



Department of Energy

Washington, DC 20585

April 9, 2009

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

Dear Mr. Kling:

Enclosed please find the Department of Energy's (DOE) annual Environmental Management System (EMS) Report for 2008. It is provided in response to the Fiscal Year 2008 EMS data call 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 provided in the data call.

In December, we provided to you electronically the first three sections of the report, which included the quantitative data needed to update the Office of Management and Budget 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,

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

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

Enclosure

cc: David E. Rodgers, EERE
Will Garvey, EPA-FFEO

U.S. Department of Energy
Environmental Management System Status Report
for Fiscal Year 08
Pursuant to Executive Order 13423
Strengthening Environmental, Energy,
and Transportation Management

Introduction

This report provides a summary of the progress of Department of Energy (DOE) facilities and organizations in implementing the Environmental Management System (EMS) requirements of Executive Order (EO) 13423. This preliminary report contains the data tabulations; the final report will include an extensive summary of responses to the narrative questions on DOE experiences with EMS implementation. The report was prepared in accordance with the guidance provided in the letter from the Federal Environmental Executive to Agency Senior Officials, dated September 15, 2008.

I. Appropriate Facilities/Organizations

A. Number of EMS "Facilities/Organizations"

The total number of EMS "facilities/organizations" responding to the FY08 metrics in Section II is 42.

The total number of EMS "facilities/organizations" identified after the date of the signature of EO 13423 is 4. Of these, 3 reported data for FY2008; their responses are included in Section III and Section IV.

The following table describes changes to the Department's "Appropriate Facilities" list which have occurred since submittal of the Department's 2007 EMS report.

Facility/Organization Name	Description of Change
<p>Added to list:</p> <p>Hanford – Mission Support Contract</p> <p>Oak Ridge – Radiochemical Development Facility (Building 3019)</p> <p>Oak Ridge – TRU Waste Processing Center</p> <p>Yucca Mountain – DOE Operations</p>	<p>Added to list:</p> <p>– Newly identified EMS for a new contractor (work was previously under the scope of a different contract)</p> <p>– New facility (operated by a new contractor)</p> <p>– New facility (operated by a new contractor)</p> <p>– The Yucca Mountain facility was previously managed by a contractor who had an established EMS; it is now in standby status under direct DOE management.</p>
<p>Removed from list:</p> <p>Yucca Mountain Project</p>	<p>Removed from list:</p> <p>– The Yucca Mountain facility was previously managed by a contractor who had an established EMS; it is now in standby status under direct DOE management.</p>

II. Environmental Management System Scorecard Metrics

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

Score	Number of Facilities/Orgs *	Percent of Facilities/Orgs *
Green	37	88%
Yellow	5	12%
Red	0	0%

* Includes only those 42 EMSs that were identified prior to signature of EO 13423 (January 24, 2007). (No EMSs identified prior to the issuance of EO 13423 have since been consolidated into an organizational EMS.)

III. Environmental Management System Effectiveness Questions

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

	A great deal	Quite a bit	Somewhat	A little bit	Not at all	Does not apply
Reduced risk to facility/organization mission	8	18	17	1	1	0
Improved fiscal efficiency or cost avoidance	5	14	23	3	0	0
Greater understanding of environmental issues at all levels of the organization	12	22	10	1	0	0
Greater empowerment of individuals to contribute to improving the organization's environmental footprint	10	16	15	4	0	0
Greater integration of environment into organizational culture or operations	15	24	6	0	0	0
Greater integration of environment into real property asset management	5	22	15	3	0	0
Improved community relations	5	10	14	9	5	2
Improved effectiveness in overall mission	5	12	21	7	0	0
Improved cooperative conservation with other groups	2	12	12	11	2	6

Mentioned under "Other":

- "EMS Partnership between environmental staff, facilities staff and other Laboratory organizations is very helpful in aligning work processes to meet performance targets."
- "Greater Senior and Line Management involvement through Directorate required management reviews."
- "Improved integration with Work Control Process."

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

	A great deal	Quite a bit	Somewhat	A little bit	Not at all	Does not apply
Improved overall compliance management	10	17	13	5	0	0
Improved overall personnel health and safety	11	5	18	6	2	3
Improved overall pollution prevention	13	20	9	3	0	0
Improved water quality	4	7	21	9	3	1
Improved air quality	3	11	15	7	4	5
Improved hazardous material management	9	17	9	8	1	1
Improved hazardous waste management	5	16	16	6	1	1
Improved solid waste management	9	17	10	7	1	1
Improved conservation of natural resources	8	11	21	5	0	0
Improved conservation of energy in facilities	10	17	16	2	0	0
Improved conservation of fuel in vehicles	4	10	17	9	2	3
Improved conservation of water	5	9	11	15	4	1
Reduced number of permits needed to operate	1	1	4	4	29	6

Mentioned under “Other”:

- “Improved awareness of employees in regard to realizing that potential environmental impacts may be associated with the work they are performing.”
- “EMS program has had a positive effect on environmental awareness at the sites and the teaming of the environmental programs.”

