



**Department of Energy**  
Washington, DC 20585

February 2, 2007

Mr. David Kling  
Director, Federal Facilities Enforcement Office  
U.S. Environmental Protection Agency  
MC-2261-A  
1200 Pennsylvania Ave. N.W.  
Washington, DC 20460

Dear Mr. Kling:

The Department of Energy is pleased to transmit the enclosed annual report in fulfillment of the reporting requirements under Executive Order (EO) 13148, *Greening the Government Through Leadership in Environmental Management*. The report was prepared in accordance with the guidance provided in your letter to Agency Environmental Executives, dated November 3, 2006.

The Report provides a summary of the progress of the Department's facilities in implementing the environmental management system (EMS) requirements of E.O. 13148, and a summary of the Department's progress towards implementation of the President's Management Council's Compliance Management Initiative. In addition to the tabulation of EMS responses, which we previously provided to your staff, the Report contains an extensive summary of responses to the narrative questions on site experiences with EMS.

If you or your staff have questions or need more information, please contact Steven Woodbury of my staff at (202) 586-4371.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew C. Lawrence".

Andrew C. Lawrence  
Director  
Office of Nuclear Safety  
and Environment  
Office of Health, Safety and Security

Enclosure

cc: W. Garvey, Office of Federal Facilities Enforcement



**Executive Order 13148**  
*Greening the Government Through  
Leadership in Environmental Management*

Environmental Management System Implementation  
and  
Environmental Compliance Improvement Initiative

Annual Progress Report 2006



U.S. Department of Energy  
Office of Health, Safety and Security  
January 2007

**Department of Energy Report for 2006**  
**Pursuant to Executive Order 13148**  
*Greening the Government Through*  
*Leadership in Environmental Management*

**Introduction**

This Report provides a summary of the progress of Department of Energy (DOE, or the Department) facilities in implementing the environmental management system (EMS) requirements of E.O. 13148, and a summary of the Department’s progress toward implementation of the President’s Management Council’s Compliance Management Initiative. In addition to the tabulation of EMS responses, the Report contains an extensive summary of responses to the narrative questions on site experiences with EMS. The report was prepared in accordance with the guidance provided in the letter from the Director of the Environmental Protection Agency’s Federal Facilities Enforcement Office to Agency Environmental Executives, dated November 3, 2006.

**I. Department of Energy EMS Sites**

**Number of “Appropriate Facilities” for EMS: The total number of “appropriate facilities” for Environmental Management Systems at the Department of Energy is 43.**

Changes from the list of facilities in the Department’s 2005 report include the following.

2005	2006
Savannah River Site and Savannah River Tritium Facility were listed separately	These listings are combined, since they are part of the same site-wide EMS. This reduces the total number of DOE “facilities” from 44 to 43.
National Energy Technology Laboratory	Now listed as “National Energy Technology Laboratory – Pittsburgh & Morgantown”
Albany Research Center	Now listed as “National Energy Technology Laboratory – Albany Research Center”

**Self-Declaration Status: Of the Department’s 43 sites, 40 have “self-declared.”**

7 are based on first-party (internal) assessments [this includes two sites previously registered to the ISO 14001 standard].

21 are based on second-party assessments.

12 are based on third-party (ISO 14001 registrar) assessments.

Note: On the basis of updated information received on this year’s progress reporting, some sites that declared an EMS in place last year, based on a first-party assessment, are now listed as having conducted a second-party assessment.

Note: One DOE organization has completed ISO 14001 registration for one of their locations, and plans to do so for the other in 2007. In accordance with guidance received, this organization is counted as a third-party assessment.

Three DOE sites have not yet self-declared.

- At the first, the DOE verification assessment took place in September but the final verification report has not yet been issued.
- At the second, the operating contractor has declared the EMS in place, and the DOE verification review is scheduled by March 2007.
- At the third, two of the three new site contractors have declared their EMS in place; the third expects to do so by February 2007.

The Department of Energy is reporting EMS status and progress on a Fiscal Year 2006 basis.

