

Environmental Management Systems: What are they and what are the benefits?



**VIRGINIA INDUSTRY
ENVIRONMENTAL CONFERENCE
SEPTEMBER 17, 2009**

What is an EMS?



- An EMS is a proactive approach rather than a reactive approach to environmental management.
- An EMS provides the framework for environmental regulatory compliance
- An EMS makes good business sense by increasing efficiency, wasting less resources and reducing risks

Benefits of an EMS



- Enhances the organization's image
- Demonstrates commitment to environmental management
- Maintains good public/community relations
- Demonstrates reasonable care
- Improves the environmental awareness and skills of the workforce

Benefits of an EMS



- Improves cost control by identifying and eliminating waste and inefficiencies
- Ensures regulatory compliance
- Reduces incidents that result in liability
- Fosters sustainability and development of environmental solutions
- Fosters benchmarking of environmental best practices

Beneficial EMS Actions



- **Identify Aspects**
 - ✦ **Spill potential**
 - ✦ **Volumes**
 - ✦ **Frequency**
 - ✦ **Legal & Other requirements**


Beneficial EMS Actions



ENVIRONMENTAL MANAGEMENT SYSTEM		
EHS VOLVO AERO CONNECTICUT	VERSION 2.0	
« ISO 14001 Home « Legal / Other Requirements	Print this Page	
Legal/Other Requirements last revised:07/01/2009 - PRINTED DOCUMENTS ARE UNCONTROLLED -		
CITATION / SOURCE	REQUIREMENT	ASPECT CATEGORY
Source: Federal - EPA		
40 CFR Part 60 Subpart A »	New Source Performance Standards - General Provisions	Waste Air Emissions Energy Use
40 CFR Part 60 Subpart Dc »	New Source Performance Standards - Small Industrial-Commercial-Institutional Steam Generating Units	Waste Energy Use
40 CFR Part 82 »	Protection of Stratospheric Ozone	Waste Air Emissions
40 CFR Part 110 »	Discharge of Oil	Wastewater Discharge Waste
40 CFR Part 112 »	Oil Pollution Prevention (SPCC)	Material Use Land & Water Contamination
40 CFR Part 122 »	Federal NPDES Permit Program	Wastewater Discharge Surface Water/Runoff
40 CFR Part 261 »	Identification and Listing of Hazardous Waste	Waste
40 CFR 262.11 »	Hazardous Waste Determination	Wastewater Discharge Waste
40 CFR Part 262 Subpart B »	Standards Applicable to Generators of Hazardous Waste - Manifests	Waste
40 CFR Part 273 »	Standards of Universal Waste Management	Waste
40 CFR Part 279 »	Standards for Management of Waste Oil	Wastewater Discharge Waste
40 CFR Part 302 »	Designation, Reportable Quantities and Notification (CERCLA)	Waste Surface Water/Runoff Other Material Use

Beneficial EMS Actions





 ENVIRONMENTAL MANAGEMENT SYSTEM VOLVO AERO CONNECTICUT VERSION 2.0		
« ISO 14001 Home « Legal / Other Requirements		
Legal/Other Requirements last revised: 07/01/2009 - PRINTED DOCUMENTS ARE UNCONTROLLED -		
CITATION / SOURCE	REQUIREMENT	ASPECT CATEGORY
Source: State - Connecticut		
Title 22a Chapter 446k Secs. 22a-416 to 22a-599 »	Water Pollution Control ↗	Surface Water/Runoff Wastewater Discharge
Title 22a Chapter 442 Secs. 22a-67 to 22a-76 »	Noise Pollution Control ↗	Other
Title 22a Chapter 445 Secs. 22a-114 to 22a-134z »	Hazardous Waste ↗	Waste
Title 22a Chapter 446c Secs. 22a-170 to 22a=206 »	Air Pollution Control ↗	Air Emissions Waste
Title 22a Chapter 446d Secs. 22a-207 to 22a-256ee »	Solid Waste Management Recycling Requirements ↗	Waste
Title 22a Chapter 446L Secs. 22a-600 to 22a-611 »	Emergency Response Commision ↗	Air Emissions Energy Use Land & Water Contamination Material Use Other
22a-69-1 to 22a-69-7.4 »	Noise Control ↗	Other
22a-174-1 through 43 »	Abatement of Air Pollution ↗	Air Emissions Waste
22a-430-3 through 4 »	General Conditions Applicable to Water Discharge Permits and Procedures and Criteria for Issuing Water Discharge Permits ↗	Surface Water/Runoff Wastewater Discharge
22a-430-6 through 7 »	Application and Annual Fees for Water Pollution Control Permits ↗	Surface Water/Runoff Wastewater Discharge
22a-449(c)-100 through 119 and 22a-449(c)-11 »	Hazardous Waste and Universal Waste ↗	Waste