IV. Questions on Environmental Management System Experiences

A. EMS BENEFITS/SUCCESSSES

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

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 and sustainable practices;
- Environmental excellence/sustainability;
- Relations with outside entities;
- Compliance; and
- Awards.

Selected comments are provided below.

- “At the [site], EMS, Quality Assurance, and Integrated Safety Management Systems are programmatically coordinated and overseen by the [site’s] Office of Environmental Safety and Quality.”
- “All potential ground disturbances, maintenance and construction activities, and agency decision-making activities have an environmental review to prevent loss of cultural/historic resources, and damage to federally-protected threatened and endangered species.”
- “Stronger integration of environmental awareness in all functions.”
- “Consolidated, centralized environmental strategy.”
- “Highlighted the incorporation of environmental initiatives into business activities.”
- “The greatest success is the integration of the determination of all work hazards through the Work Planning and Control process.”
- “Greater awareness of environmentally friendly products and company support of advocates determined to purchase these products.”

- “Increased awareness and participation in pollution prevention (P2) activities, energy conservation measures, and waste minimization initiatives.”
- “[The site’s] Environmental Management System has been increasing training and awareness for site Environmental Officers, putting more focus on internal inspections and follow-ups with waste generators, increasing communications with [site] employees of hazardous waste regulations through [internal web] and [company newspaper] articles, and supporting a strong effort to dispose of unneeded materials, chemicals and waste that is changing the appearance of the [complex] and the mindset of the employees.”
- “Better awareness by employees of environmental issues and potential to significantly impact the environment by the work they do.”
- “Continued improvement in work process through internal audits.”
- “Improved communication at all levels of the organization.”
- “Employee awareness of environmental program and requirements increased through training course developed for various levels of employees and management.”
- “Environmental issues are given the same weight as health and safety issues in the work planning process. It is essentially one-stop-shopping for addressing work controls.”
- “Establishes a uniform and consistent framework for pollution prevention and sustainable programs.”
- “Very good use of site EMS hotline with good questions and suggestions coming in from the general employee population.”
- “Greater awareness of environmental issues and [office] goals through annual awareness training.”
- “Greater awareness of environmental issues by [site] senior management.”
- “Implemented a chemical management system to support EPCRA and Community Right-to-Know chemical release information.”
- “Improved ability to flow down requirements with a lab-level objective and target approach.”
- “Greater communication among various EMS program managers; leading to more cooperative efforts to support each other’s programs. For example, stronger links between energy program and electronics program; between

electronics program and green procurement; between building O&M program and green procurement.”

- “Improved communication among division and section environmental officers.”
- “Raised environmental awareness of the general [plant] population, as well as the upper level management (inclusive of Client, Prime Contractor, and Sub-contractors).”
- “Requirements identified early, avoiding project delay.”
- “The Subcontractor Technical Representatives were better prepared to recognize environmental issues after [the site’s] Integrated Safety Management System/EMS verification audit.”
- “Application of EMS concepts lowered total budget cost and potential for environmental liabilities, allowed for better scheduling/planning, and shaped processes/procedures that will simplify compliance in the future.”
- “Exceeded goals for the following areas:
 - Legacy Low Level (LLW) Waste - Dispositioned 50 of the 70 targeted containers, exceeding the goal of 30%;
 - Mixed Waste - Dispositioned 70% of the target inventory (1,500 of 2,139 items) which exceeded the goal of 50%;
 - All four of the planned Fiscal Year 2008 Clean Sweep areas have been verified acceptable by the site office;
 - Outdoor LLW Waste Areas -- Number of outdoor areas was reduced 18%, which exceeds the 10% goal; and
 - In addition to continued successful results from a number of more traditional external reviews by regulators, [the site’s] EMS scored 417 of a possible 420 points (>99%) during a review by staff from the [State] Department of Environment and Conservation as part of [the site’s] voluntary initiative for recognition at the Performer Level as member of the [State’s] Pollution Prevention Partnership.”
- “[The Laboratory’s] covered fleet petroleum consumption was 38% compared to the E.O. 13423 baseline year of Fiscal Year 2005 - exceeding the E.O. 13423 goal for Fiscal Year 2015.”
- “[The site] has been ISO 14001-certified for 10-plus years and has realized tremendous success in reducing hazardous and nonhazardous wastes, minimizing air emissions, identifying wastewater flows to re-route, and focusing on energy reduction opportunities.”