**II. Environmental Management System Scorecard Metrics**

**Based on facility responses to *Part I EMS Scorecard Metrics*, DOE facilities scored as follows:**

<b>Score</b>	<b>Number of Sites</b>	<b>Percent of Sites</b>
Green	29	68.4%
Yellow	10	23.3%
Red	4	9.3%

### III. Environmental Management System Effectiveness Questions

#### Responses to Questions on the Benefits of EMS on the Facility

	Reduced risk to facility mission	Improved fiscal efficiency or cost avoidance	Greater understanding of environmental issues at all levels of the organization	Greater empowerment of individuals to contribute to improving the organization's environmental footprint	Greater integration of environment into organizational culture or operations	Greater integration of environment into real property asset management	Improved community relations	Improved effectiveness in overall mission	Improved cooperative conservation with other groups
A great deal	8	5	12	9	13	5	4	4	3
Quite a bit	11	9	16	14	13	11	6	8	11
Somewhat	14	14	12	15	13	15	14	19	13
A little bit	7	12	3	4	4	8	10	10	9
Not at all	1	2	0	0	0	1	2	1	2
Does not apply	2	1	0	1	0	3	7	1	5

Under "Other," comments made by DOE sites included:

- "Regulators impressed with EMS but still focused on cleanup and legacy issues."
- "Reduced overall amount of solid waste."
- "Improved agency's environmental awareness."
- "Improved efficiencies and communication within the environmental organization."
- "Regulatory recognition (e.g., National Environmental Performance Track)."
- "Enhanced cooperation between Laboratory operations and environmental professionals, resulting in improved facility operations."

**Responses to Questions on the Benefits of EMS on Environment and Environmental Issues**

	Improved overall compliance management	Improved overall personnel health and safety	Improved overall pollution prevention	Improved water quality	Improved air quality	Improved hazardous material management	Improved hazardous waste management	Improved solid waste management	Improved conservation of natural resources	Improved conservation of energy in facilities	Improved conservation for fuel in vehicles	Improved conservation of water	Reduced number of permits needed to operate
A great deal	5	4	8	3	3	6	4	3	6	6	3	3	0
Quite a bit	13	5	18	7	7	9	10	14	7	8	8	6	0
Somewhat	16	18	14	15	13	19	15	17	20	18	9	12	1
A little bit	8	7	3	9	11	6	10	6	7	8	17	14	7
Not at all	1	3	0	4	3	1	2	1	1	1	3	4	28
Does not apply	0	6	0	5	6	2	2	2	2	2	3	4	7

Under “Other,” comments made by DOE sites included:

- “Reduced permit-based monitoring (volatile organic compounds).”
- “Increased the number of recycling streams.”
- “Improved employee awareness of ownership of environmental issues.”
- “Improved environmental training strategies.”

## IV. Questions on Environmental Management System Experiences

### 1. EMS BENEFITS/SUCCESSSES

**Facilities were invited to provide up to three statements identifying benefits/successes associated with EMS implementation at their facility.**

DOE organizations reported numerous benefits/successes associated with EMS implementation at their facilities. These can be grouped in the following categories:

- Improved environmental management (including EMS integration, awareness, and management involvement)
- Improved environmental performance through pollution prevention (including preferred purchasing, recycling/waste minimization, and environmentally sustainable design)
- Improved environmental excellence/sustainability
- Improved relations with outside entities

DOE benefits and successes reported in each of these categories are highlighted below.

#### **Environmental Management**

Most DOE organizations reported improved environmental management in at least one of three specific areas: EMS integration, awareness, and management involvement. DOE organizations also identified a number of specific environmental management improvements beyond these categories.

*EMS integration.* Organizations reported that they had integrated environmental thinking (or EMS) into day-to-day decision making and long-term planning processes, across organizational activities and functions. Typical responses included the following:

“Environmental responsibility linked to mission activities at staff level”

“Integration of environmental considerations across internal management systems”

“Integration of environmental management, waste management, operations and procurement.”

*Increased awareness/understanding of environmental concerns, issues, and potential problems.* Organizations reported increased employee awareness, increased management awareness, and increased community awareness of the organization’s commitment to environmental responsibility. As one organization stated, EMS implementation has led to:

“Greater understanding throughout the organization of potential environmental problems that could result from the performance of our work.”

*Management involvement/engagement.* DOE organizations reported that senior management has explicitly and actively endorsed EMS strategies. A typical response was:

“EMS has gotten senior management engaged in environmental issues and opportunities in pollution prevention. It has gotten the site to set some pollution prevention goals and resulted in specific plans to accomplish those goals and targets.”

Another site reported a “greater understanding of environmental concerns, especially by senior management.”

