Department of Energy
Washington, DC 20585

March 6, 2008

Mr. David Kling
Director, Federal Facilities Enforcement Office
U.S. Environmental Protection Agency (2261A)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Dear Mr. Kling:

Enclosed please find the Department of Energy's (DOE) annual Environmental Management System Report for 2007. It is provided in response to the memorandum from the Federal Environmental Executive to Senior Agency Officials, "Data Call for Annual Agency Environmental Management Systems Reports." The report is prepared in accordance with the guidance and format provided with the Data Call.

In December, we provided to you electronically the first three sections of the report, which includes the quantitative data needed to update the Office of Management and Budget (OMB) Environmental Sustainability Scorecard. The current report includes Section IV, summarizing responses from DOE sites to the open-ended narrative questions in the reporting data call.

Questions concerning this report may be directed to Steven Woodbury, Office of Environmental Policy and Assistance, at steven.woodbury@hq.doe.gov or (202) 586-4371.

Sincerely,

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

Enclosure

cc: Alexander Karsner, DOE-EERE
Will Garvey, EPA-FFEO

US Department of Energy
Environmental Management System Status Report for 2007
Pursuant to Executive Order 13423
Strengthening Federal Environmental, Energy, and Transportation Management

Introduction

This Report provides a summary of the progress of Department of Energy facilities and organizations in implementing the Environmental Management System (EMS) requirements of Executive Order (EO) 13423. 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 Federal Environmental Executive to Agency Senior Officials.

I. Appropriate Facilities/Organizations.

A. Number of EMS "Appropriate Facilities/Organizations".

The Department's total number of EMS "appropriate facilities/organizations" is 43.

There are no changes to the Department's list of "Appropriate Facilities/Organizations" since our 2006 EMS report.

B. Self-Declaration Status.

8	Self declarations based on 1st party (internal) assessments
22	Self declarations based on 2nd party assessments
13	Self declarations based on 3rd party (ISO 14001 registrar) assessments (not required by EO 13423)
0	Not Self Declared
43	Total

II. Environmental Management System Scorecard Metrics.

Based on facility/organization responses to *Part II EMS Scorecard Metrics*, Department of Energy facilities/organizations scored as follows:

Score	Number of Facilities/Orgs*	Percent of Facilities/Orgs*
Green	34	79%
Yellow	9	21%
Red	0	0%

*Includes **only** those facilities/organizations that were identified as "Appropriate Facilities" prior to EO 13423 (i.e., January 24, 2007)

III. Environmental Management System Effectiveness Questions.

A. Responses to Questions on the Benefits of EMS on the Facility/Organization.

	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	7	12	10	15	7	3	3	1
Quite a bit	11	8	18	14	13	10	6	11	14
Somewhat	18	21	11	13	12	18	16	18	11
A little bit	5	7	2	6	3	7	11	11	10
Not at all	1	0	0	0	0	0	5	0	1
Does not apply	0	0	0	0	0	1	2	0	6

Several facilities reported additional benefits, including:

- "Budget and processes established in alignment with EO 13423 goals."
- "Improved integration with Work Control Process."
- "The EMS has given the host state a positive impression of integration of environment into organizational culture and operations."
- "The use of the Management Review process has provided all levels of the organization an excellent forum to discuss environmental improvements."

B. 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 of fuel in vehicles	Improved conservation of water	Reduced number of permits needed to operate
A great deal	8	6	10	4	4	6	7	5	6	7	4	4	0
Quite a bit	16	8	18	6	8	14	12	15	11	13	7	5	2
Somewhat	10	17	12	16	12	15	16	14	18	17	14	14	0
A little bit	8	9	3	12	12	7	7	7	8	6	13	15	8
Not at all	1	1	0	4	4	1	1	2	0	0	2	3	26
Does not apply	0	2	0	1	3	0	0	0	0	0	3	2	7

Several facilities reported additional benefits, including:

- “Improved organizational discipline and efficiency, even outside of the EMS.”
- “Improve employee awareness regarding potential impacts to the environment from activities performed.”

IV. Questions on Environmental Management System Experiences

A. EMS BENEFITS/SUCCESSES

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

DOE organizations identified numerous benefits/successes associated with EMS implementation at their facilities. These fell into the following categories:

- Environmental management (including EMS integration, awareness, and management involvement)
- Environmental performance through pollution prevention
- Environmental excellence/sustainability
- Relations with outside entities.

Selected comments are provided below.

- "Requirements identified early, avoiding project delay; integrated with existing programs."

- "The EMS process was used to determine if nanotechnology issues should be a new significant environmental aspect. Senior management agreed and the significant aspects list will be updated as a result."