- “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.”
- “Reduced average inventory of hazardous materials.”
- “The EMS has also been an effective tool for addressing the sustainability goals of E.O. 13423, and engaging various departments in developing plans to meet those goals. Through the EMS this year, [the site] initiated:
 - A green janitorial cleaning program;
 - composting of ‘behind-the-counter’ cafeteria kitchen wastes;
 - A vehicle fleet reduction resulting in greenhouse gas reduction of 29 metric tons;
 - A chemical reduction program including partnering with the university campus in their chemical reuse program. The EMS process has been helpful in planning these activities, particularly in identifying interim milestone steps;
 - The removal of more than 1,000 legacy chemical containers that were either disposed or redistributed where feasible;
 - An Energy Savings Performance Contract; and
 - The recycling of more than 260 metric tons of construction debris from the [project] construction site in Fiscal Year 2008.”
- “Reduced non-experimental energy intensity by an additional 2.5% over Fiscal Year 2007 results, a 36% improvement over the EPACT and EO 13423 baseline year of Fiscal Year 2003 - continuing to meet the goal of a 30% reduction by Fiscal Year 2015.”
- “Continuing successes - continued reduction in waste generation and potential crude oil VOC emissions and increased set-aside areas for wildlife.”
- “Continuing to manage potable and non-potable water consumption (Fiscal Year 2008 consumption was 76.3% below Fiscal Year 2000 level).”
- “Cost avoidance due to more efficient use of equipment already on site (e.g., focused use of energy saving modes on equipment already capable of saving energy, re-manufactured cartridges for printers, awareness to turn equipment off if not in use, etc.).”
- “Established a chemical control program for our [project].”
- “Minimized the generation of chemical and hazardous wastes.”
- “Reduced diesel particulate matter air emissions; reduced petroleum fuel use; and reduced energy use.”

- “Significant improvement in the areas of resource usage (energy, materials) and energy.”
- “Stronger support for buying environmentally preferred items and materials, the use of recycled materials, and support for recycling program.”
- “Inclusion of environmentally preferred product provisions in janitorial service contracts.”
- “In Fiscal Year 2008, an improved process was implemented to track quantities of environmentally preferred office products purchased. The pollution prevention organization partnered with procurement and developed simple, easy-to-use spreadsheets and instructions for reporting these products on a quarterly basis. Vendors were given the tool, instructions, and the opportunity to have questions answered.”
- “Performance reporting has resulted in better understanding of the state of [the site’s] purchase of environmentally preferred products (EPPs) and identified this as an area for improvement.”
- “Enhanced public perception (Good Neighbor).”
- “Enhanced organization’s credibility and image with regulatory agencies.”
- “Environmental compliance evaluations during project planning stages reduced delays associated with required regulatory approval.”
- “Integration with compliance activities improved RCRA and stormwater protection.”
- “Managing releases and site environmental impacts well beyond compliance requirements.”
- “The EMS helps [the site] achieve its mission by improving environmental performance and avoiding impacts to mission associated with non-compliance.”
- “[The Laboratory] received several Office of Science, DOE, and Federal energy and environmental management awards for its recycling and fleet management programs.”
- “Recognition by the [State] Department of Environmental Quality’s Environmental Excellence Program at the Exemplary Environmental Enterprise level for Calendar Year 2008.”

- “Won the DOE Best-in-Class Award for ‘Using the EMS to Improve Chemical Management.’”

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; and
- Sustainable practices.

Representative comments are provided below.

- “All [office] and contractor employees are required to take training in coding of our purchases and where to look for green products to specify.”
- “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 (SMEs) 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.”
- “Changing compliance from a media-based approach to an activity-based approach.”
- “Computer-based training for EMS.”

- “Develop a program to identify sites with environmental risk; then rank the sites with a scoring system; then present highest ranking sites monthly to top management for prioritization of available funding.”
- “Annual, required ‘All Hands’ training.”
- “Use organizational mechanisms and guidance documents already in place to help ensure the EMS is applied within the organization with minimal disruption and confusion--that is, the EMS builds upon existing systems.”
- “Implementation of subcontractor awareness and oversight program.”
- “Initiated a pilot chemical management service to improve lifecycle management of chemicals.”
- “Quarterly interactive management reviews increase senior management environmental awareness.”
- “Requiring a formal signing ceremony of all top level executive managers for the site policy statement.”
- “Projects are reviewed for environmental issues prior to mobilization of site personnel. The review involves/engages Subject Matter Experts, craft personnel/operators, environmental compliance, health and safety, engineering, etc., to improve overall efficiency.”
- “The [office] considers the implementation of EMS as a best practice, through the identification and evaluation of environmental hazards, institution of environmental hazard controls, and incorporation of pollution prevention and waste minimization into their activities.”
- “Tie EMS targets directly to contract objectives.”
- “The [facility’s] internal pollution prevention/waste management award program was recognized by the Energy Facility Contractors Group as a ‘best practice’.”
- “[The laboratory] utilizes a state-of-the art database system to manage its environmental performance obligations. This internet-based relational database system allows for the integrated management of citations, operational requirements, tasks, monitoring data, inspection results, documents, and reporting.”
- “Developed an integrated NEPA and EMS checklist for organizations to use in evaluating projects.”