*Other examples of improved environmental management.* Organizations reported an increased emphasis on targets, objectives, and measurement, including “employee management and ownership of objectives and targets; a more structured approach to environmental management; and an increased rigor in identifying environmental issues (in identifying emerging environmental issues and in identifying potential issues early in the planning stage). Other specific management improvements cited included a unified site-wide environmental policy, a single standard of measurement, a joint environmental policy statement between management and contractor, increased use of environmental program plans, improved procedures and documentation, creation of additional standard operating procedures, and systems in place to affect change. Reported successes resulting from improved environmental management included continuous improvement, exceeding goals, increased conservation of resource, creative approaches to decontamination and decommissioning efforts, and “organizational and individual front-end application of ESH principles resulting in a proactive versus reactive stance.”

These improvements – in awareness, integration, management involvement, and others – have contributed to improved environmental performance, in terms of increased pollution prevention (including preferred purchasing, increased recycling and environmental sustainable design), environmental excellence/sustainability, and improved relationships with outside entities. Benefits/successes in these environmental performance categories are highlighted below.

## **Pollution Prevention**

DOE organizations reported a variety of successes related to pollution prevention (P2), including contributing to decreased pollutant releases to the environment, increased participation in site P2 efforts, and greater integration of P2 into daily operations. One organization reported that:



“The EMS continual improvement process resulted in identifying and addressing the need for pollution prevention to become more integrated into the daily operation of the project.”

One organization reported increased P2 effectiveness, and another reported that the application of Pollution Prevention Opportunity Assessments (PPOA) exceeded performance goals. As highlighted below, specific P2 successes were reported for preferred purchasing, recycling/waste minimization, and Leadership in Energy and Environmental Design (LEED)/Environmentally Sustainable Design.

*Preferred purchasing.* Organizations cited increased green purchasing/affirmative procurement, with one noting a “greater awareness of environmentally friendly products and a greater determination to purchase these products.”

*Recycling/waste minimization.* Organizations cited increased recycling rates, and reduced waste generation.

*LEED/Environmentally Sustainable Design.* One DOE organization reported that the EMS had “facilitated design and construction of a new LEED Gold Science and Technology Facility.”

### **Environmental Excellence/Sustainability**

DOE organizations reported successes/benefits in improved environmental performance or sustainability. Examples include reduced energy use (or increased use of alternative energy), reduced environmental emissions, reduced use of harmful chemicals, reduced water use, improved resource conservation, and reduced “hazardous footprint (regulatory and safety vulnerability reduction).”

Increased recognition for environmental excellence was also reported. Membership in the National Environmental Performance Track program was cited, and one organization cited its:

“EMS Excellence Awards and Lecture Series. Each quarter the EMS Core Team recognizes those individuals and teams who demonstrate environmental excellence in two specific categories. The awards are presented at a quarterly event and lecture series where renowned experts in the environmental industry give keynote speeches on important environmental topics. Information booths from the local community and [the site] are also available for viewing and questions.”

## **Improved Relations with Outside Entities**

DOE organizations reported improved relations with outside entities, including improved relations with regulatory agencies and better community relations.

## **2. BEST PRACTICES/LESSONS LEARNED**

**Facilities were invited to provide up to three statements identifying EMS implementation best practices/lessons learned.**

DOE organizations reported numerous examples of best practices/lessons learned associated with EMS implementation at their facilities. These are discussed under the following general categories.

- Integration
- Management/staff roles
- Communication/coordination
- Aspects analysis
- Auditing/assessment
- Goals/objectives/targets
- Documentation
- Contacting/Subcontracting
- Electronics recycling
- Procedural and program practices.

The following paragraphs highlight best practices/lessons learned in each of these categories.

### **Integration**

DOE organizations reported lessons learned/best practices associated with integrating environmental management considerations into their policies, operations, planning, and management. Integration was cited at various levels, including the workplace, site, and mission. One site reported:

“integrating EMS principles and the National Environmental Policy Act evaluations through use of an environmental checklist,”

and another said that:

“ISO 14001 laid the foundation for implementation of the OHSAS 18001 system for occupational safety and health.”

One site reported that the:

“integration of environmental corrective actions into the project’s overall [corrective action tracking] system provides an excellent example of the seamless integration of the EMS into fundamental operational processes.”

One lesson learned regarding integration was that:

“true integration with safety is difficult (processes will integrate but philosophy of safety still dominates).”

### **Management/Staff Roles**

DOE organizations stressed the importance of senior management involvement for EMS success. One response is typical of many:

“Even though employees are generally environmentally responsible in their actions, without the support and emphasis of top management, the EMS would probably struggle to succeed.”