Beneficial EMS Actions



■ Determining Aspect Significance by Evaluating Risk


ENVIRONMENTAL, HEALTH & SAFETY
 VOLVO AERO CONNECTICUT VERSION 2.0



« Environmental « Health & Safety « Admin Menu « Aspect Evaluation

AREA: > All Areas «

DEPARTMENT: > All Departments «

ASPECT CATEGORY: > All Aspect Categories «

ASPECT: > All Aspects «

Significant IP >= 12

Show All

Group By Aspect >

RBP = Regulated/Business Plan
 TOX = Toxicity
 VOL = Volumes (Stored or Waste)
 FRQ = Frequency of Use/Episodes
 IP = Impact Product
 SIG = Significant

ASPECT	DESCRIPTION	RBP	TOX	VOL	FRQ	IP	SIG	RATIONALE	POTENTIAL FAILURE MODE	POTENTIAL IMPACT OF FAILURE	POTENTIAL CAUSE OF FAILURE	REVISION	COMMENT	EDIT
Area: Facility Wide														
Department: Facility Wide 179, 183, 140 + Add a New Aspect to Facility Wide 179, 183, 140														
Aspect Category: Air Emissions														
Fire Fumes	Emergency Response - upset condition	3	2	1	1	6	<input type="checkbox"/>	Regulated	Excess Emissions	Indoor Air Quality Air Pollution		2009-06-30 17:17:30		
General Building Ventilation	from plant at large	1	1	3	3	9	<input type="checkbox"/>	Does not meet criteria		Indoor Air Quality		2009-06-30 17:34:09		
Aspect Category: Energy Use														
Compressed Air	machine power	2	1	3	3	18	<input checked="" type="checkbox"/>	Consumption	Excess Usage	Natural Resources	Lack of Awareness	2009-06-30 17:35:17		
Electrical Usage	machine power, lighting, power tools	2	1	3	3	18	<input checked="" type="checkbox"/>	Consumption	Excess Usage	Natural Resources	Lack of Awareness	2009-06-30 17:33:23		
Natural Gas	Offices only -comfort heating	2	1	2	3	12	<input checked="" type="checkbox"/>	Does not meet criteria		Natural Gas Depletion		2009-06-30 17:20:11		
Aspect Category: Land & Water Contamination														
Drums and Totes	Loading and Unloading Storage	3	2	1	3	18	<input checked="" type="checkbox"/>	Potential Release	Accidental Release	Land Contamination Contamination of Ground Water	Human Error, System Failure	2009-06-30 17:21:03		
Storage Tank (Inside)	Oily Wastewater	3	2	2	3	36	<input checked="" type="checkbox"/>	Potential Release	Accidental Release	Land Contamination	Human Error, System	2009-06-30		

Beneficial EMS Actions



■ Determining Aspect Significance by Evaluating Risk

Criteria	Value = 1	Value = 3	Value = 5
Legal/Other	Not regulated	Other Requirement/Business Plan	Regulated
Environment Impact	Low Impact	Moderate Impact	High Impact - Bad Impact to the environment
Amount (volumes)	Low Amount	Moderate Amount	High Amount
Frequency	Less than once a week	Weekly	Daily

