their significant environmental aspects and develops operational controls, or SOPs. EMS team sets objectives and targets to improve environmental performance; then develops environmental management programs to accomplish each objective and target. During Workshop 3 your team works on the following ISO 14001 elements:

- Competence, Training and Awareness
- Communication
- Monitoring and Measurement
- Management Review

Homework prior to Workshop 4 is to review and update emergency response plans, develop training schedules to identify specific job related competency gaps, prepare a communication strategy, and begin formalizing the management review process.

## Workshop 4 | November 1–4, 2011

The team determines appropriate monitoring and measurement strategies to gauge the performance of the EMS, learns skills for conducting required internal audits, begins to develop procedures for handling EMS non-conformances and control of records, and initiates management review procedures. Workshop 4 addresses the following ISO 14001 elements:

- Evaluation of Compliance
- Nonconformity, Corrective and Preventive Action
- Control of Records
- Internal Audit

You will then develop a schedule for achieving full implementation of the EMS, and select tentative dates for the EMS follow-up audit.

## ONE DAY TECHNICAL SITE VISITS

Virginia Tech offers a one-day technical site visit to be used at the discretion of your locality. One Virginia Tech lead EMS instructor is available to train employees, review documentation, or the day may be used for an EMS Audit Gap Assessment.

## ISO 14001 EMS AUDIT

After completion of Workshop 4 and full implementation of the EMS, Virginia Tech conducts an on-site ISO 14001 EMS audit at the facility. During this two day audit, each EMS element is evaluated to determine if it is compliant with the ISO 14001 requirements.



# PEER center

Virginia Tech is an EMS Local Resource Center endorsed by US EPA to assist public and private entities in using EMS to implement green initiatives and sustainable practices such as:

- Sustained environmental compliance
- Sustainable purchasing
- Green buildings
- Energy efficiencies
- Pollution prevention and toxics reduction.



 **VirginiaTech**  
Invent the Future

For More Information about the institute and these workshops, contact **Bob Herbert**.

EMAIL: [bherbert@vt.edu](mailto:bherbert@vt.edu)

PHONE: (540) 853-8275

URL: [www.cota.vt.edu/ems/fta/](http://www.cota.vt.edu/ems/fta/)

*Participants attend the EMS Institute, comprised of four workshops, at the Hotel Roanoke & Conference Center (shown left) in Roanoke, Virginia.*