Variations on this theme included the need for senior management support to “establish a single entity with overall responsibility and authority if EMS covers diverse groups;” the need for senior management to remain engaged – at least on an annual basis; and the benefits of senior management support for marketing, sitewide communication and aggressive EMS promotion. Sites also noted that acceptance of objectives/targets should be at all levels involved with the subsequent management program – not just top management, and that a bottoms-up approach to EMS design and direction produced strong staff ownership.

### **Communication/Coordination**

Lessons learned and best practices regarding communication and coordination were reported by DOE organizations. A recurrent theme was the need for early and frequent communication. Specific lessons learned included the need to develop an understanding of environmental impacts among employees and the need for a full-time EMS coordinator, especially at the larger facilities. One site reported that:

“Translating [the site’s] over 24 aspects and potential impacts into terms which can be communicated effectively to employees was an influential action taken in response to an assessment (continual improvement cycle). This translation was then quickly incorporated into [the site’s] General Employee Training.”

Best practices included the establishment of a lessons learned project point of contact for each program area and the dissemination of examples of successes to line organizations to provide guidance to future projects. One site observed that:

“Close working relationships between the environmental professionals, facilities operations, procurement, and experimental operations personnel provide the best opportunities for adoption of sustainable practices across the organization. By

fostering these relationships, environmental professionals can help influence decisions made throughout the organization in order to promote sustainable practices.”

Organizations reported lessons learned regarding marketing as a form of communication. For example, one said that extensive marketing was effective, and another reported that:

“By keeping the EMS policy simple, it was easy to turn it into an acronym that helped remind employees of environmental commitments. The policy commitments – Pollution Prevention, Community, Cleanup, Continual Improvement and Compliance – were condensed into the acronym P2C4.”

### **Aspects Analysis**

DOE organizations reported best practices or lessons learned regarding the analysis and evaluation of environmental aspects. These included the importance of broad input to aspect/impact identification, that the aspects analysis process needs to mature with the EMS, and that revisions will be required as significant aspects are reevaluated. One organization reported that the greater the effort (broad-based involvement) to identify activities and their environmental aspects, the greater the potential to recognize areas for improvement through new objectives and targets. Best practices cited include:

“Environmental impacts and aspects are analyzed along with health and safety concerns on a continual basis during review of individual work packages as they are prepared for field work,”

and

“Annual evaluations of aspects and impacts to identify potential vulnerabilities as a result of changing conditions. Examples include facility demolitions; equipment moves; and process start ups.”

### **Auditing/Assessment**

DOE organizations reported best practices and lessons learned regarding auditing and assessment. One noted that a defined self-assessment process facilitates continuous improvement, and another reported that it had integrated a process-assessment approach that allows for periodic review of environmental aspects of major operations. Another facility reported that a:

“Robust internal EMS audit process drives continuous improvement and demonstrates commitment to external auditors.”

Another said that using an external auditor gives the program more credibility.

## **Goals/Objectives/targets**

DOE organizations reported lessons learned regarding goals and objectives. One noted that the objectives should be achievable even under adverse conditions, and another reported that the “establishment of annual goals and objectives allows management to identify important ESH issues in their organizations.”

## **Documentation**

DOE organizations reported on the advantages of using electronic documentation. One said:

“The documentation of the [project] EMS has been done entirely electronically through our Intranet. Using web page documentation has made it much easier to update and manage changing processes and procedures.”

Another said that:

“[The laboratory] utilizes a state-of-the art database system . . . to manage its environmental management obligations. This internet-based relational database system allows for the integrated management of citations (permit requirements, regulatory citations, etc.), operational requirements, tasks, monitoring data, documents, and reporting. Automatic comparison of requirements against regulatory limits and escalating e-mail notifications provide robust compliance management tools. User-specific regulatory update notifications provide flexible and powerful tools to manage regulatory compliance obligations. Reporting and document management functions provide a comprehensive status of environmental performance.”

## **Contracting/Subcontracting**

Organizations reported lessons learned regarding EMS and contracting, including that EMS targets were tied directly to concrete objectives. They noted that:

“EMS supports the subcontracting process through consideration and inclusion of environmental issues.”

“The transition of management and operating responsibilities from the previous contractor to [the current operating contractor] demonstrates continuation of commitments to the prevention of pollution, compliance with applicable requirements, and continual improvement.”

## **Electronics Recycling**

One organization reported a best practice that it intends to repeat in future years:

“During Earth Day, 2006 [the organization] sponsored an employee electronics recycling day whereby personnel and their families could bring old electronic equipment in to be reused or recycled by [the organization’s] recycling contract vendor. Approximately 4500 lbs of old electronic equipment, televisions, computers, etc. were accumulated at this event. It was apparent from comments made by employees that there are few means in the general public to recycle old electronic equipment. [The organization] is planning to perform this service next year in hopes of expanding the total amount of equipment recycled.”

