



MIT's EHS Management System: Organizational Changes Key To Success

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Presentation Overview

1. Historical Perspective/Impetus for Change
2. EHS Management System Development
 - Organization, Personnel, & Oversight
 - Accountability & Responsibility
 - Audit, Training
3. Other Activities (EVC)
4. Moving Beyond Compliance to “Stewardship”



Impetus for Change: EPA Multi-Media Inspection (1998)

- EPA Inspectors for RCRA, Clean Air Act, Clean Water Act, and EPCRA on-site for 5 days
- Inspected about 25% of labs & research centers, Power Plant, Nuclear Reactor, medical waste incinerator, and other facilities

EPA found **no actual releases or harm to environment**, but:

- 100's of RCRA violations (hazardous waste)
- Clean Air Act violations
- Clean Water Act issues



Other Key EPA Observations

- Inadequate resources
- ✓ No organizational infrastructure for environmental compliance
- ✓ No systems approach to environmental management
- ✓ Lack of clear roles, responsibilities and accountability
- ✓ Inadequate institutional knowledge of local compliance
- Inadequate training of those who manage hazardous waste
- Insufficient oversight of contractor operations



EPA's Visit Led to Immediate Changes

- MIT Created new Position: “Managing Director – Environmental Programs/Risk Management and Senior Counsel”
- Merged Existing Groups (Safety Office, Environmental Medical Service) to Create “EHS Office”
- Used Consent Decree Negotiations to Begin Clarifying Vision of EHS Management System



Outcome – Negotiated Settlement Consent Decree - April 2001

- MIT Must Develop **Environmental [Health & Safety] Management System**
- MIT Must Satisfy Specific Requirements (e.g., Training, Audits, etc.)
- MIT Must Pay Monetary Penalty of \$150,000
- MIT Must Complete 3 “Supplemental Environmental Projects” (SEPs) @ \$405,000



EHS Management System Elements (NEIC)

1. Policy
2. Organization
3. Accountability & Responsibility
4. EHS Requirements
5. Assessment, Prevention, & Control
6. EHS Incident & Non-Compliance Investigations
7. Training, Awareness & Competence
8. Env. Planning & Org. Decision-Making
9. Records & Documentation
10. Pollution Prevention
11. Continuous Program Evaluation/Improvement
12. Public Outreach



Supplemental Environmental Projects (SEPs)

SEP #1 – Environmental Virtual Campus (EVC)

SEP #2 – Cambridge Public Schools Collaboration

SEP #3 – Stata Center Innovative Stormwater System

EPA's Supplemental Environmental Project Policy:

<http://www.epa.gov/compliance/resources/policies/civil/seps/sepfinal2.pdf>



Key Challenges

(Based on Existing Conditions Report)

- Can We Change Organization to Enhance EHS Performance?
- How to Instill Accountability?
- “Systemitize” Behavior – Coalesce Around Best Practices
- Communication – Getting Heard Amongst the Fray
- How Does Sustainability Fit In?