- “Compliance matrices for major compliance programs are in the development stage. These will be an excellent tool for assuring all compliance requirements are consolidated in one source and for compliance to be sustained across organizational changes.”
- “Integrated internal EMS audit program with other [contractor] facilities.”
- “Integrated systems to ensure environmental tasks are performed in conjunction with teaming partners and mission-specific work.”
- “Integration of EMS with OHSAS 18001 worker safety and health management system.”
- “A defined self-assessment process facilitates adherence to the principle of continuous improvement.”
- “Through a process called ‘mainstreaming,’ [the Laboratory] trains personnel to integrate environmental compliance into daily operations.”
- “Annually, representatives of the EMS perform visits to a selected number of buildings (there are approximately 650 buildings on site) to review the levels of implementation of the EMS (e.g., worker concerns and understanding of impacts to the environment, environmental management practices -- especially as they relate to regulatory requirements -- safety issues identification, housekeeping issues, recycling activities/opportunities, stimulate managerial ‘environmental juices,’ and reinforce the Integrated Safety Management System concept.)”
- “Conduct internal audit swapping to share resources with other labs.”
- “Projects continue to perform more self assessments and identify, track, develop and implement corrective actions. These actions improve overall environmental compliance and protection.”
- “Regimented program for tracking audit findings that stresses long-term corrective action and subsequent continual improvement.”
- “Incorporated evaluation of nanomaterials in aspect/impact review.”
- “Air quality was improved with the addition of a HEPA filter on exhaust units involved with nanomaterials.”
- “Chemicals proposed for use onsite are evaluated for potential impacts to site compliance, i.e., toxicity in wastewater, potential as RCRA waste, etc.”
- “Elimination of ODS aerosol purchases, except where no alternative exists.”

- “Employee energy savings/recycling awareness.”
- “Energy and fuel conservation measures are being improved and new ideas are being implemented. Company P2 goals target these measures.”
- “Expanded the ChemAgain program to allow more efficient chemical sharing by allowing for redistribution of chemicals to a broader set of internal and external recipients.”
- “Kitchen waste composting.”
- “Over 90% of recyclable sanitary waste is being recycled.”
- “Partnership with the university campus in their chemical redistribution program.”
- “Publish list of chemicals headed for disposal to encourage reuse.”
- “The [project] instituted a very effective spill-control program for heavy equipment based on the identification of potential impacts to the environment from equipment fluid leaks (e.g., hydraulic oil, antifreeze, motor oil, diesel, etc.).”
- “Use software purchasing system for checks and balance in green purchasing (ES&H Award).”
- “We used the EMS requirements to cause action on highway winter-salt storage piles that were allowing the infiltration of salt into the surrounding soils and potentially into the groundwater.”
- “We used the EMS requirements to cause action on solid waste piles that had been accumulating over the years under the guise of storage for asset disposition.”
- “Continuation of the P2/Waste Minimization (P2/WM) awards program has produced excellent results with six internal awards to projects with innovative P2/WM initiatives. Three of the six internal awards also received DOE Best-in-Class awards.”
- “During calendar year 2008, [the facility] achieved two goals to increase the amount recycling on site.
 - First, a new plastics-recycling program in partnership with the county’s solid waste department was initiated, which resulted in the recycling of almost 1,800 pounds of plastics so far this year.

- Also, [the facility's] increased awareness of the importance of recycling aluminum beverage cans resulted in a significant increase in the amount of cans recycled.

Both of these recycling activities also benefit the community. For example, [a local community services provider] employs mentally disadvantaged persons to sort the plastics that are sent for recycling. Also, proceeds from the aluminum beverage can recycling are split between the center and a [local food bank].”

- “[The facility’s] Environmental Management Team meets bi-monthly to discuss EMS initiatives and to plan environmental activities for upcoming maintenance or construction projects.”
- “A ‘No-Longer-Contained-In’ determination was obtained from the [State] allowing free-release of soil from the [site]. This determination allows soil that has been used as cover over waste stored at the [site] to be used as fill in nearby borrow pits or in areas inside the project fence, resulting in an estimated savings of more than \$20 million since the start of the [project].”
- “A coordinated Environmental Protection Subcommittee.”
- “Close working relationships among environmental professionals, facility operations, procurement and experimental operations provides the best opportunities for adoption of sustainable practices.”
- “Each employee must complete an ethics training module, which includes review of the Employee Handbook and completing an acknowledgement card signifying their acceptance and understanding of the material.”
- “Established an EMS Core Team, which consists of representatives of key management system owners, to discuss cross-cutting issues and set organizational goals.”
- “Issuance of monthly ESH bulletins at [the facility] that include refreshers of environmental related issues and recent lessons learned.”
- “Established environmental forum to discuss cross cutting EMS issues among other contractor sites.”
- “Multiple contractors participated in joint development of an environmental awareness handbook for all employees.”
- “Strong interface and communication with DOE prime construction management contractor to assure environmental risks are minimized during construction events.”
- “Publishing the ESH Policy Statement through posters.”