## **Procedural and Program Practices**

Various EMS procedural and program best practices were identified. Examples include the following:

### *Flexibility.*

“The EMS needs to be flexible to accommodate different types of workers in the organization. Changes in performance take time.”

### *Implementation.*

“Use of EMS toolkit to assist in EMS implementation and operation.”

### *Purchasing.*

“Use of warehouse to purchase in-stock ‘green’ items.”

*Planned work reviews.* One organization reported its process for facilitating approval of work documents:

“All planned work (in the form of a Work Document) undergoes comprehensive review by the site Work Review Group, which is comprised of representatives from the following departments: Safety, Environmental Affairs, Radiation Protection, QA, and the work group assigned to complete the task. The process requires that a hazard analysis checklist be completed for each work activity planned. The checklist includes an evaluation for applicability of waste minimization/pollution prevention opportunities to the work, as well as required environmental reviews. When environmental aspects are identified during the checklist process, subject matter experts from the Environmental Affairs department evaluate the proposed work with respect to applicable state and federal environmental regulations and associated permits. Based upon these environmental reviews, and as necessary, the Environmental Affairs department will modify the work scope to comply with existing permits,

modify existing permits/licenses, or apply for new permits/licenses. The method for transmitting the upcoming work packages to the Work Review Group via electronic mail prior to issuance is noteworthy. This process allows time for representatives of the Work Review Group to thoroughly review each document and brainstorm any questions prior to the work being performed. The implementation of this process allows for an efficient mode in getting work documents approved.”

*Energy conservation.* DOE organizations reported that energy conservation measures were implemented or improved at their sites. For example, one said that

“Through energy and environmental conservation efforts, the amount of natural gas consumed in the X-6002 Boilers was reduced by approximately 59% for the period from October 2005 through July 2006. This was accomplished through reducing thermostat settings and by application of a biocide to control bacteria growth in the boiler water during the summer months instead of running the boilers to keep the temperature high enough to control the bacteria growth. In addition to the cost savings of \$173,900, the reduction in consumption of natural gas resulted in a corresponding reduction in risk of harm to the environment by reducing the quantity of greenhouse gas emissions (CO<sub>2</sub>) by approximately 2 million pounds.”

*Programs and operating procedures.* Best practices regarding programs and operating procedures included the following:

- An Environmental Program Description that addresses all of the specified DOE Order 450.1 requirements.
- Standard operating procedures (for used oil and for cold weather), emergency response systems, a [site] Safety Observer program (which has provided localized support to ensure issues are identified and corrected), and aggressively conducted Pollution Prevention Opportunity Assessments that result in the elimination or reduction of emissions, effluents, and waste.
- Required periodic reviews to ensure that the EMS remains current and dynamic.

### **3. EMS IMPLEMENTATION CHALLENGES**

**Facilities were invited to provide up to three statements identifying EMS implementation challenges.**

DOE organizations identified several challenges to EMS implementation, which have been grouped under the following topics:

- Funding/resources/costs
- Staff resources/turnover
- Integration
- Awareness
- Management
- Compliance
- Communication
- Flowdown of requirements
- Cultural change/mindset
- Procurement
- Continuous improvement
- Other priorities
- Other challenges

### **Funding/Resources/Costs**

Three related types of funding issues were reported: (1) lack of funding, (2) competition with other funding priorities, and (3) additional costs posed by EMS. A typical lack-of-funding challenge was:

“The ability to dedicate resources to implementation is hampered by uncertainties in funding availability and application.”

Funding competition challenges included:

“New contract significantly reduced funding across the Lab creating priority problems.”

“With environment as a supporting function, it is not always given a priority in the organization. Additional documentation required by EMS requires resources not always available.”

### **Staff Resources/Turnover**

Related to funding challenges are staffing challenges. Organizations cited the challenges of limited personnel resources and of transferring EMS knowledge to a staff with high turnover rates. For example, one said that meeting reporting requirements in a timely manner is difficult with the minimal staff available to conduct EMS.

### **Integration**

Organizations expressed challenges pertaining to EMS integration. Specific integration challenges included integration among site contractors and into various levels within the organization, integration of EMS principles into the work control processes and day-to-day activities, and integration of the EMS into other management systems. Examples include:



“The single greatest challenge to achieve the long-term benefit of an EMS is to fully integrate it within a site’s management structure.”