Aspect Specification	Legal/Other	Environmental Impact	Amount	Frequency	Impact Product	Comment
Air Emissions						
Combustion Emissions (CO, NOx, SOX)	5	5	5	5	625	Monitored through fuel usage.
Particulate Matter/Opacity	5	5	5	5	625	Monitored through visual readings.
Welding Emissions	1	1	5	5	25	Exempt Emissions
Asbestos						
Asbestos (Influenced)	5	3	1	1	15	Controlled by Garrison
Cultural Resources						
Interior/Exterior Modifications	3	1	1	1	3	Controlled by Garrison
Energy						
Compressed Air/Electricity	3	3	5	5	225	
Steam	3	3	3	5	135	

Beneficial EMS Actions



- Set targets and objectives
- Develop action plans to achieve the targets

Environmental Management Programs

Significant Aspect: Energy usage identified as significant

Champion: Ann Vilhelmsson

Department/Area(s): All applicable

Process/Activity: All applicable

Objective: Reducing energy

Target: Reduce electrical usage 5% by year end 2009 based on 2006 base year

Program Plan: Energy Reduction Program

Date: April 10, 2008

Task	Responsible Party	Schedule	Performance Monitoring	Key Characteristics/Operational Controls/Comments
Partnership with Power Company—meet with agency to discuss upgrade to computer controls to improve energy efficiency – state of the art controls.	Rich Karas Martin Wanblom Ann Vilhelmsson	April 2007 COMPLETE	Emails	
Install new, energy efficient, machining equipment (2 machines)	Martin Wanblom Rich Karas	3 rd quarter 2006 and 1 st quarter 2007 COMPLETE	POs	
Install energy efficient air compressor	Rich Karas	February 2007 COMPLETE	POs	
Lighting – Order T5 Fluorescent Tubes for new plant	Rich Karas	August 1, 2008 COMPLETE	Plant Design Specs	Design is complete – construction due to be complete by August 1, 2008
Change out all plant Fluorescent Tubes to T5 Fluorescent Tubes	Rich Karas	Year –end 2008	POs	Addition added in 2006 (7,000 square ft uses the T5 Fluorescent Tubes)

Beneficial EMS Tools



■ Environmental Calendar

Due Date	Frequency	Status	Activity/Report	Regulatory Citation
		Completed	Completed	
		Active	Active	
		Past Due	Past Due	
January	monthly		Complete Monthly Tank and Portable Container SPCC Inspection Checklist	SPCC Plan 40 CFR Part 112
January 7 -	annually		Begin Volvo Environmental Data Report	Corporate Initiative.
January 21 -	quarterly		Begin Quarterly Environmental Matrix Report to be finished 45 days after end of the Quarter.	Corporate Initiative
February	monthly		Complete Monthly Tank and Portable Container SPCC Inspection Checklist	SPCC Plan 40 CFR Part 112
February 1 -	annually		Submit Volvo Environmental Data Report.	Corporate Initiative.
February 1 -	annually		Begin Teir II calculations to determine if reporting is required	40 CFR Part 370 Title 22a Chapter 446I Secs 22a-600 to 22a-611
February 15 -	quarterly		Complete Quarterly Environmental Matrix Report by 45 days after end of the Quarter.	Corporate Initiative

Beneficial EMS Tools



- Environmental Procedures
- Environmental Work Instructions

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WORK INSTRUCTIONS

EWI-4.4.6-03.04 -- General Trash Management

Task
1.01 The purpose of the general trash work instruction is to provide a guideline for management of general plant trash at Volvo Aero Connecticut.
2.01 General plant trash is collected throughout the facility in a variety of containers, bags, drums, etc.
3.01 Maintenance empties the containers throughout the plant.
4.01 Records of shipments are maintained by Accounts Receivable.
5.01 The Environmental Management Representative (EMR) or designee will periodically inspect the process to verify this procedure is being followed.