- “Regular discussions in top level committees.”
- “There has been an increase in employee participation at local Earth Day events and in the company-sponsored environmental activities. The [facility’s] Environmental Department conducts various campaigns during the month of April to raise awareness of environmental issues and concerns. These activities have raised awareness, increased compliance, and have fostered new ideas to improve the environment and maintain compliance.”
- “Use annual EMS audits/reviews as a tool to inform and train management and staff.”
- “User-specific regulatory update notifications provide powerful tools for managing regulatory obligations.”
- “Incorporated into the Employee Handbook: Standards of Conduct and Business Ethics, the environmental policy commitments, and the roles/responsibilities employees have in achieving those commitments and implementing the EMS.”
- “Developed a System of Tools so that any organization within the Lab could identify their own significant aspects and then work on targets and EMPs.”
- “Combined HS&E risk assessment/aspects analysis process.”
- “Incorporated significant aspects into the site’s ISMS and work approval process.”
- “[Facility] updated its program-development procedures to more actively manage how EMS program targets are developed; stressing short-term (1-2 yr) targets that directly support established objectives. This helped EMS program managers to set a more attainable path ahead (i.e. short-term milestones help to more easily show progress and, therefore, to encourage progress).”
- “Shifted the focus of our various EMS programs (energy, transportation, green procurement, electronics management, and building O&M) to be heavily focused on objectives and targets.”
- “Tying environmental goals and objectives to management performance contracts and team share target awards.”
- “Annual use of electronic questionnaires that are provided to Department managers. The results of the questionnaires are used to update knowledge of each activity and service on the plant, where and with whom the activity or service resides, and processes that have been added or removed. This

information is considered annually by the "aspects analysis team" while performing risk ranking of aspects with potential impacts to the plant."

- "Conducting job hazard analyses on activities before they are performed to lower safety and environmental risks."
- "Energy Management Plans are developed for individual buildings so that even those buildings with 'special characteristics' are scrutinized."
- "Improved integrated planning effort for 'Campus of the Future' site development concept."
- "[The facility] joined The Climate Registry this year and is in the process of compiling and calculating Fiscal Year 2007 baseline greenhouse gas data using the Registry's protocol methodology."
- "[The Laboratory] has been recognized for its work in enhancing and maintaining wetlands and the establishment of a 'wetlands bank' to support future land use."
- "Taking advantage of DOE-approved recycling organizations for items that the local community work program cannot accept."
- "Utilization of 80/20 bio-diesel in tractors/mowers saves approximately 480 gallons of petroleum-based fuel per year."

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;
- Pollution prevention; and
- Training.

The following comments highlight some of these lessons learned.

- “Continued assurance of senior management buy-in to line managers and EMS representatives.”
- “All levels of management need to accept program objectives and targets.”
- “Improvements must be planned beyond one-year budgets.”
- “[The office] considers the integration of EMS and Integrated Safety Management System as a lesson learned, in that the benefits to [the office] and contractor management could have been realized sooner.”
- “Continue supporting the integration of EMS procedures into existing laboratory procedures.”
- “An ISO 14001 and ISO 9001 implementation team was formed to obtain both registrations, and because of several overlapping requirements, the M&O contractor obtained both registrations in Fiscal Year 2008 with a savings of man-hours and subcontracting costs.”
- “For 2008, used project management methodology to plan integration of E.O. 13423 into the EMS.”
- “Adopting the title of ‘Sustainable [Laboratory]’ helps to overcome some of the institutional resistance to another ‘management system’ that was seen early in implementation. ‘ Sustainable [Laboratory]’ articles featuring sustainable environmental practices are included in the employee ES&H Newsletter.”
- “Becoming an Energy Star Partner helped to raise awareness of environmental management issues with employees and demonstrate management commitment to sustainable environmental stewardship.”
- “By providing a better understanding of EMS intent to plant contract technical representatives and by relating the reason and basis for the environmental requirements, the Technical Representatives better understand why the environmental requirements have been made part of the contract.”
- “Continued development of good communications with regulators and local community.”
- “EMS terminology does not stick at the general employee level, other terms such as ‘sustainability’ do much better.”