“Joint Federal/Contractor EMS poses challenges to EMS management, audits and reviews.”

“Managing a vast number of procedures and instructions required to address significant environmental aspects requires constant vigilance from multiple disciplines.”

## **Awareness**

DOE organizations said that maintaining awareness was a challenge and that training was needed to foster awareness. One noted that:

“Maintaining EMS awareness is a continual challenge especially since the [site’s] system has been in place since 1997 and is well integrated into the operation.”

## **Management**

DOE organizations said that keeping management engaged in EMS posed a challenge, with one noting that getting the line programs to set their own targets and goals presented a challenge.

## **Compliance**

Compliance-related challenges included “systematically and thoroughly determining compliance with all requirements,” maintaining the current level of compliance, and managing activities necessary to meet the large number of environmental requirements.

## **Communication**

Organizations reported communications-related challenges. Specific communications challenges included communication among sites dispersed across the country, and communications barriers with foreign students working on the site. Other cited challenges included communicating with personnel who represent disciplines ranging from researchers to maintenance staff, moving toward a paperless office, and “ensuring subcontractors ‘way of thinking’ about environmental safety culture is consistent with the site’s EMS.”

## **Flowdown of Requirements**

Organizations noted challenges associated with the flowdown of requirements. These included ensuring flowdown of EMS requirements, for example to subcontractors, and the need to adapt the EMS due to the transition to a new contract and a substantially changed organizational structure. One organization explained that:

“Commitment to EMS varies among divisions (line organizations). Some division EMS teams did not complete requirements established in the EMS Manual. Commitment from all division teams and completion of identified tasks is necessary for implementation of the EMS corporate-wide.”

## **Cultural Change/Mindset**

DOE organizations reported challenges that relate to the need for change in mindset or mentality needed to implement EMS. For example, one laboratory noted that its EMS could fall prey to a “flavor of the day mentality for new programs.” The challenge, according to the laboratory, is learning how to help recognize EMS implementation as being “proactive” and not just an “extra load” on current resources. Other challenges noted were:

“Old non-conservation and non-environmental mindset”

“Organizational culture was ‘procedure phobic’”

“Change of culture from compliance to system orientation.”

One organization said the challenge was to:

“Overcome the industrial age ‘disposal by landfill’ mentality, and progress forward to ‘sustainability.’”

A related challenge was:

“Fighting ‘letdown’ after successful ISO 14001 certification (e.g., ‘we’re done’).”

## **Procurement**

Organizations cited specific challenges associated with procurement of “green” products. These included challenges associated with finding green products that provided adequate performance, and in finding:

“quality and cost-effective products that will allow the organization to maximize the procurement of “green” products in order to support and encourage the recycling effort throughout the country.”

Another explained that:

“While [the organization] has made great strides in recycling and reuse of material used at this site, it is still a challenge to find some products that are environmentally acceptable while providing a measure of satisfactory

performance (i.e., janitorial products, maintenance products, etc.). [The organization's] Facility Management department, Environment, Safety, & Health office, and Procurement department constantly monitor and work together to find the most acceptable products to achieve the greatest amount of success."

Another reported challenge was overcoming the:

"convenience of procuring [standard] products and services versus researching 'green' products and services."

A similar challenge was noted as:

"Implementing tools and awareness to promote affirmative procurement and consideration of product life-cycle . . . prior to purchase."

### **Continual Improvement**

Challenges to continual improvement were reported. Specific challenges included finding areas for continued improvements, continuing improvement "after multiple years," and striving for measurable continued improvement. One organization reported the challenge of aligning "programmatic with operational responsibility for continual improvement."

### **Other Priorities**

Organizations reported challenges associated with implementing EMS because of other priorities, including site mission, meeting decontamination and decommissioning and remedial action milestones, other ES&H priorities (such as implementing DOE's Worker Safety and Health Program [10 CFR 851]), and safety improvements. As one organization reported:

"Due to the current focus on safety improvements, environmental programs may have difficulty getting management and staff attention/participation."

One organization reported the challenge of

"finding a 'home' for ISMS/EMS in the DOE projectized work structure."

### **Other challenges**

Other EMS implementation challenges included setting new targets and objectives, assessing the EMS, and "old plant infrastructure." One organization noted the challenge of the "lowered threshold for significance of aspects and impacts."