Beneficial EMS Tools



■ Document Control

ENVIRONMENTAL MANAGEMENT SYSTEM

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ISO 14001 RECORDS

Title	Minimum Retention Time	Disposition	Storage Location	Record Owner	Operational Control
Agendas	Minimum 3 years	Deleted, Archived, or Shredded	EMS Database-Environmental-Management Reviews	EMR	
Aspect Evaluation Worksheet (EMS Database)	Superseded	Archived or Deleted	EMS Database-Environmental-Aspects by Area & Department	EMR	EP-4.3.1-01 -- Environmental Aspects, Impacts, Objectives, Targets and EMPs EP-4.4.7-01 -- Emergency Preparedness & Response EP-4.3.3-01 -- Environmental Project Review
Audit Teams and Schedules	Minimum 3 years	Archived or Shredded	EMR's Office	EMR	EP-4.5.5-01 -- Internal Audits
Calibration Log (EF-4.5.1-01)	Minimum 5 years	Shredded or Archived	EMR's Office	EMR	EP-4.5.1-01 -- Monitoring and Measuring EWI-4.4.3-02.02 -- Electricity Usage and Monitoring
Calibration Records	Minimum 3 years	Archived or Shredded	EMR's Office	EMR	EP-4.5.1-01 -- Monitoring and Measuring EWI-4.4.3-02.02 -- Electricity Usage and Monitoring
Compliance Audit Results	Minimum 3 years	Archived or Shredded	EMR's Office	EMR	EP-4.5.2-01 -- Evaluation of Compliance
Contractor Briefing Package and Method Statement (EF-4.4.6-01)	Minimum 3 years	Archived or Shredded	EMR's Office	EMR	EP-4.4.6-06 -- Contractor Management
Contractor Log (EF-4.4.6-06.03)	Active / superseded	Archived or Shredded	EMR's Office	EMR	EP-4.4.6-06 -- Contractor Management

Beneficial EMS Tools



- **Contractor Methods Statement**
 - ✦ Refrigerant repair
 - ✦ Waste removal
 - ✦ Pest Control
 - ✦ Lawn care

Beneficial EMS Tools



■ Environmental Database

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Environmental, Safety and Quality Together — Make a Difference [Edit this Menu](#)

Resources <ul style="list-style-type: none">Volvo Aero Environmental PolicyEnvironmental System ManualEmergency Action PlanTraining ToolsFAQDefinitions	Custom Checklists <ul style="list-style-type: none">Custom Audit ChecklistCustom Training Checklist	ENVIRONMENTAL or MEDICAL EMERGENCIES: Ext. 129 OR DIAL 911 SPILL RESPONSE: United Industrial Services: 888 -276-0887	
Environmental <ul style="list-style-type: none">Aspects by Area & DepartmentProceduresWork InstructionsLegal / Other RequirementsHSE Committee Meeting MinutesManagement ReviewsManagement of Change/Projects	Document Control <ul style="list-style-type: none">Master Document ListMaster Record ListFormsVisual Aids		ENVIRONMENTAL, HEALTH & SAFETY CONTACT #s (non-emergency) Michael Peterson Office: 860-436-3321 Cell: 860-989-6607 Richard Karas Office: 860-436-3305 Cell: 860-655-0298
	Goals <ul style="list-style-type: none">Environmental Management Programs (EMPs) Contractor Management <ul style="list-style-type: none">Contractor Management Program		HEALTH & SAFETY CONTACT #s (non-emergency) Pasquale Cortese Office: 860-436-3303 Cell: 860-371-1733

Environmental Compliance Manual



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Continual Review and Improvement



- Internal Auditing
- Compliance Auditing
- Corrective Actions
- Management Review