- “If the agency is relying on a management contract to integrate the facility's EMS with other activity-based contracts, it is important that the management contract be the first contract implemented.”
- “Information is shared across projects.”
- “Monthly meetings with the EMS Senior Management Team Lead and quarterly meetings with the EMS Senior Management Team provides an avenue to effectively communicate environmental status to upper management.”
- “Need to communicate EMS improvements or changes to all employees prior to implementation so employees are aware of reasons for changes.”
- “Opportunities to develop working relationships with other environmental personnel, (e.g., state-sponsored trade fairs, EPA activities, Energy Facility Contractors Group (EFCOG) conference calls and meetings, Environmental Management Systems Assistance Network (EMSAN) conference calls and meetings) have provided excellent learning activities and stimulate ideas for use at home facility.”
- “Publishing a site-wide Environmental Newsletter increases visibility and understanding of environmental programs including compliance, EMS goals, and personnel responsibilities.”
- “Project planning must include regulatory compliance personnel at the beginning stages.”
- “Sharing audit resources with other facilities adds value to both auditor and auditee.”
- “Communication of EMS/ISO 14001 and continued communication throughout the implementation.”
- “DOE needs to consider a contracting strategy for EMS on large DOE facilities where there are multiple DOE Program Offices, multiple contracts, multiple long-term leases and other federal agencies with co-management authorities.”
- “LEED Certification project for the main office building has led to increased employee and management awareness.”
- “Each organization must establish a culture that should promote routine critical self-assessment that focuses on taking action to improve workforce safety and eliminate unnecessary controls that hinder productive work.”
- “Importance of following audit findings to complete closure.”

- “Importance of maintaining documents for audits.”
- “Routine tracking and trending of noncompliance/nonconformance identified via internal/external assessments, walk downs, and inspections.”
- “A root-cause analysis was performed and as a result, several improvements to the compliance program are ongoing, including those that will clarify requirements, improve communication across functions, and improve training.”
- “Self-assessment by line organizations of environmental performance will improve ownership.”
- “Changing compliance instructions 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.”
- “Closer correlation between various aspects and the site policy statement.”
- “Company work-control procedures require that "lessons learned" be evaluated, and where appropriate, implemented in new work activities.”
- “Completing documentation has been more challenging than anticipated.”
- “Contests to solicit EMS program improvement opportunities increase awareness, and participation by site personnel.”
- “Focus efforts on areas of greatest risk reduction.”
- “Importance of ensuring that corrective AND preventive actions are closed out.”
- “In Fiscal Year 2008, [the facility] established more formalized programs and procedures to make it easier for EMS program managers to keep track of their objectives and targets, review their progress, and update their programs accordingly.”
- “Increased focus on initial training programs for environmental qualifications has been required.”
- “Ongoing long-term projects must be evaluated for potential impact due to changes in regulatory requirements.”
- “Review purchase and usage data for Sulfur hexafluoride (SF6). SF6, used in two of our large circuit breakers as an electrical insulator, was identified to be leaking based on a review of top-off data. The review was completed as part of an EMP that included compiling an inventory of site-wide GHGs. SF6 is

inert, colorless, odorless, non-toxic, and not currently regulated by the EPA, but it is a powerful greenhouse gas (GHG). The global warming potential of SF₆, is approximately 24,000; put another way, one pound of SF₆ released into the atmosphere has the same impact as 12 tons of carbon dioxide (CO₂). One of the leaks was easily fixed by tightening connections, and the other may take additional maintenance actions to fully repair.”

- “Routinely completing EMS reviews, including reviewing the impact of updates of systems referred to within the EMS, provides a mechanism for keeping the EMS current and dynamic.”
- “Scheduling/conducting management reviews proving more challenging than anticipated.”
- “Success in energy and water conservation and beneficial landscaping improvements demonstrate sustainable practices in facility operations.”
- “Tailor EMS to site. Don't attempt to copy another site/organization's EMS.”
- “When implementing an EMS, use existing processes where possible.”
- “[The facility] sets pollution prevention goals on an annual basis. These goals are reviewed by Senior Management and incorporated into a controlled document. A report is compiled at the end of the year outlining the successes and failures with respect to these goals. Positive changes have occurred as a result of goal setting.”
- “Develop objectives and targets with a cross-functional team to ensure priorities are set in the right groups.”
- “Goals/objectives/targets are difficult to develop so that tracking and recordkeeping can be done realistically, accurately and without undue burden.”
- “Objectives, targets, and operational controls need to be owned by the line functions to assure the integration occurs at all levels of the organization.”
- “Need ability to track environmentally preferable products as purchased.”
- “Need to review environmentally preferable products program on a regular basis.”
- “Need ability to track materials being recycled.”
- “Annual EMS awareness training should contain information which directly relates to the employee's role, job function, and the facility in which they are located.”

- “Training that contains specific information promotes a greater understanding on EMS involvement and ownership of the program.”

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;
- Application to new technologies;
- Integration;
- Awareness;
- Management;
- Communication;
- Flowdown of requirements;
- Cultural change/mindset;
- Motivation/acceptance;
- Conflicting goals and requirements;
- Continual improvement;
- Infrastructure/location; and
- Other challenges.

Some of these comments follow.