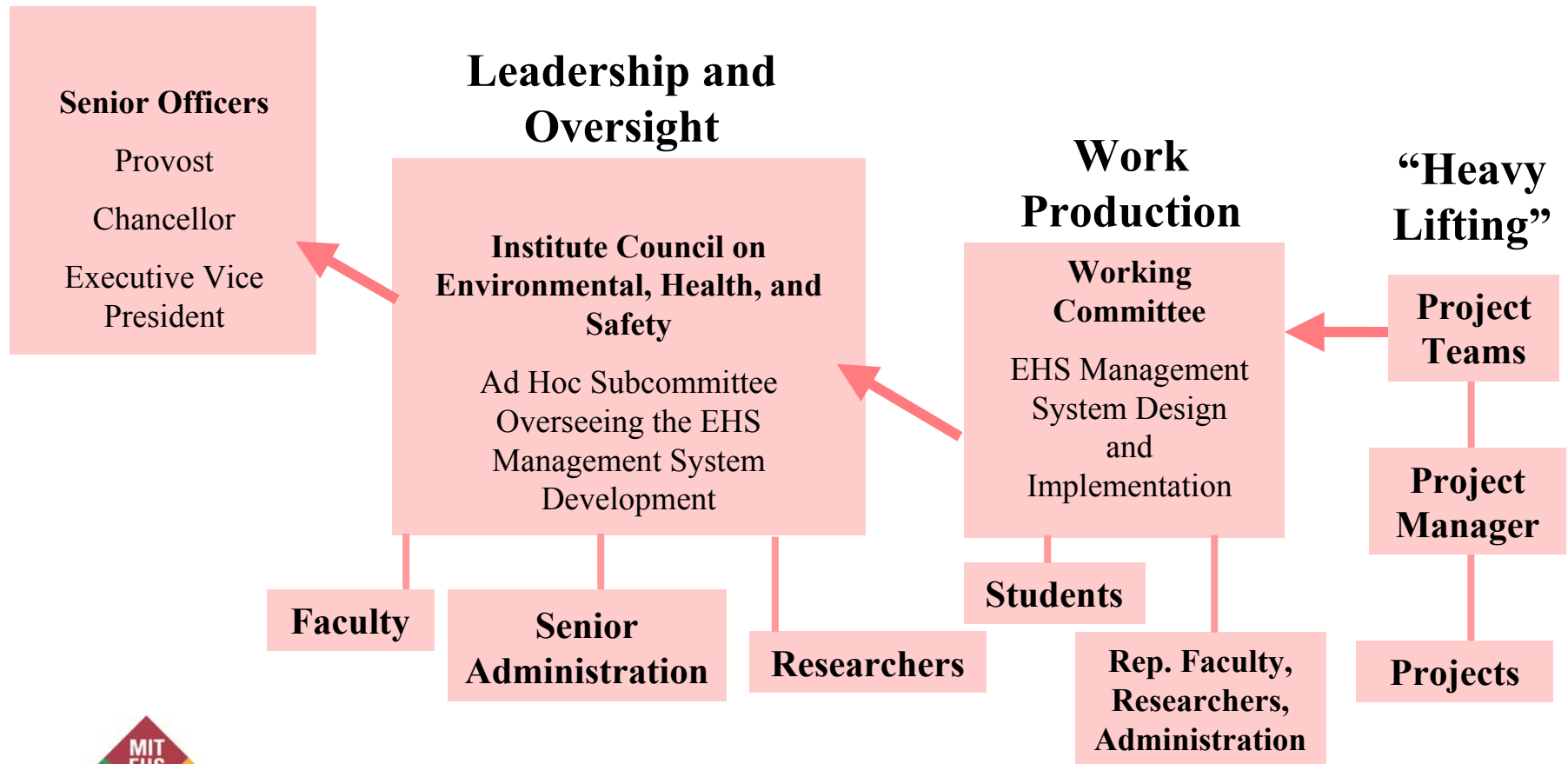
What We've Done to Address These Issues

1. Create Project Organization
2. New Web Site: web.mit.edu/environment
3. Institute EHS Newsletter (quarterly)
4. Management System Successes
5. Sustainability Steps



EHS-MS Organization: Create, Debate, & Adopt

Institute Direction



1. EHS Policy

“MIT is committed to excellence in environmental, health and safety stewardship on our campus, in the larger community of which we are a part, and globally. This long-held commitment is demonstrated through our contributions to environmental, health and safety research and teaching, as well as through our institutional conduct.”

(Approved by Academic Council December 2001)



MIT Environmental, Health and Safety Policy

MIT is committed to excellence in environmental, health and safety stewardship on our campus, in the larger community of which we are a part, and globally. This long-held commitment is demonstrated through our contributions to environmental, health and safety research and teaching, as well as through our institutional conduct.

MIT is committed to being at the forefront of large academic research institutions:



- in minimizing, as feasible, the adverse environmental, health and safety impacts of our facilities, activities and operations to protect human health and the environment (which is one way we define sustainability);
- in achieving and maintaining compliance with federal, state and local environmental, health and safety laws and good practices in all of our departments, laboratories, research centers, facilities and operations;
- in achieving a high standard of institutional accountability for environmental, health and safety stewardship, while maintaining the independence of research and teaching;



2. Organization, Personnel, and Oversight

The Challenge

How To Work Within MIT's Culture to:

- Respect/Maintain independence of the Departments, Labs, & Centers (DLCs)
- Accept diversity in goals, methods, approaches to validate differences in cultures, staffing, priorities
- Not be seen as imposing “one size fits all”

While also:

- Provide Institute-wide accountability and verifiable compliance
- Promote Best Practices Adoption/Benchmarking
- Allow Good Two Way EHS Communication