#### **4. EMS BENEFITS TO AGENCY MISSION**

**Facilities were invited to provide up to three statements identifying how EMS implementation has enabled the organization or agency to operate more effectively in accomplishing its mission (e.g., reduced number of off-normal events that disrupt agency schedules or operations; greater interoperability among sites; better relations with host communities, states, and their elected representatives; greater speed and agility in responding to unexpected events; improved ability to write performance based contracts).**

DOE organizations cited several ways in which EMS implementation has enabled the Department to operate more effectively in accomplishing its missions. Responses have been grouped under the following categories:

- Reductions in number of off-normal events, risks, and liabilities
- Greater speed and agility in responding to unexpected events
- Better relations with host communities, states, and their elected representatives
- Greater interoperability among sites
- Compliance/permitting
- Contracting improvements
- Effective environmental management
  - Improved relations with regulators
  - Improved cost-effective operations and improved project management
  - Improved employee performance, awareness and internal relations

#### **Reductions in Number of Off-normal Events, Risks, and Liabilities**

DOE organizations reported benefits of EMS implementation for reducing the number of off-normal events (or risks that could lead to such off-normal events) that disrupt agency schedules or operations. For example, one organization said:

“The primary benefit to the [DOE site office] has been the raised awareness by all employees of the environmental issues the program faces. As a result of that awareness, [the DOE site office] expects to experience a reduction in off-normal events, greater pollution prevention and a better relationship among the three [site] contractors and [the DOE site office].”

Other DOE organizations reported significantly reduced environmental risks to mission programs, with one stating that the EMS program has the potential to reduce environmental incidents both on and off the job. Another said that its:

“EMS has maintained a highly vigilant environmental and safety program that strives to ensure that off-normal events are reduced.”

## **Greater Speed and Agility in Responding to Unexpected Events**

DOE organizations reported successes such as improved ability to manage, and “mechanisms for responding to changing environmental conditions and requirements,” which promote speed and agility in responding to unexpected events. Organizations cited improved operating efficiency as a result of EMS implementation. For example, one said that the:

“Integrated system led to efficiencies; reduced ‘frictional drag’ on Mission-specific work. Improved structure and execution for continual improvement resulted in application to Mission work.”

One organization reported that the EMS provides a structure to manage as project scope changes:

“Because [the project] is an evolving project that will transition through a variety of phases (site characterization, construction, operation) where the type of work performed will change, the EMS provides a management structure that allows to project to manage environmental issues as work scope changes.”

## **Better Relations with Host Communities, States, and Their Elected Representatives**

Several DOE organizations cited examples demonstrating better relations with outside entities. In some cases, EMS implementation has helped establish better relations, and in others the EMS has helped maintain or improve good relations that had already been established. Organizations also reported a positive community image. For example, one organization reported that:

“The EMS and ISO 14001 registration has propelled [the organization] to the forefront in the eyes of the community’s leadership by showing that the organization is a leader in environmental commitment.”

Another noted how early community involvement can provide concrete benefits to Agency mission:

“Incorporating early stakeholder engagement into the review and negotiation of the Permit Modification Request for the [site] Hazardous Waste Facility Permit resulted in changes to the draft permit that allowed stakeholders to agree that the permit would be protective of the environment. As a result of the negotiated agreement, the permit hearing process was shortened to only five days (the original permit hearing required six weeks) and the state issued the permit as agreed on in the negotiations. This permit modification was critical to [the site’s] mission of accepting remote-handled transuranic waste from DOE cleanup sites.”

## **Greater Interoperability among Sites**

Organizations provided examples of how EMS implementation has contributed to greater interoperability. These included:

“The EMS requirement for annual internal audits resulted in a resource sharing network. This network allows EMS personnel from various DOE facilities to participate in other DOE facility internal audits.”

“EMS implementation provided a common approach and language for addressing environmental aspects of work at DOE sites that has improved the overall communication and sharing on information among different sites.”

### **Contracting Improvements**

Organizations reported that EMS implementation had led to contracting improvements. For example, one said that through the EMS, it supported site office goals and objectives through affirmative procurement practices and Federal Electronics Challenge participation. Another said the EMS implementation has resulted in “an improved ability to write performance-based contracts,” and a third reported that EMS implementation led to “more scrutiny of subcontractors providing work onsite (e.g., recycle/reuse of concrete & asphalt).”

### **Effective Environmental Management**

Most DOE organizations reported ways in which EMS implementation has contributed to effective environmental management. Examples of effective environmental management were reported in three main categories: improved relations with regulators; improved cost-effective operations; and improved employee performance, awareness and internal relations.