- "EMS framework is almost identical to the OHSAS 18001 Safety Management System framework and allowed [the national laboratory] to adopt the system to improve safety operations using similar EMS processes."

- "This year the focus has been on re-tooling the EMS with a revised aspects analysis and development of new tools to be applied at the line function level. Continued integration with safety and health management has been a major focus, and reorganization of the site's HS&E procedures and IT systems has been planned and is now being implemented."

- "The EMS has helped raise site-wide awareness of environmental aspects and impacts and its potential impact on the laboratory's scientific mission. The EMS process, and in particular the EMS steering committee, provide a forum for information sharing for cross-program issues."

- "General Employee Awareness of Environmental Stewardship -- very good use of site EMS Hotline with good questions and suggestions coming in from the general employee population."

- "Increased awareness and participation in pollution prevention activities, energy conservation measures, and waste minimization initiatives. Greater awareness of environmentally friendly products and a greater determination to purchase these products."

- "Encourages management to get involved in assessment of the aspects and impacts of day-to-day operations."

- "Improved communication among the division and section environmental officers. Raised awareness of environmental impacts at the directorate and division head levels of management."

- "EMS-driven continual improvement that uses a life-cycle approach to not only reduce wastes and environmental risk but also streamline operations to improve efficiency and reduce compliance liabilities. Examples include:
  - Clean out of surplus facilities
  - Improved housekeeping for storm water protection
  - Recycling metal chips from machine shops
  - Use of alternative solvent in chip cleaning process reduced emissions of ozone depleting substance and reduced costs."

- "Oil spill mitigation initiatives such as replacement of oil-filled circuit breakers with gas circuit breakers and secondary containment improvements have reduced the potential threat to nearby sensitive water receptors."

- Organizations cited increased recycling rates and reduced waste generation. One stated that it had "reduced average inventory of hazardous materials by greater than 10% for the second year in a row." Another reported a 52% improvement in the paper recycling rate, and another reported the establishment of a formalized electronics recycling program. A cleanup site reported the elimination of the use of Halon 1301 and an 18.6% reduction in total curies released in radiological wastewater discharges.

- One facility reported that it had reduced total energy usage by 26.5% from the 2003 baseline year.

- A laboratory reported that it had "reduced non-experimental energy intensity by an additional 11% over Fiscal Year 2006 results—a 32% improvement over the EPACT and EO 13423 baseline year of Fiscal Year 2003 allowing the facility to meet the goal of a 30% reduction by Fiscal Year 2015 eight years ahead of schedule." The laboratory also reported that it reduced covered fleet petroleum consumption by over 40% compared to the EO 13423 baseline year of Fiscal Year 2005—exceeding the EO 13423 goal for Fiscal Year 2015 eight years ahead of schedule.

- Another laboratory reported a minimum of 17% energy savings with new cluster computer.

- A laboratory reported that it continued to reduce potable and non-potable water consumption (greater than 45% since Fiscal Year 2004).

- "Performance Track membership and ISO 14001 registration were used to partially justify reduced monitoring requirements during NPDES permit renewal … fewer external regulatory audits in Fiscal Year 2007 may be due in part to Performance Track membership and ISO 14001 registration."

- One facility reported "enhanced open communication with neighbors, regulators, and employees on environmental issues."

- Another reported greater awareness by community leaders of [the organization's] environmental mission and a competitive advantage when proposing business contracts.

- One site “resolved water permit (NPDES) issues.”

B. EMS BEST PRACTICES

Facilities were invited to provide up to three statements identifying EMS best practices.

DOE organizations reported numerous examples of best practices associated with EMS implementation at their facilities. These fell under the following general categories.

- Procedural and program practices
- Integration
- Auditing and assessment
- Pollution prevention
- Communication/coordination
- Aspects analysis
- Goals/objectives/targets
- Planning
- Sustainable design.

Selected comments are provided below.

- “Chemical purchasing and inventory is managed through a centralized chemical procurement system initiated in 2005.”

- “Chemical products requested by personnel and subcontractors must be evaluated and approved for use by the Environmental Department, thereby reducing the risk of hazardous waste and unnecessary exposure to hazardous materials.”

- “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.”

- “We instituted use of a checklist for both Health and Safety as well as possible environmental impacts that must be filled out and accompany each work package to ensure that the compliance group is aware of all work performed and any possibilities for new aspects, required permitting, NEPA documentation, or other requirements.”

- “Using clean storm water collected in lined ponds for reclaiming the mined materials pile is a best practice initiated during Fiscal Year 2007. This project makes use of water that typically evaporates, thus reducing the need for using fresh water for the purposes of reclamation, erosion control, and dust suppression.”

- "Monthly walk-down of operating facilities both asserts the continuity factor of the EMS, and provides assistance to our associates on items that may not seem important."