- “[The laboratory] is really challenged with moving beyond basic environmental compliance with shrinking budgets and staff on the overhead side.”
- “Balancing time requirements of line ESH personnel.”
“Budget decreases make it difficult to implement the range of identified improvements.”
- “Declining budgets will make it very difficult to do everything that could be done to implement DOE Order 430.2B [which implements energy and fleet requirements] and improve the pollution prevention program.”
- “Developing an Implementation Plan for obtaining funding to implement DOE Order 450.1A.”
- “Due to budget limitations and increased work-loads caused by employee attrition, the agency's EMS program has been challenged to provide all necessary environmental training for environmental and field staff.”

- “Environmental budget competition with other plant mission activities.”
- “Identification of reputable recyclers.”
- “Learning how to help the Lab recognize EMS implementation as being "proactive" and not just an "extra load" on current resources.”
- “Managing limited resources to achieve maximum benefits.”
- “Many staff carry multiple ESH responsibilities that frequently conflict with each other for priority.”
- “The Laboratory is seeking ISO14001 certification by June 30, 2009. The challenge is to obtain the resources needed to educate, train, and prepare the staff for the auditor in the face of competing priorities for the development of the Laboratory Management System, ISO 9001 certification, and Integrated Safety Management audits and appraisals.”
- “Maintaining sustained corporate knowledge with staff turnovers.”
- “Implement the new controls on use and disposal of nanoscale materials.”
- “Application of EMS to new technologies (nanomaterials).”
- “Integration of EMS with the Laboratory’s existing ‘Sustainable Laboratory’ Program.”
- “Integrating a facility-wide EMS with a contractor-specific Integrated Environment, Safety and Health Management System without a management contractor.”
- “Integrating sustainable environmental practices into all appropriate site operations and subcontracts is an ongoing challenge.”
- “Integration of EMS activities across many contractors and subcontractors.”
- “Maintaining visibility of the EMS in light of increased emphasis in Conduct of Operations, Integrated Safety Management System, Voluntary Protection Program, and the Documented Safety Analysis and Technical Safety Review. The challenge is to effectively link the environment and EMS with these other emphasis areas.”
- “Making connection of EMS principles to day-to-day activities.”

- “Shift to proactive and life-cycle management focus practice (e.g., reduced chemical procurement) while enabling research.”
- “The incorporation of new DOE Orders 450.1A and 430.2B [which implements energy and fleet requirements] into the EMS documents.”
- “Maintaining a general awareness of EMS that is vigorous and current at all levels of the organization is a challenge, especially on projects where personnel turnover is high.”
- “Managing and communicating the large number of environmental requirements.”
- “Ensuring subcontractor performance of work in accordance with the site's EMS. To help overcome this challenge: All work performed by subcontractors at the site requires the submittal of detailed work documents. These proposed work instructions are reviewed by a representative from the Environmental Affairs department to ensure all regulatory requirements are met and that all principles of the site's EMS are followed.”
- “It is still a challenge to get widespread buy-in by all employees.”
- “Ensuring subcontractor’s ‘way of thinking’ about environmental safety culture is consistent with the site’s EMS. To help overcome this challenge: Improvement initiatives have been completed to enhance communication of the expectations for safety to subcontractors. The definition of "safety" on the site includes environmental protection, waste minimization, and pollution prevention. All individuals who bring subcontractors or vendors on site are required to attend a hazard recognition course. This course covers the basics of hazard recognition so that requisitioners could adequately communicate to the contractors they brought in, the importance of safety. Procedures provide measures to ensure that every subcontractor knows who they can contact on site for safety assistance. In addition, a member of the safety department has been assigned as the point of contact for all subcontractors and ensures that each subcontractor on site is briefed on the hazards of the work they are performing.”
- “Evolution of EMS from a Management & Operating contractor EMS to a [site EMS] that will include other DOE prime contractors.”
- “A traditional EMS strives to eliminate waste, while this [remediation] company's contract measures success by the amount of waste generated and hauled to a permitted disposal facility.”
- “Implementing a rigorous pollution prevention/waste minimization program in a remedial action/decontamination & demolition project environment where

some buildings are so deteriorated that all recyclable universal waste cannot be retrieved prior to demolition.”