*Improved relations with regulators.* Improved relations with regulators were evidenced by facilitated permitting modifications (for a Hazardous Waste Facility Permit) and site-specific variance negotiations (for the safe removal of asbestos in radiologically contaminated areas). These types of modifications and variances can reduce time and costs, thereby allowing more resources for agency mission. One site reported that:

“Increased interactions with regulators had aided in providing them a better understanding of the operations of [the site].”

*Improved cost-effective operations.* DOE organizations reported that EMS implementation led to improved cost-effective operations and improved project management. For example, organizations reported on efficiencies gained by addressing requirements before work begins. These early reviews “facilitate environmental compliance with effective, safe, work.” Improved performance also leads to lower costs, and one facility reported that:

“Funding saved by energy conservation was applied to directly accomplishing the Plant mission.”

One organization reported that:

“EMS implementation increases cost effectiveness by empowering and encouraging a focus on continuous improvement, compliance, and pollution prevention.”

Another reported that “EMS implementation has led to improved efficiency, which has led to cost savings both in the line and at the lab level.”

*Improved employee performance, awareness, and internal relations.* DOE organizations reported improvements in these areas as a result of EMS implementation. Typical comments pertaining to increased employee awareness were:

“Employees are more conscious and aware of the impact their job performance can have on environmental issues.”

“Maintain awareness of the significant environmental aspects and impacts related to your work. EMS has created a questioning attitude for personnel to make sure their co-workers and the environment are protected. This creates a safer and better work environment; minimizes impacts on the environment, and creates fewer disruptions to production and operations.”

Enhanced communication and information sharing were also reported by DOE organizations.

### **Other Environmental Management Successes**

In addition to successes in the above environmental management categories, organizations reported numerous other examples of effective environmental management. These included sharing environmental solutions, incorporating life-cycle considerations, identification of applicable and appropriate training requirements for specific work activities, the use of one standard approach, and improved tracking of environmental performance. Successes were evidenced through increased compliance, and through meeting National Environmental Performance Track goals.

## **V. Environmental Compliance Management Improvement Initiative**

DOE's Implementation Plan, prepared in response to the recommendations of the Environmental Compliance Management Improvement Initiative of the President's Management Council (PMC), was submitted to the Federal Environmental Executive on May 2, 2005. The Plan covers five priority areas:

- Statement of Line Management's Expectations (commitment to environmental compliance)
- Identification of root causes for non-compliance
- Improvement of environmental audits and corrective action processes
- Improvement of environmental performance data collection and use
- Identification and dissemination of best practices and lessons learned

An intra-Departmental Compliance Improvement Work Group was established in May 2005, to collect data and develop guidance for improving compliance processes throughout the DOE Complex.

In May 2006, three pilot questionnaires on Non-compliance Root Cause Analysis, Environmental Compliance Audit and Corrective Action Process, and Measures of Environmental Performance were provided to three DOE sites for comprehensiveness and level of effort testing and evaluation.

In October 2006, DOE's Chief Financial Officer issued the FY09 Field Budget Guidance directing DOE sites to ensure funding and resources needed to implement Environmental Management Systems and corresponding safety, environmental compliance and pollution prevention programs are included in the site budget submission.

In October 2006, an inventory was initiated of ES&H and/or EMS policy statements issued by senior managers at major DOE sites affirming (or re-affirming) their commitment to environmental compliance in the conduct of site operations.

In 2006, DOE requested correction of errors in EPA's Enforcement and Compliance History Online (ECHO) database regarding purported environmental noncompliance at four DOE sites

In cooperation with the Environmental Subgroup of the Energy Facility Contractors Group, DOE identified environmental performance metrics (including compliance metrics) in use at a sample of DOE sites

Secretary Bodman's memorandum to all DOE employees on December 8, 2006, enumerated and emphasized the Operating Principles spelled out in the Department's new Strategic Plan. The Department's first Operating Principle is to:

“Ensure safe, secure, and environmentally responsible operations.”



In the coming months, DOE plans to:

- Continue to implement the actions described in DOE's Environmental Compliance Management Improvement Implementation Plan, covering the five priority areas.
- Compile inventory of ES&H and/or EMS policy statements issued by senior managers at major DOE sites affirming (or re-affirming) their commitment to environmental compliance in the conduct of site operations.
- Finalize the previously piloted questionnaires. Initiate conduct of root cause and systemic problem analyses of DOE Significant Non-Compliers and other non-compliances. Assess DOE sites' need for field assistance from the newly established Office of Health, Safety, and Security (HSS) in the conduct of environmental non-compliance root cause analyses on-site.