2. Organization, Personnel, and Oversight

The Response

Step 1 – Categorized all DLCs into “High”, “Medium”, or “Low” EHS Impacts based on Objective/Subjective Analysis by EHS Office

Step 2 – Developed Three-Level Organizational Frameworks (“A/B/C”) for Each DLC Judged to have “High” or “Medium” EHS Impacts



2. Organization, Personnel, and Oversight

The Response

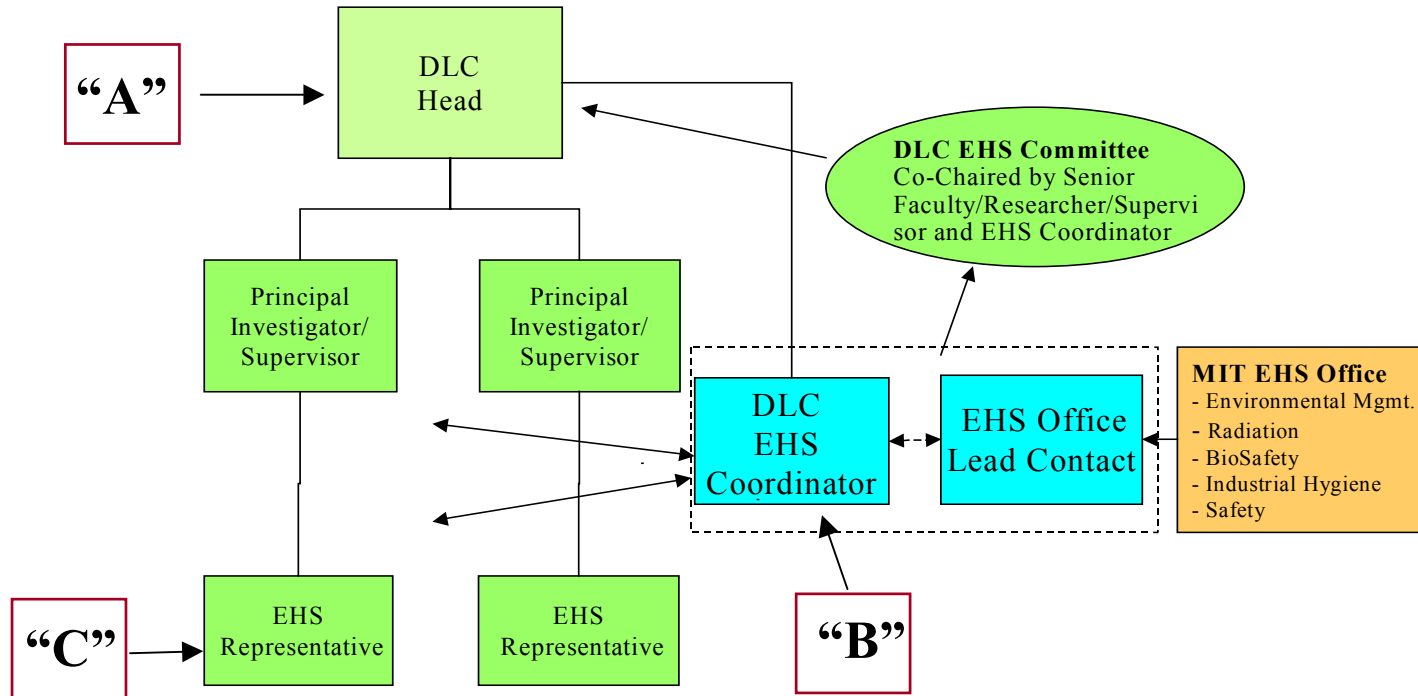
Step 3 – Each DLC Had to “Sign Up” for one Framework

Step 4 – Created & Implemented concept of “Lead Contacts”
within the EHS Office



2. New Organizational Structure (Typical)

DLC EHS Structure - Option 2
DLC has one EHS Coordinator



3. Accountability and Responsibility

The Challenge

How To Instill a Culture of Accountability in an Academic Environment? What are the Pressure Points?

- ✘ Threat of Termination (Tenure)
- ✘ Money (Withhold Bonuses?)
- ✘ Non-employee status (students, visitors)
- ✓ Reputation
- ✓ Opportunity Cost



3. Accountability and Responsibility

The Response:

1. Required Department Heads to Sign Statement and Choose Their Organizational Structure
2. Created and Implemented the “**Registration Process**” for Principal Investigators (PIs) and Supervisors
3. Once registered, PIs gain (retain) the privilege (NOT the right) of conducting research at MIT.