- "[We] added [a] requirement to perform a causal analysis for all environmental events."

- "Through a process called 'mainstreaming,' [the facility] trains laboratory personnel to integrate environmental compliance into daily operations."

- "[The site] obtained Occupational Health and Safety Advisory Service (OHSAS) 18001 certification in 2007, which is very similar to the ISO 14001 standard, but applies to safety management systems. [The site] built on the EMS to include the [Safety Management system] and now the entire management system meets the same standards."

- "ISO 14001 and OHSAS 18001 registration by the same company can lead to efficiencies for both environmental and safety systems."

- "Integrating EMS principles and the National Environmental Policy Act evaluations through use of an environmental checklist."

- "Encouraging projects to conduct more internal self-identified assessments results in reduced number of nonconformances and externally identified noncompliances by regulators. Self-identified environmental noncompliances continue to be routinely identified, tracked, addressed, and corrective actions are implemented to close issues resulting in increased compliance and environmental protection."

- "An increase in non-regulatory required inspections to spur a change in attitude toward pollution prevention and recycling activities."

- "Inter-laboratory EMS auditor exchange currently in use by [the operating contractor's corporate parent]. This program allows for EMS reps to visit other sites and review different EMS implementation strategies."

- "Implemented a new internal company awards program to encourage pollution prevention/waste minimization (P2/WM) on projects. Six awards were given to different projects for implementing P2/WM initiatives during the 2007 Program."

- "Aggressively conducted PPOAs [pollution prevention opportunity assessments] that resulted in the elimination of emissions, effluents, and waste."

- "Putting EMS policy statement on employee badges."

- "Extensive internal awareness campaign to promote environmental awareness and EMS through quarterly newsletters, semi-annual EMS awards and environmental lecture series, topical (i.e., Energy Awareness Month, America Recycles Day) awareness events, and weekly environmental tips for home and work."

- "Close working relationships between environmental professionals, facility operations, procurement and experimental operations provide the best opportunities for adoption of sustainable practices. Environmental professionals must work in a collaborative manner to

influence decisions throughout the organization while advancing the mission of the Laboratory."

- "All [laboratory] directorates report progress on their respective Environmental Management Programs (EMPs) in their quarterly reports to senior management, which raises awareness and emphasizes importance on the site's mission."

- "Developed a system of tools so that any organization within the Lab could identify its own significant aspects and then work on targets and EMPs."

- "Procedure for identification of significant environmental aspects/impacts is designed to give credit for positive impacts resulting from P2 activities as a tool to promote new opportunities for implementation of Pollution Prevention and Recycling."

- "The inclusion of EMS into future plans at [the laboratory] through incorporation into the Ten Year Site Plan."

- "Increased [laboratory] land management programs to restore native vegetation."

C. EMS LESSONS LEARNED

Organizations were invited to provide up to three statements identifying EMS lessons learned.

DOE organizations identified a variety of EMS lessons learned. They fell under the following general categories:

- Roles and Responsibilities
- Timing
- Integration
- Communication/coordination
- Audit/assessment
- Processes
- Goals/objectives/targets.

The following comments highlight some of these lessons learned.

- "Must have consistent management support and engagement for a successful EMS."

- "Line management ownership of continual improvement initiatives is needed to achieve objectives/targets."

- "One-on-one discussions with managers in rolling out new program elements helps to assure roles and responsibilities are clearly understood."

- "Don't forget about guests and users in a research environment. These folks also need to be made aware of their EMS responsibilities."

- "Changing compliance from a media-based approach to an activity-based approach has facilitated providing instructions that are more readily understood by personnel performing the work, and thus more likely to be performed correctly."

- "Integration of EMS requirements into existing work planning procedures. [The laboratory] successfully added the environmental aspects review into an existing experimental safety review process eliminating the need for a separate review sheet."

- "Occasionally, end-users (field-level personnel) of the EMS or environmental programs are not fully consulted prior to headquarters-based decisions. Without proper consultation between end-users and headquarters leadership, upper-agency decisions may sometimes place barriers upon successful completion of EMS objectives and targets."

- "It is essential to have ownership at the line levels. EMS terminology does not stick at the general employee level; other terms such as sustainability do much better."

- "Routine tracking and trending of noncompliances and nonconformances identified through internal and external assessments, walkdowns, and inspections facilitates identification of specific compliance areas in need of improvement and focus. Sharing this information across projects provides opportunities for 'lessons learned' and contributes to an improving trend toward more compliant operations."

- "Increased organizational discipline results in better ES&H performance."

- "Periodic refresher training is needed to reinforce policy commitments."

