

The background features a vibrant green color gradient. A large, stylized graphic of green leaves and vines is positioned in the lower-left quadrant, partially enclosed by a thick, wavy green line that curves across the bottom. The right side of the background is filled with a pattern of small white dots that fade into the green.

esms INSTITUTE

environmental & sustainability management system

**Green solutions for
sustainable communities!**

The EMS Institute led by Virginia Tech has set the standard of providing assistance to local governments managing their environmental issues effectively and efficiently.

— Jim Horne
US Environmental
Protection Agency

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.



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Your EMS Core Team consists of a minimum of the following five members:

- Senior Executive
 - Management Representative
 - Environmental Champion
 - Operations Manager/
Superintendent
 - Administrative/Executive Assistant
- Teams may choose to add additional members to the Core Team as class space permits.

Your EMS Core Team will travel to Roanoke for four three-day workshops spaced approximately three months apart.

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 that have implemented an EMS have realized both environmental and business benefits.

Environmental benefits include:

- Reduction in the number, type and severity of compliance incidents;
- Improved relationships with state and federal regulators;
- Pollution and waste quantity reductions;
- Recovered resources;
- Reduction of air emissions; and
- Reduction of amount of oil in waste water.

workshop 1 | October 22-24, 2013

Your five-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 analyzes 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 | January 28-30, 2014

All EMS teams share completed homework assignments from Workshop 1 with other teams. Additionally, each team has access to the Virginia Tech EMS web-based library 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.

Business benefits include:

- Enhanced public image with system users and the general public;
- Reduced regulatory oversight;
- Improved employee awareness and efficiency of potential environmental impacts of work activities;
- Improved communications and cooperation through training and outreach;
- Reinforcement of environmental processes currently in place;
- Proactive management systems for environmental issues;
- Captures employee knowledge ("institutional memory") prior to retirements;
- Documentation of standard operating procedures;
- Institutionalization of best practices in and permanent improvements of on-time performance;
- Increased fuel economy; and
- Increased management awareness of environmental issues.

In addition to your classroom time, your Virginia Tech EMS teach team will provide the following:

- Baseline Environmental Review (one day on-site at your agency)
- WebEx Team Conference Calls (midway between workshops)
- Homework Review (one hour individual team session the night before the workshop)
- Gap Audit (one day on-site conducted by ISO 14001 certified lead auditor)
- Final Audit (half-day review of documents plus one day on-site with ISO 14001 certified lead auditor)

workshop 3 | April 29 - May 1, 2014

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 and identify specific job related competency gaps, prepare a communication strategy, and begin formalizing the management review process.

workshop 4 | July 29-31, 2014

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 EMS follow-up audit.

“*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



PEER
center

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



 **VirginiaTech**
Invent the Future

For more information about the institute, contact **Bob Herbert**.

EMAIL: bherbert@vt.edu

PHONE: (540) 853-8275

URL: www.cota.vt.edu/ems/fta/

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