Registration Process is Key to Management System

A) Administrative Information

- PI or Supervisor name
- Room location(s)
- Employees/students associated with each PI/Supervisor

B) Potential Hazards Information

- Chemicals present
- Biological material
- Radioactives
- Lasers
- Safety issues
- etc.

➤ The resulting information ties to Training, Audits, Organization, Inventory, etc., and driving changes in EHS Office



5. Assessment, Prevention, & Control

3-Tiered Audit Program

Level	What	Who	Frequency	Scope	Records
I	Individual lab/space inspection	EHS Representative	Weekly	Focus on common violations, SAAs. Core checklist.	Optional. If kept, records to PI, sent to EHS at discretion of DLC.
II	Department-wide inspection	DLC EHS Committee & EHS Lead Contact	Biannual (twice/year).	Hazards inventory & system audit	Kept in central database.
III	System wide audit	MIT Audit Division and/or Outside Auditor	~ 2 years	System Implementation and Operation Audit	Maintained by EHS



7. Training, Awareness, & Competence

1. Determine Who Needs Training

- Developing Training Needs Assessment Tool (On-line questionnaire re: hazards)

2. Provide Training

- Web-based Modules, in-person training, train the trainer for DLC staff who want to provide training themselves

3. Document Training

- Centrally-accessible training database; automatically populated for web courses, manual entry for in-person courses



Environmental Virtual Campus

www.c2e2.org/EVC



What is the EVC?

What The EVC Is NOT

- Training Program
- Answer Machine
- Designed to Provide Site-Specific Information (state, local)
- Interactive
- Comprehensive to All Issues at All Sites
- A Substitute for EHS Professionals

Is An **EHS Awareness Tool**

- Computer-based, web-accessible, and free
- Organized By Physical Areas Common to Most Colleges and Universities
- Comprehensive Information Source (Text + Links)
- Both Compliance & Best Practices
- Highly Engaging, Intuitive User Interface
- Helpful Resource for Overburdened EHS staff



EVC Features 9 Campus Areas

- Laboratory
- HW storage
- Power Plant
- Auto/grounds maintenance
- Residential
- Food service
- Graphic arts/theatre
- Drains and sewer lines
- Medical facility



**Please consider linking from your
web site to the EVC:**

www.c2e2.org/evc



Moving Beyond Compliance to “Stewardship”

- Starts right in the EHS Policy
- Proactive stance that “being green” integral to EHS compliance & Mgmt. System.
- Leadership Provided by Environmental Programs Office/EHS Office
- Participation by Student Groups, Staff Groups, Faculty Committees, and Interdisciplinary Task Forces.



Campus Sustainability Initiatives

Environmental Programs Task Force

- Recycling, food composting, “green” purchasing, pollution prevention

Green Buildings Task Force

- LEED Silver-Plus, C&D Debris Recycling,
Environmental Goals

Charles River Activities

- MIT/EPA Stormwater Competition, boat, classes

Environmental Network

- Sense of community, information sharing



MIT's Environmental Goals

(MIT's Green Building Task Force)

1. **Conserve energy**, seeking reductions in per capita energy consumption
2. **Reduce campus air emissions**, including those from transportation, greenhouse gasses and regulated pollutants
3. **Reduce** material and resource **consumption** including office and laboratory supplies and water
4. Increase the **recycling and conservation** of materials
5. Increase the use of **recycled-content products**
6. **Reduce volume and toxicity** of our hazardous waste streams
7. **Improve our indoor environment**, including both the indoor air quality, and the comfort and productivity of our work and living spaces by considering sustainability in our design, operations and maintenance policies
8. **Improve the urban environment**, including landscape quality, and the site and pedestrian environment
9. **Educate our students in sustainable concepts** so that they can apply them in their professions
10. Support **community-wide and regional sustainability** efforts



Environmental Goals Tie To EHS Management System

- For each Environmental Goal (“Objective”), Quantitative “Targets” will be set
- “Action Plans” will Follow with Time Frames and Tasks
- These activities have linkages to EHS Management System



Upcoming Efforts

- Submit Manual – June 18, 2004
- Implement “major” projects (Organization, Registration, Audit, Training)
- Focus on more prosaic system elements (P2, Records & Documentation, etc.)
- Answer the Inventory question
- Further develop IT infrastructure

- “walk the walk”



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