- “The current transportation fleet is antiquated, and there are no plans to purchase more energy-efficient or alternative-fuel vehicles due to short term of contract.”
- “The necessity to use portable generators and heavy equipment to support Decommissioning and & Decontamination activities challenges fuel conservation.”
- “Continual reduction in energy usage per square foot with aging plant infrastructure.”
- “Implementing reductions to water consumption, with an aging plant infrastructure.”
- “Acquiring an outside audit of the EMS, as required by DOE Order 450.1A, will be a challenge for this coming year.”
- “Getting independent third-party verification.”
- “Integration of DOE Order 450.1A and DOE Order 430.2B [which implements energy and fleet requirements] reporting requirements.”
- “Coordinated EMSs and EMS reporting for large DOE facilities where there are multiple DOE Program Offices, multiple contracts, multiple long-term leases and other Federal Agencies with co-management authorities.”
- “The challenge of developing an easily understood format for the EMS has resulted in a relatively major overhaul of original EMS documentation.”
- Balancing the right level of EMS training is a challenge; clearly general environmental awareness is important to achieve throughout the facility. However, for competency-level training, it is important to really target the audience who will help make the most difference.”
- “Knowledge of environmental issues increases faster than knowledge of EMS systems.”
- “Determining proper scope/content of EMS training and documentation.”
- “Meeting the requirements of EO 13423 has been a challenge given the timing of issuance of orders, guidance documents, and normal budget cycles.”

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 were in 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; and
 - Improved employee performance, awareness and internal relations.

A sample of responses follows.

- “Continued deployment of environmental staff to projects where their integration into each phase of the work control process results in greater environmental awareness and avoidance of potential environmental non-compliances.”
- “EMS has allowed [the facility] to be proactive in reducing environmental risk rather than merely trying to remain compliant.”
- “An effective EMS lowers safety risks as well as environmental risks.”
- “EMS implementation increases cost effectiveness by empowering all in the organization to focus on continued improvement, environmental compliance, and pollution prevention when completing daily work.”
- “Reduced/mitigated risks of environmental incidents through better risk management/practices.”
- “Reduction of excess materials on the plant has led to improved general housekeeping of the facility.”

- “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.”
- “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.”
- “Through proper segregation techniques, the generation of radioactive/mixed waste has been reduced.”
- “Capture of environmental reports, papers, and documents in an Electronic Document Management System allows for easier, more systematic document retention and retrieval, which facilitates maintaining and demonstrating environmental compliance.”
- “The EMS provides a mechanism for responding to changing environmental conditions and promoting continuous improvement.”
- “Acknowledgement of EMS activities fosters a positive working relationship with regulatory inspectors, permit writers, and the local community.”
- “The EMS has provided a standard and agreed-upon mechanism that informs senior management of mission-related environmental program status, progress, and potential problems. This has been helpful as high-level issues arise during the year.”
- “The EMS benefits our Agency Mission by providing a better relationship with State regulators as shown by recognition by the [State] Commission on Environmental Quality as a GOLD level member of their ‘Clean [State] Program’.”
- “The facility provides two representatives to the [local] Earth Day Committee who plan and organize the [local] Earth Day Celebration. Last year, the event was attended by over 4000 people, 17,000 Newspapers In Education were distributed to area schools, and over 40,000 Newspapers In Education were included as inserts in the local newspaper.”
- “Improves confidence that facilities address specific requirements in a similar format.”
- “More disciplined work processes which results in more efficiency.”

- “The ability to reduce the number of NOVs/noncompliance and subsequent consequences has resulted in an increased level of awareness and compliance with environmental laws and regulations.”
- “Identification by the EMS of applicable and appropriate training requirements for specific work activities assures that work is performed by qualified personnel, resulting in improved regulatory compliance.”
- “Site operations remained in compliance with existing permits and applicable regulations governing use, emission, transportation, and disposal of solid, liquid, and gaseous materials and wastes.”
- “An effective EMS supports [contractor’s] mission to deliver environmentally responsible and cost-effective operational readiness (e.g. to receive, store, and draw down crude oil) to DOE.”
- “EMS has improved our ability to write performance-based contracts and measures for Management & Operation contracts.”
- “Through Integrated Safety Management System, [the Office] ensures that environmental management considerations are fundamental and integral components of DOE and contractor management.”
- “Better performance and fewer near-misses with contract work.”
- “Collaborative integration of sustainable environmental practices into [Laboratory] operations supports the Laboratory’s mission to develop an environmentally friendly global energy source.”
- “Cost reduction associated with duplication of environmental efforts.”
- “EMS has driven [the facility] to focus efforts on reuse/recycling to a much greater degree through the process of setting objectives and targets for improvement, and implementing strategies for meeting goals.”
- “EMS provides a mechanism/system and set of tools to move beyond environmental compliance and factor in agency goals related to E.O. 13423 and the Secretary’s Transformation Energy Action Management (TEAM) initiative.”
- “Tangible cost savings.”
- “Savings from conservation efforts that can be re-directed to plant mission.”
- “Integration of environmental planning into future missions, vision, and goals.”

- “The EMS has enabled the Pollution Prevention (P2) Program to be structured in a manner consistent with other mission-related internal EMS programs, as well as with P2 programs in other federal and private organizations.”
- “The EMS process mandates that goals consider high priority, compliance and mission-related issues. These goals therefore have been able to serve a practical and value-added service to the organizational mission.”
- “The EMS has helped the site initiate more sustainability projects and increase environmental awareness by continuously improving environmental performance.”