- "EMS goals for Fiscal Year 2007 were identified in DOE audit to lack enough measurable targets. Fiscal Year 2008 EMPs have been modified to incorporate measurable targets."

D. EMS CHALLENGES

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

DOE organizations identified several challenges to EMS implementation, which included the following topics:

- Funding/resources/costs
- Staff resources/turnover
- Integration
- Awareness
- Management
- Communication
- Flowdown of requirements
- Cultural change/mindset
- Motivation/acceptance
- Conflicting goals and requirements
- Continual improvement
- Infrastructure/Location
- Other challenges.

Some of these comments follow:

- "Budget cuts make it difficult to achieve identified EMS improvement opportunities."

- “Funding for waste management is paid for by separate account and cost is not [charged] to the individual generator budgets.”

- “Learning how to help the Lab recognize EMS implementation as being ‘proactive’ and not just an ‘extra load’ on current resources.”

- “Continued integration into the organization through realignment of plant processes, reorganization of HS&E procedures, and development of IT systems.”

- “Effectively collaborating with ISMS [Integrated Safety Management System] so that both systems are complimentary, rather than redundant.”

- “Making the connection between EMS principles and day-to-day activities.”

- “In a time of constrained budgets, convincing management that investment in a pro-active EMS will reduce long-term environmental liability and costs and improve operational efficiency.”

- “Assuring communication of environmental policy and EMS awareness information to all who work on behalf of [the organization].”

- “Maintaining sustained corporate knowledge with staff turnovers.”

- “The flow down of detailed worker requirements with respect to significant environmental aspects needs improvement. Although many processes are in place to flow down requirements, improvements are needed to ensure details are properly communicated to staff.”

- The need to change a production-oriented culture from a compliance orientation to a [management] system orientation.

- “Implementing a rigorous P2/WM program in a remedial action/decontamination & demolition (RA/D&D) project environment where increased waste generation demonstrates a successful RA/D&D program.”

- “The is exclusively an Environmental Management [cleanup] Project. Contract incentives are designed to maximize waste production, because waste volumes are used as a metric for clean-up progress. The result is the opposite of waste reduction goals.”

- “Finding realistic objectives and targets for an organization that has had [an ISO 14001-registered] EMS in place for more than four years.”

- “Challenges of implementing reductions to water consumption and energy usage with an aging plant infrastructure while considering a near-term decontamination and decommissioning effort.”

- “The availability and distance from [the site] to reputable sources of supply for biodiesel and ethanol, and for recycling common materials such as toner cartridges, galvanized fencing, concrete, and wood, create recurring challenges.”

- "Managing [radioactive] component in waste minimization."

- "Lack of accountability for implementing basic energy conservation at facilities."

- "Transition planning for a future new facility with reduced environmental footprint and more sustainable HS&E practices."

E. 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 included 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
- Improved compliance
- Contracting improvements
- Effective environmental management
  - Improved environmental performance
  - Enhanced cost-effective operations
  - Improved employee performance, awareness and internal relations.

A sample of responses follows.

- "EMS has created a questioning attitude for personnel to make sure their co-workers and the environment are protected, which creates a safer and better work environment, minimizes the impact on the environment, and creates fewer disruptions to production/operations."

- "It has allowed us to be proactive in reducing environmental risks rather than merely trying to remain compliant."

- "Increased line focus on pollution prevention has led to a significant reduction in hazardous material/waste inventory, which reduces environmental and safety vulnerabilities."

- "Streamlining of work control to identify potential environmental issues as well as instructions for mitigating those issues has improved regulatory compliance, which further enables the mission."

- "Active pollution prevention program reduces environmental impacts and the integration of environmental planning into future missions, vision, and goals."

- “Plan, do check, act has put more focus on setting and tracking goals, objectives and targets,” and has improved project management.

- “Provided for the development of quantifiable goals within site performance measures to improve EMS performance.”

- “EMS implementation has driven us to focus efforts on reuse and recycling to a much greater degree than we have in the past through the process of setting objectives for improvement and implementing strategies to meet those objectives”

- “Ability to flow down requirements such as EO 13423 into a framework that allows for structured review and action.”

- “EMS implementation increases cost effectiveness by empowering personnel to focus on continuous improvement, compliance, and pollution prevention in their daily work.”

- “Greater awareness by senior management of importance of environmental functions within the organization. Increased documentation of environmental programs leads to better understanding by customers of requirements.”

- “The EMS provides an effective mechanism for integrating environmental requirements and values into the working level, which helps to ensure continual improvement in the ability of the organization to meet its regulatory responsibilities.”

- “EMS implementation, ISO [14001] registration, and Performance Track membership have led to improved efficiency, which has led to cost savings both in the line and at the Lab level.”